MATANUSKA-SUSITNA BOROUGH

Coastal Management Plan
Volume II
Point MacKenzie
Area Meriting Special Attention

Effective April 9, 2007

Citizens Advisory Committee

Matanuska-Susitna Borough Planning Commission

Matanuska-Susitna Borough Assembly

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1.0 CHAPTER ONE BACKGROUND

In 1984, the Matanuska-Susitna Borough (MSB) Coastal Management Plan (CMP) was adopted, and six areas were identified, at that time for consideration, as areas meriting special attention or AMSAs. The six areas were: 1) Susitna Flats State Game Refuge, 2) Goose Bay State Game Refuge, 3) Palmer Hay Flats State Game Refuge, 4) Knik/Matanuska River floodplain, 5) Nancy Lakes State Recreation Area, and 6) the Point MacKenzie Industrial Port/Park site. The MSB identified these six areas for future consideration as AMSAs in order to initiate appropriate planning at some future time as the need arose. The Point MacKenzie area, located directly across Cook Inlet from Anchorage and Eagle River, was the first AMSA selected for plan preparation. The plan was formally adopted May 28, 1993.

At the time of adoption, Alaska Statute (AS) 46.40.210(1) defined AMSAs as:

> *"A detailed geographic area within the coastal area which is sensitive to change or alteration and which, because of plans or commitments or because a claim on the resources within the area delineated would preclude subsequent use of the resources to a conflicting or incompatible use, warrants special management attention, or which, because of its value to the general public, should be identified for current or future planning, protection, or acquisition."*

The revised AS 46.40.210(1) definitions for AMSAs is basically the same. The designation of the Point MacKenzie area as an AMSA remains consistent with AS 46.40.210(1)(D) for "areas where development of facilities is dependent upon the utilization of, or access, to coastal waters." The area is ideal for development because it has access to deep water. There are MSB-owned lands and state-owned uplands nearby that can be used for port and industrial development, and the port at Point MacKenzie could easily be linked to Anchorage port and airport systems through a Knik Arm crossing.

1.1 LAND MANAGEMENT

The AMSA plan provides a management tool for resolving conflicts between port-related development of the area and other uses and values. The Borough continues to give high priority to the development of a deep-water port and related upland industrial uses, and infrastructure at the Point MacKenzie area. There is a strong desire for local influence over coastal resource management and for increased local control of the resolution of issues related to coastal resource development.

In the 1993 AMSA Plan, local control over development at the Port was a major issue. Implementation of the 1993 AMSA resulted in creation of the Port District in 1999, and preparation and adoption by ordinance of a Port Master Plan in 1999. The Port Master Plan describes the port site and facilities, potential uses and regulatory requirements, and includes a land use plan and operating plan. The Port Master Plan is currently being updated. The Borough has adopted Title 18 – Port and the purpose of the Port District is stated in MSB Code Ordinance, Chapter 18.01. In addition, the Borough has adopted Chapter 17.23 – Point MacKenzie Port Special Use District and the intent of this chapter is to implement the recommendations of the Port Master Plan.

Potential adverse impacts to coastal habitats could result from the development of land for industrial and urban facilities, and the establishment of transportation corridors and other utilities in the Point MacKenzie area. The probable and possible impacts of development activities include: alterations of

stream flow regimes, loss of vegetation along stream embankments, increased surface runoff, increased sedimentation, and pollution of stream beds, and loss of habitat with displacement of fish and wildlife species.

Land use conflicts between industrial development at the port and non-industrial uses of uplands may also occur. Improved access could potentially generate habitat management challenges, regarding seasonal and weekend visitor-industry demands in the surrounding areas. Improved access may result in increased sport fishing and hunting activities, which could in turn, potentially infringe on limited open space areas, including wetlands and lakes. Increased activity, industrial as well as recreational and even residential, may impact local fish and wildlife habitat, game refuges, and resources of the area. Development of industrial facilities and supporting infrastructure, new residential areas, and transportation corridors should be coordinated with uses such as trails, fishing, hunting, and other recreational activities.

Tools for resolving these potential conflicts are: to implement the recommendations of the Port Master Plan; incorporate adequate protection of coastal resources and habitats in transportation planning and development activities; identify sites suitable for development of major energy facilities in cooperation with the energy industry, the state, and the federal government; incorporate stipulations designed to minimize adverse social and environmental impacts from energy and industrial development, and incorporate into leases and permits; identify and locate primary utility transportation corridors; develop guidelines for the siting, design, and construction of development that adequately protect coastal resources and habitats; continue current management approaches for use of public lands in the AMSA, which promote appropriate recreational uses and activities that are compatible with, and preserve the biological and physical features of, the area that make it valuable for community recreation; evaluate opportunities for recreation in the western portion of the AMSA, and develop appropriate recreational facilities, including trails; coordinate with interested local groups to identify specific needs for recreation areas and facilities; where appropriate, incorporate mitigation opportunities for development siting, design, construction, and operation to minimize both short- and long-term impacts to coastal habitats; minimize clearing and other disturbance of vegetation during development; and cooperate with local and regional emergency planning agencies in the development of oil spill contingency plans and risk management plans.

These goals can be achieved by continuing the implementation of the Port Master Plan through local Borough ordinances; reserving the Port for water-dependent and water-related uses; and periodically updating the Port Master Plan.

1.2 PURPOSE OF THE AMSA AND DESIGNATED MAJOR ENERGY FACILITY AREA

The Point MacKenzie AMSA has been designated a Major Energy Facilities Area. This sub-designation is in keeping with the purposes of the underlying AMSA and is consistent with the Borough's goals for development at Point MacKenzie. Consultation with state agencies regarding this designation occurred concurrently with plan development – during the interagency workshops in Anchorage in November 2004 and 2005 and during the review of the public hearing draft.

The purpose for retaining the current designation of the Point MacKenzie area as an AMSA and defining it as a Major Energy Facility Area is:

1. To facilitate development of a port and associated infrastructure;
2. To facilitate development of the uplands for industrial, energy-related uses, commercial uses,

and transportation corridors;

3. To protect other important uses and values of the area, and minimize conflicts with port development; and
4. To plan for future development of the port district and wise use of its coastal resources.

1.3 APPLICABLE LAWS

Enforceable policies for an AMSA in effect on July 1, 2004, were presumed to satisfy the requirements of 11 Alaska Administrative Code (AAC) 114.270 (i) (1) and (3). Therefore, only the requirements of 11 AAC 114.270 (2) must be satisfied. 11 AAC 114.270(i) (1) through (3) requirements are described below:

> *Under Alaska statutes 11 AAC 114.270(i), the enforceable policies of the CMP must not address a matter regulated or authorized by state or federal law, unless the enforceable policies relate specifically to a matter of local concern. A matter of local concern is a specific coastal use or resource within a defined portion of the district's coastal zone that is:*
> *(1) Demonstrated as sensitive to development,*
> *(2) Not adequately addressed by state or federal law, and*
> (3) *Of unique concern to the coastal resource district as demonstrated by local usage or scientific evidence.*

The MSB may also designate an area within its coastal zone for the development of major energy facilities in accordance with 11 AAC 114.250 (e) Subject Uses, Activities, and Designations. For the area designated, enforceable policies have been written to be consistent with the definition of energy facilities found in 11 AAC 112.230.

1.4 PLAN ORGANIZATION

The Plan is divided into the following chapters and appendices:

Chapter One: Background and Plan Organization

Chapter Two: Boundary

Chapter Three: Issues, Goals, and Objectives

Chapter Four: Resource Inventory and Analysis

Chapter Five: Enforceable Policies

Chapter Six: Implementation

Appendix A Enforceable Policies

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Appendix C Abbreviations and Acronyms Used

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2.0 CHAPTER TWO BOUNDARY

2.1 BOUNDARY DESCRIPTION

The adopted 1993 Point MacKenzie AMSA area includes approximately 5,190 upland acres of MSB and University of Alaska lands. The legal description is presented below:

T14N, R4W, Seward Meridian:

1. Section 12: Wl/2 Wl/2 and fractional Section Lots 2 through 4;
2. Section 13: NW1/4 NW1/4, Wl/2 SW1/4 and fractional Section Lot 1;
3. Section 20: all;
4. Those portions of Sections 21, 22, and 23, T14N, 4W Seward Meridian, Alaska, lying south of the following described line:

   Commencing at a point on the east boundary of Section 23, T14N, R4W, Seward Meridian, Alaska from which the monument marking the corner common to Sections 23, 24, 25, and 26 bears S 0°11'56" E, a distance of 1,592.00 feet and from which the monument marking the quarter corner common to Sections 23 and 24 bears N 0°11'56" W, a distance of 1,046.61 feet, the Point of Beginning; Thence N 45°59'02" W across Section 23, a distance of 689.01 feet; Thence westerly 2,071.62 feet along the arc of a curve to the left with a radius of 1,762.95 feet and whose chord bears N 79°38'52" W, a distance of 1,954.47 feet; Thence S 66°41'49" W, a distance of 2,290.3i feet; Thence westerly 787.05 feet along the arc of a curve to the right with radius of 1,909.86 feet and whose chord bears S 78°29'39" W, a distance of 781.49 feet to a point on the boundary between Sections 22 and 23 from which the monument marking the corner common to Sections 22, 23, 26 and 27 bears S 0°11'9" E, a distance of 1,367.91 feet and the monument marking the quarter corner common to Sections 22 and 23 bears N 0°11'39" W, a distance of 1,275.58 feet; Thence continuing 1,029.49 feet along the arc of a curve to the right with radius of 1,909.86 feet and whose chord bears N 74°15'28" W, a distance of 1,017.07 feet across Section 22; Thence N 58°48'56" W, a distance of 1,449.77 feet; Thence westerly 825.82 feet along the arc of a curve to the left with radius of 1,432.39 feet and whose chord bears N 75°19'55" W, a distance of 814.43 feet; Thence S 88°09'06" W, a distance of 2,282.36 feet to a point on the boundary between Sections 21 and 22 from which the monument marking the quarter corner between Sections 21 and 22 bears N 0°09'27" W, a distance of 104.08 feet; Thence continuing S 88°09'06" W, a distance of 778.50 feet across Section 21; Thence northwesterly 1,582.53 feet along the arc of a curve to the right with radius of 1,432.39 feet and whose chord bears N 60°11'52" W, a distance of 1,503.26 feet; Thence N 28°32'49" W, a distance of 1,661.81 feet; Thence northwesterly 793.17 feet along the arc of a curve to the left with radius of 1,432.39 feet and whose chord bears N 44°24'38" W, a distance of 783.08 feet to a point on the boundary between Sections 16 and 21 from which the monument marking the corner common to Sections 16, 17, 20, and 21 bears S 89°52'59" W, a distance of 1,869.57 feet and the monument marking the quarter corner between Sections 16 and 21 bears N 89°52'59" E, a distance of 773.16 feet; Thence S 89°52'59" W, a distance of 1,869.57 feet to the corner common to Sections 16, 17, 20, and 21.

5. Section 24: NW1/4 NW1/4 NW1/4, Sl/2 NW1/4 NW1/4, SW1/4 NW1/4 and fractional Sections Lots 2 through 4;
6. Section 25: Fractional Section Lots 1 through 4;
7. Section 26: all;
8. Section 27: all;
9. Section 28: all;
10. Section 29: Nl/2, Nl/2 Sl/2, Sl/2 SE1/4;
11. Section 33: Nl/2 NE1/4;
12. Section 34: Nl/2 NW1/4, NE1/4, Nl/2 SE1/4; and
13. Section 35: Wl/2 NW1/4, Wl/2 NW1/4 SW1/4.

Areas of Knik Arm, Seward Meridian:

1. T14N, R4W, Section 25: all; and
2. T14N, R3W, Section 30: All lying northwesterly of the southeasterly boundary of the Matanuska-Susitna Borough boundary.

Excluded from the 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.

The statewide seaward coastal zone boundary is the outer limit of the United States territorial sea (15 CFR 923.32), which is the three-mile limit (43 CFR 3301.1).

2.2 DESIGNATION

The Point MacKenzie AMSA is a Designated Major Energy Facilities Area and the above-described legal description for the Designation applies. The uses and activities, and the physical, biological, and cultural assets of the coastal zone, warrant creation of this designation in accordance with 11 AAC 114. 250(c) and, within this Designation, the enforceable policies will apply.

2.3 PORT DISTRICT AND AMSA BOUNDARIES

Implementation of the 1993 AMSA resulted in creation of a Port District in 1999. The purpose of the Port District is described in MSB Code of Ordinances, Chapter 18.01.010. The Port District boundary was expanded in 2002 and now extends beyond the AMSA boundary. For purposes of coastal management planning, that portion of the Port District outside the Point MacKenzie AMSA is not subject to the AMSA/Designation provisions.

3.0 CHAPTER THREE ISSUES, GOALS, AND OBJECTIVES

3.1 INTRODUCTION

This chapter presents the issues, goals, and objectives for the AMSA Plan. Most of the following statements of issues, goals, and objectives were developed for the 1993 AMSA Plan, and continue to form the basis for the enforceable policies chapter. Previously adopted issue and goal statements have been retained and where necessary to comply with the current requirements of the ACMP, the statements have been reworded.

The 1993 AMSA Plan identified current and potential issues, which continue to be subjects or matters of local or regional concern to residents of the MSB. The issues described below are specific to the area within the AMSA and Designated Major Energy Facilities Area. The goals are statements of long-term results, conditions, or situations that the residents of the MSB wish to achieve. The goals are broad in nature and provide direction for the use of resources and actions by the federal, state, and local governments. The objectives are actions that can be taken towards achieving the goal.

The subject uses for which goals and objectives are presented in this chapter include:

- Coastal Development
- Coastal Access
- Energy Facilities
- Utility Routes and Facilities
- Transportation Facilities and Utilities
- Air and Water Quality
- Fish and Wildlife Habitat

Issues may overlap with concerns of other major planning efforts ongoing within the MSB such as state and federal agency resource planning and management efforts. Issues of concern and goals and objectives have been derived from the resource inventory and analysis, local planning efforts, and regional planning efforts.

There is a strong desire for local influence over coastal resource management and for increased local control of the resolution of issues related to coastal resource development. The following section describes the coastal management issues for the MSB.

3.2 COASTAL DEVELOPMENT

Issue 1: Local Control of Development at Port MacKenzie

In the 1993 AMSA Plan, local control over development at the Port was a major issue. Implementation of the 1993 AMSA resulted in creation of a Port District in 1999, and preparation and adoption by ordinance of a Port Master Plan in 1999. The Port Master Plan describes the port site and facilities, potential uses and regulatory requirements, and includes a land-use plan and operating plan. The purpose of the Port District as stated in MSB Code of Ordinances, Chapter 18.01.010 is presented below:

> "The Matanuska-Susitna Borough Port Commission, in order to develop and export the region's natural resources, generate employment opportunities within the MSB, attract capital investment by private enterprise, and promote importation/marshalling of bulk and/or project cargos, may develop, operate and maintain marine and industrial facilities of the port, encourage joint venture projects, and meet the demands of the economy."

While the 1993 goals for local control are mostly implemented through the creation of a Port District and adoption of a Port Master Plan, the issue of local control remains important when applying coastal management enforceable policies to future development proposals.

Goals

Goal 1 To retain local control over the planning and development process for Point MacKenzie while also coordinating with State and Federal agencies.

Goal 2 To use the AMSA/Designation Plan as a guide for development within the Port District.

Goal 3 To involve MSB residents in the decision making process for future development of the area.

Objectives

Objective A Continue to implement the Port Master Plan through local MSB ordinances.

Objective B Reserve the Port for water-dependent and water-related uses.

Objective C Periodically update the Port Master Plan.

Issue 2: Industrial and Commercial Development

Port and related industrial and commercial development requires land and infrastructure (sewer, water, solid waste, utilities, and access). The location and placement of development should be coordinated in phases that address the placement of roads, utilities, and water-dependent and water-related uses.

Goals

Goal 1 To manage the deep-water port and facilities at Point MacKenzie in a manner that supports transshipment industries, and positions the MSB to capitalize on future opportunities to serve as an intermodal transportation link for movement of people and goods.

Goal 2 To ensure that land suitability is evaluated prior to future industrial and commercial development.

Objectives

Objective A Establish policies that encourage port-related industrial uses and activities to be developed in an orderly, efficient, and cost-effective manner, preferably according to the approved Port Master Plan or other acceptable planned unit development mechanisms.

Objective B Establish site-specific design guidelines for industrial and commercial uses inside the Port District.

Objective C Maintain and enhance the intermodal transportation services provided at the Port, including providing needed land for infrastructure and energy-related industry and facilities.

Issue 3: Site Suitability

Land varies from moderately suitable to unsuitable wetland and bluff areas. Development proposals should be evaluated for site suitability so that economic benefits and physical impacts to the environment are balanced.

Goals

Goal 1 To ensure that site suitability is evaluated so that development can occur in an environmentally sound manner.

Goal 2 To ensure that filling of wetlands is limited to the minimum required to support development of port facilities.

Goal 3 To ensure that port-related development is set back from coastal bluffs.

Objectives

Objective A Develop and apply site selection criteria and sound engineering practices in order to avoid or minimize adverse impacts from development activities.

Objective B Incorporate appropriate design and engineering features into the location and design of access roads, and other development that cannot be located to avoid coastal bluffs.

Objective C Implement a process for coordinating development projects with the appropriate local, state, and federal agencies.

3.3 COASTAL ACCESS

Issue 1: Improved Access

Although located just across the Knik Arm from Anchorage, Point MacKenzie is distant from Anchorage by road. Road connections that do exist need improving in order to increase the utility of a port facility. The development of a railroad connection to the Alaska Railroad system is also crucial to full utilization of a port facility. The utility of the port to support energy-related facilities and operations, including the storage, treatment, processing, or transport or transfer energy-related products, depends on well-developed access. Improvements in access modes to the port will increase development potential.

Tremendous investment has been made in studying improved surface transportation at Point MacKenzie. Plans have been developed for infrastructure, including roads and utilities, in anticipation of future growth at Point MacKenzie. Specifically, there have been a number of more recent studies that examined access issues, including studies regarding ferry service, a railroad corridor connection, and a bridge. The Knik Arm Ferry Environmental Assessment (June 2003) describes a need for a "timely, practical, and affordable transportation link across Knik Arm" and includes discussion about ferry service between the MSB and Anchorage and the need for a marine terminus

and road connection at Point MacKenzie. The MSB Rail Corridor Access Study (June 2003) analyzed the level of surface transportation access necessary to allow for the movement of goods in and out of the MSB and the rest of Alaska. The Knik Arm Crossing project (on-going) is examining needs for improved regional transportation infrastructure and regional transportation connectivity, among other needs. All three transportation projects are linked and support the need to address development potential at Point MacKenzie.

In addition, if ports in southcentral Alaska develop on a regional basis, with ports specializing in different activities, rather than competing directly, access to the Anchorage port-airport transportation system may be desirable. The Knik Arm crossing and connection to the Point MacKenzie site continues to be considered an option.

Goals

Goal 1 To support the development of, or improvement to existing, intermodal surface transportation systems that serve the Port, including but not limited to road, marine, railroad, and pipeline modes.

Goal 2 To reserve construction material sites within the AMSA/Designated Major Energy Facility Area for construction of access.

Goal 3 To promote a cost-effective, convenient, well-integrated transportation system that provides safe, convenient, and environmentally sound access that links Point MacKenzie with the local community and the region.

Objectives

Objective A Implement the recommendations of the Port Master Plan.

Objective B Identify publicly owned construction material sites and reserve these sites as appropriate.

Objective C Support development projects that improve road, rail, and marine access to Point MacKenzie and the Port.

Issue 2: Waterfront Access

Prioritization of waterfront access is important because there is a limited amount of available shoreline accessible to deep water and accessible from uplands. Further, some waterfront is not suitable for water-dependent uses.

Goals

Goal 1 To give high priority to water-dependent facilities, such as port and related industrial uses that require access to deep water.

Goal 2 To accommodate water-related recreational activities along the waterfront in areas not needed for water-related or water-dependent port and industrial activities.

Goal 3 To provide the public with visual and physical access to the waterfront where practicable.

Objectives

Objective A Identify, describe, and map accessible and inaccessible waterfront properties.

Objective B Work with the State of Alaska, Municipality of Anchorage, and landowners to develop access improvements at Point MacKenzie.

Objective C Support efforts of the State of Alaska and local government to upgrade and maintain local road systems.

Objective D Incorporate adequate protection of coastal resources and habitats in transportation planning and development activities.

3.4 ENERGY FACILITIES

Issue 1: Potential Increase in Major Energy and Related Industrial Uses at the Port

The Point MacKenzie area currently serves as the MSB's major industrial area. Point MacKenzie will also serve as a potential location for major energy facilities and supporting infrastructure. As a deep-water port, it will be used to transfer, transport, import, or export energy resources and marketable products. It may be used for the storage of resources too. The definition of major energy facilities found in 11 AAC 112.990 (14)(A)(ii) and (iii) and 11 AAC 112.990 (14)(B) applies directly to the port.

Improved surface transportation access will enhance opportunities for the development of energy-related industries and support facilities. Facilities at Port MacKenzie are used for the transfer, and transport of energy resources or marketable products. There are lands available at the Port for use for manufacturing, production, or assembly of equipment, machinery, products, or devices involved in major energy facility activities. Shipments of coal, timber, gravel, and petroleum through Port MacKenzie are likely to occur.

Goals

Goal 1 Encourage development of major energy facilities that are conducted in a manner beneficial to area residents and the local economy.

Goal 2 Facilitate bulk fuel storage and natural gas service, if these uses are determined to be practicable.

Goal 3 Ensure safe transportation and storage of fuel and other hazardous substances at the Port.

Objectives

Objective A Identify sites suitable for development of major energy facilities in cooperation with the energy industry, the state, and the federal government.

Objective B Incorporate stipulations designed to minimize adverse social and environmental impacts from energy and industrial development, and incorporate into leases and permits.

Objective C Consolidate the location of waste disposal sites and facilities used and operated by industrial and energy producing entities.

Objective D Work with fuel shipment industry to prepare adequate oil spill contingency plans with in-region capability to respond quickly to spill events.

3.5 UTILITY ROUTES AND FACILITIES

Issue 1: Coordinate Utility Services and Facilities

The Development at Point MacKenzie requires utilities and other forms of public services such as electricity, water, sewer, solid waste, and natural gas services. Planning for utility routes and facilities should be coordinated with transportation routes and facilities to minimize impacts. It may also be necessary to provide for solid waste disposal on site, and special facilities may be needed to handle waste from ships calling on Port MacKenzie.

Goals

Goal 1 To ensure that primary utility corridors are able to adequately serve all projected uses while minimizing adverse impacts to the natural environment, established home sites, aesthetic views, and fish and wildlife habitats.

Goal 2 To ensure that reliable water supplies, sewage treatment systems, and solid waste disposal services and facilities are available to support development.

Goal 3 To ensure proper handling of waste and waste fuel from vessels calling at the port.

Goal 4 To ensure that on-site sewage and runoff from bulk commodity and fuel storage areas are properly treated.

Goal 5 To ensure that impacts to air quality from the on-site power generation and solid waste incineration is minimized.

Objectives

Objective A Identify and locate primary utility transportation corridors.

Objective B Support efforts to expand existing port facilities, including solid waste, water and sewer system improvements, both public and private, in order to provide adequate and dependable service and capacity for future growth.

Objective C Develop guidelines for the siting, design, and construction of development that adequately protect coastal resources and habitats.

Objective D Incorporate measures into port facility designs that properly handle waste and waste fuel from vessels calling at the port.

Objective E Annually review opportunities for capital funding for improvements and facilities that support industrial uses and activities at the port.

Issue 2: Avoid or Minimize EMR or Radio Frequency Interference (RFI) with Elmendorf Air Force Base Communications

The U.S. Air Force (Air Force) operates sensitive communication facilities at Elmendorf Air Force Base, across the Knik ARM of Cook Inlet from the AMSA. In fact, the proposed port site is located

just outside an antenna clear zone established for Air Force communication facilities. The Air Force has concerns that development and operation of a port facility could create electromagnetic interference (EMI) or RFI with Air Force communication facility operations. The Air Force has specifically listed concerns regarding type and use of power, motors, and other electrical equipment; non-buried power and communications lines; additional power to administrative offices and lighting; welding; industrial activity; and site preparation activity.

Goal

Goal 1 **To ensure that the MSB and the Air Force cooperate during planning for and development of port facilities at Point MacKenzie.**

Objective

Objective A Incorporate, to the extent practical, Air Force recommendations for port development, operations and facility siting that could be implemented to avoid, or minimize EMI and RFI potential impacts on communication facilities at Elmendorf Air Force Base.

3.6 RECREATION

Issue 1: Potential for Increase in Recreational Use

The Susitna Flats and the Goose Bay State Game Refuges, Cook Inlet, and the lakes, rivers, streams, and woodlands in or close to Point MacKenzie are a potential attraction for recreational activities by local residents and regional visitors. General recreation use of the area is likely to increase over time, particularly as access to the area is improved. Improved access to the area may provide opportunities for increased recreation use.

Goals

Goal 1 **To minimize adverse effects of development on recreation activities.**

Goal 2 **To ensure that in planning for development, the potential for providing public recreational sites and facilities in the western portion of the AMSA, for both visitors and MSB residents, is fully evaluated.**

Goal 3 **To manage and retain those parts essentially undeveloped and relatively primitive in nature, in order to provide for recreational uses and activities.**

Objectives

Objective A Continue current management approaches for use of public lands in the AMSA, which promote appropriate recreational uses and activities that are compatible with, and preserve the biological and physical features of, the area that make it valuable for community recreation.

Objective B Evaluate opportunities for recreation in the western portion of the AMSA, and develop appropriate recreational facilities, including trails.

Objective C Coordinate with interested local groups to identify specific needs for recreation areas and facilities.

3.7 FISH AND WILDLIFE HABITATS

Issue 1: Important Fish and Wildlife Habitat

The area is an important fish and wildlife habitat, and includes the Susitna Flats and Goose Bay State Game Refuges. Habitats include wetland areas in the western half, and wooded uplands scattered throughout. While not as significant in value as the previously mentioned game refuges, the area is used by resident and migratory fish and wildlife species.

Goals

Goal 1 **To ensure that adverse impacts to coastal habitats resulting from industrial development and associated infrastructure is minimized.**

Goal 2 **To ensure the loss of important wetland habitat is avoided, minimized, or mitigated when siting and designing facilities.**

Goal 3 **To ensure that appropriate open space will be maintained between development and identified and established wildlife areas.**

Objectives

Objective A Where appropriate, incorporate mitigation opportunities for development siting, design, construction, and operation to minimize both short- and long-term impacts to coastal habitats.

Objective B Minimize clearing and other disturbance of vegetation during development.

3.8 AIR AND WATER QUALITY

Issue 1: Deterioration in Air Quality

Deterioration in air quality has been an occasional problem because certain activities have the potential to adversely affect air quality on and off site. These include: particulates from coal and wood chip storage and unpaved roads, emissions from vessels calling at the port, and vapors from bulk fuel storage facilities. Baseline information on pre-construction air quality characteristics is desirable, and proper measures should be taken to minimize air quality impacts.

Goals

Goal 1 **To ensure that appropriate measures will be employed to minimize particulate pollution (dust) from roads.**

Goal 2 **To ensure that appropriate measures will be employed to minimize pollution from fuel storage tanks, the storage of coal and other bulk commodities, and from vessels using the port facility.**

Objectives

Objective A Support dust-control programs for unpaved roads.

Objective B Support paving of community roads where appropriate.

Issue 2: Deterioration in Water Quality and Quantity

The demand on local streams, rivers, and lakes for a water supply for development within the AMSA could exceed critical levels to support anadromous fish populations and other functions and uses of water resources. Water quality is susceptible to deterioration from improper construction of transportation facilities, upland facilities, and from untreated runoff from fuel tanks, coal storage, and storage of other bulk commodities. An accidental spill from storage or vessels using the port facility could also have an adverse effect on water quality.

Goals

Goal 1 **To ensure measures will be incorporated during construction of roads, railroads, and upland facilities to maintain adequate drainage, properly placed culverts, and to avoid siltations and other adverse effects on water quality.**

Goal 2 **To ensure that the port will develop, or require of users, in cooperation with the resource agencies, appropriate oil spill contingency plans for fuel storage and vessels using the port.**

Objectives

Objective A Cooperate with local and regional emergency planning agencies in the development oil spill contingency plans and risk management plans.

Objective B Support local and state government efforts to improve waste oil and boat sewage handling and disposal services.

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4.0 CHAPTER FOUR RESOURCE INVENTORY AND ANALYSIS

4.1 INTRODUCTION

This chapter provides an overview of the physical, biological, and cultural features of the AMSA/Designated Major Energy Facility Area. Much of the information is taken from the 1993 AMSA Plan, the 1999 Port Master Plan, and other more current planning documents for the area, including the recent studies completed for the design and preliminary engineering for ferry facilities, deep draft dock, natural gas line extension, communications, interim transportation (rail) connections, and a crossing connecting Point MacKenzie to the Port of Anchorage.

4.2 PHYSICAL FEATURES

4.2.1 Climate

Point MacKenzie is located in a transitional climatic zone, with temperature extremes and precipitation falling within the range of the coastal marine and the interior continental climatic regimes. The climate is characterized by light precipitation with mild winter temperatures, moderate to low snow depths, and dry summers. According to snowfall and wind data, snow and wind loads are typically low. Ground freezing occurs in the area from December through March, although depth of frozen ground is seldom greater than four feet under undisturbed conditions, as indicated by Anchorage soil temperature data.

As presented in the Table 4-1, air inversions are common in the wintertime, and may be a factor in air quality at the port site. Similarly, the combination of winds and unpaved roads and other gravel surfaces can contribute to air quality problems from dust and particulates.

4.2.2 Physical Oceanography of Cook Inlet

Cook Inlet is a coastal plain estuary of the Pacific Ocean. Upper Cook Inlet extends inward from the surrounding east and west forelands. The upper inlet is characteristically silt-laden, narrow, and shallow, with depths of less than 120 feet. At its head, the inlet separates into two appendages: Knik and Turnagain Arms. Knik Arm, an estuarine bay of Cook Inlet, extends approximately 45 nautical miles, reaching depths of 50 feet for half its length, and rising to form a broad mudflat. Extensive portions of Knik Arm are bare at low tide. Knik Arm and part of Cook Inlet form the only coastal periphery south of the AMSA/Designation.

Ice Conditions

The predominant ice movements in Knik Arm are the result of a tidal surge that flows south during ebb tide and streams back at velocities of four to six knots at flood tide. Typical ice floes in Knik Arm reach a thickness of approximately four feet by early winter and remain at this size for most of the ice season.

Most of the ice floes in Knik Arm have been formed by shore-fast ice, or ice that has accumulated on the periodically flooded mudflats. The larger 20 to 30 foot icebergs in Cook Inlet have been formed by an accumulation of ice layers deposited by freshwater stream drainages. Once the ice has formed

along the shore, tidal and current forces break blocks loose. These ice floes are then pushed free by the tides and transported into the main current channels.

The funnel shape of Knik Arm results in large tidal variations and currents that further break up the ice floes, advancing into Knik Arm. As ice floes are broken up during its transport up and down Knik Arm, they may vary in size between three and 15 feet in diameter. During lengthy cold periods, individual floes have occasionally frozen together and attained sizes as large as a 0.5-mile square and 4 feet thick. At maximum coverage, as much as 30 to 40 percent of the entire Cook Inlet may be covered by ice.

Floe ice is typically about 2.5 feet thick during the ice season. The main floe size for a 100-year recurrence period in the area is 3.5 feet thick. Much of the ice in Knik Arm contains silt, sand, and gravel from the tidal mudflats. When the ice surface melts, during exposure to sunlight, a surficial deposit remains and gives the ice floe a highly abrasive character. This abrasive quality and the forceful nature of ice floe movements may lead to a range of potentially hazardous situations, including extensive shoreline gouging and erosion, and damage to marine vessels and offshore structures. The effect that situations have on development, is to limit the amount and type of construction along the coastline and to require special design considerations for the structures that are built.

Sediment Transport

Strong currents with a tidal range of 20 to 30 feet drain the Knik Arm area twice daily, during more than 60 percent of the year. The Matanuska and Susitna rivers flowing into Knik Arm have originated from glaciers and transport substantial quantities of suspended sediment into the Knik Arm.

From April to September, when sediment loads are the heaviest, the total suspended sediment in the Matanuska and Susitna rivers is about 16 million tons. Turbulent waters and currents carry approximately 60 percent (10 million tons per year) of the sediment out of the Knik Arm basin, while the remaining 40 percent is deposited along the Knik-Matanuska river delta. As a result, Susitna River Flats and Palmer Flats at the head of the Knik Arm receive large deposits of sediment, and the surrounding shoreline and ocean floor are thickly layered with silt.

The distribution and character of sediment in Knik Arm and Upper Cook Inlet is largely the result of tidal currents, river flows, and ice rafting. Tidal currents disperse most of the sediment in the area, while ice rafting and rivers transport sediment throughout the forelands. River currents transport large quantities of gravel, and produce extensive sediment plumes in Cook Inlet.

4.2.3 Topography

The major topographic feature of the Point MacKenzie area is the Elmendorf Moraine, a glacially deposited landform. General topography of the area consists of hills and kettles, with a complexity of aggregated knobs and ridges that are interspersed with ponds and kettle lakes. Average elevations within the Elmendorf Moraine exceed 200 feet, reaching heights of nearly 340 feet, and depths within kettles and moraine margins. Knik Arm Bluff interrupts the moraine topography on the east, dropping as much as 204 feet to sea level with average bluff elevations in excess of 100 feet. The bluff area generally has steep bluffs in excess of 14 degrees slope (25 percent). A large alluvial fan deposit has accumulated at the outer margin of the terminal moraine.

A major ridge system occurs north, east, and west of Lake Lorraine in the southeast central portion of the AMSA. A portion of the ridge, reaching an elevation of over 300 feet, separates the eastern bluff

and upland from the interior upland and wetland areas south of Lake Lorraine. Another major topographical feature, characterized by ridges, hills, and a general westerly to southwesterly down sloping, occurs west and northwest of Lake Lorraine, Twin Lake, and Lost Lake, paralleling the eastern boundary of the agricultural project and bordering the Goose Bay State Game Refuge.

Table 4-1 Climatological Information for Point MacKenzie (Based on Anchorage and Wasilla Data)

Precipitation	Anchorage	Wasilla
Mean annual total (inches)	15 in.	19 in.
Mean Annual snow (inches)	66 in.	51 in.
Temperature		
Mean annual (°F)	35.8°F	--
Winter mean range (°F)	4-42°F	4-43°F
Summer mean range (°F)	44-66°F	43-69°F
Record High (°F)	86°F	90°F
Diurnal variation (°F)	15°F	--
Heating degree days (°F)	10, 911	--
Mean date first fall freeze	September 17	--
Mean date first spring freeze	May 12	--
Wind		
Prevailing direction and speed	(Direction)	(Knots)
Winter	North-Northeast	7-11
Summer	South	5-9
Annual average speed (knots)		5-8
Extreme speed (knots	North-Northeast	53
Fog		
January (days)	12.8	--
May (days)	0.3	--
Monthly (days)	4.0	--
Blowing snow and smoke or haze obscure vision (average of 0.1 days per month)		
Incident of Inversions		
January	72 percent	--
June	22 percent	--

Note: Anchorage and Wasilla are in the same climatological regime.

4.2.4 Geology, Mineral Resources, Soils, and Slope

Geology

The Point MacKenzie area is part of a geomorphic province located at the confluence of three primary southcentral Alaska valley systems: the Susitna River Valley, the Matanuska Valley, and Turnagain Arm. Three major mountain ranges surround the area: the Alaska Range to the west, the Talkeetna Range to the north, and the Chugach Range to the east. These mountain ranges are characteristically rugged and alpine, with numerous glaciated valleys and ice fields at their highest elevations.

Cook Inlet and its northernmost extension, Knik Arm, are located to the south and east of the Point MacKenzie area, respectively. Cook Inlet is one of the major marine inlets along the southcentral Alaska Coast of the Pacific Ocean. The inlet is located in a principal structural trough overlying tertiary rock formations and surrounded by Quaternary (glacial and recent) deposits of varying densities.

The existing Cook Inlet-Susitna lowland geomorphic province is the result of five major glacial periods, which, in order of occurrence, include Mount Susitna, Caribou Hills, Eklutna, Knik and Naptowne. The two earliest glacial periods (Mount Susitna and Caribou Hills) were also the most extensive glaciations, and originated as ice caps on the Chugach, Talkeetna, and Alaska Ranges. These ice flows advanced across the Matanuska-Susitna valleys and surrounded the Upper Cook Inlet Region to heights of 3,000 to 4,000 feet. Subsequent glaciations invaded much of the Cook Inlet Basin to produce the present topographic characteristics of the area.

Mineral Resources

Metallic mineral deposits have been identified throughout the MSB, including copper, gold, tin, platinum, and other metallic minerals. The principal non-metallic minerals existing in the MSB are coal and gravel. Significant coal deposits exist in the Broad Pass and Matanuska Coal Fields, which have been mined since the early 1900's. The Susitna-Beluga Coal Field is known to contain substantial potential reserves of coal; however, these deposits have not yet been mined.

Oil and gas leases occur throughout the Susitna River Basin, with heaviest concentrations found at the south basin along Upper Cook Inlet. The Point MacKenzie area apparently contains no known supplies of oil or natural gas; several test wells drilled in the area have turned out dry and have since been abandoned. However, there are proposed State oil and gas lease sales covering the area, and recent exploratory drilling has occurred in nearby parts of the MSB.

Soils

Point MacKenzie soils are primarily composed of firm and moderately firm glacial tills. The lowland soils consist of glacial drift and alluvial sediments interspersed with peat deposits. The Elmendorf Moraine is bordered on the east by a gradational contact with a rise of Naptowne outwash gravel, deposited by meltwater seepage from the Naptowne ice sheet. The terminal moraine has at least one alluvial fan deposit at its outer margin. Recently deposited fibrous peat bogs of sphagnum moss and sedge surround the outwash gravel apron along the lower eastern elevations. The peat deposits extend to depths of up to four feet.

Other Quaternary and recent soil deposits in the area include the Bootlegger Cove Clay Formation, which is exposed at the bluff section at the edge of the AMSA area, and the estuarine silts of the tidal flats underlying the bluff. The Bootlegger Cove Clay Formation extends to a maximum elevation of about 195 feet and is underlain by till of the Knik glaciation at approximately mean high water

(MHW) level. Clay depths range between 60 and 100 feet. The Knik Arm and upper Cook Inlet originate from glacial sources and are heavily inundated with sediments. The water floor and shorelines consist of thickly layered silt that is prone to varying degrees of erosion, due to large tidal fluctuations and associated currents.

Naptowne and Flathorn silt loam soils have been grouped as upland, moderate to well-drained soils. Slope conditions introduce erosion factors within each of these classifications, particularly on moderately steep and steep slopes. Competent, non-frost, susceptible materials for development could be supplied from private land to the north of the port site, or from public and/or private lands north of Big Lake.

Slopes

Slopes within the AMSA are subject to a minimum of erosion, surface slippage and blowing, depending on modifying conditions and human settlement impacts. Hilly to steep slopes in the Anchorage, Naptowne, and Flathorn soil classifications are subject to erosion and blowing, and require native vegetation, such as shrubs, ground cover or woodland, to remain stable. These slopes have potential for development determinants, defining edges and zones between non-compatible land use types, and between human settlement patterns and wildlife habitats. See discussion on "slope stability" under Natural Hazards.

4.2.5 Natural Hazards

The Point MacKenzie area lies within a highly active seismic zone that is responsible for approximately seven percent of the annual worldwide seismic activity. The plate tectonics of the area have created the potential for a range of natural hazards, including earthquakes, volcanism, and seismically generated slope failures. However, most of the unstable areas are located in Goose Bay or Susitna Flats, which are not within the AMSA boundaries.

Seismicity

Local seismicity occurs along the Benioff subduction zone, the margin of convergence between the North American continental plate, where it is underthrust by the Pacific oceanic-plate along the Aleutian Trench. Several major faults cross the coastal district, including the Border Range, Bruin Bay, Castle Mountain, and Eagle River. All of these faults strike northeast and are part of an extensive arcuate fault system, that includes the Denali and Fairweather faults east of the MSB boundaries. The only active fault is the Castle Mountain Fault. Active faults are those along which displacement has occurred within the last 100,000 years. The other active fault in the near vicinity, the McKinley Strand of the Denali Fault, is located outside the MSB coastal zone boundary and the AMSA boundary.

Volcano Activity

The closest active volcano is Mount Spurr, the most northerly in a chain of 24 active volcanoes, which extend along the Alaska Peninsula. Mount Spurr is located approximately 55 miles from Point MacKenzie. The volcano originates from the subducting plate underlying the region and produces characteristically explosive eruptions due to an andesitic composition.

Slope Stability

The sea bluffs in the Point MacKenzie area, that are generally considered to be unstable and particularly susceptible to failure under earthquake loading are those with steep slopes, high elevations, exposed deposits of Bootlegger Cove Clay, with evidence of relatively active erosion.

Attention to slope stability is especially crucial to the development of an industrial port/park complex in the Point MacKenzie area, because of the impact on the long-term stability of facilities and the cost of remedial slope stabilization techniques.

Two large rotational landslides, located approximately one mile northeast of the Sleeper Landing Strip are the only major slope failures associated with the 1964 Alaska earthquake. Both slides occurred in the Bootlegger Cove Clay deposit and surged out onto the tidal mudflat in broad earthflow lobes. The larger of the two slides encompassed 700 feet of the bluff line, extending approximately 200 feet headward into the bluff. The slide advanced approximately 600 feet out onto the mudflat. Additional slope failure is predicted as wave and current action erode bluff material and remove the buttress effect of the slump material at the base of the two slides.

Seismic Impacts on Bluff Stability

The frequent seismic activity of the Knik Arm has affected the overall slope stability of the Point MacKenzie area, especially along the sea bluffs, where thick deposits of Bootlegger Cove Clay are present. This potentially incompetent clay formation is the most significant sediment in the area with respect to slope stability and foundation conditions. The sea bluffs along the Knik Arm shoreline are retreating as a result of vigorous coastal erosion from wave and current action. Frost heaving and meltwater-related erosion have rendered the bluff line highly susceptible to extensive gullying, minor landslides, and slumping. Sloughing is particularly present in the Bootlegger Cove Clay outcroppings, while generalized instability in the bluff area has resulted from the removal of slump debris by waves and currents.

Other Natural Hazards

Most of the flood hazard potential in the AMSA is attributed to stream overflow and local drainage problems. The AMSA has historically experienced a low- to low-average occurrence of flooding and most communities have low flood hazard ratings. Goose Creek will be recognized as a potential flood hazard. The Susitna River west of the AMSA is another potential flood zone. Otherwise, there are no significant flood hazards within the AMSA.

4.2.6 Water Resources

Surface Water

The two primary surface water sources are the Susitna River and Goose Creek. The Susitna River is located approximately 15 miles west of Point MacKenzie, and Goose Creek is located about 10 miles to the north. Average discharges recorded from streams in the area indicate that adequate surface water supply is available for low- to moderate-sized developments. Maximum discharge occurs from May to September when rainfall, glacial melt, and snowmelt are the greatest. Maximum-recorded discharge is 1,200 cubic feet per second.

Groundwater

Potential groundwater sources are considered to exist in the glacial deposits underlying area. The groundwater flows from shallow 50 to 150-foot deep wells near Goose Bay, and at various sites to the north ranges between 10 to 50 gallons per minute (gpm), with some yields in excess of 100 gpm. According to data obtained from wildcat petroleum wells drilled in the Point MacKenzie area, denser deposits of water-bearing sand and gravel exist at 500 and 1,000-foot depths.

The best potential groundwater sources may be the glacial and alluvial sand, and gravel beds of the Little Susitna floodplain. Yields from existing wells in the floodplain frequently reach 30 gpm, with deeper wells yielding volumes as high as 100 gpm.

The groundwater of the Point MacKenzie area is characterized as a calcium bicarbonate type with high iron content. Groundwater quality data obtained from a 187-foot deep well at Goose Bay, indicates dissolved solids contents of 125 parts per million (ppm), pH of 8.1, hardness of 110 ppm, silica of 13 ppm, and iron contents of 0.5 ppm.

4.3 BIOLOGICAL FEATURES

4.3.1 Coastal Habitats

The eight coastal habitats identified by the ACMP include:

- Offshore areas
- Wetlands and tideflats
- Barrier islands and lagoons
- Rivers, streams and lakes
- Estuaries
- Rocky islands and seacliffs
- Exposed high-energy coasts
- Important habitats

Not all of these coastal habitats are present in the AMSA/Designation. Therefore, some of these classifications have been modified or combined to conform to the specific attributes found in the ASMA/Designation. For example, three classifications (barrier islands and lagoons, rocky islands and seacliffs, and exposed high-energy coasts) do not exist as coastal habitats found in the AMSA. These classifications have been replaced by the vegetated bluffs classification, which was specifically identified for the AMSA. The offshore areas and the estuaries classifications have been combined under a single classification (offshore and estuarine areas) because the two habitats are coexistent within the AMSA.

Wetlands and Tideflats

Wetlands are defined as areas that are saturated or submerged by surface or groundwater with sufficient duration and frequency to support plant and animal species adapted to life in saturated soil conditions. Swamps, salt and freshwater marshes, forested bogs, treeless bogs, muskegs, moist and wet tundra, and wet riparian corridors are included under this general description.

The Palustrine System is defined as all non-tidal wetlands, dominated by trees, shrubs, persistent emergent, emergent mosses or lichens, and all such wetlands that occur in tidal areas, where salinity, due to ocean-derived salts, is 0.5 percent. Also included are non-vegetated wetlands having: 1) area less than eight hectares or 70 acres, (2) active wave-formed or bedrock shoreline features are absent, 3) water depth in the deepest part of basin less than two meters at low water, and 4) salinity due to ocean-derived salts less than 0.5 percent. Traditionally, this wetland system group includes vegetated wetlands and ponds.

Tideflats are unvegetated areas that are alternately flooded and exposed by the rising and falling of the tide. The coastal areas surrounding Point MacKenzie contain extensive tideflats that provide critical wildlife habitat, and have been designated as state game refuges. The Susitna Flats State Game Refuge, consists of 301,950 acres of land designated for the protection of waterfowl and large game habitat. The Goose Bay State Game Refuge encompasses 13,262 acres of land, including tideland regulated to protect waterfowl habitat.

Currently, most human activity in the wetlands and tideflats habitat, in the AMSA area, is limited to the hunting and trapping of game with sightseeing a minor, but developing activity. Homesteads and recreational cabins occur on private lands within wetland areas, and adjacent to major tideland refuge areas outside the AMSA/Designation.

Vegetated Bluffs

As explained previously, this coastal habitat classification replaces the three classifications of the ACMP that are not present in the AMSA (i.e., rocky island and seacliff, barrier island and lagoon, and exposed high energy coasts).

Vegetated bluffs refer to high coastal banks of 25- to 300-foot elevations with vegetated slopes that are located in muddy intertidal zones. The shoreline surrounding the Point MacKenzie area, from south of Goose Bay to the Susitna Flats State Game Reserve, falls into this classification. These bluffs are subject to erosion, ice gouging, and slippage due to seismic activity, particularly with the presence of Bootlegger Cove Clay, an incompetent clay formation. Evidence of bluff slippage due to seismic activity, resulting from the 1964 earthquake is found northeast of Point MacKenzie.

Future intense development activity along, and in proximity to, the bluff areas with incompetent clay soils and steep slopes, could present hazards to human safety, as well as precipitate additional slippage.

Offshore and Estuarine Areas

An estuary is defined as a partially enclosed coastal water body, having a free connection to the sea, within which seawater becomes considerably diluted with freshwater, originating from land drainages. Offshore areas are those marine and submerged lands, extending seaward of the coastline to the outer edge of the continental shelf. All of the offshore habitats are considered estuarine. Consequently, the combined offshore and estuarine habitat classifications comprise all waters and submerged lands extending from mean lower low water (MLLW) to the offshore limits.

Human activities are currently limited to fishing, recreation, and mining within the offshore and estuarine habitats. A small commercial fishery is located offshore of the Susitna Flats State Game Reserve to the west of Point MacKenzie, and a second short-term fishery occurs at Fish Creek to the north. This fishery consists of gillnet sites that are fished between late June and mid-August. Most of the commercial salmon fishing occurs in central Cook Inlet and does not directly impact the Point MacKenzie environment. Commercial harvesting is managed by the Alaska Department of Fish and Game (ADF&G) through controlled salmon escapement periods.

Rivers, Streams and Lakes

All freshwater bodies in the AMSA are included in this coastal habitat. Freshwater systems are essential links between terrestrial and marine environments because they provide permanent habitat to vegetation and wildlife, and serve as anadromous fish spawning areas and migratory corridors.

The freshwater systems do not include the southern extension of the Little Susitna River, Goose Creek, and Mule Creek. The Little Susitna River is located 10 miles to the north, and Mule Creek is about six miles to the north.

Most human activity within the rivers, streams, and lakes habitat is limited to recreational activities such as boating, sportfishing and similar pursuits. Land around Lost Lake and Twin Lakes has been subdivided, with some seasonal dwellings. Many freshwater lakes are concentrated within the central

portion of the AMSA/Designation, and represent a recreational demand area. Rivers, streams, and lakes also represent a source of freshwater for human activities.

Important Habitats

The areas upland from the MHW level, with the exception of the wetlands and freshwater systems, provide habitat for plants and wildlife and, through the support of forest vegetation, protect watersheds and soils from excessive runoff, erosion, winds, and avalanches. However, these habitats are not designated important habitats as defined by 11 AAC 114.250 Subject Uses, Activities and Designations.

The vegetation common to the dry upland habitat includes willow thickets, cottonwood stands, mature white spruce stands, mixed forests such as cottonwood/spruce/birch and cottonwood/willow/alder, and agricultural land. Upland habitats are frequently interspersed with freshwater systems and poorly drained wetlands. The activities occurring in the wetland and the river, stream, and lake habitats often extend to the upland habitats, which may preclude clear distinctions in appropriate uses for the three coastal habitats.

The upland habitats within or near the Point MacKenzie area include the areas providing significant wildlife habitat such as the Little Susitna River, portions of the state game refuges to the north and west of the AMSA boundary, and wildlife routes connecting these upland habitats.

Vegetative Cover

The vegetative cover consists of: wetlands with Palustrine scrub-shrub and forested needle-leafed evergreen; tidal plains with poorly-drained muskegs, small spruce, and other low-growing shrubs and swamp grasses; and moderate to well-drained areas of mixed lowland forests with mature white spruce, paper birch, and black cottonwood. Forests of black spruce occur around muskeg borders.

The surface soils contain poorly drained fibrous peat that is prone to freezing in the winter. Many of the silty and wet sites are interspersed with older thickets and growths of devil's club or similar vegetation. The well-drained sites above the water table support an undergrowth of heather-like mat, with growths of woody and herbaceous plants and willows.

The Elmendorf Moraine supports vegetated bluffs reaching elevations of 200 feet at the head of Knik Arm. The vegetation to the north and east of Point MacKenzie is primarily composed of lowland spruce and hardwood forests. The area west of Point MacKenzie, including the Susitna River lowlands, consists of wet tundra with dominant growths of cottongrass and sedge.

4.3.2 Wildlife

The Susitna Flats Game Refuge is habitat for shorebirds, waterfowl, black bear and moose. The Goose Bay State Game Refuge is a critical waterfowl and shorebird habitat. The AMSA is located within a migratory bird corridor and as such, open water areas, both inland and along the coast, may provide significant migratory habitat for waterfowl, shorebirds, and raptors. Over 30 species of mammals and at least 75 species of birds may be found in the AMSA. The following discussion concentrates on only those species considered to be potential indicators of shifts in ecological interrelationships.

Based on information supplied by the U.S. Fish and Wildlife Service (USFWS) and ADF&G, species of wildlife present within the AMSA include: moose, brown bear, black bear, beaver, common loon, trumpeter swans, lesser Canada geese, mallards, spruce grouse, lesser sandhill crane, and yellowlegs.

Terrestrial Wildlife

Moose

Moose are year-round residents of the AMSA. During winter months, moose reach densities of two to four moose per square mile. The rapidly increasing attraction of the adjacent fallow agricultural land as winter moose habitat, is expected to promote much higher moose numbers. During late spring to early fall, moose disperse into the adjacent refuges leaving a summer density of one to two moose per square mile. The importance of the area for wintering moose exceeds that of an equal size area within the dominant black spruce bog habitat of the adjacent refuges.

Moose Habitat – Moose serve as a valuable evaluation species and are closely associated with upland shrub riparian zones, lowland bog climax communities, and several communities created by fire and glacial or fluvial action.

Bear

Black bear habitat is considered abundant on an eco-regional basis and black bears are common throughout the AMSA. Brown bears are also present in the area and can be a more serious problem than black bears. Livestock and pets are frequently major attractants. Proper fencing is necessary to prevent unnecessary conflicts.

Bear Habitat – Black bears are year-round residents of the AMSA, hibernating from October to May. During the remainder of the year, they frequent a variety of habitat types; however, there is a preference for mature forest types, especially those with devil's club and other berry producing shrubs. The AMSA encompasses preferred black bear habitat.

Beaver

Beaver play an important function in the ecosystem. They are also an important furbearer and are trapped (primarily on a recreational basis) in the area. Beaver modifications of habitat are beneficial to waterfowl and moose.

Beaver Habitat – Beaver are dependent on both aquatic and riparian habitats, particularly black cottonwood, willow thicket, and black spruce riparian habitats.

Birds

Except for bald eagles, all of the following avian species are part-time residents – most occurring in the region from April to October.

Spruce Grouse

Spruce grouse are valued for recreational hunting.

Spruce Grouse Habitat Type – Spruce grouse use medium to open density spruce-birch stands for nesting sites.

Lesser Sandhill Crane

Sandhill Cranes nest in many bogs adjacent to the AMSA. Both refuges commonly have nesting Sandhill Cranes.

Lesser Sandhill Crane Habitat Type – Upland, open bogs greater than 10 acres in size are potentially used by cranes for nesting or feeding. These wetland types can be found adjacent to and within the AMSA.

Yellowlegs

Yellowlegs are valued for viewing and photographing. They serve as an indicator for wetland habitats.

Yellowlegs Habitat Type – Yellowlegs nest in depressions on the ground in timbered muskeg and lightly wooded areas. They require proximity to lakes, ponds, and tidal flats for food.

Bald Eagles and Peregrine Falcons

Moderate numbers of bald eagles nest in the coastal areas and lower Susitna River Valley, and frequent coastal bluffs during the non-breeding season. The bald eagle is protected by the Eagle Protection Act. Activities specifically prohibited by this act include the possession or "taking" of bald or golden eagles, nests, eggs, or parts thereof. Taking is defined as to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. Peregrine falcons also occupy habitat in the coastal areas and use the Susitna River as a migratory route.

Waterfowl

Trumpeter Swan

ADF&G estimates that the overall Cook Inlet population of trumpeter swans is expanding.

Trumpeter Swan Habitat Type – Lake areas, wetlands and ponds with minimal human disturbance.

Lesser Canada Geese

Lesser Canada geese are present in the Cook Inlet area and are valued for recreational viewing as well as hunting.

Lesser Canada Geese Habitat Type – Coastal marshes are used for nesting, and large lake systems provide seclusion for molting.

Common Loon

Habitats for common loons are abundant throughout the area. Loons are an excellent evaluation species for wilderness quality, requiring a minimum of disruption from human activities. Loons are valued by birdwatchers, hikers, and photographers.

Loon Habitat Type – Loons require deep-water lakes for escape diving with surfaces large enough to take flight. Lakes with numerous islands are preferred for protected nesting sites. Loons are valuable monitors of lake and spruce bog habitats subject to heavy development pressures.

Mallards and Pintail

These waterfowl are highly valued for hunting and viewing with substantial pressure being placed on the supply by hunters.

Mallard and Pintail Habitat Type – Mallards breed in low densities in forest and tundra wetland habitats. Nesting sites are at the edge of sloughs, lakes and reservoirs. Pintails select open areas for nesting where vegetation is either low or sparse.

Other Birds

The small lakes in the AMSA and the nearness of wetland refuges make the AMSA potentially important waterfowl habitat – because, in larger waterfowl species, major vegetation alterations could result in attraction of waterfowl. Nearness to migration routes and important nesting habitat mean that open water, polluted or clean, will attract waterfowl. Open settling ponds for harmful pollutants should not be allowed.

These habitat types are not attractive to swans and geese. However, the AMSA is situated in one of the major coastal migration routes. Alteration of habitat types to more open, grassy vegetation could attract use by geese and pose conflicts or benefit waterfowl, depending on development type and planning.

4.3.3 Marine and Aquatic Habitats

Although there are no major concentrations of marine mammals in the near vicinity, Beluga whales and harbor seals have been identified near the Point MacKenzie shoreline and both species are sometimes found many miles upriver in the Little Susitna and Susitna Rivers. Beluga whales and harbor seals are protected under the Marine Mammal Protection Act.

The floor and shoreline areas of upper Cook Inlet and Knik Arm supply only marginal productivity for plankton and other benthic organisms. In combination with conditions of high turbidity, this has led to extremely low concentrations of local fish and marine invertebrate populations. However, Cook Inlet is part of a major migratory corridor for anadromous fish, providing habitat to all five species of Alaskan salmon. ADF&G classifies the Susitna River as a Major Anadromous Fishery Stream. The Little Susitna River provides important salmon habitat for king, coho, sockeye, pink and chum. In addition, the river supports several sport fish species such as Dolly Varden, whitefish, rainbow trout, and grayling. Goose Creek supports populations of coho salmon. The Little Susitna River may experience fishing pressures similar to the Kenai and Russian Rivers.

According to the National Oceanic and Atmospheric Administration, all of Cook Inlet is designated Essential Fish Habitat (EFH) for both juvenile and adult life stages of Pacific cod, walleye Pollock, and sculpins (2005 EIS Port of Anchorage Marine Terminal Redevelopment). All streams, lakes, and ponds, wetlands, and other waterbodies that currently support or historically supported anadromous fish species are considered freshwater EFH. Marine EFH for salmon fisheries in Alaska include all estuarine and marine areas used by Pacific salmon of Alaska origin, extending from the influence of tidewater and tidally submerged habitats to the limits of the U.S. Exclusive Economic Zone. EFH is defined as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” [16 USC 1802(10)].

The main fish habitat locations include:

- Chinook salmon: Little Susitna River
- Coho salmon: lateral tributaries and lakes throughout the area
- Sockeye salmon: Fish Creek

- Rainbow trout: Little Susitna River
- Dolly Varden: Little Susitna River

Most of the commercial salmon fishing occurs in central Cook Inlet and does not directly impact the Point MacKenzie environment, although, a short-term fishing opening occurs at Fish Creek to the north. The salmon fishery is managed by ADF&G through the controlled escapement of salmon.

4.4 AIR QUALITY

The Upper Cook Inlet Coastal Region is subject to temperature inversions during the winter months when frigid air currents flow from the surrounding mountain valleys, and settle in the lower Anchorage area. Winter temperature inversions occur in Anchorage approximately 50 percent of the time between October and February, and as much as 72 percent of the time in January. Summer inversions are milder and less frequent with occurrences of only 22 percent of the time during June.

The stagnant air masses, resulting from temperature inversions, lead to a build-up of ground-level air pollutants. Under the Municipality of Anchorage's Air Resource Program, the City has been continuously monitoring the ambient levels of carbon monoxide, particulates, sulphur dioxide, nitrogen dioxide, and radiation for the past several years. Data indicates that the Anchorage area suffers from periodically high levels of carbon monoxide and particulates. Carbon monoxide is closely tied to fossil fuel combustion, primarily from operation of motor vehicles.

Currently, the major problem with air quality is the high total suspended particulate (TSP) levels measured at certain sampling locations. Common contributing sources to high TSP levels are automobiles, industrial fuels, dusty roads, and building and construction activities. Burning activities also contribute to air quality problems.

4.5 SOCIOECONOMIC ASSESSMENT

4.5.1 Population

According to the Alaska Department of Labor (ADOL), almost 10 percent of the state's population, or 63,475, live in the MSB (ADOL, 2003). Of that number, 18 percent live in the incorporated cities of Palmer, Wasilla, and Houston. Population concentrations include Palmer, Wasilla, the area between Palmer and Wasilla (the Core Area), Big Lake, Butte, Point MacKenzie, Skwentna, and Susitna. Nine out of ten MSB residents live along the road system between Willow and Sutton, in or adjacent to the communities of Palmer, Wasilla, and Houston. Since 1970, the population in the MSB has been growing faster than the rest of the state. Between 1990 and 2000, the state's population grew 18 percent, Anchorage's population grew 21 percent, and in contrast, the MSB's population increased by 70 percent. The 1990 U.S. Census population estimate for the MSB was 39,683. The 2000 U.S. Census population estimate for the MSB was 59,322.

The MSB recently completed a Draft Long Range Transportation Plan (LRTP, 2005) describing demographic and economic data for the period 1990-2000 with projections to 2025. Table 4-1 below describes population projections according to the LRTP. For the 2025 projection, several assumptions were made regarding economic growth that would affect population projections, including population projections with and without the Knik Arm Crossing.

Table 4-1 Population Data and Projections – Matanuska-Susitna Borough

	Year		
	1990	2000	2025
Matanuska-Susitna Borough	39,683	59,322	161,870[1] / 173,505[2]

[1] Without Knik Arm Crossing

[2] With Knik Arm Crossing

Source: Instituted of Social and Economic Research, University of Alaska Anchorage (MSB Long Range Transportation Plan, Draft 2005)

Upon reviewing the 2000 U.S. Census and the distribution of population in the MSB, it appears that roughly 25 percent of the census area population is located within the MSB coastal zone. Table 4-3 summarizes population estimates by census area within the MSB coastal zone.

Table 4-3 Population Estimates Within the MSB Coastal Zone, U.S. Census 2000

Census Area	Population
Meadow Lakes	4,819
Big Lake	2,635
Lakes	6,706
Chickaloon	213
Knik-Fairview	7,049
Total Estimate	15,422

4.5.2 Economy

The economy in the MSB was originally influenced by the agricultural and mining industries. Although the MSB is the largest agricultural producing area in the state, its proximity to Anchorage has heavily influenced area growth. It is estimated that approximately 30 percent of the MSB population commutes to Anchorage, and 10 percent of the Anchorage work force consists of MSB residents.

Employment

Employment growth in the MSB has grown at a faster pace than the rest of Alaska and the nation. The major contributor to this growth rate is the Service Sector, which includes retail services. Between 1970 and 2000, services and professional jobs accounted for 12,838 of newly created 18,936 jobs. Government jobs accounted for 2,872 new jobs. The largest employment sector in 1970, and again in 2000, was in the Services and Professional, and Government Sectors. This information can be found in Table 4-4, which describes overall MSB employment by industry.

Table 4-4 Matanuska-Susitna Borough Employment by Industry

Industry Category	Number Employed
Agriculture, Forestry, Fishing & Hunting, Mining	126
Construction	1,318
Manufacturing	149
Wholesale Trade	156
Retail Trade	3,396
Transportation, Warehousing, & Utilities	874
Finance, Insurance, Real Estate, Rental & Leasing	312
Services	3,364
Other	3
Government	3,140

Source: 2003 MSB Fact Book and State of Alaska, Department of Labor, Research and Analysis

While the Services and Professional Sector increased from 43 percent, in 1970 to, 65 percent in 2000, the Government sector decreased from 27 percent, in 1970, to 16 percent in 2000 (Sonoran Report, 2002).

Most of the new businesses established in the MSB between 1990 and 2000, have been small, with fewer than 20 employees. The largest growth has been in firms of one to four employees for a total of 401 new businesses. The major employers are construction (318), followed by retail trade (210), and accommodation, and food services (146) (Sonoran Report, 2002). This data does not account for self-employed businesses so the numbers of new businesses established may be on the low side. Table 4-5 describes the 2002 labor force (employed and unemployed).

Table 4-5 Matanuska-Susitna Borough Labor Force (2002)

Category	Number
Labor Force	32,417
Employment	29,465
Unemployment	2,408
Unemployment rate	7.8%

Source: 2003 MSB Fact Book and State of Alaska, Department of Labor, Research and Analysis

Natural Resources Economy

Gravel reserves are the most important current mineral export. The bulk of the gravel is transported to Anchorage. Ongoing construction activities in Anchorage and the limited local resources have served to increase yearly demand for gravel. Natural gas is being produced on a severely limited exploratory basis, but may be expanded in the future. Mining activities are negligible with no sizeable ore mining operations. Timber operations have declined in the MSB over the past 20 years. However, according

to the Matanuska-Susitna Comprehensive Economic Development Strategy (CEDS, 2000), opportunities for value-added wood products industries continued to be explored.

Commercial Forestry

The Matanuska and Susitna Valleys contain one of the three largest remaining interior forests in Alaska. Although timber production has not developed into a major industry in the MSB, there continues to be development potential. According to the Port Master Plan (1999), timber and related forest products represent one of the most significant resource development potentials in southcentral Alaska. Estimates of timber reserves are projected at over four million cubic feet of timber in the Interior Region and over six million cubic feet in southcentral Alaska. There are four general forms of timber under consideration for use of the port area and facilities: round logs for local sawmills or export, and wood chips for export. Primary manufacturing would occur in the form of plywood or other products, and firewood. Most of the forested sections of the Point MacKenzie area are classified as lowland spruce-hardwood forest. There are no commercially valuable forestlands currently identified in the area. The MSB is working to overcome the number of constraints, including high operations costs, lack of infrastructure, and poor access to timberlands, in support of commercial forestry.

Transshipment Economy

In addition, Point MacKenzie has the potential to serve as an alternative container terminal due to land availability constraints at the Port of Anchorage. The deep-water dock extension at the port will permit large volume vessels to dock and rail access and high-speed conveyor systems will allow firms to access and deliver wood chips to the port from elsewhere along the railbelt (MSB Rail Corridor Study, 2003). Continued improvements in infrastructure at Point MacKenzie could facilitate development of other industrial and transportation/transshipment operations. Road and rail improvements, and the potential for a crossing of Knik Arm, will make industrial operations and Point MacKenzie more cost-effective.

4.6 ARCHAEOLOGICAL RESOURCES AND HISTORICAL RESOURCES

The MSB Division of Cultural Resources, between October 1986 and September 1987, conducted a cultural survey of the area. The results of that survey were included in a report to the State Office of History and Archaeology entitled, "*A Survey of Sites on the West Side of Knik Arm, MSB Survey Phase III B*" submitted by the MSB, Division of Cultural Resources on September 30, 1987. Although no sites were identified within the boundaries of the AMSA at the time of the 1986 and 1987 surveys, some sites were identified in the proximity.

In 2003, an additional archaeological survey was conducted at the proposed Port MacKenzie wood chip facility. The project area is a 17.73-acre parcel (Government Lot 4, Section 25, Township 14 North, Range 4 West, Seward Meridian) near the entrance to Knik Arm, directly across from the Port of Anchorage. The survey results indicate the location of a Dena'ina winter house and some smaller cache pits.

Those seeking more information or details from this survey should contact the Cultural Resources Division of the MSB Planning and Land Use Department at 350 East Dahlia, Palmer, Alaska, 99645.

4.7 RECREATIONAL RESOURCES

A range of outdoor recreation opportunities exist in the Point MacKenzie area, including boating, fishing, hunting, and wintertime sports such as snowmachine racing, skiing, and dog mushing. Other popular outdoor pursuits include sightseeing and waterfront recreation activities.

The Point MacKenzie area is well known for its views of surrounding mountain ranges. The Chugach Mountains stretch to the east, Mount Susitna is located to the west, and Mount McKinley and the Alaska Range rise to the northwest. With the relatively flat terrain of the area, uninterrupted vistas of the surrounding scenic beauty are frequently possible from roadways and ridges.

Additional sightseeing opportunities are possible within the range of the expansive tidal marsh surrounding Cook Inlet and Point MacKenzie. These wetlands provide spring and autumn habitat for a variety of waterfowl and shorebird species, including ducks, geese, swans, and cranes. Outstanding bird-watching opportunities are possible during the nesting and feeding seasons of the fall and spring. Recreational boating opportunities exist on the many lakes in the Point MacKenzie area. Recreational opportunities in the area include wildlife observation and hunting. At off-migration periods, duck hunting is possible in the tidal areas surrounding Point MacKenzie and Cook Inlet, while moose hunting is available in the Susitna River Valley. Wildlife observation is possible at the major wildlife habitats found at the Goose Bay State Game Refuge to the north, and the Susitna River Flats State Game Refuge to the east of Point MacKenzie.

4.8 TRANSPORTATION AND UTILITIES

4.8.1 Transportation

Point MacKenzie is accessible by land, water, and air modes of transportation. Although most of the land and marine travel near Point MacKenzie is currently limited at present, development potential exists for diverse means of transportation to the area.

The Port of Anchorage lies directly across Knik Arm from Point MacKenzie. Major aviation facilities and services are available at the Anchorage International Airport, and at Merrill Field for smaller private aircraft. The port is also within close range of major links to the Southcentral Alaska highway system. The principal modes of transportation, and the associated facilities and services of each, are discussed in the following sections as they relate to area.

According to the 1999 Port Master Plan, Point MacKenzie port facilities will fulfill a combination of general functions: supporting export or import of specific resources or commodities, supporting the construction and operation of development projects and facilities, or acting as a general cargo port. Growth in area population, combined with port expansion and access opportunities, could provide support for general cargo use of the port.

Marine Transportation

Port MacKenzie consists of a 500-foot bulkhead (850 feet out from shore), and 8,000 acres (12.5 square miles) of adjacent uplands that are available for commercial lease. The face of the dock has 20 feet of water at MLLW and about 48 feet at mean higher high water (MHHW). The surface of the dock is at elevation +36 feet MLLW. There is also a filter rock ramp adjacent to the north wingwall that is useable from two hours before high tide until two hours after high tide for vessels with ramps. This allows port for heavy equipment to be driven on/off the dock. The dock has a gravel surface with a load capacity of 1,000 pounds per square foot (lbs./sq.ft.).

While only a small portion will be within the AMSA, successful port development will require development of road and rail connections. A rail connection will be required to ship coal and other bulk commodities such as timber and gravel. Existing roads will require significant improvements. The MSB completed a study in 2003. The 2003 Rail Corridor Study focused on an economic update and analysis, physical suitability, cost-benefit analysis, permit requirements, selected plans, and financing, of a rail corridor connecting the port with the Parks Highway near Houston.

The MSB and Municipality of Anchorage continue to collaborate on developing a water transportation link between Point MacKenzie and the Port of Anchorage. There have been environmental studies and assessments regarding developing a ferry system, with associated landings at both ports, including a marine terminal.

Road Transportation

The AMSA is linked to the rest of the MSB via the Knik-Goose Bay Road and Point MacKenzie Road. Knik-Goose Bay Road is a paved, two-lane facility with 4-foot shoulders. Knik-Goose Bay Road operates under a 55 miles per hour (mph) rural speed limit, with frequent driveways, side road intersections, and passing restrictions. The route is a total of approximately 22 highway miles, extending northeasterly where it connects to the Parks Highway and the Alaska Railroad in Wasilla (MSB Rail Corridor Study, 2003). The Point MacKenzie Road connects the Knik-Goose Bay Road to tidewater.

Rail Transportation

The Point MacKenzie site is currently not served by rail; the nearest segment of the railroad lies about 22 miles to the northeast near Houston. A rail connection will be required to make the shipment of coal and other bulk commodities, such as gravel and wood chips, possible and would also support the use of the facility as a general cargo port. The 2003 MSB Rail Corridor Study recommends a rail and road connection to the Port. The recommended rail corridor crosses the Little Susitna River and continues north, crossing Willow Creek west of the Parks Highway. The road alternative recommended is an upgrade and/or realignment of existing MSB roadways. It follows the Point MacKenzie Road, connects with Burma Road, then follows South Big Lake Road, and eventually connects to the Parks Highway near Big Lake.

Air Transportation

Air transportation provides one of the major forms of access to the Point MacKenzie area, and a number of airstrips for small passenger aircraft are located nearby. A private 1,600-foot dirt airstrip, referred to as Sleeper Strip, is located near the southeast shore at Knik Arm. There is one state-owned airstrip, a 3,000-foot gravel runway, located near Goose Bay to the northwest. Other landing areas in the Point MacKenzie vicinity include cleared land on homesteads for small private aircraft operations, and the nearby lakes such as Lost Lake and Twin Lakes, that are used for landing ski planes and float planes.

4.8.2 Utilities

Although the Point MacKenzie area currently lacks the full range of public utilities and services that are currently available in the rest of the region, many of these will be made available to Point MacKenzie users in the future.

Electricity

A good supply of readily available, inexpensive electrical power is currently available. Chugach Electric Association (CEA) has a natural gas-fueled power station located nearby at Beluga, and supplies power for the entire Upper Cook Inlet area. A CEA substation and three of the power station's transmission lines pass through the Point MacKenzie area. A Matanuska Electric Association (MEA) substation is located at Settler's Bay, with the ability to supply power for future industrial development. In addition, there is a project to extend a 3-phase electrical transmission line approximately eleven miles from the intersection of Point MacKenzie Road and Holstein Avenue to the existing dock. The first 8.5 miles of lines will be above ground. The last 2.5 miles will be buried within the Port District.

Natural Gas

Gas supply could be provided to the AMSA by the pipeline that ENSTAR Natural Gas Company has recently completed to Wasilla, Palmer, and the Point MacKenzie Agricultural Project.

Water and Sewer

No water or sewer services currently exist in the area. These services would be provided by public and/or private sources.

Schools and Emergency Services

School and ambulance emergency services would be provided by the MSB. The local service area would be responsible for providing fire service.

Communications

Point MacKenzie is located within the reception area of Anchorage's numerous communication facilities, including two newspapers, 10 radio stations, and four television stations. Three local newspapers also serve the MSB. The AMSA is also located within the Matanuska Telephone Association service area.

4.9 LAND OWNERSHIP AND MANAGEMENT

The MSB is responsible for the planning and zoning of lands within the MSB corporate boundary, including the Point MacKenzie area and the smaller Port District area. Land use and development activities are also subject to review and approval of the MSB Port Commission, under the requirements of Title 18 of MSB Code. Land use development and permits is also regulated under Title 17.23 Point MacKenzie Port Special Land Use District and are subject to review by the Borough Manager. The legislation governing land holdings in the Point MacKenzie area is discussed in the following sections.

State Land Status

The University and the State of Alaska have acquired federal public domain lands through several federal land grants, including the Act of 1915 (Public Law [P.L.] 330), the Act of 1929 (P.L. 679), the Alaska Statehood Act of 1959 (P.L. 85-508), and the Submerged Lands Act of 1953 (P.L. 85-303 and 508). The University of Alaska owns approximately 380 acres of uplands within the AMSA. University lands are part of a trust and are managed by the University's Statewide Office of Land Management for the long-term financial benefit of the University. The State of Alaska owns the tidelands within the AMSA.

MSB Land Status

Upon its incorporation in 1964, the MSB received selection rights to 10 percent of the vacant, unappropriated, unreserved State lands within the MSB's boundaries. Except for a few school sites and administrative facilities, all MSB lands are from State acquisitions. The MSB land entitlement has since been limited to a maximum of 355,210 acres of State land through the Municipal Land Entitlement Act of 1978 (Alaska Statute (AS) 29.18.201-.213). MSB lands are categorized by whether they are selected lands, tentative-approved lands, and patented lands. Lands are categorized as tentative approved when they lack patent documentation for technical reasons.

4.10 RESOURCE ANALYSIS

4.10.1 Wetlands and Habitat Values

Although only limited numbers of waterfowl use the area as a nesting habitat, wetlands bordering Point MacKenzie area support substantial waterbird concentrations during migration seasons. Development of residential areas, support facilities, and new transportation routes may place additional recreational and developmental pressures on the resources and habitat of the area, as well as those of the adjacent State Game Refuges, including the Susitna Flats, Palmer Hay Flats, and Goose Bay. However, the relatively small size of the AMSA, and its distance from the refuges may limit this potential impact. The Susitna Flats State Game Refuge, to the west, is adequately buffered from the Point MacKenzie project site.

Industrial wastewater effluent could potentially have an adverse impact on the fisheries resources of the area. However, the Point MacKenzie site has a number of location advantages to reduce these impacts. Knik Arm and Upper Cook Inlet have the greatest tidal ranges and velocities in Cook Inlet, with 70 percent of freshwater discharge supplied by the Susitna, Knik, and Matanuska rivers. Adverse impacts to the fishery are currently minimized due to the dispersion and diffusion of pollutants by these high tidal current velocities and freshwater inflow levels.

The soils in the AMSA vary from well or moderately drained uplands to scrub and emergent-forest wetlands. Because industrial activities will be located on the adjacent uplands, conflicts may occur between port access corridors, related wildlife staging areas, and wetland areas. The wetlands serve primarily as habitat for waterfowl and moose.

Field studies of East Port uplands undertaken in September 1990 (Dwight, 1990), reported that most of the area for the initial phase of development is not wetlands.

> *"The widespread presence of birch in the project area indicates that, despite the soil classification, wetlands vegetation is not predominant" (Page 4 of report).*

Port industrial development may have the economic, technical, and physical resources to modify lands unsuitable for that development, particularly in those areas where wetlands are more prevalent.

4.10.2 Fish and Wildlife

As discussed earlier in the Resource Inventory, the lakes, streams, and rivers support a wide variety of both anadromous fish and resident fish. Moose are considered abundant on an eco-regional basis. They are the most important big game species in Alaska. Both resident and non-resident hunters are important economic factors in the state's economy. Moose also provide an increasing source of recreational viewing value for photographers and hikers. Moose also pose a significant public safety

hazard along roadways and areas of human use. Conflicts between moose and highway vehicles frequently cause significant auto damage, frequent human injury, and occasional human fatalities (primarily on roadways with over a 50 mph speed limit). Moose stressed by severe winter conditions also pose a threat to humans that approach them. High wintering densities can be expected to concentrate on roadways, railroad beds, and any areas cleared of potentially deep snows. Proper fencing and lighting of roadways and major human use areas have proven to reduce these conflicts.

The small lakes in the Point MacKenzie area and the nearness of wetland refuges, make it attractive habitat for waterfowl – major vegetation alterations can actually result in the attraction of waterfowl. Nearness to migration routes and important nesting habitat also mean that open waters, polluted or clean, will attract waterfowl. Open settling ponds for harmful pollutants should not be allowed. These habitat types are not attractive to swans and geese. Alteration of habitat types to more open, grassy vegetation could attract use by geese and pose conflicts or benefit waterfowl, depending on development type and planning.

Loss of habitat for fish and wildlife could occur with improved coastal access and transportation corridor development. However, project adjustments and mitigation measures could be developed to reduce the impact. In addition, state requirements for crossing anadromous fish streams and consultation with the NOAA for impacts to Essential Fish Habitat would have to occur with all development proposals. Permit stipulations would likely be added to prevent adverse impacts to fish habitat during construction and operation.

4.10.3 Soils, Slope Stability, and Natural Hazards

Although clay exposed at the lower bluff is prone to some instability, the clay does not extend below sea level, and grading and drainage of the site to mitigate bluff instability will be a fairly easy and inexpensive procedure. Site-specific soils data is available from soil surveys of the area prepared by the U.S. Department of Agriculture & Natural Resources Conservation Service (NRCS), "*Susitna Valley Area, Alaska" and "Matanuska Valley Area, Alaska*" (USDA, 1968). According to existing information, drainage and foundation-bearing capacity of soils in the Point MacKenzie area is suitable for industrial development.

Slopes in the area may be subject to a minimum of erosion, surface slippage, and blowing depending on modifying conditions and human settlement impacts. Hilly to steep slopes in the Anchorage, Naptowne, and Flathorn soil classifications are subject to erosion and blowing, and require native vegetation, such as shrubs, ground cover or woodland, to remain stable. These slopes have potential for development determinants, defining edges and zones between non-compatible land-use types, and between human settlement patterns and wildlife habitats. Previous studies have indicated that adequately stable slopes to support development activity exist in the Point MacKenzie area. Competent slopes may be found in places where bluff elevations are relatively low or where Bootlegger Cove Clay deposits are thin or absent. In addition, the NRCS analyses indicate that there are about 11,000 acres of land with moderate to high capability for residential development within the Point MacKenzie area. Attention to slope stability is especially crucial to the development of an industrial port/park complex in the Point MacKenzie, because of the impact on the long-term stability of facilities and the cost of remedial slope stabilization techniques.

4.10.4 Air and Water Quality

Air quality impacts within the AMSA depend upon the intensity and type of development that occurs. Procedures would need to be implemented to measure air quality and control emissions that may pose a health hazard. Air pollution can occur from a variety of port-related activities, involving combustion

of fossil fuels, storage of petroleum products, surface disturbing activities, and unpaved road and storage area surfaces. Sources of air pollution include vessels calling at the port, trains, heavy equipment operation, emissions from product storage facilities, and dust from traffic, construction activities, gravel extraction, and wind-induced erosion. The type and quantity of emissions produced, depends on the function of the facilities or emission sources, the type of fuel combustion, the type of pollution control equipment in use, ambient air conditions at the site, and local meteorological conditions.

The existing climate data indicates that climate will not place a constraint upon industrial development at Point MacKenzie. Conditions providing adequate ground access will be possible for most of the year. Based on existing data, the minimum structural design suggested for the Point MacKenzie area would need to be capable of supporting a snow load of approximately 40 ppsf and a wind load of approximately 40 ppsf.

Surface water resources include non-glacial rivers, small perennial streams, and numerous small lakes and ponds. Groundwater resources in the Knik Road and Goose Bay region ranges between 120-150 deep (MSB Rail Corridor Study, 2003). Existing deep hole ground hydrology for the area is limited. Additional development drilling may be required to determine water supply capabilities for supporting industrial activities. Water pollution could occur from a variety of port-related activities including:

- Accidental discharge of oil and other petroleum products, both onshore and offshore;
- Runoff from areas where petroleum products have been stored or transferred;
- Discharge of bilge water, ballast water, and other untreated effluent from vessels calling at the port;
- Untreated drainage from uplands sites used for storage of coal, wood chips, and other bulk commodities;
- Siltation and sedimentation where erosion or runoff from construction and other surface disturbance activities are not controlled and treated; and
- Discharge of sewage from onshore port-related facilities.

Sensitive environments for water pollution include ponds, lakes, wetlands, and anadromous fish streams, and the fish and wildlife that utilize those habitat types. Most water pollution can be avoided through oil spill prevention and contingency measures, collecting and treating runoff from bulk storage sites, installing storm drains and appropriate treatment measures, using erosion and sedimentation control measures, proper sewage treatment, and selecting appropriate sites for port-related activities.

4.10.5 Land Use

Potentially adverse impacts to coastal habitats could result from the development of land for industrial and urban facilities, and the establishment of transportation corridors and other utilities in the Point MacKenzie area. The probable and possible impacts of development activities include: alterations of stream flow regimes, loss of vegetation along stream embankments, increased surface runoff, increased sedimentation, and pollution of stream beds, and loss of habitat with displacement of fish and wildlife species.

Land use conflicts between industrial development at the port and non-industrial uses of uplands may also occur. Improved access could potentially generate habitat management challenges, regarding

seasonal and weekend visitor-industry demands in the surrounding areas. Improved access may result in increased sportfishing and hunting activities, which could in turn, potentially infringe on limited open space areas, including wetlands and lakes. Increased activity, industrial as well as recreational and even residential, may impact local fish and wildlife habitat, game refuges, and resources of the area. Development of industrial facilities and supporting infrastructure, new residential areas, and transportation corridors should be coordinated with uses such as trails, fishing, hunting, and other recreational activities.

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5.0 CHAPTER FIVE ENFORCEABLE POLICIES

Enforceable policies, applicable within the AMSA/Designation are described in this chapter. Refer to the legal description of the AMSA/Designation boundary in Chapter Three. Refer to Volume III, CMP Maps, for a map of the Designation.

5.1 AMSA AND DESIGNATED MAJOR ENERGY FACILITY AREA

The lands of waters within the existing AMSA, as defined in Chapter Three, Boundary, are included in a Designated Major Energy Facility Area. The AMSA/Designation provides the MSB with a tool for addressing uses and activities that may have a direct and significant impact on the physical, biological, and cultural features. Included within the Designated Major Energy Facility Area is a sub-designation for Alaska Heritage Resource Survey (AHRS) sites, per 11 AAC 114.250 (i).

A designation for the purposes of coastal management does not imply that all areas within the designated area are in public ownership, or used solely for energy purposes. Rather, the Designation encompasses actively used areas and those areas that have the potential to be used.

> ***11 AAC 114.250. Subject uses, activities, and designations. (e)*** *A district shall consider and may designate, in cooperation with the state, sites suitable for the development of major energy facilities. (Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)*
>
> *and*
>
> ***11 AAC 114.250 Subject uses, activities, and designations. (i)*** *A district shall consider and may designate areas of the coast that are important to the study, understanding, or illustration of national, state, or local history or prehistory. (Eff. 7/1/04, Register 170; am 10/29/2004,Register 172)*

The definition of major energy facilities found in 11 AAC 112.990 (14)(A)(ii) and (iii) and 11 AAC 112.990 (14)(B) applies within the Designation.

5.2 APPLICABILITY

The Point MacKenzie AMSA is designated as a Major Energy Facility Area, and as such, is deemed suitable for energy facilities and supporting infrastructure in accordance with 11 AAC 112.230 and 11 AAC 114.150(e). The enforceable policies contained in this chapter apply within the AMSA/Designated Major Energy Facility Area only. See Volume I, MSB CMP for enforceable policies outside the AMSA.

For AMSAs, the "matter of local concern" test does not apply unless a proposed enforceable policy addresses a matter regulated or authorized by some other state or federal law not enumerated in the statewide standards. The following enforceable policies enacted are tied directly to the AMSA/Designation and provide more specific management measures for addressing uses or activities within the AMSA/Designation.

5.3 POINT MACKENZIE COASTAL DEVELOPMENT (PMCD)

5.3.1 State Standard

11 AAC 112.200 Coastal Development. *(a) In planning for and approving development in or adjacent to coastal waters, districts and state agencies shall manage coastal land and water uses in such a manner that those uses that are economically or physically dependent on a coastal location are given higher priority when compared to uses that do not economically or physically require a coastal location.*

(b) Districts and state agencies shall give, in the following order, priority to

(1) water-dependent uses and activities;

(2) water-related uses and activities;

(3) uses and activities that are neither water-dependent nor water-related for which there is no practicable inland alternative to meet the public need for the use or activity.

(c) The placement of structures and the discharge of dredged or fill material into coastal water must, at a minimum, comply with the state standards contained in 33 CFR Parts 320-323, revised as of July 1, 2003. (Eff. 7/1/04, Register 170)

11 AAC 112.220 Coastal Access. *Districts and state agencies shall ensure that projects maintain and, where appropriate, increase public access to, from, and along coastal water. (Eff. 7/1/04, Register 170)*

Enforceable Policies

PMCD1 To the extent practicable, the placement of structures in coastal water to accommodate ports, piers, docks, terminals, cargo handling, storage, parking, and other coastal facilities shall be designed and utilized to minimize the need for duplicate facilities. The evaluation of subsequent use of facilities for other than their original intent shall be required in the siting and design of such facilities.

PMCD2 The placement of structures and the discharge of dredged or fill material into coastal water including estuaries and tidelands, shall be located, designed, constructed, operated, and maintained to minimize adverse impacts to littoral processes of sediment erosion, deposition and transport.

5.4 POINT MACKENZIE SAND AND GRAVEL EXTRACTION (PMSG)

5.4.1 State Standard

11 AAC 112.260. Sand and gravel extraction. *Sand and gravel may be extracted from coastal waters, intertidal areas, barrier islands, and spits if there is no practicable alternative to coastal extraction that will meet the public need for the sand or gravel. (Eff. 7/1/2004, Register 170)*

5.4.2 Enforceable Policies

PMSG1 To the extent practicable, sources of sand and gravel shall be authorized for extraction from the following coastal sites in the following order of priority:

1. Existing approved gravel pits or quarries operated in compliance with state and federal authorizations;
2. Reuse of material from abandoned development, unless reuse could cause more environmental damage than non-use; and
3. New upland sites.

PMSG2 When conducting coastal sand and gravel extraction, to the extent practicable, overburden shall be saved and placed so as to conform to the natural topography as part of the rehabilitation process. Overburden shall not be disposed of in wetlands, or below the limit of MHW in intertidal areas and estuaries.

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6.0 CHAPTER SIX IMPLEMENTATION

6.1 INTRODUCTION

Implementation of the Point MacKenzie AMSA/Designation Plan is described in the following sections:

- Coastal Management Program Participant Duties and Responsibilities
- MSB Duties and Responsibilities
- General Coastal Consistency Information
- Coastal Consistency Review Process
- Federal Authority and Consistency Determination
- MSB Participation in State-coordinated Consistency Reviews
- Elevation and Appeals Process
- Planning for Major Projects
- Amendments and Revisions to the AMSA/Designation
- Monitoring and Enforcement
- Public Education and Outreach

6.2 COASTAL MANAGEMENT PROGRAM PARTICIPANT DUTIES AND RESPONSIBILITIES

The MSB is incorporated as a Second Class Borough and is eligible to be a coastal district in accordance with state law at AS 46.40.210(2)(B).

The Planning Director works with the MSB Planning Commission, which is an advisory body to the MSB Assembly, to implement the AMSA/Designation. The Planning Director regularly consults with the Planning Commission on matters related to implementation of the CMP. Consistency reviews are handled internally and do not go to the Planning Commission.

The point of contact for local consistency reviews, involving lands inside the MSA/Designation boundary is the Planning Director, who can be reached at:

Matanuska-Susitna Borough
350 East Dahlia Avenue
Palmer, Alaska 99645
Phone 907-745-9833
Fax 907-745-9876

6.3 MSB DUTIES AND RESPONSIBILITIES

6.3.1 MSB Planning Commission

The MSB Assembly has delegated local implementation of the AMSA/Designation to the Planning Commission and Planning Director. The MSB Planning and Land Use Department implements the

AMSA/Designation when issuing consistency comments. The Planning Commission normally delegates authority to make consistency comments to the CMP Coordinator, who acts under the authority of the Planning Director for the AMSA/Designation plan as well. In addition, the Planning Director has the following responsibilities:

- Monitor and assess consistency comments issued by the CMP Coordinator.
- Review the CMP every five years and amend, if required.
- Review, every year, whether the MSB is appropriately implementing the CMP.
- Submit every 10 years, the AMSA/Designation Plan to the Office of Project Management and Permitting (OPMP) for re-approval. The submittal shall include an evaluation of the CMP's effectiveness and implementation, a presentation of any new issues, and a recommendation for resolving any problems that have arisen.

6.3.2 MSB CMP Coordinator

The CMP Coordinator is a member of the Planning and Land Use Department staff and serves as a dedicated staff member to the Planning Commission. The CMP Coordinator is supervised by and is under the authority of the Planning Director. The CMP Coordinator may also receive oversight and direction from the Planning Commission.

The CMP Coordinator's daily responsibilities include:

- Helping applicants fill out the coastal project questionnaire, including an evaluation of the AMSA/Designation's enforceable policies, and the boundary determination. Educate them about the ACMP and the AMSA/Designation throughout the process;
- Ensuring that information has been received in a timely manner by the parties involved in the consistency review process;
- Determining if information received is complete and sufficient for a consistency review;
- Deciding which projects are routine and which projects have great significance and should be reviewed and discussed with the MSB Manager. Routine approvals will be processed by the CMP Coordinator;
- Evaluating uses and activities that require local, state, or federal permits or authorizations for consistency;
- Evaluating proposed projects against the enforceable policies of the AMSA/Designation;
- Accurately assessing the effect of applicable policies of the AMSA/Designation on the application;
- Managing project information to ensure that it reaches all affected persons and organizations;
- Drafting effective, concise, and comprehensive consistency determinations and recommendations, and producing evidence in support of the conclusions reached;
- Integrating feedback from local contacts and other interested parties into the MSB consistency recommendation;
- Coordinating consistency review activities with adjoining coastal districts, where issues or activities of mutual concern are under consideration;

- Preparing and submitting the consistency recommendation in a timely manner;
- Preparing quarterly and annual reports to the State, as required by the MSB Coastal Management Grant Agreement; and
- Facilitating and receiving public input and acting as an information resource concerning the AMSA/Designation.

The CMP Coordinator represents the MSB at meetings, conferences, and in ongoing interactions with applicants, the general public, and state and federal agency staff regarding the AMSA/Designation.

6.4 GENERAL COASTAL CONSISTENCY INFORMATION

6.4.1 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.*

6.4.2 Subject Uses

In accordance with 11 AAC 100.010, land and water uses and activities in the coastal zone that are subject to a consistency review and the AMSA/Designation 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 MSB coastal zone for land and water uses and activities, requiring local permits or authorizations.

6.4.3 Proper and Improper Uses

In accord with 11 AAC 114.260, district plans are required to identify uses and activities, including uses of state concern, that are considered proper and improper within the coastal zone. The MSB 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 MSB are considered to be proper as long as they comply with the policies of AMSA/Designation, the ACMP standards under 11 AAC 112, and applicable federal and state 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 with 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.

6.4.4 Designated Use Areas

Enforceable policies related to coastal development and coastal access; sand and gravel; transportation, energy and utility facilities and routes; and cultural, historical, and archaeological resources apply to projects within the Point MacKenzie AMSA/Designated Major Energy Facility Area.

6.4.5 Uses of State Concern

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

AS 46.40.210(12) defines uses of state concern. 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 it is superceded by statutes or regulations, or until it is formally rescinded by the ADNR.

6.5 COASTAL CONSISTENCY REVIEW PROCESS

Because the State of Alaska has adopted the AMSA/Designation as an amendment to the ACMP, the MSB 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.

6.5.1 Two Types of Consistency Reviews

The enforceable components of this plan form the basis for a determination of consistency with the AMSA/Designation plan. There are two types of reviews: state-coordinated consistency reviews and 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 MSB also participates in the state-coordinated review. If only local authorization is required (but not state or federal authorization), then the MSB itself reviews the project for consistency with the ACMP.

6.5.2 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.

6.5.3 Alaska Department of Environmental Conservation (ADEC) "Carve Out"

The 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 be subject to 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 district 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 a district enforceable policy. ADEC Policy Guidance No. 2003-001, January 7, 2004, contains the actual procedure by which ADEC will participate in, and coordinate 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.

6.5.4 "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. Reviewers then have more time to concentrate on complex projects that require a more involved ACMP 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. 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 (the "A," "B," or "C" List). 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.

6.6 FEDERAL AUTHORITY AND CONSISTENCY DETERMINATION

In accordance with federal law, the MSB CMP 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.

However, the federal government is not exempt from the ACMP or the AMSA/Designation. 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). The federal government meets this requirement in several ways, depending upon the type of project or activity being considered.

First, federally licensed or permitted activities proposed within the coastal area, and affecting coastal uses or resources, must be **consistent** with the ACMP, including the AMSA/Designation (15 CFR 930.50).

Second, federal license and permit activities described in detail in the Outer Continental Shelf Plans, and affecting coastal uses or resources, must be **consistent** with the ACMP, including the AMSA/Designation (15 CFR 930.70).

Finally, 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 AMSA/Designation. 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).

6.7 MSB PARTICIPATION IN STATE-COORDINATED CONSISTENCY REVIEWS

6.7.1 Procedures

The point of contact for state and federal consistency reviews, involving the AMSA/Designation is the ADNR OPMP.

OPMP addresses are:

Southcentral Regional Office
550 West 7th Avenue, Suite 1660
Anchorage, Alaska 99501
Phone: (907) 269-7470
Fax: (907) 269-3981

Central Office
302 Gold Street, Suite 202
Juneau, Alaska 99801-0030
Phone: (907) 465-3562
Fax: (907) 465-3075

The state-coordinated consistency review process is contained in state regulations 11 AAC 110. The MSB may participate in that process as an affected coastal district. A brief discussion of the MSB's role in the state consistency review process is described in this section. However, applicants should obtain current information on the state consistency review process from the OPMP.

The MSB strongly recommends that applicants who seek state or federal permits for a major or complex project in the MSB coastal zone, request pre-review assistance prior to submitting such an application. The MSB seeks to work with applicants to initiate early communication and facilitate an expedient and informed consistency review.

The coordinating agency will notify the MSB of a pending consistency review. If requested, the MSB will participate in determining the scope of review of a proposed project, based on the MSB enforceable policies.

Upon notification from the coordinating agency of the start of a consistency review, the CMP Coordinator will determine whether the project information is adequate to allow the MSB to concur or object to an applicant's consistency certification. If more information is required, the MSB will notify

the coordinating agency by the "request for additional information" deadline, and specifically identify the additional information required.

6.7.2 Permit 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. This meeting should be scheduled no later than 10 days after the CMP Coordinator receives notification of the action. At a minimum, representatives of the coordinating agency, the MSB, affected communities, affected major landowners, the applicant, affected interest groups and organizations, and affected resource agencies, will be invited to participate. Depending on the nature of the activity and travel constraints, the meeting may involve a meeting or teleconference. Subsequent work sessions may be beneficial to reaching early consensus on the consistency determination. Scheduling a permit application meeting does not change the final consistency review deadline of 90 days as directed in 11 AAC 100.265.

6.7.3 Consistency Comments

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

- State that the MSB concurs with the applicant's consistency certification and explain why, or
- Identify that the MSB objects to the applicant's consistency certification.

If the MSB objects, then it must:

- Identify and explain why the proposed project is inconsistent with specific state standards or enforceable policies, and
- Identify any alternative measure that, if adopted by the applicant, would achieve consistency with the specific state standard or enforceable policy.

Alternative measures are project conditions proposed by a state resource agency or coastal district that, if adopted by the applicant, would make the project consistent with either state standards or enforceable policies. If alternative measures are proposed, the MSB 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 MSB Planning Commission does not need to take action, the CMP Coordinator will issue the MSB consistency comments on behalf of the MSB.

The CMP Coordinator will ensure that local concerns are solicited, and appropriately incorporated in the MSB consistency comment. Input from appropriate Native corporation land managers may also be solicited. The MSB representative is responsible for providing information on local community concerns and input about the proposed development. Local input to the MSB consistency comment must be received promptly in order to meet the state review deadlines. The MSB will consider such input in developing comments and alternative measures, regarding the consistency of a proposed project. Where local concerns cannot be incorporated in the MSB consistency comment, the CMP Coordinator must provide justification for this decision to the local contacts involved.

6.7.4 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.

6.7.5 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 AMSA/Designation, and if a new authorization or change in authorization is required.

6.7.6 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 MSB 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 MSB must have an approved coastal management plan and have commented during the consistency review. Then the MSB may be afforded due deference if no resource agency has specific authority or expertise, and if the MSB can demonstrate expertise in the field.

The MSB is not required to have a specific policy that applies to the proposed project under review. The MSB may comment on the consistency of the proposed project within the state standards.

If the coordinating agency rejects the MSB comments or any alternative measures that the MSB 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 MSB on issues involving the interpretation and application of the AMSA/Designation.*

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. In this section, the district has described how municipal review fits within the time frame of state-coordinated reviews. Local projects will enter the coastal management review process at the time of application for a special land use permit (Title 17), subdivision or short plan approval (Title 16), or through comprehensive plan consistency (Title 15). Applications must contain sufficient information addressing compliance with MSB adopted ordinances and codes, including a brief

description of proposed activity with an appropriately scaled map, showing location and plan of proposed development.

The MSB Planning and Land Use Department staff will respond to the applicant within 10 working days as to whether the information submitted is complete or if more information is required. Such supplemental information may include additional drawings, plans, specifications, project management schedules, data, and statements of anticipated impacts on coastal resources. The MSB will complete the consistency review process for local projects within 24 days.

The MSB Planning and Land Use Department staff will determine whether or not the application is consistent with the MSB ordinances, codes, and regulations. The Planning Director may approve applications that are not at variance with the code immediately. Applications for which a formal and written consistency analysis is not needed must meet all of the following criteria:

1. The project or action is found to be in compliance with all rules applicable to special land use districts, or geographic areas significantly affected by the proposed action;
2. The project or action is consistent with all rules applicable to the affected uses, activities, habitats, and resources; and
3. The project or action is consistent with the AMSA/Designation plan.

Under the provisions of AS 46.40.100, actions and approvals by local governments are also subject to consistency with approved coastal management programs. In some cases, a proposed action, requiring a municipal permit or approval, will also need a state or federal permit, and the federal/state consistency review will take place at the state level. Sometimes, a proposed action will only require a municipal permit and no state or federal permit. In such cases, the municipal government is responsible for reaching the consistency determination.

6.7.7 Uses Subject to Local Consistency Review

All uses that are proposed in the AMSA/Designation that do not require federal or state authorization, or that is not a federal activity, will require a determination of consistency from the MSB if they are land and water uses requiring a permit or approval in accordance with MSB Code Title 17.

MSB procedures for local consistency determinations are simple and are designed to quickly determine whether a proposed use is consistent with the AMSA/Designation.

6.7.8 Application Procedure and Timeline

There is no separate application for a local consistency determination under the AMSA/Designation; the applicant desiring to undertake a subject use, would apply to the MSB (depending on where the use is to be located) for the required land-use permit or approval.

6.7.9 Local Consistency Determinations Inside the MSB

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

Matanuska-Susitna Borough
350 East Dahlia Avenue
Palmer, Alaska 99645
Phone 907-745-9833
Fax 907-745-9876

The MSB will issue its consistency determination in conjunction with the any local permit or approval. The underlying permit or approval process will establish the timeline for a local AMSA/Designation consistency determination. If the information provided by the applicant is incomplete or insufficient to allow a local consistency determination, the MSB will ask the applicant for the missing or required information in accordance with local authorization procedures.

The MSB land development ordinance details the review process and schedule for each specific local permit or approval required. The MSB will conduct its consistency review concurrently with its permit or approval review process. Upon issuing its permit or approval, the MSB will also issue a consistency determination.

Subject uses within the MSB 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 MSB. Rezoning, conditional uses, variances, and new subdivisions are actions that require local consistency determinations by the MSB.

Reviewing certain actions for coastal consistency under a municipal zoning and subdivision ordinance, does not make the zoning and subdivision ordinances part of the MSB plan, and 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 MSB CMP.

The MSB strongly recommends that applicants who seek authorization for a major project, requiring local consistency review, request a pre-application meeting before submitting the application.

6.8 Elevation Process and Appeals

6.8.1 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.

6.8.2 Appeal of Local Consistency Determination Outside the MSB

The applicant, or any aggrieved person, may appeal the MSB consistency determination to the MSB Planning Commission and then to the Board of Adjustment and Appeals, in accordance with the procedures established for the appeal of the underlying permit or approval in the MSB land development ordinances. Subsequent appeals may be made to the superior court in accordance with the procedures established in the MSB land development ordinances.

6.8.3 Appeal of Local Consistency Determination Inside the MSB

The applicant, or an aggrieved party, may appeal the MSB consistency determination in accordance with the procedures established in the MSB land-use ordinances for the appeal of the underlying permit or approval.

6.9 PLANNING FOR MAJOR PROJECTS

6.9.1 Introduction

Certain types of activities can significantly impact coastal resources and create major changes. The MSB is interested in participating in agency planning for large-scale development projects, and land management decisions. A consistency determination for a major project often takes place after the planning process is completed, which may mean that substantive decisions concerning the use have already been made. Conflicts that could have been avoided by mutual agreement early on, become costly in terms of time and effort spent on resolving differences later on.

To avoid this, major project planning establishes the following objectives:

- AMSA/Designation enforceable policies should be considered as early as possible in planning for proposed major uses.
- Problems and potential consistency conflicts should be addressed, and resolved prior to the application stage.
- Prior resolution of differences should speed the issuance of subsequent permits or approvals.

There are three procedures that are strongly encouraged for major activities of area-wide concern: 1) pre-application meetings, 2) permit application meetings, and 3) local partnership in planning activities.

Participation in these procedures has the following objectives:

- Apply coastal management policies early in project or plan development,
- Address problems and potential consistency evaluation conflicts prior to the permit or approval stage,
- Speed up subsequent permits or approvals through early resolution of issues, and
- Ensure the compatibility of future planning projects with the approved AMSA/Designation.

6.9.2 Major Projects

The following types of activities and actions are considered to be major activities of regional concern:

- Oil and gas exploration, development, and support activities;
- Land disposal and subdivision of land over 100 acres in size;
- Transportation/utility facility and corridor designation or construction;
- Mineral exploration or development (projects requiring development of new airstrip or roads, major energy generation or transmission facilities, slurry pipelines, port facilities, extensive overburden or tailings disposal areas, offshore mining, or significant stream diversion);
- Large scale sand, rock, and gravel extraction activities (greater than 25,000 cubic yards);
- Transportation, storage, cleanup, and disposal of hazardous substances (including the Defense Environmental Restoration Act Program and other federal sites);

- Development of management guidelines for subject uses and activities on National Wildlife Refuges, National Parks and Preserves, and State of Alaska Critical Habitat Areas;
- Development of management guidelines for subject uses and activities on Native Corporation lands;
- Industrial projects, including fish processing and petroleum product storage and transfer; and
- Construction or major additions to military facilities within the MSB.

6.9.3 Local Participation in Planning Activities

Local participation in state and federal planning activities that affect the allocation of resources in the MSB coastal zone benefits everyone involved. State and federal agencies should invite representatives of the MSB Planning Commission, MSB communities, and major landowners and land managers to take part, when conducting regional planning and resource allocation studies. The MSB Planning and Land Use Department will assist in identifying local representatives who are capable of ensuring that the plans that are developed accurately reflect local concerns, and have credibility both in the MSB and in state government.

6.9.4 Pre-application Meeting Between MSB and Applicant

Parties involved in activities on the "major project" list are strongly encouraged to present their plan to the MSB Planning and Land Use Department and other participants in the consistency review process at least 60 days prior to filing a permit application for a federal, state, or local permit for approval, or prior to proposing action be taken on a state or federal land disposal or state or federal management plan. This presentation is not part of a state-coordinated consistency review and is optional.

Developers of large industrial projects allow for sufficient lead time between their plan presentation to the MSB Planning and Land Use Department and filing the permit application, so that key issues can be addressed in project planning and the permit applications submitted. It is recommended that presentations include the following information, which the prospective applicant may submit to the MSB, in any format desired that conveys the following information clearly and in sufficient detail:

- **Project Description.** The description should consist of a narrative, describing the proposed use or activity.
- **Site Description.** The description should include information about the site, as it currently exists, including such items as size, existing structures, vegetation, topography, and any other features that may be a factor in the design of, or operation of, the proposed project.
- **Owner, Sponsor or Developer.** The name of the agency, activity, business enterprise, or owner should be provided, along with the name of other operators, if any.
- **Location and Size.** The location and size of the proposed project should be identified. A map, prepared at the most appropriate scale, and may initially be hand drawn, should be provided, showing the location of the proposed use and any structures, roads, or alterations planned for the area. As the significance or complexity of the proposed project increases, the MSB may, at its discretion, determine that professionally prepared maps and other documentation are needed at the time of application.
- **Construction Schedule.** The dates of any construction or other preparatory site activity should be given.

- **Operation Schedule.** The dates, times, and, if applicable, seasons of operation should be given.
- **Special Circumstances.** Any special circumstances that exist that effect decisions made should be described.
- **Impact Assessment.** The prospective applicant's assessment of the impact on MSB coastal zone resources that will be created by the proposed use, should be given.
- **Statement of Consistency.** The applicant should provide a sufficiently detailed statement, demonstrating that he or she has assessed the project against applicable AMSA/Designation policies and believes that the proposed use is consistent with the AMSA/Designation. Supporting material, such as studies and assessments supporting the prospective applicant's assertions, should be submitted to support any area where compliance is not apparent. Written justification for deviating from any applicable AMSA/Designation policy should be provided in the event that the proposed use does not comply with one or more of the pertinent policies.
- **Mitigation Measures.** Any actions or measures that will be undertaken to bring a nonconforming proposed use into conformity with the enforceable policies should be explained.

The MSB recommends that the applicant provide the following additional information in connection with proposed uses that are of large size, occupy a large land area, involve intensive activities, or are generally complex in nature:

- **Statement of Local, State, or Federal Need**. Information supporting the public need and necessity for, and the benefit to be gained from, the project;
- **Alternative Sites**. Consideration of alternative locations outside the coastal zone;
- **Alternative Size and Scope**. Consideration of a reduced size and/or scope of the project; and
- **Alternative Development Schedule.** Consideration of alternative construction and site preparation times.

Within 30 days of notification that an applicant would like to make a presentation, the CMP Coordinator will notify major landowners, the general public, and other consistency review participants, and will work with these groups to hold the presentation meeting. As appropriate, discussions may follow the presentation to identify issues and conflicts that need to be addressed prior to permit review and preparation of the MSB consistency comment. The CMP Coordinator will be available to work with developers in project planning. The CMP Coordinator may provide a written summary to the developer, outlining major consistency concerns and policy issues. Copies will be sent to the OPMP and the coordinating agency. All pre-application meetings sponsored by the MSB are open to the public, and public notice of the meeting will be provided. The MSB will notify appropriate state agencies in advance and invite them to attend.

After the applicant's presentation, discussions will be held to identify issues and conflicts that need to be addressed prior to the submission of a formal application. Following the meeting, the MSB will, if requested, undertake additional pre-application work with the prospective applicant in project planning on request.

6.10 AMENDMENTS AND REVISIONS TO THE AMSA/DESIGNATION

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

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 AMSA/Designation up to date and relevant. Some adjustments may be made to the MSB coastal zone boundary or land use districts based on new information. Policies may be further refined and standards adopted to facilitate the consistency review process.

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

Two processes are available to the MSB for amending its CMP and AMSA/Designation plan. 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 AMSA/Designation 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.

6.11 MONITORING AND ENFORCEMENT

AS 46.40.100 gives state resource agencies and municipalities enforcement responsibility for provisions of the ACMP. If an applicant fails to implement an adopted alternative measure, or if the applicant undertakes a project modification that is 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 MSB strongly encourages the state to enforce alternative measures and bring violators into compliance.

The AMSA/Designation 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 Commission have first-hand knowledge of local concerns and issues related to development activities in the MSB coastal zone. The CMP Coordinator and the Planning Commission 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 AMSA/Designation are carried out in the development process.

The CMP Coordinator is the key individual in monitoring projects to ensure that alternative measures are carried out in the development process. The CMP Coordinator and the Planning Commission will rely on community input in monitoring implementation of alternative measures. Individuals, local governments, and landowners may report suspected violations to the CMP Coordinator or state and federal resource agencies. The CMP Coordinator will investigate reports of violations, and follow-up with appropriate action to ensure state or federal enforcement. 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 AMSA/Designation.

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

6.12 PUBLIC EDUCATION AND OUTREACH

The MSB CMP Coordinator is committed to understanding how coastal management can benefit communities and residents within coastal zone boundaries, and knows the most important way to gain this understanding is to listen to people. This local coastal professional also knows if coastal management is presented within the framework of local issues, concerns, and visions for the future, residents will be more likely to participate and support the program.

The CMP Coordinator already has a general feel for local issues and sentiment, and should encourage decision-making bodies and residents of the MSB to use coastal management as a way to identify areas appropriate for development, keep coastal resources healthy, and as a way to effect state and federal decision making. The CMP Coordinator also wants to ensure that local knowledge and public needs are heard and considered when local coastal resources and way of life might be affected by a development proposal. Education and outreach opportunities that the CMP Coordinator can consider for communicating coastal management issues and projects within the MSB include:

- Acquiring coastal management publications from OPMP and making available publications to local residents.
- Developing a MSB coastal management program website and providing local news and article for the ACMP website and MSB website.
- Using public service announcements (radio and newspaper), flyers, newspaper ads, and phone calls to encourage the input from residents during the review of projects.
- Encouraging local residents to communicate with the CMP Coordinator about coastal issues.
- Developing a presentation on the local coastal management program, and pursue speaking engagements with different community organizations and local schools.
- Participating in watershed volunteer efforts.
- Participating in state, federal, and tribal natural resource planning efforts.
- Encouraging MSB Assembly and Planning Commission members to participate in education and outreach efforts.

APPENDIX A
Enforceable Policies

APPENDIX A

PT. MACKENZIE AMSA

DESIGNATED MAJOR ENERGY FACILITY AREA

DESIGNATIONS, ENFORCEABLE POLICIES & DEFINITIONS

Enforceable policies, applicable within the AMSA and Designated Major Energy Facility Area are described in this chapter. Refer to the legal description of the AMSA/Designation boundary in Chapter Three. Refer to Volume III, CMP Maps, for a map of the Designation.

AMSA AND DESIGNATED MAJOR ENERGY FACILITY AREA

The lands of waters within the existing AMSA, as defined in Chapter Three, Boundary, are included in a Designated Major Energy Facility Area. The AMSA/Energy Designation provides the MSB with a tool for addressing uses and activities that may have a direct and significant impact on the physical, biological, and cultural features. The definition of major energy facilities found in 11 AAC 112.990 (14)(A)(ii) and (iii) and 11 AAC 112.990 (14)(B) applies within the Designation.

APPLICABILITY

The Point MacKenzie AMSA is designated as a Major Energy Facility Area, and as such, is deemed suitable for energy facilities and supporting infrastructure in accordance with 11 AAC 112.230 and 11 AAC 114.150(e). The enforceable policies contained in this chapter apply within the AMSA/Designated Major Energy Facility Area only. See Volume I, MSB CMP for enforceable policies outside the Designated Major Energy Facility Area.

ENFORCEABLE POLICIES

PMCD1 To the extent practicable, the placement of structures in coastal water to accommodate ports, piers, docks, terminals, cargo handling, storage, parking, and other coastal facilities shall be designed and utilized to minimize the need for duplicate facilities. The evaluation of subsequent use of facilities for other than their original intent shall be required in the siting and design of such facilities.

PMCD2 The placement of structures and the discharge of dredged or fill material into coastal water including estuaries and tidelands, shall be located, designed, constructed, operated, and maintained to minimize adverse impacts to littoral processes of sediment erosion, deposition and transport.

PMSG1 To the extent practicable, sources of sand and gravel shall be authorized for extraction from the following coastal sites in the following order of priority:

1. Existing approved gravel pits or quarries operated in compliance with state and federal authorizations;
2. Reuse of material from abandoned development, unless reuse could cause more environmental damage than non-use; and

3. New upland sites.

PMSG2 When conducting coastal sand and gravel extraction, to the extent practicable, overburden shall be saved and placed so as to conform to the natural topography as part of the rehabilitation process. Overburden shall not be disposed of in wetlands, or below the limit of MHW in intertidal areas and estuaries.

DEFINITIONS

A number of the terms used in coastal management have specific regulatory or procedural meaning. To clarify the intent of the coastal management polices, the following definitions apply to language used in the plan policies.

ACMP is the Alaska Coastal Management Program.

Adjacent has the same meaning as in State law.

> ***11 AAC 112.990 (a) (2) "adjacent"*** *means near but not necessarily touching; (Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)*

AMSA has the same meaning as in State law.

> ***AS 46.40.210 (1) "area which merits special attention"*** *means a delineated geographic area within the coastal area which is sensitive to change or alteration and which, because of plans or commitments or because a claim on the resources within the area delineated would preclude subsequent use of the resources to a conflicting or incompatible use, warrants special management attention, or which, because of its value to the general public, should be identified for current or future planning, protection, or acquisition; these areas, subject to council definition of criteria for their identification, include:*
> *(A) areas of unique, scarce, fragile or vulnerable natural habitat, cultural value, historical significance, or scenic importance;*
> *(B) areas of high natural productivity or essential habitat for living resources;*
> *(C) areas of substantial recreational value or opportunity;*
> *(D) areas where development of facilities is dependent upon the utilization of, or access to, coastal water;*
> *(E) areas of unique geologic or topographic significance which are susceptible to industrial or commercial development;*
> *(F) areas of significant hazard due to storms, slides, floods, erosion, or settlement; and*
> *(G) areas needed to protect, maintain, or replenish coastal land or resources, including coastal flood plains, aquifer recharge areas, beaches, and offshore sand deposits;*

Avoid has the same meaning as in State law.

> ***11 AAC 112.900. Sequencing process to avoid, minimize, or mitigate.*** *(a) As used in this chapter and for purposes of district enforceable policies developed under 11 AAC 114, "avoid, minimize, or mitigate" means a sequencing process of*
> *(1) avoiding adverse impacts to the maximum extent practicable; (2) where avoidance is not practicable, minimizing adverse impacts to the maximum extent practicable; or (3) if neither avoidance nor minimization is practicable, conducting mitigation to the extent appropriate and practicable; for purposes of this paragraph, "mitigation" means*
> *(A) on-site rehabilitation of project impacts to affected coastal resources during or at the end of the life of the project; or*
> *(B) to the extent on-site rehabilitation of project impacts is not practicable, substituting, if practicable, rehabilitation of or an improvement to affected coastal resources within the district, either on-site or off-site, for a coastal resource that is*
> *unavoidably impacted.*
> *(b) For a project that requires a federal authorization identified under 11 AAC 110.400, the coordinating agency shall consult with the authorizing federal agency during that federal agency's authorization review process to determine whether the mitigation requirements proposed by the federal agency for that federal authorization would satisfy the mitigation requirements of (a)(3) of this section. If the coordinating agency determines that the mitigation requirements proposed by the federal agency would not satisfy the mitigation requirements of (a)(3) of this section, the coordinating agency shall require appropriate mitigation in accordance with (a)(3) of this section.*
> *(c) For purposes of (a)(3) of this section, a determination of practicability includes the consideration of the following factors, as applicable: (1) the magnitude of the functional values lost by the impacted coastal resources;*
> *(2) the likelihood that the mitigation measure or improvement will succeed in actually rehabilitating the impacted coastal resources; and*
> *(3) the correlation between the functional values lost by the coastal resources impacted and the proposed mitigation measure or improvement.*
> *(d) To the extent feasible and not otherwise addressed by state or federal law, any requirements imposed under (a)(3) of this section for mitigation through on-site or off-site rehabilitation of project impacts shall be established by the coordinating agency at the time of the project's consistency review under 11 AAC 110.*
> *(e) In applying the mitigation process described in (a)(3) of this section, unless required by a federal agency issuing an authorization identified under 11 AAC 110.400 for the project, the coordinating agency may not require*
> *(1) that no net loss of impacted coastal resources occur; or*
> *(2) monetary compensation. (Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)*

Base Flood means the flood having one percent chance of being equaled or exceeded in any given year. Also referred to as the 100-year flood.

Coastal Processes are the collective results of physical, oceanographic, and meteorologic influences on the geographic landforms and nearshore waters of the Matanuska-Susitna Borough. Coastal processes are also influenced by freshwater discharges from major river drainage systems and suspended sediments transported by rivers to coastal waters. Key features of coastal processes are shoreline erosion and accretion.

Coastal Waters has the same meaning as in state law.

11 AAC 112.990. Definitions. (6) "coastal water" *means those waters, adjacent to the shorelines, that contain a measurable quantity or percentage of sea water, including sounds, bays, lagoons, ponds, estuaries, and tidally influenced waters; (Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)*

Consistency means compliance with the standards of the ACMP, including the enforceable policies of this approved coastal plan.

Consistent to the maximum extent practicable means that federal government activities or uses, including development projects affecting the coastal zone of Alaska, are fully consistent with the standards of the ACMP unless compliance would violate another federal law (15 CFR 930.32.(a)).

Cumulative Impacts has the same meaning as in State law.

11 AAC 110.990. Definitions. (a) (19) "cumulative impacts" *means reasonably foreseeable effects on a coastal use or resource that result from the incremental impact of an individual project when viewed together with the impacts of past and currently authorized projects; (Eff. 7/1/2004, Register 170)*

DEC is the Alaska Department of Environmental Conservation.

DF&G is the Alaska Department of Fish and Game.

Direct and significant impact has the same meaning as in State law.

11 AAC 114.990. Definitions. (13) "direct and significant impact" *means an effect of a use, or an activity associated with the use, that will proximately contribute to a material change or alteration of the coastal waters, and in which*
(A) the use, or activity associated with the use, would have a net adverse effect on the quality of the resources;
(B) the use, or activity associated with the use, would limit the range of alternative uses of the resources; or
(C) the use would, of itself, constitute a tolerable change or alteration of the resources but which, cumulatively, would have an adverse effect; (Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)

Development means any man-made change to improved or unimproved lands and coastal waters, including but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling.

DNR is the Alaska Department of Natural Resources.

Due deference has the same meaning as in State Law.

11 AAC 110.990. Definitions. (a) (25) "due deference" *means that deference that is appropriate in the context of*
(A) the commentor's expertise or area of responsibility; and
(B) all the evidence available to support any factual assertions of the commentor; (Eff. 7/1/2004, Register 170)

Environmentally Responsible means consistent with coastal resource protection and performance standards of this plan, and incorporating current best management practices with protection measures commensurate with the values of habitats affected.

Eolian mean applied to deposits arranged by the wind, as the sands and other loose materials along shores, etc.

Estuary has the same meaning as in State law.

> ***11 AAC 11.990 Definitions. (11) "estuary"*** *means a semiclosed coastal body of water that has a free connection with the sea and within which seawater is measurably diluted with freshwater derived from land drainage; (Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)*

Facilities related to commercial fishing and seafood processing has the same meaning as in State law.

> ***11 AAC 114.990. Definitions. (17) "facilities related to commercial fishing and seafood processing"*** *includes hatcheries and related facilities, seafood processing plants and support facilities, marine industrial and commercial facilities, and aquaculture facilities; (Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)*

Feasible and prudent means consistent with sound engineering practice and not causing environmental, social, or economic problems that outweigh the public benefit to be derived from compliance with the standard which is modified by the term "feasible and prudent".

Floodway means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height, usually one foot, at any point.

Fluted ridge means smooth, gutterlike channels, or deep smooth furrows worn in the face of ridges by glacial action.

Fluvial means of, found in, or produced by a river.

Geomorphology means the study of the formation of 'the earth's topographic features.

Glaciolacustrine means produced by or belonging to glacially formed lakes.

Important fishing areas are areas used consistently over time for commercial, sport, or subsistence fishing. Fishing includes harvesting marine invertebrates and plants.

Important habitats has the same meaning as in State law.

11 AAC 112.300. Habitats. *(c) For purposes of this section,*
*(1) "**important habitat**" means habitats listed in (a)(1) – (8) of this section and other habitats in the coastal area that are*
(A) designated under 11 AAC 114.250(h);
(B) identified by the department as a habitat
(i) the use of which has a direct and significant impact on coastal water; and
(ii) that is shown by written scientific evidence to be significantly more productive than adjacent habitat; or
(C) identified as state game refuges, state game sanctuaries, state range areas, or fish and game critical habitat areas under AS 16.20; (Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)

Lacustrine menas produced by or belonging to lakes.

Local knowledge has the same meaning given in State law except that "generally accepted by the local community" is that body of knowledge that is reflected in local plans, studies, policies and standards.

11 AAC 114.990. Definitions. (22) "local knowledge" *means a body of knowledge or information about the coastal environment or the human use of that environment, including information passed down through generations, if that information is*
(A) derived from experience and observations; and
(B) generally accepted by the local community; (Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)

Maintain means to provide for continuation of current conditions and functions.

Mariculture is the captive cultivation of plants and animals in marine and estuarine waters for human consumption.

Mean High Water has the same meaning as in State law.

11 AAC 53.900 (14) "mean high water" *means the tidal datum plane of the average of all the high tides, as would be established by the National Geodetic Survey, at any place subject to tidal influence; (Eff. 3/27/80, Register 73; am 7/5/2001, Register 159)*

Mean Higher High Water is the average of all the daily higher high water recorded over a 19-year period or a computed equivalent period. It is usually associated with a tide exhibiting mixed characteristics.

Mean Lower Low Water has the same meaning as in State law.

11 AAC 53.900 (17) "mean lower low water" *means the tidal datum plane of the average of the lower of the two low waters of each day , as would be established by the National Geodetic Survey, at any place subject to tidal influence; (Eff. 3/27/80, Register 73; am 7/5/2001, Register 159)*

Minimize has the same meaning as in State law (see Avoid, Minimize and Mitigate).

Mitigate has the same meaning as in State law (see Avoid, minimize and Mitigate).

Natural Hazard is a condition created by a geological process, topography, water drainage, or unique weather condition that presents a significant hazard to life and property. See State Standard.

> ***11 AAC 112.990. Definitions. (15) "natural hazards"*** *(A) means the following natural processes or adverse conditions that present a threat to life or property in the coastal area: flooding, earthquakes, active faults, tsunamis, landslides, volcanoes, storm surges, ice formations, snow avalanches, erosion, and beach processes;*
> *(B) includes other natural processes or adverse conditions designated by the department or by a district in a district plan; (Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)*

One Hundred Year Flood is a flood of a magnitude, which can be expected to occur on an average of once every 100 years. It is possible for this size flood to occur during any year, and possible in successive years. It would have a one percent chance of being equaled or exceeded in any year. Statistical analysis of available stream flow or storm records, or analysis of rainfall or runoff characteristics of the watershed, or topography and storm characteristics are used to determine the extent and depth of the 100-year flood.

OPMP is the Office of Project Management and Permitting with the Department of Natural Resources.

Ordinary high water has the same meaning as in State law.

> ***11 AAC 53.900 (23) "Ordinary high water"*** *means the mark along the bank or shore up to which the presence and action of non-tidal water are so common and usual, and so long continued in all ordinary years, as to leave a natural line impressed on the bank or shore and indicated by erosion, shelving, changes in soil characteristics, destruction of terrestrial vegetation, or other distinctive physical characteristics. ; (Eff. 3/27/80, Register 73; am 7/5/2001, Register 159)*

Paludal means pertaining to swamps or marshes, and to deposits deposited in a swamp environment.

Practicable has the same meaning as in State law.

> ***11 AAC 112.990. Definitions. (18) "practicable"*** *means feasible in light of overall project purposes after considering cost, existing technology, and logistics of compliance with the standard; (Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)*

Proper and improper uses are the can-do and can't-do uses for the area.

Public need has the same meaning as in State law except that "documented" includes those needs expressed in locally adopted plans, studies, policies and standards.

> ***11 AAC 114.990 (35) "public need"*** *means a documented need of the general public and not that of a private person; (Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)*

Resource agency has the same meaning as in State law.

> ***Sec. 46.39.010. (2) "resource agency"*** *means*
> *(A) the Department of Environmental Conservation;*
> *(B) the Department of Fish and Game; or*
> *(C) the Department of Natural Resources.*

Saltwater wetlands has the same meaning as in State law. (see also "wetlands")

> ***11 AAC 112.990. Definitions. (25) "saltwater wetlands"*** *means those coastal areas along sheltered shorelines characterized by halophilic hydrophytes and macroalgae extending from extreme low tide to an area above extreme high tide that is influenced by sea spray or tidally induced water table changes; (Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)*

Shall means mandatory; it requires a course of action or set of conditions to be achieved.

Should states intent for a course of action or set of conditions to be achieved. This implies that case-specific discretion may be applied for achieving the intent of the action.

Significant adverse impact means an impact as indicated in state law by "direct and significant impact".

Subject uses is a description of the land and water uses and activities which are subject to the district plan.

Subsidence is a lowering in elevation of ground surface due to underground geologic or hydrologic change. It can be a common occurrence in areas susceptible to seismic activity and where excessive water table depletion occurs.

Subsistence Use Areas are coastal habitat areas, used traditionally or occasionally in response to seasonal or cyclic resource abundance, where subsistence harvests of fish, wildlife, and other biological resources are conducted.

Subsistence uses has the same meaning as in State law.

> ***AS 16.05.940 (33) "subsistence uses"*** *means the noncommercial, customary and traditional uses of wild, renewable resources by a resident domiciled in a rural area of the state for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation, for the making and selling of handicraft articles out of nonedible by-products of fish and wildlife resources taken for personal or family consumption, and for the customary trade, barter, or sharing for personal or family consumption; in this paragraph, "family" means persons related by blood, marriage, or adoption, and a person living in the household on a permanent basis; (Eff. ///; Register)*

Surface Waters include streams, rivers, ponds, lakes, and contiguous open water wetlands.

Tsunami is a great sea wave produced by submarine earth movements or volcanic eruption.

Uses of state concern has the meaning as in State law.

AS 46.40.210 (12) "uses of state concern" *means those land and water uses that would significantly affect the long-term public interest; "uses of state concern" include*
(A) uses of national interest, including the use of resources for the siting of ports and major facilities that contribute to meeting national energy needs, construction and maintenance of navigational facilities and systems, resource development of federal land, and national defense and related security facilities that are dependent upon coastal locations;
(B) uses of more than local concern, including those land and water uses that confer significant environmental, social, cultural, or economic benefits or burdens beyond a single coastal resource district;
(C) the siting of major energy facilities, activities pursuant to a state or federal oil and gas lease, or large-scale industrial or commercial development activities that are dependent on a coastal location and that, because of their magnitude or the magnitude of their effect on the economy of the state or the surrounding area, are reasonably likely to present issues of more than local significance;
(D) facilities serving statewide or interregional transportation and communication needs; and
(E) uses in areas established as state parks or recreational areas under AS 41.21 or as state game refuges, game sanctuaries, or critical habitat areas under AS 16.20.

Water-Dependent has the same meaning as in State law.

11 AAC 112.990. Definitions. (31) "water-dependent" *means a use or activity that can be carried out only on, in, or adjacent to a water body because the use requires access to the water body;*
(32) "water-related" *means a use or activity that is not directly dependent upon access to a water body, but which provides goods or services that are directly associated with water-dependence and which, if not located adjacent to a water body, would result in a public loss of quality in the goods or services offered; (Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)*

Waterfront means the area along the coastline between mean higher high water and mean high sea level.

Water-Related has the same meaning in State law.

Wetlands has the same meaning as in State law.

11 AAC 112.990. Definitions. (33) "wetlands" *means saltwater wetlands and those freshwater wetlands that have a direct drainage to coastal waters; (Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)*

APPENDIX B

Enforceable Policy Cross Reference Table

APPENDIX B

ENFORCEABLE POLICIES CROSS REFERENCE TABLE

Enforceable Policy Name & Number	Resource Inventory & Analysis Volume II	Issues, Goals, and Objectives Volume II	Maps Volume II Maps Separate
Coastal Development			
PMCD 1	P. 31,32,37	P.7,9,10	
PMCD 2	P.21,23,26,31,32,34,35,36	P.7,8,10,12,	
Sand and Gravel Extraction			
PMSG1	P.18,29,36	P. 7,8,10,12	
PMSG2	P.18,29,36	P. 7,8,10,12	

APPENDIX C

Abbreviations and Acronyms Used

APPENDIX C

List of Abbreviations and Acronyms Used

AAC	Alaska Administrative Code
ACMP	Alaska Coastal Management Program
ADEC	Alaska Department of Environmental Conservation
ADFG	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ADOT&PF	Alaska Department of Transportation and Public Facilities
AHRS	Alaska Heritage Resources Survey
Air Force	U.S. Air Force
AMSA	Area Meriting Special Attention
AS	Alaska Statute
ATV	all-terrain vehicle
CEA	Chugach Electric Association
CEDS	Comprehensive Economic Development Strategy
CFR	Code of Federal Regulations
CMP	Coastal Management Plan
District	MSB Coastal District
FEMA	Federal Emergency Management Agency
gpm	gallons per minute
HPA	History, Prehistory, and Archaeology
ISER	Institute for Social and Economic Research
LRTP	Long Range Transportation Plan
mg/L	milligrams per liter
mph	miles per hour
MSB	Matanuska-Susitna Borough
MSB CVB	Matanuska-Susitna Borough Convention and Visitors Bureau
NRHP	National Register of Historic Places
OHW	Ordinary High Water
OPMP	Office of Project Management and Permitting
P.L.	Public Law

List of Abbreviations and Acronyms Used (continued)

Port District	Port MacKenzie District
ppm	parts per million
ppsf	pounds per square foot
RDA	Recreation, Development, and Access
SG	sand and gravel extraction
SHPO	Sate Historic Preservation Office
STIP	Statewide Transportation Improvement Program
TF	Transportation Routes and Facilities
TSA	Tourism Satellite Account
TSP	total suspended particulates
Valley	Matanuska-Susitna Valley

APPENDIX D
References

APPENDIX D

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APPENDIX E

Advisory Policies

APPENDIX E

PT. MACKENZIE AMSA

GUIDANCE POLICIES

Under AS 46.40.210(7), a district coastal management plan is a plan that sets out policies and standards "to guide public and private uses of land and water within that district ...". Guidance policies are policies that may not meet one or more tests of enforceability contained in state statute but that can help guide coastal uses within the district. Guidance policies are not enforceable and cannot be used to require conditions or stipulations on projects during the project consistency review process. The following are the guidance policies for the Pt. MacKenzie AMSA.

A Surface transportation facilities, including roads, rail, and trails, shall be located, designed, constructed, and maintained so as to minimize alteration of watercourses, wetlands, and intertidal marshes.

B Traditional access routes and trails used by local residents shall be accommodated to the extent practicable, in the siting, design, and development of transportation routes and facilities.

C Where practicable, energy facilities and supporting infrastructure shall be sited, designed, and constructed to accommodate coastal access.

D To the extent practicable, transportation and utilities corridors, systems and facilities shall be consolidated.

E Where practicable, utility routes, including pipelines and transmission lines shall be located in a manner that does not block or interfere with access to scenic vistas.

F The historic and archaeological values of an area proposed for development, and potential adverse impacts of development on known historic and archaeological values, shall be evaluated early in planning for proposed development activity. Evaluation of potential impacts on cultural and historical resources, and appropriate mitigation, shall be the responsibility of the project applicant.

G Uses and activities, which may adversely affect cultural resource areas, shall comply with the following standards:

1. To the extent practicable, archaeological, prehistoric, and historic resources shall be protected from significant adverse impacts caused by surrounding uses and activities;

2. Cultural resources of significant historic, prehistoric, or archaeological importance shall not be disturbed during project development, unless the MSB Cultural Resources Division, in consultation with the landowner, approves the action;

3. If previously undiscovered artifacts or areas of historic, pre-historic, or archaeological importance are encountered during development, the MSB Cultural Resources Division and the landowner shall be notified, and the site shall be protected from further disturbance, pending evaluation by the MSB Cultural Resource Division; and SHPO.

MATANUSKA-SUSITNA BOROUGH

Coastal Management Plan
Volume III
Maps

Effective April 9, 2007

Citizens Advisory Committee

Matanuska-Susitna Borough Planning Commission

Matanuska-Susitna Borough Assembly

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