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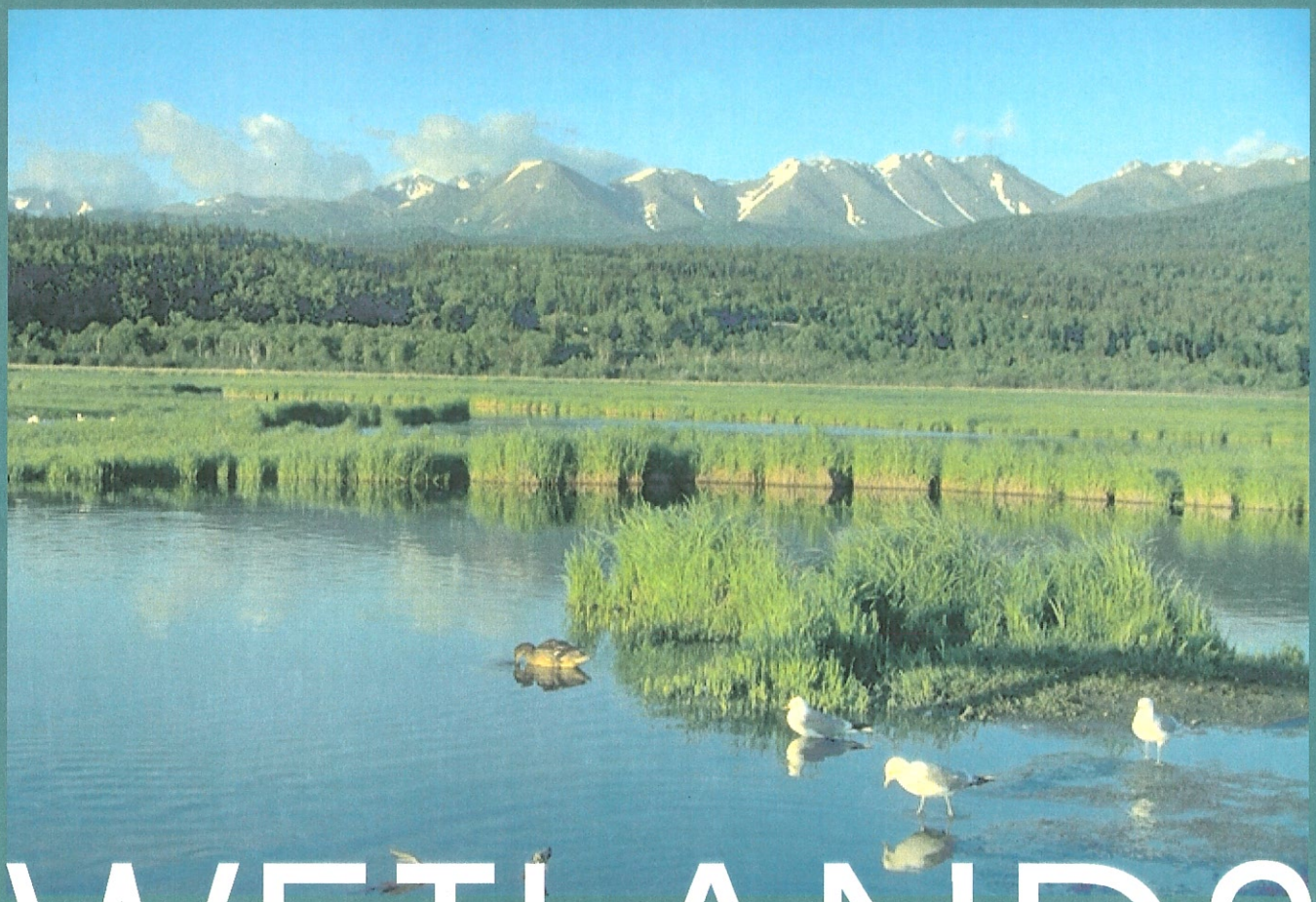
Municipality of Anchorage



WETLANDS

Anchorage Wetlands Management Plan

Anchorage Wetlands Management Plan

Ten-year Revision

Adopted March 12, 1996
Assembly Ordinance 95-129

Adopted April 1996
Alaska Coastal Policy Council

Prepared by the
Department of Community Planning and Development
Municipality of Anchorage

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Rick Mystrom, Mayor

OFFICE OF THE MAYOR

March 12, 1996

To the Residents of Anchorage:

This 10-year Revision of the Anchorage Wetlands Management Plan is based on current Federal Clean Water Act Regulations. It has been through two years of public hearings and negotiations with federal and state regulatory agencies. It represents the Municipality's efforts to expedite and facilitate wetlands permitting.

This Plan is to be used as a guideline for the issuance of both Individual and General Permits. Property owners are not precluded by this Plan from applying for an Individual 404 Permit from the Corps of Engineers if they do not agree with the conditions of development outlined herein. Although I would prefer more local flexibility and less restriction on the use of wetland properties within Anchorage, I understand that until federal law is changed, the Municipality's local wetland planning effort is governed by existing regulations and permit conditions.

If the Clean Water Act's wetland sections are changed, the Administration will direct the Department of Community Planning and Development to revise the Plan and request that the Assembly adopt the appropriate changes.

Sincerely,

Rick Mystrom
Mayor

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PREFACE TO THE ANCHORAGE WETLANDS MANAGEMENT PLAN

The 1982 Anchorage Wetlands Management Plan has been amended to continue to serve several important functions for the Municipality. This proposed Plan:

1. Provides an inventory and analysis of wetlands within the Municipality as required by the Alaska Coastal Management Program per Alaska Statutes ***AAC 85.040.100***.

2. Acts as a vehicle for regulatory body consensus on allowable wetland activities, since the Corps of Engineers is required to consider comments from numerous state and federal agencies when evaluating a fill or dredging permit in wetlands. This consensus helps expedite and facilitate the permit process in all wetland designations.

3. Specifies the conditions set out by the Corps of Engineers under which the Municipality can authorize discharges under the new General Permits. Use of the General Permits significantly reduces the time and expense needed to obtain permit approvals. However, if a project sponsor does not wish to pursue permitting via the General Permits, he/she may seek an Individual 404 Permit through the Corps of Engineers.

4. Brings the Municipality into consistency with the State of Alaska's Coastal Zone Management Program and avoids problems associated with wetland actions located within Coastal Zone Management areas that would otherwise arise. Without the Municipality of Anchorage's adoption of the Plan, the federal agencies would follow the same Enforceable Policies as proposed in the new Plan but the State would be required to adhere to the original 1982 Plan. Permit decisions would take longer and otherwise predictable development would be jeopardized.

Equally important are several things the new Plan does not do:

1. It **does not** prevent a property owner from developing, or attempting to develop, in "A" sites. In no case does the Plan identify private property where all potential development is prohibited.

2. It **does not** force a property owner to comply by the Enforceable Policies in order to develop a wetland area. If the property owner does not agree with these Enforceable Policies, he or she may still petition the Corps of Engineers and apply for an Individual Permit that modifies the Enforceable Policies.

3. It **does not** preclude the Municipality from amending the Plan in the event that federal wetland regulations are changed or modified through congressional action.

ACKNOWLEDGMENTS

This document represents the culmination of nearly five years of coordinated effort between the state and federal resource agencies, the general public, and various departments in the Municipality of Anchorage. Numerous individuals from these groups contributed significantly to the development of this Plan. I would especially like to distinguish the following who deserve recognition and thanks for their commitment, perseverance, and contributions:

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Thede Tobish
Project Manager

CHAPTER 1: BACKGROUND INFORMATION

I. GENERAL BACKGROUND

The importance of the natural properties and functions of wetlands has been well documented through scientific study. Although there is much variability from wetland to wetland, typical wetland values include:

- Providing highly productive ecosystems that support an abundance of fish and wildlife;
- Regulating and modulating surface water flows through retention of excess runoff and release of this water over extended dry periods;
- Protecting water bodies from erosion and reducing the velocity of flood waters or bodies from erosion and reducing the velocity of flood waters or waves; and
- Purifying water through uptake of nutrients, through settling of particles, and as a sink for toxic substances.

Attracted by the water and the unique vegetation and wildlife often associated with wetlands, people have often designated various wetlands as open space, parkland, and aquifer recharge areas. Consequently, the natural benefits and functions of wetlands have been extended to include such uses as recreation and aesthetics, water supply, and protection from natural hazards. Because of these additional use values, the demand for urban development of land adjacent to and within wetlands has increased considerably since the early 1980's. Indeed, most undeveloped large tracts of land, especially within the Anchorage Bowl, are wetland areas. These are typically the only large areas now available for residential and commercial infilling development.

If not properly planned, this urban development can adversely impact wetlands. Construction of housing or commercial establishments may require dewatering, dredging, or discharge of fill materials. Construction of transportation corridors frequently alters natural drainage patterns. These changes, in turn, have the potential to modify natural movements of water, damage or destroy fish and wildlife habitat, adversely affect biological productivity, reduce flood storage capacity, or alter nutrient exchange characteristics. The latter effect can lead to degradation of a downstream surface water supply or a subsurface aquifer.

Concern was originally expressed in the early 1980's that the growing demand for human development was causing the alteration of local wetland areas at an alarming rate. The need to balance existing wetland values and functions with expanding human developments needs was strongly identified in the Anchorage Coastal Management Program (1979). This balance was a key theme of the original 1982 Anchorage Wetlands Management Plan and the earlier Anchorage 208 Areawide Water Quality Management Plan. The 208 plan addressed this balance in the following passage:

Peat bog areas, to be identified in the ongoing Coastal Zone Management Plan, should be given priority consideration in future municipal open space acquisition plans. Developers should be encouraged to drain peat bogs in a manner which is least injurious to area creeks.

A proper balancing of these conflicting needs required an understanding of wetland functions and values, plus complete and accurate maps of wetland locations. Both of these actions were presented and addressed in the original 1982 Wetlands Plan.

II. PURPOSE AND GOALS OF 1982 ANCHORAGE WETLANDS PLAN

The Municipality undertook a study of freshwater wetlands in the early 1980's which culminated in the approval and publication of the 1982 Anchorage Wetlands Management Plan. The primary goals of that plan were:

Goal A. To identify and provide protection for wetlands which support important ecological and hydrological functions.

Goal B. To ensure that development in wetlands minimizes water quality degradation and maintains wetland hydrologic functions.

Goal C. To provide a balance between protection of higher value sites and the development of lower value areas.

Goal D. To provide for timely and predictable authorization of development projects in low-value wetlands and to obtain reauthorization of U.S. Army Corps of Engineers' General Permits.

In addition, the 1982 Wetlands Plan was adopted to address consistency with the following related wetlands goals from the Anchorage Coastal Management Plan:

Goal E. To protect the basic natural functions served by coastal marshes, freshwater marshes and wetlands.

Goal F. To prevent public liabilities associated with development in these areas.

The 1982 Wetlands Plan process focused on the freshwater wetlands within the Municipality. The Anchorage Wetlands Management Plan has served as the basis for decision-making involving wetland development and/or protection since its adoption by the Anchorage Municipal Assembly.

When the 1982 Anchorage Wetlands Management Plan was adopted by the Assembly and the State of Alaska's Coastal Policy Council, the Municipality of Anchorage was in the early stages of a population and attendant housing construction boom. A high level of residential and commercial

development continued through the mid-1980's, especially in the Anchorage Bowl and on the lower Hillside where large, mostly unplatted tracts of land were utilized for community expansion. Much of this expansion was accommodated in wetland areas. It was primarily in response to this development boom and attendant shortage of available, developable land that the Municipality prepared the 1982 Wetlands Plan.

III. SUMMARY AND RESULTS OF 1982 ANCHORAGE WETLANDS PLAN

As a secondary component to the 1982 Wetlands Plan, the Municipality applied for and obtained two General Permits from the Corps of Engineers in 1983. These permits, one for roads and the other for structures, were necessary to facilitate more timely and predictable local processing of permits for community expansion during the mid-1980's boom period. The General Permits are administered by the Municipality's Department of Community Planning and Development. Municipal permit processing time has averaged 1-3 days, versus 3-6 months for an Individual 404 Permit from the Corps of Engineers. Because of the area's short construction season, the General Permits were a vital tool in facilitating the 1980's boom. The first General Permits were issued for a period of five years and were renewed by the Corps of Engineers through June 1993. The Municipality then operated through December 1993 with an Interim General Permit issued by the Corps of Engineers. This ten-year revision will serve as the foundation for General Permits for the Municipality.

Between 1983 and 1992, the Department of Community Planning and Development issued approximately 441 General Permits authorizing the filling of approximately 1,269 acres for projects throughout the Municipality. Approximately 85 percent of these fills were in Developable/Mixed Developable wetlands within the Anchorage Bowl. Many of the General Permits were issued for residential subdivisions and related infrastructure, with most issued between 1983 and 1986, the period of fastest growth within the Municipality.

On the development side, the stated purpose of the original Wetlands Plan was to provide a balance between protection of higher value sites and the development of lower value areas. Since approval of the 1982 Wetlands Plan, approximately 2,700 acres of wetlands within the Municipality have been permitted for fill. These permits include both Individual 404 and local General Permits for projects in seven generalized wetland categories identified by the Municipality:

1. Developable/Mixed Developable,
2. Conservation,
3. Preservation,
4. Intertidal Wetland,
5. Stream Channel
6. Special Study, and
7. Undesignated.

The majority of the permits were issued for projects within the Anchorage Bowl. Note that many of these permits were never, or only partially, used and many sites remained unfilled. Individual Permits typically expire after three years.

Based on an analysis of wetland fills in the Anchorage Bowl, as outlined in the U.S. Fish and Wildlife Service's Anchorage Wetland Trends Study (June 1993), it appears that the Wetlands Plan provided proper guidance for the balance between permitting and protection. In the U.S. Fish and Wildlife Service study, a review of aerial photography revealed that 9,958 acres of wetlands (including intertidal sites) were filled between 1950 and 1990. Between 1983 and 1990, a total of 2,143 acres were permitted and 965 acres were actually filled. This period included the boom years when the Wetlands Plan was adopted and implemented. From these figures, it is clear that only 9.7 percent of the known Anchorage Bowl fills have taken place since the plan's inception. Of the total acres filled between 1982 and 1990 (excluding intertidal wetlands), 29.8 acres were in Preservation wetlands, 220 acres were in Conservation sites, and 618.4 acres were in Developable sites.

From these totals, it is clear that the original Wetlands Plan very systematically directed wetland fill projects into lower value sites and minimized fill in higher value areas. In addition, of the fill projects in Conservation and Preservation areas, mitigation measures, including avoidance, minimization and compensation, were often required during the Corps of Engineers permit process. Although wetland acreage was lost during the term of the plan, the evidence clearly points to an effective purpose and implementation of the Anchorage Wetlands Management Plan. This ten-year revision is intended to further the goals of the original plan. Wherever possible, it incorporates management details to extend protection and minimize impacts to higher value areas and to facilitate development in low value sites in a manner that also minimizes impacts.

A precise assessment of the acreage actually filled under these authorizations has not been undertaken. Additional wetland areas which were not identified or designated in the 1982 plan have been filled by projects authorized under the Corps of Engineers' Nationwide Permit program. Most Nationwide Permit fills in the Anchorage area were covered by Nationwide Permit 26 and those Nationwide Permits related to stream channels and utility lines. As of January 1992, however, Nationwide Permit 26 no longer applies to designated wetlands within the Municipality.

IV. CURRENT WETLAND ISSUES AND NEEDS

The municipal ordinance adopting the 1982 Anchorage Wetlands Management Plan required that the plan be revised at least once every ten years. For the current revision, an extensive examination of alternative revision scenarios and methods was undertaken. On the basis of that examination, it was determined that a full review of all wetlands designations was needed and that issues relevant to reauthorizing the Municipality's current General Permits should also be addressed. Thus, wetland resource evaluations were updated, wetland designations were reviewed and modified, when appropriate, and maps and management strategies were revised and updated. Based on that work, a new set of wetland sites considered appropriate for a reauthorized General Permit was developed for submittal to the Corps of Engineers. New General Permits were issued to the Municipality by the Corps of Engineers in October 1994.

The following general statements identify the key issues within the Municipality that generated the need for the Wetlands Plan revision. The original goals of the 1982 Plan have not changed and remain inherent in this revised Plan.

Need A. To minimize alterations to wetlands that modify natural movements of both surface and subsurface water, damage fish and wildlife habitats, adversely affect biological productivity, reduce flood storage capacity, or alter nutrient exchange characteristics.

Need B. To provide for the growing demand for community expansion, including residential and institutional housing, commercial and industrial establishments, and transportation corridors on a land base that is largely wetlands.

Need C. To revise and update the Anchorage Wetlands Management Plan with new information, including a review and revision, as appropriate, of all wetland designations.

The chief objectives of this Plan revision are:

1. To revisit and revise, as appropriate, all wetland designations, incorporating new information.
2. To address and modify those aspects of the original plan which are outdated or which have proven ineffective.
3. To upgrade the management strategy information and guidance.
4. To obtain General Permit reauthorization based on a new subset of low value wetlands.
5. To produce new wetland maps for the entire Municipality.

Chapter 4 of this revised Plan presents a complete new set of wetland designations, management strategies, and definitions, as appropriate. As in the 1982 Anchorage Wetlands Management Plan, only freshwater wetlands have been addressed and most sites on Alaska State Park and National Forest lands and navigable waters have been excluded from this study. (The State's Eagle River Greenbelt lands are included since they are preserved under the state designation.)

Those military wetlands that are contiguous with or adjacent to private or other public wetlands, or are located in areas of previous permit activity, especially at the boundaries of private wetlands with shared infrastructure, have been included in this plan. Most other military lands have been excluded because these are under control of U.S. Executive Order 11990 and both access to and development activities in these areas are limited.

All wetland sites delineated in the original plan have been reviewed here, as have sites which were overlooked or subsequently delineated since 1982. In addition, all Special Study sites identified in

the 1982 plan have been classified in this revision. Wetland delineations are based on the original plan's boundaries and follow the 1987 Corps of Engineers Wetland Delineation Manual. Although there is no summary estimate of wetland acreage on State Park, National Forest, or military lands that have been excluded from this plan, a rough approximation of these areas might reach a figure that is 5 percent of the total wetland acres covered in this plan, or approximately 500-600 acres.

This revised plan was formally submitted to and approved by the Alaska Coastal Policy Council as a Significant Amendment to the Municipality's Coastal Management Program, per the guidelines in Alaska Regulation 6 AAC 85.

V. BOUNDARY DESCRIPTION/STUDY AREA

The Municipality of Anchorage's Coastal Boundary has been delineated in the Anchorage Coastal Management Program (CMP) document, per Alaska Statutes AAC 85.040. Areas covered in this Anchorage Wetlands Management Plan include sites within and outside the Anchorage Coastal Boundary:

1. Wetlands within the Anchorage Coastal Boundary, as outlined in the Anchorage CMP;
2. Wetlands outside the Anchorage Coastal Boundary but where a project may have a direct and significant impact on coastal resources or uses; and
3. Wetlands outside the Anchorage Coastal Boundary that will not have direct and significant impact on coastal resources or uses.

Wetlands located physically outside of the Anchorage Coastal Boundary have been included in this plan because of their general connection to coastal resources per the following State of Alaska and Anchorage CMP provisions, or for continuity and ease of management and permit review actions. Lands, waters, and land and water uses behind the management boundary shall be managed and regulated through property ordinance and other local land use regulations so that direct and significant impacts on lands and waters within the management boundary shall comply with all provisions, regulations, and requirements of the Alaska Coastal Management Act in the Anchorage area. Wetland activities outside the coastal boundary will be reviewed under the Corps of Engineers' 404 Individual or General Permit authorities, applicable municipal ordinances, and provisions of the Anchorage Wetlands Management Plan that are enforced under Municipality of Anchorage Title 29 authorities.

This provision provides for state agencies to utilize and adhere to the requirements of the Alaska Coastal Management Program Standards and Guidelines (6 AAC 80 and 6 AAC 85) within the coastal zone boundary and to permit review, evaluation, and responses to such projects. This provision recognizes, therefore, that there are some possible circumstances where an inland event could possibly have an impact on coastal waters (adapted from pages 2.5 and 2.6, Anchorage CMP).

The inland coastal boundary of the Municipality of Anchorage along the coast between the Matanuska-Susitna Borough and Potter Creek includes all lands and waters within:

1. A zone extending 1,320 feet inland, measured horizontally, from the extent of the 100-year coastal flood;
2. The 100-year floodplain or 200 feet from the center (whichever is greater) of each river and stream intersected by the 1,320-foot zone up to the 1,000-foot elevation contour; and
3. Other areas as delineated on this map (map #94, Coastal Zone Boundaries of Alaska, ACMP, June 1988).

The inland boundary in watersheds of the upper Knik River and south of Potter Creek includes all lands and waters within the 1,000-foot elevation contour. Reference to 1:25,000 or 1:63,360 USGS topographic maps, Federal Emergency Management Agency Flood Insurance Rate maps, or the Anchorage Coastal Management Program may be necessary to determine if the above criteria apply and whether the use or activity lie within the coastal zone (*Coastal Zone Boundaries of Alaska, Alaska Coastal Zone Management Program, 1988).*

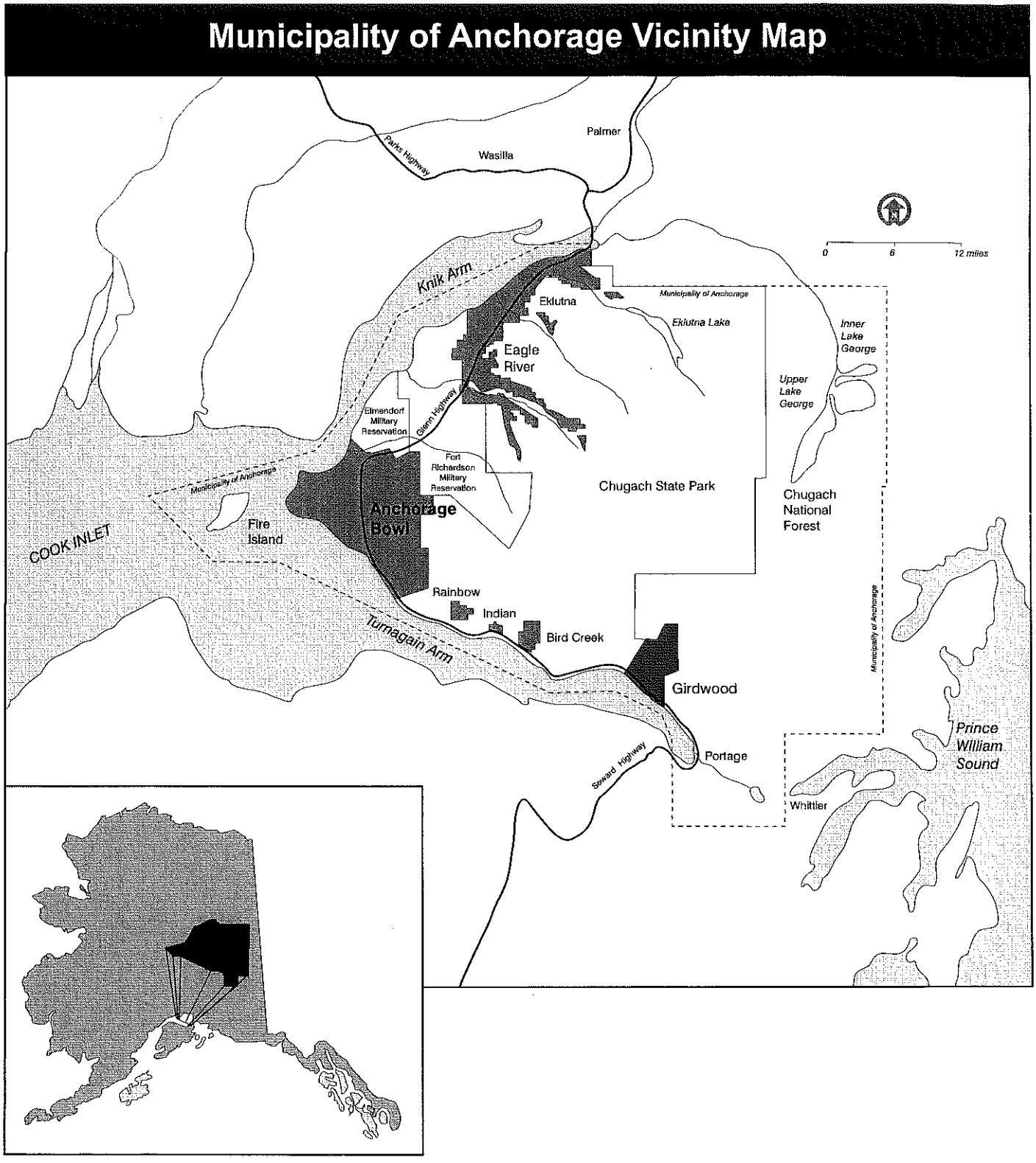
The following is a general biophysical description of the area covered in this plan. The study area for the Anchorage Wetlands Managment Plan includes the jurisdiction of the Municipality of Anchorage, which is bounded by the Chugach State Park on the east and extends from the Knik River to Portage, including several small drainages eastward along Turnagain Arm (Figure 1). As outlined earlier, Alaska State Park and National Forest wetlands were excluded from this plan. Federal military lands were generally excluded from the study area, but some wetlands on these properties were classified and mapped.

Within the study area, there are three distinct subareas:

1. Anchorage Bowl,
2. Chugiak-Eagle River northward along Knik Arm, and
3. Turnagain Arm.

The Anchorage Bowl and Chugiak- Eagle River subareas lie on a glacial plain which slopes north and west from the mountains of Chugach State Park. These subareas are drained by Eagle River and by Ship, Campbell, Chester, Fish, Potter, and Rabbit Creeks. The plain is generally less than 400 feet in elevation with very low topographic relief. The Girdwood Valley occupies a fluvial valley drained by Glacier and California Creeks. The mouth of that valley is at sea level and rises gently in elevation inland of the Seward Highway. Other valley communities along Turnagain Arm-- Indian, Bird, and Portage--are basically identical to the Girdwood Valley.

Figure 1


Municipality of Anchorage Vicinity Map
Palmer
Wasilla
Parks Highway
Knik Arm
Eklutna
Municipality of Anchorage
Eklutna Lake
Eagle River
Inner Lake George
Upper Lake George
Elmendorf Military Reservation
Glenn Highway
Fort Richardson Military Reservation
Chugach State Park
Chugach National Forest
Municipality of Anchorage
Anchorage Bowl
Fire Island
COOK INLET
Rainbow
Indian
Bird Creek
Turnagain Arm
Girdwood
Portage
Seward Highway
Whittier
Prince William Sound
0
6
12 miles

The types of wetlands that have developed in the Anchorage study area are strongly determined by the climate, geology, soils, and hydrology of the region. The description of these factors follow.

A. CLIMATE

The climate within the Anchorage study area is extremely variable. Rainfall increases with elevation in the Chugach Mountains and to the southeast of the Anchorage Bowl along Turnagain Arm. Mean annual precipitation at the International Airport in the Anchorage Bowl is about 15 inches (40-45 cm) but rapidly increases to 30 inches in the mountainous areas above 2,000 feet in elevation (Santeford 1980). In the Girdwood subarea, annual precipitation is about 30 to 40 inches (76-102 cm) (Patric and Black 1968). Mean annual temperatures in Anchorage are about 35°F (2°C), with summer temperatures ranging from about 46° to 66°F (8° to 19°C) and winter temperatures ranging from about 4° to 42°F (-16° to 6°C). Newman and Branton (1972) report that the ratio of mean annual precipitation to mean annual evaporation is approximately 1:1 for the Anchorage Bowl and Eagle River subareas; therefore, the mean annual water balance in these areas is approximately zero. The water balance becomes increasingly negative (evaporation greater than precipitation) to the north and positive to the south of Anchorage. In contrast to the zero water balance in the Anchorage Bowl and Eagle River subareas, Patric and Black (1968) report a 19-inch surplus of rainfall over evapotranspiration at Girdwood.

The climate of Anchorage is considered to be more continental than maritime (Newman and Branton 1972). The climate of the Anchorage Bowl is dry sub-humid, and that of Girdwood is humid with little or no water deficiency. The effects of such climatic differences on wetland development in the Anchorage Bowl and Girdwood subareas are manifested most obviously in the form and species of vegetation; these differences necessitated differentiating between the Anchorage Bowl and Girdwood subareas in the wetland classification.

B. GEOLOGY

Past glacial activities have formed the geomorphic setting of the Anchorage wetlands. The study area includes a low-elevation, flat plain that is bordered on the east by the abrupt mountain front of the Chugach Mountains. There is a series of ridges and isolated hills between the mountain front and the Anchorage plain. Surficial materials were deposited over much of the Anchorage Bowl and Eagle River areas during the most recent glacial period by:

- Glacial ice along the Chugach Mountain front and the Eagle River area; and
- Flowing water in streams and deltas (between the two glacial ice deposits and in the hummocky region between Point Woronzof and Point Campbell).

Wetlands have developed mainly in the troughs and depressions found in the moraines and terraces, in the stream valley bottoms, and in areas overlying clay.

The generalized geologic map of Anchorage and vicinity (Schmoll and Dobrovolny 1972) shows the surficial deposits, including peat deposits thicker than two feet. From this map, it is possible to determine the types of substratum that underlie the peatlands. They are:

- Bootlegger Cove Clay in the Campbell Lake area;
- Sand deposits in a wide, low-lying belt centered around Connors Lake, underlain by Bootlegger Cove clay; and
- Alluvium in historic stream channels and on terraces along current streams.

C. SOILS

The soils of the Anchorage area, mapped by the Soil Conservation Service and presented in the Municipality of Anchorage Urban Study (U.S. Corps of Engineers 1979), include eight wetland soil types. Most of these wetland soil types are characterized by a fairly thick organic of peat layer, consisting "largely of organic residues accumulated as a result of incomplete decomposition of dead plant constituents due to the prevailing anaerobic conditions" (Stanek 1977). Therefore, most of the wetlands of the Anchorage area identified in this study are generally considered peatlands (frequently called muskegs in northern regions). Although the Anchorage soil survey does not provide specific measurements of the thickness of the peat deposits underlying these peatlands, Stanek (1977) defines a peat soil as "more than 30 cm (12 inches) thick when drained or 45 cm (18 inches) when undrained, the ash content not more than 80 percent. "

D. HYDROLOGY

Wetland types are determined in part by the hydrological characteristics of the area. These characteristics include inflow and outflow in addition to the evapotranspiration rate.

Surface water is abundant in the area with an average annual daily flow of 359 million gallons per day (mgd) discharging from Eagle River, 105 mgd discharging from Ship Creek, and 25 mgd from the South Fork of Campbell Creek (U.S. Geological Survey 1979). Natural lakes are also abundant, but man-made Campbell and Westchester Lakes are the only known surface impoundments with continuous inflow and outflow (Zenone 1976). Surface water is very important to the Municipality of Anchorage as a partial source of municipal water supply for recreation, private and commercial air transportation, and fish and wildlife rearing and habitat.

Groundwater occurs at depths of less than 50 feet throughout the Anchorage Bowl area and, in most areas, the depth to the water is less than 10 feet. Two major aquifer systems have been identified by Cederstrom et al. (1964)--an upper unconfined aquifer and a lower artesian aquifer. The upper aquifer is composed of peat, glacial sand and gravel, varying in thickness from 10 to 50 feet and only moderately permeable. In wetland areas, the unconfined aquifer is composed principally of silt, clay, and peat and is only slightly permeable.

The artesian aquifer underlies most of the Anchorage area but merges with the unconfined aquifer west of the Anchorage airport. The artesian aquifer is comprised of long, thin layers of sand and

gravel, separated by confining layers of fine-grained glacial till. The artesian aquifer system is a major source of municipal groundwater supplies and most of the domestic supplies. The piezometric surface of the aquifer varies from 300 feet above sea level near the Chugach Mountains to less than 50 feet near the airport and the coastal area.

In the Eagle River area, a bedrock aquifer was reported by Zenone et al. (1974), but most well production comes from the unconsolidated sediments in alluvial fans. The relationship between the unconfined and artesian aquifers has not been defined, but water level elevations decline rapidly from 600 feet above sea level one mile east of the town of Eagle River to 200 feet above sea level near Lower Fire Lake and the Glenn Highway.

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CHAPTER 2: RESOURCE INVENTORY AND ANALYSIS

A resource inventory (6 AAC 85.050) and a resource analysis (6 AAC 85.060) must be delineated and presented in any Coastal District plan as a requirement of the Alaska Coastal Management Program Statutes. Chapter 4 (Resource Analysis) of the original wetland plan addressed this requirement and related information was presented in separate background studies. A summary of that original Chapter 4 is included in this report, and a new resource inventory and analysis is described and summarized below. Additional resource inventory and analysis information was also presented in Chapters 2 and 3 of the original plan. Relevant information from the original Chapter 2 has been incorporated into this chapter, both in the 1982 Plan Summary sections and in the new text. Chapter 3 from the 1982 plan is no longer needed as a chapter item and has been deleted.

I. RESOURCE INVENTORY

A. 1982 PLAN

Wetland sites within the Municipality of Anchorage study area were located and identified with the use of 1-inch to 1,000-foot scale, color panchromatic aerial photographs taken in September 1979 and with 1:64,000-scale, color infra-red aerial photographs taken in August 1978. These aerial photos are located in the Municipality's Department of Community Planning and Development storage archives. Wetlands were mapped for all non-military, State Park, and National Forest lands for the Anchorage Bowl, the Eagle River-Eklutna, and Girdwood Valley areas. Limited ground checking was conducted in the summer of 1980 to verify the relationship between photo images and wetland boundaries. Wetland areas were delineated based on what was then the most current methodology used by the Corps of Engineers for wetland delineation.

A direct transfer of wetland boundaries was made from the 1:64,000-scale mylar tracings to the 1:63,360-scale U.S. Geological Survey topographic base maps of the Girdwood subarea. For the Anchorage Bowl and Eagle River subareas, the color infra-red photographs were enlarged to a scale of 1:25,000 to correspond with the U.S. Geological Survey topographic base maps used in the mapping. Wetland boundaries traced from the 1:1,000-scale mylars were transferred to 1:200-scale Municipality of Anchorage orthophoto maps of the Anchorage Bowl and Eagle River subareas. Final wetland maps were checked and revised, as necessary, by the Corps of Engineers. After the plan maps were produced, the Municipality developed 1:500-scale wetland maps for the Anchorage Bowl and, later, for the Eagle River-Eklutna subarea. Copies of the original 1982 1:500-scale maps are on file in the Department of Community Planning and Development.

B. 1995 PLAN

For the ten-year revision, the original wetland base maps were used. With a few exceptions as identified in Chapter 1, freshwater wetlands in all privately owned, non-State Park, non-National Forest, and non-military lands, from Eklutna to Portage were identified, mapped, and assessed. A subset of new wetlands, identified by both the Department of Community Planning and

Development and the Corps of Engineers staff, has been added to the original wetland maps. All boundaries of the original wetland areas were revisited and redrawn or adjusted to reflect the finer definition of wetlands as outlined in the 1987 Corps of Engineers Wetlands Delineation Manual. In addition, all sites filled since the original plan have been deleted or redrawn to reflect partial fillings and new wetland boundaries. The new Anchorage Wetland Management Plan maps, therefore, contain all unfilled original wetland sites, adjusted as necessary, and all new sites identified in the eleven-year interim.

Upon formal adoption by the State and the Municipality of the ten-year revision of the Anchorage Wetlands Management Plan, new 1:500- scale mylars will be reproduced for the Anchorage Bowl, Eagle River-Eklutna, and Turnagain Arm, the latter including the area from Indian to Portage.

II. RESOURCE ANALYSIS

A. 1982 PLAN

The resource analysis of wetland types contained in the 1982 plan included three sequential steps:

1. Identification of wetland characteristics and evaluation criteria;
2. Development of a resource matrix; and
3. Weighting of criteria.

All of this information was published in a multi-volume, separate report completed prior to adoption of the original plan in 1982. This report is on file at the Department of Community Planning and Development.

Step one involved an identification of wetlands characteristics and potential wetland values from a literature review and from discussions with local resource agency personnel. Wetland characters were grouped into biological, hydrological, and human use categories.

Step two involved the development of a resource matrix for each wetland area and, once the matrix criteria were evaluated, the ratings for criteria within each wetland character were combined to formulate a single rating for each character.

Step three is a weighting system further developed to emphasize greater importance for certain characters. From a final evaluation of the resource matrix and its rating scheme, a pattern of high, medium, and low values was assigned to the various wetland types. This information was used as a guide for the formulation and evaluation of alternative management plans as outlined in Chapter 6 of the original plan.

B. 1995 PLAN

Actual values and the significance of various functions performed by wetlands vary widely within wetland sites and within subareas of the Municipality. Because of these individual variations, the

Municipality undertook a wetland resource analysis that is documented in Chapter 4 of the original 1982 plan. The results of this resource analysis produced information used to develop high, medium, and low scenarios of wetland management for the Municipality. The Municipality ultimately adopted the moderate management level, and the original plan's designations reflected this level.

Protection scenarios for the higher value sites were presented in the management strategy section of Chapter 6 in the original plan. The resource evaluation process was also intended to fulfill resource inventory requirements mandated by the Alaska Statutes (6 AAC 85.050-.060).

Since adoption of the original Wetlands Plan, state-of-the-art wetlands evaluation procedures and general knowledge of wetland functions have advanced considerably. The local understanding of the Municipality's individual wetland functions and values has also increased. It became apparent that resource evaluations contained in the 1982 plan were too subjective, inexact, and did not adequately represent each of the Municipality's wetlands. A new local wetland resource evaluation was therefore conducted.

The new resource evaluation uses the Anchorage Wetlands Assessment Methodology, which was developed by the Municipality and customized specifically for the greater Anchorage area. The methodology was developed in conjunction with relevant federal and state resource agencies, and with additional peer review from resource evaluation experts from the U.S. Fish and Wildlife Service. A copy of the Anchorage Wetlands Assessment Methodology is included as an appendix to this report. The Anchorage methodology is intended to be adopted as part of the Anchorage Wetlands Management Plan. Actual field work sheets for each wetland evaluation are on file with the Department of Community Planning and Development. In addition, a separate report entitled Anchorage Wetlands Management Plan-Background Information, Volume II includes a copy of the methodology justification, explanation paper, and a bibliography. The report is on file with the Department of Community Planning and Development.

This new resource evaluation is intended to replace the resource analysis contained in Chapter 4 of the original 1982 plan. The new assessment method also fulfills the Alaska Coastal Management Program requirements for a resource inventory (6 AAC 85.050) and as an assessment of the Municipality's dominant features (6 AAC 80.160).

The resource analysis in the original wetland plan presented a classification scheme which placed the Municipality's wetlands into plant community types. Wetland functions were evaluated for each type and the types were placed into a hierarchy of high, medium, and low values. From this classification came the original wetland designations. This current plan revision does not duplicate the original wetlands typing. Instead, all wetland types were evaluated equally. As in the original plan, the assessment method was applied to all freshwater wetlands in the greater Anchorage area.

The new methodology evaluates four wetland functions:

1. Hydrology,
2. Habitat,
3. Species Occurrence, and
4. Social Function.

Each category includes factors which address virtually all aspects of the most common wetland functions:

1. Sediment trapping;
2. Flood retention;
3. Erosion control; nutrient retention, and transport;
4. Fish, wildlife, and plant habitats; and
5. Recreation and heritage values.

Many of these factors were not included or only generally identified in the original resource analysis. For further review of the evaluation methods, refer to the evaluation data work sheets included in the Appendices.

Unlike the resource analysis contained in the original plan, the new assessment method does not weight individual functions, nor does it add the four scores into a single total score for each site. Instead, each of the four category scores is listed independently. Evaluating scores in this manner facilitates the understanding of a site's ability to perform each of the key wetland functions. Adding the scores from each category to a single total would merge values, confuse the evaluation process, and obscure a site's specific wetland functions.

In order to place the new assessment into proper perspective, wetland scores from each of the Municipality's three subareas: Anchorage Bowl, Chugiak-Eagle River, and Turnagain Arm, were grouped and compared only by each subarea. This method was appropriate since wetland areas within each of these subareas are noticeably different from each other and the data are more meaningful if these associations are kept separate.

Throughout the Municipality, there are fairly simple wetland assemblages along most small streams and feeder tributaries. Turnagain Arm wetlands are characterized by lower plant diversity and are dominated by the coastal Sitka spruce-western hemlock forest community. There are also a few patterned ground-like bogs in the Girdwood Valley. Anchorage Bowl wetlands include large-scale, very diverse, patterned ground bogs and riparian complexes, mixed open meadows, and black spruce thickets. In the Chugiak-Eagle River subarea, there is a mix of wetland types with none being dominant. Along Eagle River, there is a mosaic of large open floodplain wetlands, old sloughs and river terraces and black spruce woods. Large bog-like complexes exist adjacent to larger lakes in the northern area of the Municipality. Throughout the Municipality, wetland functions related to fish and wildlife habitat and biological productivity become reduced in significance with distance from tidewater and, especially, with increases in elevation.

1. Wetland Scores

The four wetland function scores for each site served as the key indicators and basis for individual wetland designations. Final designations were reached using a combination of the scores, knowledge of on-site conditions (especially when these were weakly reflected or delineated in the assessments), and other parameters such as platting, zoning, existence of infrastructure, floodplain, coastal zone designations, and relation of site to local drainage studies. In no case, however, did the other site parameters alone determine a site's designation. They were always secondary to the main assessment scores and on-site conditions.

To clearly identify the Municipality's reasoning in the assignment of designations for each site, a separate report has been developed which outlines the key justifications used for every wetland designation. This report, entitled Anchorage Wetlands Management Plan-Background Information, Volume II, includes specific background information on the resource evaluation method and a justification and explanation section on wetland designations.

To develop designation cut-off points within the range of wetland scores for each subarea, all scores from the new assessments were graphed by wetland function and by Municipality subarea. By this means, it was possible to identify groupings of scores in the general range of high, medium, and low totals. These natural groupings served as the basic break points for the identification of "A," "B," and "C" wetland sites. A separate report is available from the Department of Community Planning and Development which provides all the background that the Municipality relied upon to reach final wetland designations.

Most score cut-offs are close to the average scores calculated for wetlands under the original designations in the 1982 plan. For example, the Anchorage Bowl wetlands originally classified as "Preservation" averaged 108 points for the Hydrology category. The new cut-off for "A" wetlands for the Hydrology function is a score greater than 100 points.

Generally, sites with a very high score for more than one function category were designated at least "B" and, most often, were given an "A" designation. These sites are generally of importance to public health and safety and any fills are considered detrimental due to their potential impacts on hydrology and water quality functions.

Determining break points for "B" wetlands was more difficult. Since "B" wetlands generally have a wide range of wetland functions at varying levels of significance, it was seldom easy to separate out a "B" wetland from others based on scores alone. Consequently, "B" sites showed the greatest range of scores for each wetland function category.

Sites with a mid-range of scores typically reflect the "B" designation. Moderate scores were assigned to those sites where the wetland functions were not critical. However, most "B" sites provide at least periodic significant contributions to key wetland functions, usually on a more localized scale; i.e., within a watershed or drainage basin. Generally, cumulative losses associated

with filling "B" wetlands would likely contribute to significant drainage basin or watershed water quality losses, flood problems, or loss of wildlife habitats and/or public uses.

Sites with minimal scores for more than one category were generally classified as "C." "C" wetland functions are not significant and are more often minimal or lacking. Individual and cumulative impacts from loss of "C" sites would be negligible, especially given the site-specific management strategies for "C" areas. Nevertheless, some sites with low scores were designated in a higher class if more than one significant species was present. Significant species are identified within the Species Occurrence category.

There are instances where the final wetland designations deviate from the general scoring break rules outlined earlier in this section. There are two main reasons for this.

First, in nearly all cases, these deviations occurred where the assessments did not accurately reflect existing on-site conditions. In such cases, final designations deviated to both higher and lower levels from the score break guidelines based on best professional judgments derived from knowledge of each site.

Second, many sites with score deviations include wetlands where the significant or higher value sections are concentrated, either geographically on-site or around a waterbody. With these particular sites, it seemed prudent to use the specifics in the management strategies to protect, or otherwise address, a high score or function.

Wetland areas along the mid-Little Campbell Creek watershed exemplify this second phenomenon, where transition black spruce wooded wetlands grade to riparian areas along the channel. The outer edges of the black spruce woods were generally lower in value than the immediate riparian zone wetlands, a breakdown not delineated or represented in the assessment scores.

2. Acreage Breakdown

Table 1 summarizes new acreage totals for each of the new wetland designations within the three geographic subareas of the Municipality.

For a comparison to the breakdown of new designations in this plan revision, the 1982 original plan designated approximately **9,408** acres of wetlands in the ***Anchorage Bowl*** subarea, in the following categories:

Preservation	=	3,793 acres	
Conservation	=	1,066 acres	
Developable	=	3,949 acres	(includes Mixed Developable category)
Special Study	=	600 acres	
TOTAL	=	**9,408 acres**	

C. CUMULATIVE IMPACTS

As outlined in Chapter I, a 1993 U.S. Fish and Wildlife Service study summarizes the extent and type of fill wetland projects undertaken in the Municipality, both from 1950 and within the period since the 1982 Wetlands Plan adoption. Other studies by that agency attempt to qualify the cumulative impacts from these fills over time on Anchorage area wildlife habitat and plant communities. In general , those studies summarize an overall trend of habitat loss for several of the most sensitive waterbird species (e.g., Hudsonian Godwit) that nest in patterned ground bogs within the Anchorage Bowl. The vegetation studies show that in several of the larger, more impacted bogs an overall drying trend is allowing brushier, scrub-shrub plant species/communities to intrude into originally wetter bog cores.

Other less documented, but probable or assumed cumulative impacts from wetland fills since the 1950's include trends towards reduced water quality in Anchorage Bowl streams, especially for sediment and the more ubiquitous metals. The Alaska Department of Fish and Game has some documentation of reduced anadromous fish populations in several Anchorage Bowl streams which has initiated a fish habitat enhancement program and policy for the Bowl. Local hydrologic changes within individual wetlands, identified as blocked surface and subsurface drainages, and more common local flooding within area floodplains after even marginal storm events have also been experienced. The extent to which these hydrologic functions have been altered is not well documented, but certainly wetland fills, especially before the 1982 Plan adoption, have contributed to this effect.

Table 1

SUMMARY OF FRESHWATER WETLAND ACREAGE BY DESIGNATION AND SUBAREA

Subarea	"A" Designation		"B" Designation		"C" Designation		Total Acreage
	Acreage	% of Total	Acreage	% of Total	Acreage	% of Total	
Anchorage Bowl	4,337	59.6%	1,114.00	15.3%	1,818.0	25%	7,269
Eagle River to Eklutna	1,790	54.0%	944.00	28.0%	573.0	18%	3,308
Turnagain Arm	468	65.0%	113.45	16.0%	134.5	19%	716
TOTAL	**6,595**	**58.0%**	**2,171.50**	**19.0%**	**2,525.5**	**22%**	**11,292**

Note: Acreage figures are approximate, especially for the Eagle River to Eklutna subarea, which does not include acreages for the Eagle River greenbelt and military land wetlands.

Source: Municipality of Anchorage, Department of Community Development and Planning.

Anchorage Bowl creeks with the more prolific and regular flooding problems, notably Little Campbell/Campbell, Chester, Fish, and Furrow Creeks, are also the watersheds with the most accumulated wetland fills and channel alterations. As an example, the Corps of Engineers' Environmental Assessment for the 1987 reauthorization of Anchorage's General Permits included an accounting of past General Permits issued in each Anchorage Bowl watershed. Of the 75 permits issued, 50 were in the Little Campbell/Campbell Creek watershed, 10 were in the Furrow Creek watershed, and 6 were located in the Chester Creek watershed.

In direct response to these cumulative impacts analyses and summaries, the Municipality, in the Wetlands Plan revision, and the Corps of Engineers in the General Permits reauthorization, have taken steps to reverse or minimize past trends and address future cumulative impacts. These steps are incorporated as conditions on the new General Permits and as site-specific conditions and guidelines in Table 2 of this plan. Many of the new enforceable policies in Chapter 4 address past and future cumulative impacts. For example, stream setbacks and additional site restrictions are incorporated into all riparian wetlands, especially those sensitive areas within the Little Campbell/Campbell Creek watersheds. Also, the management strategies for upper Hillside wetlands call for site fill restrictions to further minimize impacts in headwater wetlands. There is also an effort supported by permit conditions to: 1) expand buffer zones between "C" and "A" or "B" sites; 2) require drainage impact analysis to further reduce fill impacts on local hydrology, and; 3) require other site-specific Best Management Practices that address individual and cumulative impacts. In order to ensure minimal cumulative impacts to "A" and "B" wetlands, new and expanded enforceable policies are included in this revised plan.

The "C" wetlands have been grouped because of their generally low wetland values and functions. Only those wetlands which, if developed, would have negligible individual and cumulative environmental impacts are included in this designation. This determination of insignificant impacts from future developments is appropriate since most of the "C" wetlands have very low scores for all wetland functions, as delineated in the wetland assessment methodology, and the functional loss of those wetlands would not accumulate to significant proportions. After reviewing the scores and known site values of the "C" wetlands, it was determined that if the "C" sites were filled according to conditions of the General Permits and enforceable policies that the sum of their lost functions would not represent a significant cumulative environmental impact. Since most "C" wetlands do not provide significant wildlife habitat or water quality functions, wildlife habitat within the Municipality will not be adversely impacted if and when these sites are filled.

In those instances where "C" sites have moderate scores, those wetland functions are identified and addressed in the management strategies through site-specific setbacks, timing restrictions, and Best Management Practices. For the first time, this plan also attempts, through the use of expanded buffers and other methods, to address secondary impacts of "C" site fills on adjacent "A" or "B" sites. (Also note new setbacks in large, split-designations wetlands.) No longer are "C" wetlands simply meant to be totally filled without efforts to address and minimize individual and cumulative impacts. Fill avoidance and minimization are incorporated into the general management and guidance for "C" sites.

CHAPTER 3: CORPS OF ENGINEERS WETLANDS PROGRAM

I. PERMIT RESPONSIBILITY

The U.S. Corps of Engineers is responsible for the regulation of discharges of dredged or fill material into the waters of the United States. This responsibility extends to the wetlands of the Anchorage area. It includes both wetlands that are associated with navigable waters and with other waters of the United States. This chapter is limited to those associated with other waters of the United States because the Anchorage Wetlands Management Plan focuses only on freshwater wetlands not associated with navigable waters, State parklands, National Forest lands, and most military lands.

Jurisdiction for discharges of dredged or fill material in waters of the United States is found in the Clean Water Act. The Act charges the Department of the Army with the responsibility of implementing Section 404 which establishes a permit system to regulate the discharge of dredged or fill material into the waters of the United States. The regulations under which the Corps of Engineers currently operates became effective November 13, 1986. The objective of these regulations is to ensure that the chemical, physical and biological integrity of waters of the United States is protected from irresponsible and unregulated discharges of dredged or fill material that could permanently destroy or alter the character of these valuable resources.

The Corps of Engineers' procedures for the regulation of these discharges provide for the consideration of the concerns of the public. Environmental, social and economic issues are included in the process leading to the issuance or denial of a permit. The decision whether to issue a permit will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonable, foreseeable detriments.

All factors which may be relevant to the proposal will be considered. Among those are:

- conservation
- econmics, aesthetics
- general environmental concerns
- historic values
- flood damage prevention
- land use
- navigation
- recreation
- water supply
- water quality
- energy needs
- safety
- food production
- in general, the needs and welfare of the people

It should be emphasized that a permit issued by the Corps of Engineers under Section 404 authorizes only the placement (discharge) of dredged or fill material. However, the applicant for a

permit must specify the use for which the fill is intended. A permittee may not change the use of his or her fill without permission from the Corps of Engineers.

The kinds of discharges which require a permit include:

- dredged material;
- fills for development of recreational, industrial, commercial and residential sites;
- fills for causeways;
- road fills;
- dams and dikes;
- artificial islands;
- property protection and reclamation structures, such as riprap, groins, sea walls, breakwaters, bulkheads and levees;
- beach nourishment;
- sanitary landfills and backfill for placement of sewage treatment facilities; and
- other similar discharges.

Certain types of work have been exempted from the permit requirement by the Clean Water Act. However, these works are exempt only if they do not change the use of waters of the United States, do not alter the flow or circulation of waters of the United States, and do not reduce the reach of such waters of the United States. These exceptions are:

- Discharges from normal farming, silviculture and ranching activities such as plowing, seeding cultivation, minor drainage, harvesting for the production of food, fiber and forest products, or upland (non-wetland) soil and water conservation practices. This exemption does not mean that refuse may intentionally be dumped into waters of the United States; rather, it exempts discharges that cannot reasonably be prevented. Damming of major streams, diking and other discharges of dredged or fill materials into wetlands will require permits.
- Maintenance, including emergency reconstruction of recently damaged parts of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways and abutments or approaches, and transportation structures. Of course, this exemption does not cover maintenance of work done or structures built in violation of the law.
- Construction or maintenance of farm or stock ponds or irrigation ditches, or the maintenance of drainage ditches. Although the maintenance of drainage ditches does not require a permit, if the dredged material is discharged into waters of the United States and represents a change in use of the waters, a permit will be required. Such work done in tidal waters of the United States will usually require a permit.

- Construction of temporary sedimentation basins on a construction site which does not include placement of ill material into waters of the United States.
- Construction or maintenance of farm roads or forest roads, or temporary roads for moving mining equipment. Such roads must be constructed and maintained in a manner that assures that flow and circulation patterns and chemical and biological characteristics of the waters of the United States are not impaired, that the reach of waters of the United States is not reduced, and that harmful effects on the aquatic environment will be as small as possible.

There are three types of permits that the Corps of Engineers issues under Section 404. These are:

1. Nationwide,
2. Individual, and
3. General.

The Nationwide Permit is an authorization for certain types of discharge of dredged or fill material and for discharges into certain kinds of waters of the United States. The Nationwide Permit was issued as a part of the Corps of Engineers' regulations on July 19, 1977, and has been reauthorized in a February 1992 Public Notice.

A. NATIONWIDE PERMITS

Nationwide Permits were originally adopted within the context of the Clean Water Act, under Section 404. On November 22, 1991, the Corps of Engineers published amendments to the Nationwide Permit program at 33 CFR 330. A final list of amended Nationwide Permits and special conditions were published in Appendix A to 33 CFR 330. The State of Alaska issued a Section 401 Water Quality Certification for all Nationwide Permits that may result in a discharge in wetlands. An exception to this authorization is Nationwide 26, which cannot be issued until an individual 401 Water Quality Certification for a specific project is applied for and obtained from the State of Alaska.

On the following page is a list of all Nationwide Permits currently authorized by the Corps of Engineers. Additional details and specific conditions of authorization are available from the Corps of Engineers in Anchorage.

In addition to the specific conditions for each of the Nationwide Permits, there are an additional 13 General Conditions that must be followed for any Nationwide activity, and a set of 9 Specific Conditions related to any Nationwide activity that involve a discharge of dredged or fill materials, per Section 404 permits. Finally, there also exist a set of Alaska Regional conditions for various Nationwides, particularly for Nationwide 26.

NATIONWIDE PERMITS

No.	Permit
1	Aids to Navigation
2	Structures in Artificial Canals
3	Maintenance of any previously authorized fill
4	Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities
5	Scientific Measurement Devices
6	Survey Activities;
7	Outfall Structures
8	Oil and Gas Structures
9	Structures in Fleeting and Anchorage (marine structures) Areas
10	Mooring Buoys
11	Temporary Recreational Structures
12	Utility Line Backfill and Bedding
13	Bank Stabilization, with specific conditions
14	Road Crossing
15	U.S. Coast Guard Approved Bridges
16	Return Water from Upland Contained Disposal Areas
17	Hydropower Projects
18	Minor Discharges, with specific conditions
19	Minor Dredging
20	Oil Spill Clean-Up
21	Surface Coal Mining Activities
22	Removal of Vessels
23	Approved Categorical Exclusions
24	State-Administered Section 404 Programs
25	Structural Discharge
26	Headwaters and Isolated Waters Discharges, with specific conditions, e.g., for areas of less than 10 acres
27	Wetland and Riparian Restoration and Creation Activities
28	Modifications of Existing Marinas
29 - 31	Reserved for future projects
32	Completed Enforcement Actions
33	Temporary Construction, Access, and Dewatering
34	Cranberry Production Activities
35	Maintenance Dredging of Existing Basins
36	Boat Ramps, for under 50 cubic yards of discharge
37	Emergency Watershed Protection and Rehabilitation
38	Clean-Up of Hazardous and Toxic Waste
39	Reserved for future uses
40	Farm Buildings

B. GENERAL PERMIT

The General Permit is a permit that may be issued for a category of discharges of dredged or fill material that are substantially similar in nature and that cause only minimal, individual and cumulative adverse environmental impact. A General Permit is issued after an evaluation of the proposed category of discharges and a determination that the proposed discharges will be in the public interest. After a General Permit has been issued, individual activities falling within those categories will not require Individual Permit processing unless the District Engineer determines, on a case-by-case basis, that the public interest requires individual review.

The Corps of Engineers issued a General Permit to the Municipality of Anchorage in 1982, which covers permitting within the Municipality on "Developable" wetlands as classified in the Anchorage Wetlands Management Plan. Issuance of a General Permit for wetlands fill projects in those wetlands was administered by the Municipality's Department of Community Planning and Development. This General Permit was renewed once, in 1988, and expired in December 1993.

C. INDIVIDUAL PERMIT

The Individual Permit is a permit that may be issued following a case-by-case evaluation of a specific project involving the proposed discharge and determination that the proposed discharge is in the public interest. The case-by-case evaluation involves a public review period, during which time comments are solicited from the various interested local, state, and federal agencies, as well as the general public. These comments are compiled and, following deliberation, the District Engineer makes the decision to issue or deny a permit.

II. WETLANDS DETERMINATION RESPONSIBILITY

The Corps of Engineers' regulations pertaining to the issuance of Section 404 permits identifies wetlands as part of the waters of the United States over which the Corps has jurisdiction. These regulations also define wetlands as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas."

In an effort to better delineate wetlands based upon this definition, the Corps of Engineers has developed a multiple parameter approach to identify and delineate wetlands. This approach uses three parameters as diagnostic measures of a wetland. These are Hydrology, Soils, and Vegetation. A positive indication in all three parameters is necessary to identify an area as a wetland:

- Hydrology — the area is inundated or saturated either permanently or periodically during the growing season of the prevalent vegetation;
- Soils — the soils within the root zone are saturated permanently or periodically during the growing season of the prevalent vegetation;
- Vegetation — the prevalent plant species associated with the plant community are typically adapted for life within habitats that have permanent or alternating dry and inundated and/or saturated soil conditions, as characterized by the hydrology and soil conditions.

Use of this multi-parameter approach allows an accurate identification and delineation of a wetlands to be made. For every project in an area that may be wetlands, the Corps of Engineers is responsible for making the identification of the area as either wetlands or non-wetlands as far as the need for obtaining a Department of the Army permit is concerned.

Once an area is identified as a wetlands, the Corps of Engineers must determine if the proposed discharge is covered under a General Permit, the Nationwide Permit, or requires an Individual Permit. A simple search of the files will determine the existence of an applicable General Permit. Additional site information is required before determination can be made concerning the Nationwide Permit or Individual Permit. The location of the wetlands, its size, the proposed project location and magnitude of the work all need to be known before it can be determined if a discharge will be covered under the Nationwide Permit or an Individual Permit. This determination is the responsibility of the Corps of Engineers.

III. CORPS OF ENGINEERS 404 PERMIT PROCESS

The following summarizes the process involved in the Corps of Engineers regulatory program:

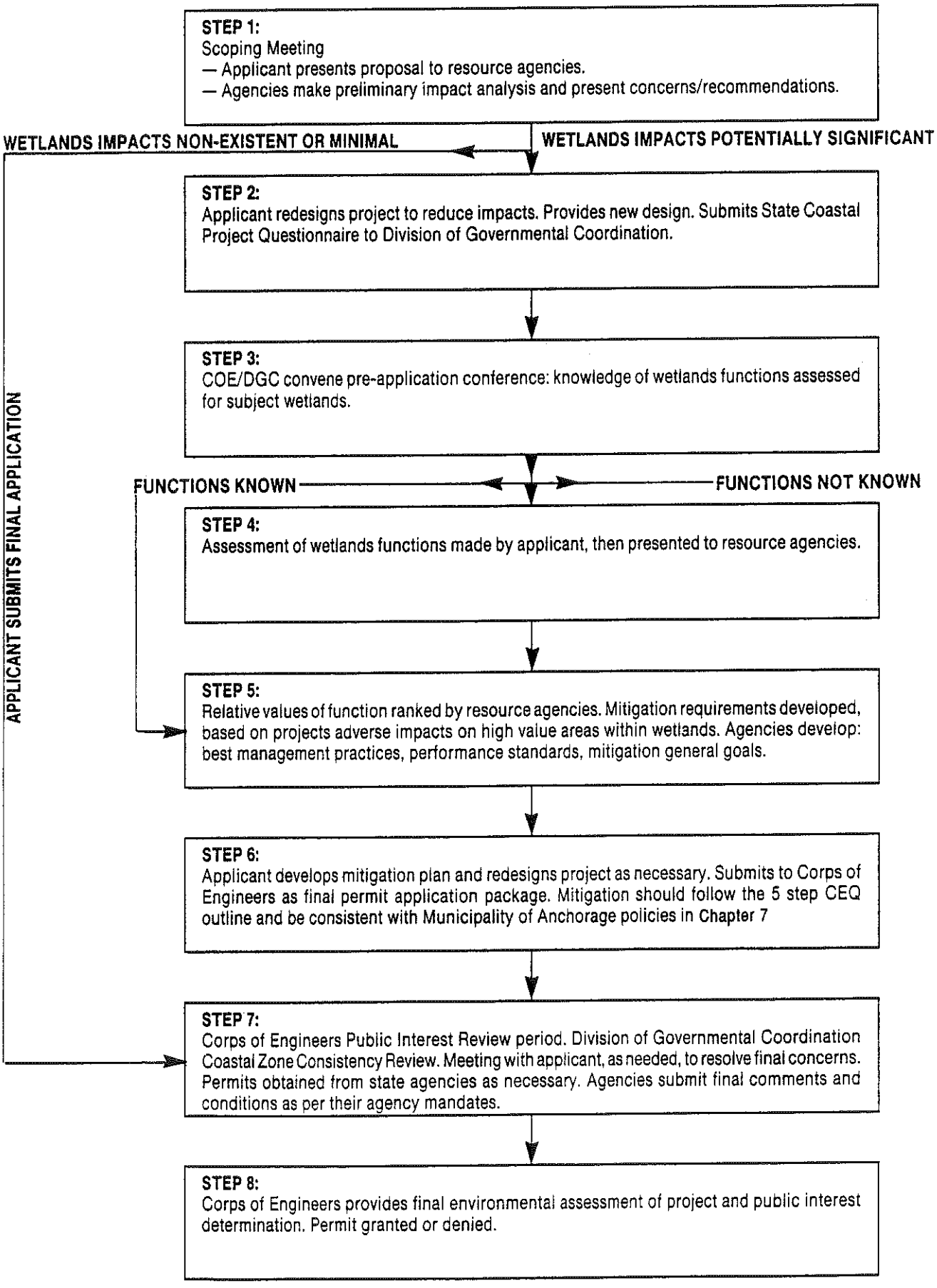
1. The area is identified as wetlands or non-wetlands.
2. If a wetland, determination must be made of what type of permit is required.
3. If an Individual Permit is required, an application for permit is processed. If the discharge is covered by the Nationwide Permit, no further application is needed. It is generally recommended that a letter of clarification requesting Nationwide Permit authorization be submitted to the Corps of Engineers prior to any project work in wetlands. In all cases, discretionary authority is retained by the District Engineer to require an Individual Permit review.
4. When an Individual Permit is required for a proposed fill project in wetlands within the Municipality of Anchorage, the Corps of Engineers enlists and encourages a pre-application meeting with the applicant in which the project is presented to the resource agencies responsible for the Section 404 review.
5. Figure 2 is a schematic presentation of a Corps of Engineers 404 review. Wetlands concerns, design standards and other wetlands functions are discussed and explained at this pre-application meeting. The applicant should then redesign his or her proposal to incorporate those concerns.
6. Shortly after this pre-application meeting, the review resource agencies meet to assess and compile known information about those wetlands functions present within the subject wetlands. An assessment of estimated adverse impacts from the proposed project is also developed and information gaps, if present, about wetlands functions are identified. If functions information is incomplete, the applicant will be required to determine these and submit his or her results to the Corps of Engineers.
7. After a full wetlands function analysis is complete, the Corps of Engineers will convene a second pre-application conference where the subject wetlands functions are ranked and mitigation requirements for the proposed project and its impacts are articulated. Mitigation requirements include

mitigation objectives, Best Management Practices for the construction period, and project specific Performance Standards. It is at this point that the applicant now has a completed pre-application process which fully outlines the mitigation requirements and concerns of the resource review agencies. The applicant can then submit to the Corps of Engineers a mitigation plan for agency review which, if complete, can then accompany a final project design application.

8. The Public Notice project review period then commences. At that time, the applicant has the option to respond to various incoming comments in the review period and alter design if necessary. The resource agencies submit final comments to the Corps of Engineers based on their agency mandate. The Corps of Engineers develops a final Environmental Assessment after the Public Notice closure, which serves as the basis for permit denial or issuance. The applicant will receive a pre-permit issuance or denial notice and final issuance or denial follows shortly thereafter. Any appeal after permit denial must go to the Corps of Engineers.

FIGURE 2

PERMIT APPLICATION PROCESS



CHAPTER 4: MANAGEMENT PLAN/ ENFORCEABLE POLICIES

I. INTRODUCTION AND BACKGROUND INFORMATION

A. OVERALL ORGANIZATION OF CHAPTER 4

This chapter is organized per guidelines for plans and enforceable policies in Alaska Statutes at 6 AAC 85.070 and .090. The organization of components in this chapter is intended "...to allow clear understanding of who will be affected" and what is required of potential applicants in any given wetlands site (6 AAC 85.090(a)(2). All enforceable policies in this plan revision are now "clearly identified and located in a single section of the program document" per 6 AAC 85.090(b).

The enforceable portions of this plan are presented in *italics* in Chapter 4, and include the definitions in Section II, the Enforceable Policies in Section III. B., and the site-specific Management Strategies in Table 2. A potential developer, a permit reviewer, or the general public reviewing a particular wetland project should consider not only the site-specific Management Strategies, but also the applicable Enforceable Policies and appropriate definitions. Taken as a whole, these enforceable sections of this plan provide detailed, enforceable guidance on the management of Anchorage's wetland resources.

B. 1982 ANCHORAGE WETLANDS MANAGEMENT PLAN

Chapter 6 in the original 1982 Anchorage Wetlands Management Plan presented a review of wetland area management alternatives. These alternatives were based on an evaluation of low, medium and high levels of management. Within the context of Chapter 6, the 1982 management alternatives were:

- Low Management Level: Emphasis would be placed on development of wetlands using mitigation measures to reduce, but not eliminate, the impact on wetland resources.

- Moderate Management Level: Wetlands performing critical functions or having critical values would be protected. Management strategies would be directed toward encouraging development of non-critical wetlands, using mitigation measures to minimize adverse impacts.

- High Management Level: Nearly all remaining wetlands in the Anchorage area would be protected. Performance controls would further protect wetland functions should development occur.

In addition to the three management alternatives, four wetland categories or designations were developed to show the future classification of wetlands. These included "Preservation," "Conservation," "Developable," and "Special Study" wetlands. The definitions of these wetland designations were developed in order to clarify the disposition of wetlands in the plan. Management alternatives, based on the low, medium and high level scenarios were developed and evaluated to show the range of choices available to the Municipality and to further express the attitudes of different community groups.

Through the adoption process and within the context of Chapter 6 of the original 1982 plan, the various management levels were evaluated and summarized, and a recommended plan was ultimately described. The Municipality selected the Moderate Management Level which provided for a general balance of wetland protection and wetland development.

C. MUNICIPAL ADMINISTRATION OF AWMP

The AWMP will be administered by the Physical Planning Division of the Department of Community Planning and Development. Chapter 5 provides an in-depth outline of municipal plan implementation. Municipally coordinated project consistency reviews and recommendations for Section 404 permits, for single state agency permits, and for plat, rezoning, subdivision, and conditional use reviews shall be in conformance with Chapter 4 enforceable policies, management strategies, and the individual wetland designations. Plats and projects approved prior to this plan's adoption are grandfathered. General Permits, further outlined in later sections of this chapter, will also be administered, coordinated, and processed by the Physical Planning Division.

Any required changes or requested amendments to the AWMP shall be submitted to the Department of Community Planning and Development. The original adopting ordinance for the 1982 plan required that the plan be reviewed and revised in ten years. This was also a Plan Review Process in Chapter 8. Given potential changes in federal wetlands legislation, and the fact that new General Permits are authorized for five-year periods, the Municipality shall revisit this plan in five years from final adoption date. The state and federal resource agencies shall be included in this five-year evaluation. At that time, the following information shall be evaluated by the Department of Community Planning and Development:

- The effectiveness of the individual management strategies in protecting key wetlands areas and facilitating development;
- The consistency of the plan with both federal and state coastal management/wetlands law and management programs;
- The effectiveness of enforcement actions and Best Management Practices in newly filled wetlands.

If significant discrepancies are revealed in this review, the plan should be revised accordingly, in a format consistent with State of Alaska coastal zone statutes. If the review reveals mixed results

or indicates that the plan continues to be effective, plan revision should wait for the standard, ordinance-required ten-year revision process.

D. "A," "B," AND "C" WETLAND DESIGNATIONS

All freshwater wetlands covered in this plan have been given a designation based on each site's values and functions and the Municipality's on-site knowledge. These designations are based on a hierarchical value system, with "A" wetlands essentially representing the most important sites, "B" wetlands being of moderate to high values, and "C" sites representing the lower value areas. The new "A," "B," and "C" designations roughly correlate to the original plan's designations of Preservation, Conservation, and Developable, respectively. The original plan's Special Study designation no longer exists, and all previously identified Special Study areas have been given one of the three new designations. Wetland designations also dictate which type of fill permit--either an Individual Section 404 for "A" and "B" sites or a General Permit for "C" areas--is required if a site needs filling for future development. In a general sense, the plan's wetland designations provide for a predictable method for determining what values a site may have and what is the potential for development.

Further detail and description of these new wetland designations can be found:

- in the Chapter 2 Resource Analysis and Wetland Scores;
- in the tables that outline the scoring breaks for each designation in Chapter 4, Section II. B.;
- in the Chapter 4 enforceable policies; and
- on the plan maps.

E. BEST MANAGEMENT PRACTICES

Over the past ten years, the Municipality has developed a set of commonly used Best Management Practices related to construction activities in local wetlands and upland areas. If applied properly and consistently, these practices contribute to minimizing impacts on wetland and waterbody resources and also ensure efficient, compatible developments. An outline of the most common Best Management Practices which may now be required of new developments in wetlands is provided in Section III of this chapter. Many will be attached to General Permits, as appropriate, during that process, by the Department of Community Planning and Development. Such practices will be required in addition to other conditions placed on Municipal Fill Permits by the Department of Public Works. Many of these and other Best Management Practices are included in the Municipality's federal NPDES permit application.

It is the Municipality's intent to list these practices here so that project cost estimates and designs can include and incorporate such requirements at the start and in the planning stages of a project. Certainly, many of these practices will not always apply to a particular site, and certain aspects of these Best Management Practices will need customizing based on conditions at each site. This will occur in the permitting stage and will be specified by either municipal staff for General Permits, or

in the Corps of Engineers' process. When a particular management strategy in Table 2 is listed, appropriate Best Management Practices listed in this chapter shall be required.

F. SETBACKS AND BUFFERS - DESCRIPTIONS AND BACKGROUND

For additional protection of waterbodies and other key wetland areas and functions, the Municipality has institutionalized the application of setbacks and buffers. These are discrete areas of wetlands, adjacent to a waterbody or an area of key wetland functions, that are meant to shield impacts and disturbances.

Setbacks are typically standardized distances in wetlands from waterbodies, measured outward from the water edge, while buffers are smaller non-disturbance zones at the interface of "C" area and "A" or "B" sites. Setbacks and buffers have been standardized under certain circumstances in this plan and are delineated, where necessary and applicable, within the Table 2 Management Strategies. Setbacks and buffers serve as key measures for avoidance of waterbodies and significant wetland sites and for minimization of impacts from adjacent wetland fills and developments. Setbacks and buffers are covered in several enforceable policies in this chapter (q.v. policy #s 8-11).

For the most part, the original Wetlands Plan and conditions on the Corps of Engineers' original General Permits required a standard 65-foot setback for "C" (Developable) wetland areas adjacent to a waterbody. An Individual 404 Permit from the Corps of Engineers was required for the placement of fill into setback areas. A General Permit could not be used for fill projects in wetlands within the 65-foot setback. In some instances, greater setbacks were required as part of a particular site's management strategy. For General Permits in "Developable" wetland areas, the Municipality also required a 15-foot setback for fill sites adjacent to a "Preservation" or "Conservation" wetland.

In many cases on General Permits, requirements for hydrologic and drainage analyses prior to permitting had been added. Since the original plan, subdivision developments in and adjacent to wetland areas have often experienced local flooding, failed septic systems and foundation problems related to groundwater intrusion. One method for reducing such impacts has been to review local hydrologies in an area prior to permitting so that design changes and setbacks can be articulated in permit actions.

Since the original plan was adopted in 1982, the Municipality has developed a clearer evaluation, understanding and identification of local flooding and water quality problems. Although there is little empirical evidence to show actual causes and effects, it is possible that the loss of wetland areas within the drainage basins of the main creeks has potentially contributed to some level of local flooding and water quality problems. This is probably particularly true in the Little Campbell Creek watershed.

The U.S. Geological Survey has documented trends in creek flows in the Anchorage Bowl which show that annual volumes and average flows actually reduced slightly by the early 1980's.

However, reductions in average flows were countered by faster peak flows derived from storm events. This phenomenon coincides with the main growth periods in the Municipality which saw the loss of both wetland and upland vegetation areas to fill and development and subsequent reductions in storm water retention capacity.

On the basis of U.S. Geological Survey data, plus recent studies from around the country concerning protection of headwater areas for flood retention and for stream sediment reduction, the Municipality has revised and attempted to standardize setback distances as a key wetland management strategy. These setbacks also better reflect the intent of recommendations made in the 208 Water Quality Plan (1979) adopted by the Municipality as a precursor to the Wetlands Plan.

The extensive use of setbacks and buffers also provides better protection of key wildlife corridors along the riparian zones of most Anchorage creeks. High-use moose areas extend into wetlands and upland sites east of Goldenview Drive and south of Rabbit Creek . Prime bear corridors include the Rabbit, Little Rabbit, and Little Survival Creek systems. With the new setback restrictions, development will cause less interference with these wildlife corridors.

G. SITE-SPECIFIC POLICIES AND MANAGEMENT STRATEGIES

Table 2 of this plan compiles site-specific information, management strategies, and enforceable and administrative policies for each wetland site. All enforceable policies are italicized in the Table. Each "C" wetland site within the Table also has conditions for development listed, which are the exact conditions identified by the Corps of Engineers in the Municipality's General Permits. Any General Permit for development in these "C" sites must comply with the conditions and policies listed for that site in the Table.

Table 2 represents the heart of the Anchorage Wetlands Management Plan and outlines applicable conditions of development, individual site designations, acreage figures, site characteristics, and individual site management strategies meant to both protect key areas and guide future fill and development actions. This is the "land use" section of the Wetlands Plan and is the guideline for protection and development for Anchorage's wetlands.

Wetland maps for the entire Municipality are presented at the end of Table 2. These maps are at such a scale such that additional field delineation of actual exact wetland boundaries may be required. Any wetland areas not shown in these maps would require a Corps of Engineers jurisdictional determination and could only be filled with either an Individual or Nationwide Section 404 Permit. The General Permits cannot apply to an Undesignated site. Reference is made to the four map notes, which provide additional clarifying information for map usage and application.

II. DEFINITIONS

A. INTRODUCTION

This section of the plan presents official definitions of key terms and phrases that are used within the enforceable policies. These definitions are, by adoption of the plan, enforceable and official. Many of these terms contribute significantly to the proper and accurate interpretation of the enforceable policies and management strategies, and are therefore essential components of the effectiveness of the Wetlands Plan.

Where appropriate, certain definitions follow what have become standardized definitions as used in other coastal district programs and special area management plans. Additional discussion has been included in this section for certain terms for further clarification and guidance in their usage.

B. DESIGNATION DEFINITIONS, AND DESCRIPTIONS

The Municipality has changed its wetland designations for this revised Plan. The new designations are not drastically different, but they provide greater detail on how the various wetland classifications are to be managed. In most cases, the new designations reflect how the previous Preservation, Conservation and Developable sites have actually been managed and permitted since the original plan was adopted in 1982. See Section III of this chapter for enforceable policies related to each wetland designation.

The Corps of Engineers issued a Special Public Notice-Statement of Policy in January 1986 which was intended to clarify and reaffirm Corps of Engineers policy on Anchorage wetlands. In that Public Notice, the Corps of Engineers outlined its general approach to permitting procedures in Preservation, Conservation and Developable wetlands within the Municipality. The designation definitions contained in this revision are generally consistent with these Corps of Engineers policies. This Special Public Notice will be updated by the Corps of Engineers.

Most changes in designations reflect methods by which the Municipality intends to resolve issues and problems associated with implementation of the original plan. In some cases, changes also reflect the evolution of both federal and local wetlands policy. In addition, given recent and pending federal litigation on compensation and takings issues, the Municipality has specifically adjusted its management approach for privately owned "A" wetlands. Instead of changing designations along private property lines to avoid takings challenges, "A" designations have been retained where appropriate. However, provisions have been included so as not to preclude all use of individual privately owned parcels. Each of these designations carries a different set of general protection scenarios and development and management guidelines.

"A" WETLANDS

DEFINITION: Formerly designated as "Preservation" in the 1982 plan, "A" wetlands have the highest wetland resource values. They perform at least two, and typically more, significant

wetland functions. "A" wetlands are considered most valuable in an undisturbed state, as most uses or activities, especially those requiring fill, negatively impact known wetland functions. "A" wetlands are not to be altered or otherwise disturbed in any manner, except as outlined in the following discussion and in the enforceable policies.

The following score breaks from the wetland assessment process serve as general guidelines for delineating **"A" wetlands**:

Wetland Designation	Hydrology Values	Habitat Values	Species Occurrence Values	Social Function Values
Anchorage Bowl	More than 100 points	More than 85 points	More than 55 points	More than 55 points
Chugiak-Eagle River	More than 95 points	More than 90 points	More than 40 points	More than 50 points
Turnagain Arm	More than 90 points	More than 85 points	More than 60 points	More than 55 points

"A" WETLANDS - MANAGEMENT GUIDELINES AND IMPLICATIONS

"A" wetlands are generally not to be developed, cleared, or otherwise altered, although wetland fills might be permittable for actions which enhance or restore a site's functions and values.

For public need type projects, fill proposals could be reviewed and entertained, subject to an Individual Section 404 permit, for minor encroachments into "A" sites, if these sites are the only practicable alternative location for such use. These projects include utility, road or trail crossings, or minor park amenities and must be cited at the wetland fringe or in the least important sections of the wetlands to the maximum extent.

On-site physical conditions typically render "A" wetlands unsuitable for intensive land uses without major alteration. Typically, these sites are valuable to public health and safety as floodwater storage and water quality areas, significant or critical wildlife habitat, or as open space with active public use. Any activity requiring fill or vegetation clearing must comply with the Clean Water Act's Section 404 permit program and requirements.

Fill activities associated with typical residential or other developments in "A" wetlands are generally unacceptable. The plan does allow for recognition of potential exceptions. The Municipality recognizes that there may be instances where precluding fill placement in "A" wetlands might restrict all economic use of a property. It is not the intent of the Municipality to completely restrict all economic use of privately held "A" wetlands.

If a parcel contains part "A" wetlands and other designated wetlands or part uplands, the Municipality will not entertain a fill project in the "A" portion unless all other portions of the property are undevelopable and all economic use of the parcel is precluded. There are also sites where fill might be required for which there are no other local practicable locations; for example, the Anchorage International Airport lands. Fill permits for these types of areas should be entertained, subject to Section 404 regulations, if they follow the Table 2 guidelines.

When conditions exist that call for the possibility of a fill project in "A" wetlands, the fill must be limited to the square footage needed for a principal structure and access. Minimum fill coverage for structures shall reflect the particular zoning district's lot coverage restrictions for a principal structure.

Such fills would not allow for a complete subdivision of residential homes or for several structures in another zoning district. Rather, the intent of this exception is to simply provide a possible avenue for a landowner of an otherwise undevelopable wetland parcel the potential to receive some economic use of a lot. For example, this would typically mean the use for a single home. Fills for these structures shall be considered only if no upland alternatives exist on the subject lot.

All fill permit requests in "A" wetlands must comply with federal Section 404 guidelines, and any mitigation requirements will reflect current federal and state regulations. If mitigation is required in the permit process, the Municipality will require that on-site enhancement be the first priority, and acquisition of threatened wetland areas will receive second priority. For permits requiring mitigation within Anchorage International Airport properties, the priority for compensation is off-site, in order to comply with federal guidelines for aircraft safety.

"B" WETLANDS

DEFINITION: "B" wetlands were generally identified as Conservation in the 1982 Wetlands Plan. Within each "B" site, there is typically a mixture of higher and lower values and functions and some portion of these wetlands have a fairly high degree of biological or hydrological functions and site development limitations. They possess some significant resources, but could possibly be marginally developed and/or disturbed. The intent of the "B" designation is to conserve and maintain a site's key functions and values primarily by limiting and minimizing fills and development to less critical zones while retaining higher value areas. Development could be permitted in the less valuable zones of a "B" site, provided avoidance and minimization and Best Management Practices are applied to minimize disturbance and impacts to the higher value non-fill portions.

The following score breaks from the wetland assessment process serve as general guidelines for delineating **"B" wetlands**:

Wetland Designation	Hydrology Values	Habitat Values	Species Occurrence Values	Social Function Values
Anchorage Bowl	85 - 100 points	65 - 85 points	25 - 55 points	35 - 55 points
Chugiak-Eagle River	80 - 95 points	65 - 90 points	20 - 40 points	30 - 50 points
Turnagain Arm	70 - 90 points	70 - 85 points	35 - 60 points	40 - 55 points

"B" WETLANDS - MANAGEMENT GUIDELINES AND IMPLICATIONS

The individual management strategies listed in Table 2 for "B" wetlands outline the known wetland values and functions for each site. This plan and the management strategies shall direct and serve as the basis for decisions on fill placement. Proposed land uses for "B" sites could be intensive within the less valuable wetland areas. It is, however, the intent of the Municipality to have the values and functions of "B" sites maintained. Development could be permitted in less valuable zones of a "B" site, provided avoidance and minimization and Best Management Practices are applied to minimize disturbance and impacts to the higher value non-fill portions.

Platting requirements for "B" areas include the submission of soils, hydrological and habitat data. There is no set formula as to the percentage of a "B" wetland which can befilled and that which will remain undisturbed. Rather, such decisions shall be guided bythe Municipality during the platting process, especially where the Planned Community district applies.

Although the 404 process may produce a permitted development substantially different from an original design, it is the Municipality's intent to minimize such discrepancies by conferring with the applicants on platting issues after submission of a 404 application. If plats reflect 404 permits, the technical review of new plats will be far better served and most productive in facilitating the plat process. The present process of conditioning preliminary plats to reflect 404 permits has proved confusing to the applicant, the staff reviewer, and the public. It has also proved to be both technically demanding and time consuming. Thus, the initial platting action should follow the 404 review and final permitting. The individual management strategies should provide sufficient guidelines for development of plat designs in "B" wetlands.

"C" WETLANDS

DEFINITION: Identified as "DEVELOPABLE" in the 1982 Wetlands Plan, "C" wetlands are the lowest value wetlands within the Municipality. Some "C" sites may have moderate values for one or more wetland function, but they generally have reduced or minimal functions and/or ecological values. Such sites are suitable for development with only minor alteration and are to be generally managed to reflect the needs for community expansion and infilling. "C" sites are intended to be permitted under General Permit authorization from the Municipality. The development of "C" wetlands in accordance with Table 2 and Enforceable Policies, should have an insignificant cumulative impact on overall functions and values of Municipality of Anchorage wetlands.

The following score breaks from the wetland assessment process serve as general guidelines for delineating **"C" wetlands**:

Wetland Designation	Hydrology Values	Habitat Values	Species Occurrence Values	Social Function Values
Anchorage Bowl	Less than 85 points	Less than 65 points	Less than 25 points	Less than 35 points
Chugiak-Eagle River	Less than 80 points	Less than 65 points	Less than 20 points	Less than 30 points
Turnagain Arm	Less than 70 points	Less than 70 points	Less than 35 points	Less than 40 points

"C" WETLANDS - MANAGEMENT GUIDELINES AND IMPLICATIONS

"C" wetlands fall within the definitions outlined in Sections 322.2 and 323.2 of the Clean Water Act, where conditions under which certain wetlands can be included in a Regional General Permit are identified. Specifically, such wetlands within the Municipality may be developed where filling would "cause only minimal individual and cumulative environmental impacts." In other words, "C" wetlands may be developed to satisfy growth needs but are not to be filled automatically or speculatively. Fill activities in "C" sites are to be permitted under General Permit authorization as granted to the Municipality by the Corps of Engineers.

Best Management Practices and fill avoidance or minimization may be required in permits for "C" sites. The more significant and important sections of "C" wetlands are identified in the Table 2 Management Strategies, or will be delineated, as necessary and required by the Department of Community Planning and Development, during processing of a General Permit. Because of hydrologic and drainage concerns, drainage impact analyses will be required for many "C" sites

prior to permit issuance. This procedure will ensure that project sites and adjacent properties are not flooded or otherwise negatively impacted.

Management strategies and General Permit conditions for many "C" sites include setbacks from waterbodies or drainageways. These are meant to be minimum distances to retain the functions of those waterbodies under the impact guidelines of Section 404 regulations. Projects which require fill within setbacks require an Individual Section 404 Permit from the Corps of Engineers.

All General Permits for "C" sites must comply with the stated terms and conditions of the General Permits and with additional conditions imposed by the Department of Community Planning and Development at the time of permit processing. The Municipality's General Permits will not apply to speculative fills, and all projects must provide an engineered and/or detailed site development plan.

C. SETBACKS AND BUFFERS

SETBACK: A discrete area of wetlands, typically 100 feet, 85 feet, 65 feet, or customized in a specific management strategy or as a condition of a General Permit, as measured outward from the Ordinary High Water of a waterbody, in which a General Permit cannot be applied, and in which all fill and disturbance is prohibited, except in cases of demonstrated public need for projects with no other practicable alternatives. Setbacks are to be treated as "A" wetlands and require an Individual Section 404 permit review for fill.

BUFFER: A discrete area of wetlands, as measured inward from the boundary of a "C" wetlands and an "A" or "B" wetlands. Except as customized and specified in the Table 2 Management Strategies, the buffer between a "C" site and an "A" wetlands is 25 feet, and the buffer between a "C" wetlands and a "B" site is 15 feet. All fill and disturbance is prohibited except as permittable and/or conditioned in an Individual Section 404 Permit.

Setback and Buffer Discussion and Rationales

After an extensive nationwide review of setback distances from waterbodies, the following setback and buffer guidelines from a waterbody's ordinary high water have been developed, based on wetland type, position of a waterbody in a watershed, and fish resources of the subject waterbody. Where they are applicable, these setbacks are specified for each wetland area in the Table 2 Management Strategies, and are generalized below:

- **100-Foot Setback**. This is the minimum setback that applies to "C" (Developable) wetland areas adjacent to a stream or waterbody that is listed as having anadromous fish in An Atlas to the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes. For "A" or "B" sites, setbacks should generally follow this trend but may be fine-tuned only via the Individual Section 404 Permit process. Uncatalogued waterbodies in any wetland area shall be trapped or otherwise checked for the presence of

anadromous fish at the time of a permit review, by the Alaska Department of Fish and Game to determine if the 100-foot setback is applicable.

RATIONALE: After conference with the state and federal resource agencies with particular expertise in fish and wildlife habitat management, and after reviewing research data for setback distances around the country relative to fish and wildlife habitat, it is clear that 100 feet is the minimum standard setback distance for maintenance of fish and wildlife habitat and populations. This is particularly evident and applicable to sites where wetlands abut a waterbody with significant aquatic habitats and anadromous fisheries. The setback zone is vital to maintenance of local water quality and stream-side conditions so important to the habitat conditions for Anchorage area fish.

- **85-Foot Setback**. Applies generally to "C" (Developable) wetland areas in upper sections of watersheds, mostly on the Anchorage Bowl hillside, and in the upper reaches of waterways elsewhere in the Municipality, adjacent to non-anadromous fish streams. Areas with an 85-foot setback are specified in Table 2. For "A" or "B" sites, setbacks should generally follow this trend but may be fine-tuned only via the Individual Section 404 Permit process.

RATIONALE: Wetlands associated with first and second order streams/creeks, e.g., headwater areas, provide the highest flood control functions in that watershed. In the Municipality, this is most appropriate where wetlands with organic soils and shallow gradients have the most contact with flood waters and run-off in a headwater complex.

Throughout the country, and commonly in the Pacific Northwest, setbacks of 75 to 120 feet have also been determined to be ideal for sediment and fecal coliform removal. Furthermore, several studies have indicated that more than 90 percent of a stream's primary energy source is produced in headwater areas. Generally, the flatter a wetland's profile, the greater value it has to flood control and water quality of an adjacent stream.

In most cases in the Municipality, an 85-foot setback can be readily implemented since the areas where it would be applied are in rural, large-lot zoning districts. In addition, the 85-foot setback distance often closely coincides with the 100-year floodplain. During background studies for the 208 Water Quality Study, it was also determined that the principal stream flow and aquifer recharge zone for the Anchorage Bowl was the mid and upper Hillside area.

- **65-Foot Setback**. This is the traditional setback for "C" (Developable) wetlands from adjacent waterbodies, as applied in the original General Permits. In this revised plan, it is retained for wetlands adjacent to waterbodies which are generally found in the lower sections of watersheds, or for isolated lakes/ponds where a greater setback distance is either not necessary or is more difficult to justify.

- **15- and 25-Foot Buffers**. Where General Permits are issued for "C" (Developable) wetlands which abut an "A" wetland, a 25-foot buffer will be

required in the "C" site, unless otherwise specified in the Table 2 Management Strategies. For General Permits issued in areas adjacent to "B" wetlands, a minimum 15-foot buffer will be conditioned. In both cases, the buffer requirement can be increased by the Municipality, as necessary, for on-site circumstances. Fill placement in these buffer areas shall be subject to Individual 404 Permits. Per the enforceable policies, buffer zones are to be treated as the adjacent wetland designation.

RATIONALE: In order for the Municipality to comply with the regulatory confines for General Permits, additional conditions guaranteeing the minimization of impacts from filling "C" sites, buffer zones were established at the interface of "C" and other wetlands. These buffer zones are intended to minimize local disturbances of land uses in areas of "C"wetlands that have been filled, to adjacent "A" and "B" sites. These buffers offer visual and noise screening, physical separations that minimize human and domestic animal interferences, and habitat edges. It is the intent of the Municipality that these buffer zones remain completely undisturbed.

Outline of Permissible Uses for Setbacks and Buffers:

It is the general intention of the Municipality that identified setbacks and buffers shall remain undisturbed to the maximum extent, since these areas are typically vital to local watershed flood control, water quality, and fish and wildlife habitats. Any and all potential fill projects identified in setbacks or buffers are required to go through an Individual 404 review. Such projects shall generally be limited to public transportation, recreation, utility, and other public facilities. Private developments slated for setback wetlands shall be discouraged except where an overall development's physical and/or economic viability would be significantly harmed by such a restriction.

All fills identified in setbacks are subject to a Department of Public Works flood hazard review. Whenever feasible and prudent, wetland setbacks and buffers shall be tracted out in the platting process until an Individual 404 Permit, or similar fill and design authorization, has been granted by the Corps of Engineers.

D. OTHER TERMINOLOGY

Additional terms used within Table 2 Management Strategies and in other enforceable policies are defined below. Official definition of these terms will facilitate plan implementation.

*"**AVOIDANCE**" means the action of taking all steps to prevent fill or disturbance from occurring in a specified area or an entire wetland.*

***"CLUSTER DEVELOPMENT"** means a development design that concentrates buildings in specific areas on the site in a manner which would not otherwise be permitted in the underlying zoning district.*

*"**DISTURBANCE**" means any action, including but not limited to, fill placement, vegetation clearing, excessive human use or interference, that damages or negatively impacts the natural functions, physical condition, and values of a wetland.*

*"**KEY WETLAND AREA(S)**" means the specific section of a site where the significant and important wetland functions and values are located.*

*"**MAINTAIN**" means to keep in existing or natural condition and functions.*

*"**MAXIMUM EXTENT**" means as much as can feasibly (both engineering-wise and economically) and lawfully be put into practice.*

*"**PARK AMENITIES**" means specific structures placed in, or actions carried out in parkland or on public lands that enhance active or passive recreational uses of the site. This term is modified by "Minor" Park Amenities, which means park amenities excluding large structures, ballfield complexes, or pavilions; for example, benches, picnic tables, garbage facilities, lighting systems, and other minor enhancements.*

*"**PRESERVE**" means the strict prohibition of any alteration of a wetland function.*

*"**STREAM**" defined in the Anchorage Municipal Code as any natural conveyance of water flowing in a definite course or channel and possessing a bed and banks. Includes any reaches of natural streams which have been modified or channelized but which still conveys flows. A "Natural" stream conveys more flow than can be attributed to a single snowmelt of rainfall event.*

*"**WATERBODY**" means any area of water with a permanent minimum surface area at ordinary high water of 2,500 square feet. This size corresponds to the smallest waterbody which can be used, under normal circumstances, for nesting by more then one species or several pairs of one species, of local Anchorage area waterbirds.*

*"**WETLAND**" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (follow the Federal Clean Water Act, Section 404, Part 328.3, 7(b)).*

*"**WETLAND DELINEATION**" means the technique of identifying the border between wetland and non-wetland areas. All wetlands identified in this plan were done by using the Corps of Engineers 1987 Field Delineation Manual.*

III. POLICIES

A. ADMINISTRATIVE AND PROCEDURAL POLICIES

The following Administrative and Procedural Policies are not enforceable but rather serve as guidelines for plan and policy implementation.

1. The platting and subdivision design processes will be used to provide for viable economic use of "B" wetlands while retaining key functions. The Planned Community zoning designation (AMC 21.40.250), Planned Unit Development standards (AMC 21.50.130), and the Cluster Housing Site Plan Review (AMC 21.50.210) shall be used to the maximum extent to modify development densities and subdivision design in order to preserve key wetland functions, especially on large unplatted tracts.

2. To the maximum extent, subdivision decisions and design procedures shall be initiated after the Corps of Engineers Section 404 permit has been authorized.

3. Land uses within identified setbacks and buffers shall conform to the requirements of the Municipal Stream Protection Ordinance (AMC 21.45.210) and the Floodplain Regulations (AMC 21.15.020 and 21.60).

4. All fill projects within identified setbacks and buffers shall be subject to Individual Section 404 reviews. Setbacks shall also be required from waterbodies in "A" and "B" wetlands.

5. The Municipal Department of Community Planning and Development shall be responsible for requiring site analyses and Best Management Practices, outlined in Enforceable Policies 11-17, as part of a General Permit application, or in its response to an Individual Section 404 review. The applicant shall be responsible for supplying the appropriate information and data, which shall in turn be reviewed and determined adequate by the Municipal Department of Public Works - Watershed Management, Floodplain, and Design and Engineering Sections, and the Department of Community Planning and Development.

B. ENFORCEABLE POLICIES

The following Enforceable Policies, when combined with the above Definitions and Administrative Policies, the Management Strategies in Table 2, and the discussion items in Section II., represent the heart of the Wetlands Plan. These policies provide final clarification and guidance for the protection and allowable uses for Anchorage area wetlands.

"A" WETLANDS

1. *Unless site-specific policies in Table 2 or exceptions outlined in Policy #2 indicate otherwise, "A" wetlands shall be maintained in their natural state to the maximum extent.*

2. *A roadway, utility, trail, and minor park amenity with no practicable, less damaging alternatives and with a demonstrated public need may be allowed in "A" wetlands if wetlands values and functions are maintained to the maximum extent.*

3. *Residential and other development in "A" wetlands, subject to other AWMP policies and state and federal regulatory requirements, shall be considered only when no less damaging alternatives exist and if all economic use of a property would otherwise be precluded.*

"B" WETLANDS

4. *Key wetland areas and functions in "B" wetlands shall be maintained to the maximum extent in all development activities.*

"C" WETLANDS

5. *For "C" wetlands in large-lot, rural, residential zoning districts (R 8-11, at AMC 21.40.100-117), fills shall be limited, to the maximum extent, to what is necessary for a principal structure and outbuilding, utilities, and driveway pad. Drainages and other key wetland areas shall be identified in the General Permit process and avoided to the maximum extent.*

6. *For "C" wetlands in all other zoning districts (AMC 21.40), fills shall be subject to all applicable enforceable policies within this plan and fill avoidance and minimization techniques as otherwise identified during the General Permit processing by the Department of Community Planning and Development.*

7. *To mirror federal Section 404 regulations, no wetland permits for projects in the Municipality* (both General Permits and Individual Section 404 Permits) *shall be issued for speculative fills, i.e., a specific project shall be planned, and the applicant shall have considered alternative sites and construction measures. Neither a General Permit nor an Individual Section 404 Permit shall be issued for a subject parcel prior to final action on a rezoning request from the Municipal Department of Community Planning and Development.*

SETBACKS AND BUFFERS

8. *Setbacks shall be required from all waterbodies. Unless otherwise stated, setbacks shall meander with the waterbody edge, as measured from ordinary high water. Though not designated "A" wetlands, wetland areas within setbacks shall be managed as "A" wetlands and be maintained undisturbed to the maximum extent. Setback distances are the minimum required and vary by location but shall meet at least the following guidelines:*

   a. *Setbacks shall be 100 feet from anadromous fish streams (as identified in "An Atlas to the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes," Alaska Department of Fish and Game, or found at the time of a project review).*

   b. *Setbacks shall be 85 feet from certain headwater creeks and tributaries, as identified in Table 2.*

   c. *Setbacks shall be a minimum of 65 feet from all other waterbodies.*

9. *Unless otherwise stated in Table 2, Buffers shall be required in "C" wetlands of 25 feet from the toe of a proposed fill to the border of a designated "A" wetland, and 15 feet from the border of a designated "B" wetland. Buffers shall be managed as the adjacent wetland designation to which it applies.*

10. *Where a setback distance has not been specified in Table 2, or as a condition of the General Permits, the Department of Community Planning and Development shall determine, if any, and what size, a setback will be required as a site-specific condition on a General Permit. Such setbacks shall also be determined by the agencies during an Individual Section 404 Permit review. These setbacks shall be required where new information for a Permit application identifies a previously unknown permanent or ephemeral stream channel, drainageway, or other waterbody in or adjacent to the subject wetland. These customized setbacks shall be a minimum 25 feet from a permanent waterbody, stream, or tributary, and shall be a minimum 10 feet from an active seasonal or ephemeral surface or subsurface drainageway.*

    Note: An applicant may appeal a customized setback General Permit condition only via a request to the Corps of Engineers Regulatory Branch.

BEST MANAGEMENT PRACTICES

11. *In order to evaluate and minimize site-specific individual and cumulative impacts of General Permit and Individual Section 404 actions, Drainage Impact Analyses, Project Site Drainage Plans, Water Quality Control Plans, Site Restoration and Stabilization Plans, and Wetland Minimization and Habitat Avoidance Plans shall be required, as necessary, for Permit reviews. For a General Permit, site-specific Best Management Practices shall be applied as conditions of the permit, as necessary.*

12. <u>DRAINAGE IMPACT ANALYSIS.</u> *When required as a specific condition of a General Permit or in the Table 2 Management Strategies, a Drainage Impact Analysis shall be supplied by the applicant to the Department of Community Planning and Development. Information for this analysis includes, but is not limited to :*

a. *Estimates of surface and subsurface water movement within and into the subject property;*

b. *Delineation of estimated on-site and off-site drainage impacts of the fill;*

c. *Outline of mitigating factors to offset adverse impacts;*

d. *Soil types, depth to groundwater, and seasonal water table information;*

e. *Existing topographic delineation and general surface drainage patterns;*

f. *Location of permanent and ephemeral waterbodies greater than 100 sq ft;*

g. *How development within and adjacent to the subject wetland may be affected by groundwater intrusion as a result of the proposal.*

Note: The Drainage Impact Analysis provided by the applicant should include information which conforms, at a minimum, to municipal policies in the Municipal Design Criteria Manual (1988), Sections 2.020-.040.

13. <u>SITE DRAINAGE PLAN</u>. *To evaluate and reduce the potential for groundwater intrusion and impacts to existing local hydrologies, the following information shall be required when indicated in Table 2, or otherwise as a condition of a General Permit. This information may be applicable concerning both construction and full build-out of the project:*

a. *Identification of final surface drainage directions for a finished development;*

b. *Location and types of existing and proposed constructed and natural drainage facilities/features, including sub-drains, culvert size and catch basins, and location of connections and elevations where new drainage features tie into existing storm drains. Also, location and measurements of retained natural drainage features;*

c. *Identification and location of water quality treatment measures and facilities and levels/standards of water quality intended to be achieved with treatment;*

d. *Location and types of necessary dewatering controls (ditches, ditch blocks, etc.) to be used in construction and as part of finished design, to ensure maintenance of remaining wetland hydrology;*

14. *WATER QUALITY CONTROL PLAN. A water quality control plan shall be submitted for all wetland construction projects and shall indicate, as necessary:*

a. *Measures that will be taken during construction for water quality maintenance. These measures must include, but are not limited to:*
   1) *Placement of perimeter silt fence or other sediment control devices at the toe of any exposed fills;*
   2) *Identification of the location, size, and depth, of storm and construction site water treatment settling ponds;*
   3) *Identification of the location and type(s) of outlet features of water treatment for settling ponds, e.g., filtering swales; and*
   4) *Identification of temporary construction and fill slope stabilization measures.*

b. *Measures that will be taken (by the applicant) for long-term site stabilization, including:*
   1) *Minimum 2.5:1 slopes of fill which face or abut unfilled wetlands;*
   2) *Slope blankets;*
   3) *Revegetation plans for exposed fills and slopes, including maintenance, as necessary.*

15. *SITE RESTORATION AND STABILIZATION. The following measures shall be included in any restoration plan submitted by an applicant, where the original wetland is being restored or stabilized:*

a. *Final grading plan of disturbed and restored wetlands shall match remaining natural grades, or original grades as closely as practicable;*

b. *Include revegetation plan for disturbed fills and wetlands. Shall utilize native species per original condition to maximum extent practicable, and/or match guidelines of the Municipality's Revegetation Guide.*

c. *Shall include topsoil placement, as necessary, on poorer soil areas, e.g., peat or silt, to insure revegetation.*

d. *Proposed coverage of revegetation plans, e.g., 30 percent after one season, plus appropriate maintenance and replacement scenarios.*

16. *MINIMIZATION AND HABITAT AVOIDANCE. The following measures shall be included in design plans for General and Individual Section 404 Permits in order to minimize or avoid disturbance to wetlands and to wildlife use of an area:*

a. *Cluster housing design and transition buffer standards, following the Anchorage Municipal Code (Section 21.45), shall be used wherever feasible and prudent to modify residential densities in order to avoid fills in key wetland areas.*

b. *Whenever feasible and prudent, commercial or residential subdivision design shall include the tracting out of key wetland areas as open space or for other non-development designations.*

c. *In larger wetlands, subdivision development and fills shall be phased, whenever feasible and prudent, to minimize impacts. Phasing shall begin at the portion of a wetland furthest from the known key areas, or from the central areas.*

d. *General Permit and Individual Permit authorizations shall contain timing restrictions for fills, wherever appropriate, to the period September 15 - March 31, in an effort to minimize impacts on nesting and migrant waterbirds.*

17. *Unless otherwise specified, when additional information or site analysis (e.g., drainage analysis, wetland delineation, avoidance measures) is required in Table 2, such information shall be provided by the applicant at the time of permit application.*

18. *The process outlined in Enforceable Policy # 11 and the Best Management Strategies identified in Enforceable Policies #12-16 shall be used as the Municipality's key mitigation techniques. Where additional mitigation, beyond these key techniques, isconsidered during an Individual Section 404 Review, then the mitigation shall be considered in the following order of preference. The costs and engineering feasibility, relative to the benefit to the coastal resource, shall be considered in the implementation of this policy.*

a. *Avoiding the adverse impacts altogether by not taking a certain action;*

b. *Minimizing impacts by limiting the degree or magnitude of the action;*

c. *Rectifying the impact by repairing, rehabilitating or restoring the affected environment;*

d. *Reducing or eliminating the impacts over time by preservation and maintenance operations during the life of the action; or*

e. *Compensating for the impact by replacing or providing substitute resources or environments.*

19. *All Table 2 Management Strategies conveyed with the word "SHALL" are enforceable policies of this Plan and the Anchorage Coastal Management Plan. All other Table 2 Management Strategies are administrative policies, which are not enforceable in the ACMP but indicate management intent of the Municipality. Whenever an applicant is required, or chooses to obtain an Individual Section 404 Permit, in lieu of a General Permit, Individual Permit conditions can modify the Table 2 Management Strategies as long as a site's values and functions and key wetland area(s) are maintained, avoided, or otherwise addressed.*

TABLE 2 - INDIVIDUAL WETLAND MANAGEMENT STRATEGIES

ANCHORAGE BOWL

EAGLE RIVER - CHUGIAK

TURNAGAIN ARM

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Table 2

WETLAND DESIGNATIONS, ENFORCEABLE AND ADMINISTRATIVE POLICIES AND MANAGEMENT STRATEGIES

NOTE:
Wetland numbers listed for the original 1982 Anchorage Wetlands Management Plan are for reference only. In many cases, 1982 wetland site numbers refer to sites which have been split or merged in the current revision.
All sections in *italics* represent Enforceable Policies of this plan.

ANCHORAGE BOWL

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
1	None	1	#1 CATTAIL POND AT PORT (2.63 acres; Public & Private Ownership) (Scores: Hydrology = 100; Habitat = 73; Species Occurrence = 49; Social Function = 24) *Because the site provides migratory and limited nesting habitat for several species and performs water quality functions for an area with contaminated groundwater, the site shall be maintained to the maximum extent.*	Undesignated	B
1	None	1	#2 CATTAIL POND AT PORT (1 acre; Public & Private Ownership) (Scores: Hydrology = 60; Habitat = 44; Species Occurrence = 45; Social Function = 11) Site just south of Terminal Road classed as "C" wetlands. *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent properties. A toxics evaluation shall be done if excavation is proposed, and it shall meet the acceptable standards of the Alaska Department of Environmental Conservation and the Municipal Department of Health and Human Services in order to prevent degradation of water quality in adjacent water bodies and wetlands.*	Undesignated	B/C
1	None	1	TRACTS A AND EE (18 acres; Public Ownership) (Scores: Hydrology = 88; Habitat = 125; Species Occurrence = 51; Social Function = 17) Federal U.S. Air Force lands behind the Port which are currently mostly permitted. *Any new management strategies shall be consistent with applicable Corps of Engineers permits.*	Undesignated	B
2	58A	1, 2 and 9	SHIP CREEK FLOODPLAIN (above CEA dam) (1.8 acres; Public & Private Ownership) (Scores: Not Assessed) Wetlands important for water quality, flood storage. *Development in wetlands shall be subject to Alaska Department of Fish and Game timing stipulations to limit disturbance to anadromous fish movements.* Development designs should mirror information outlined in the Ship Creek-Port Land Use Plan. Executive Order (EO) 11990 will be used to protect the Creek on military land.	Undesignated Preservation	A
2	58A	1, 2 and 9	SHIP CREEK BEAVER POND (0.75 acres; Public & Private Ownership) (Scores: Hydrology = 118; Habitat = 68; Species Occurrence = 68; Social Function = 24) *Flood control and habitat functions shall be preserved by fill avoidance.*	Undesignated	A

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
3	58A	3	SHIP CREEK: NW REEVE/VIKING (3.2 acres; Public Ownership) (Scores: Hydrology = 74; Habitat = 80; Species Occurrence = 63; Social Function = 76) Values for flood control, water quality and habitat. Site is an old slough of Ship Creek. *Fill within slough shall be avoided.*	Undesignated Preservation	A
4	None	3	NORTH OF RAILROAD TRACKS, INTERSECTION OF REEVE/POST ROAD (4 acres; Public Ownership) (Scores: Hydrology = 111; Habitat = 73; Species Occurrence = 35; Social Function = 25) *Because the pond and adjacent wetlands provide habitat for several species and an important filter area for local snow dump, the drainage and pond areas shall be maintained and avoided to the maximum extent. The site's filtering values shall be protected, since the pond drains directly into Ship Creek.* Snowmelt should be treated although it is recognized that this may be impractical.	Undesignated	B
5	None	11	MOUNTAIN VIEW DRIVE/GLENN HIGHWAY INTERSECTION (8 acres; Public & Private Ownership) (Scores: Hydrology = 86; Habitat = 47; Species Occurrence = 18; Social Function = 59) Most of area is MOA-HLB land. *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works and Alaska Department of Transportation/ Public Facilities to assure that the Glenn Highway and sites to the east shall not be more than minimally adversely impacted.*	Undesignated	C
6	None	14	TURPIN PARK (1.8 acres; Public Ownership) (Scores: Hydrology = 70; Habitat = 34; Species Occurrence = 18; Social Function = 60) Municipal park land. *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding, maintain both surface and subsurface cross drainage, and prevent drainage of adjacent wetlands.*	Undesignated	C
6	56	13	SOUTHWEST AND SOUTHEAST INTERSECTION OF TURPIN/GLENN HIGHWAY (47 acres; Public Ownership) (Scores: Hydrology = 87; Habitat = 57; Species Occurrence = 18; Social Function = 50) Isolated site; minimal hydrology values; no obvious drainageways. (Note: size of site and drainage basin inflated score).	Developable	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
6	57	13	SOUTHEAST INTERSECTION OF 4TH AVENUE/BONIFACE PARKWAY (2.8 acres; Private Ownership) (Scores: Hydrology = 78; Habitat = 27; Species Occurrence = 16; Social Function = 27) *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding, maintain both surface and subsurface cross drainage and prevent drainage of adjacent wetlands. Drainageways shall be avoided. A written plan shall be presented to the Municipal Department of Community Planning and Development to determine if alternatives exist that would allow avoidance of alteration of drainage of the site.*	Developable	C
7	57	12	NORTH RUSSIAN JACK PARK (53.4 acres; Public Ownership) (Scores: Hydrology = 102; Habitat = 60; Species Occurrence = 18; Social Function = 75) *A hydrologic analysis shall be done and meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding, maintain both surface and subsurface cross drainage and prevent drainage of adjacent wetlands. Park amenities shall be permitted beyond 25 feet of drainageways and/or open water. Relatively low value site; information on hydrology shall precede permitting for identification of drainage problems or retention areas.* This site does not have any streams or ponds; the intent is to protect the springs and to maintain onsite drainage.	Preservation	C
8	51	36	BROOKRIDGE SUBDIVISION (~4 acres; Private Ownership) (Scores: Hydrology = 124; Habitat = 95; Species Occurrence = 75; Social Function = 38) Remaining undeveloped wetlands at Chester Creek classed as "A". *Setback from creek shall be maintained as platted (see Permit #B-517). No runoff shall enter into setback area unless treated.*	Developable	A
9	51	25	MULDOON: FOOTHILLS SUBDIVISION NEAR TURF CT. (2.25+ acres; Public /Private Ownership) (Scores: Hydrology = 104; Habitat = 89; Species Occurrence = 71; Social Function = 71) Area currently permitted for storm drain detention system. Provides flood retention, water quality, habitat. *Unfilled areas shall be retained.*	Developable	A
10	51	25 and 36	HIDEAWAY HILLS, TRACT A (33.9 acres; Private Ownership) (Scores: Hydrology = 104; Habitat = 71; Species Occurrence = 60; Social Function = 50) Enhancement potential possible in northerly site. Development could occur in westernmost one-third; *hydrology/flood storage connection to Chester Creek and adjacent wetlands shall be retained at the east end by setbacks, avoidance and minimization of fills.* Ditches should be filled and area can serve for stormwater retention. Remnant, highly disturbed wetland extending south of the main site provides possible water quality and flood control, but is generally low value and remains "C". *Northern portion of this site, at the ditch, shall be retained or replaced with a storm drain system for water quality purposes.*	Developable	B/C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
10A	53	36	NORTH AND SOUTH OF 36TH: WILLIWA/PUSSYWILLOW STREET (3.66 acres; Private Ownership) (Scores: Hydrology = 74; Habitat = 48; Species Occurrence = 18; Social Function = 40) Minimal values.	Undesignated	C
11	None	25	SUSITNA SCHOOL POND (0.5 acres; Public Ownership) (Scores: Not Assessed) *The pond and wetland shall be retained as a stormwater detention/treatment site unless the site is needed for school expansion, in which case, a new stormwater detention/treatment site must be identified in the area to replace these hydrologic/water quality functions and values. Cleanout and maintenance of the pond shall be allowed only from August 15 to May 1. Such activities shall not be permitted during the spring and summer (i.e., May 1 to August 15) due to the need to protect nesting waterfowl.*	Undesignated	C
11	None	25	20TH/CHANDALAR (0.5 acres; Private Ownership) (Scores: Not Assessed) *Developer shall submit a drainage impact analysis to address drainage in relation to neighboring homes.*	Undesignated	C
11	50	25	NORTHWEST INTERSECTION OF NORTHERN LIGHTS/MULDOON (two sites) (6 acres; Private Ownership) (Scores: Hydrology = 69; Habitat = 50; Species Occurrence = 17; Social Function = 55) Southern, center section of easterly site above Post Office provides higher habitat values; could be used for enhancement. *A written plan shall be submitted to the Municipal Department of Community Planning and Development for review and approval describing efforts to avoid impacts to the habitat values of the southern and central sections of the easterly tract, such as timing windows, additional setbacks, vegetative screening, reduction of fill and onsite enhancement.*	Developable	C
12	44	36	MULDOON PARK: NORTHERN LIGHTS BOULEVARD AND MULDOON ROAD (10.6 acres; Public Ownership) (Scores: Hydrology = 69; Habitat = 53; Species Occurrence = 22; Social Function = 50) Isolated site has relatively low values. *Drainages shall be maintained to prevent flooding, maintain both surface and subsurface cross drainage and prevent drainage of adjacent wetlands. Park amenities shall only be permitted beyond 85 feet of drainageways and open water.*	Preservation	C
13	44	35	SOUTHWEST INTERSECTION OF NORTHERN LIGHTS/PATTERSON (4.75 acres; Private Ownership) (Scores: Hydrology = 105; Habitat = 61; Species Occurrence = 18; Social Function = 47) *A hydrologic analysis shall be done and meet the acceptable standards of the Municipal Department of Public Works and the Municipal Department of Community Planning and Development in order to ascertain possible connections to Chester Creek and Baxter Bog and to ensure the maintenance of flows to Chester Creek and Baxter Bog.*	Developable	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
14	None	24	CHENEY LAKE (26 acres; Public Ownership) (Scores: Hydrology = 117; Habitat = 108; Species Occurrence = 97; Social Function = 95) Primary importance for habitat values; some water quality values. Provides waterbird nesting and staging habitat and active recreation. A *65-foot minimum setback shall be maintained for park improvements.*	Undesignated	A/Open Water
14A	44	24	VUETER SUBDIVISION (7 acres; Private Ownership) (Scores: Hydrology = 71; Habitat = 41; Species Occurrence = 18; Social Function = 74) *A hydrologic analysis shall be done and meet the acceptable standards of the Municipal Department of Public Works in order to ascertain possible connections to Chester Creek and to ensure the maintenance of flows to Chester Creek. A 65-foot setback shall apply along all drainageways to Chester Creek. A 100-foot setback shall be maintained adjacent to Chester Creek due to its anadromous fish resources.*	Developable	C
15	44	35	BAXTER BOG (42 acres; Public & Private Ownership) (Scores: Hydrology = 131; Habitat = 122; Species Occurrence = 81; Social Function = 75) *Any development shall require a hydrology/drainage survey. Impervious structures shall be required at borders to minimize any dewatering of "A" and "B" wetland areas. Critical hydrological connections exist in "B" wetland areas which shall be avoided and protected..*	Developable Conservation Preservation	A/B
16	45	35	NORTH OF REFLECTION LAKE (2.5 acres; Private Ownership) (Scores: Not Assessed) Most of site already permitted/developed. Minimal values, marginal wetland.	Developable	C
17	46	23	NORTHERN LIGHTS/WESLEYAN & RUSSIAN JACK PARK (45 acres approx.; Public & Private Ownership) ("A" wetland scores: Hydrology = 94; Habitat = 84; Species Occurrence = 85; Social Function = 72. "B" wetland scores: Hydrology = 95; Habitat = 70; Species Occurrence = 53, Social Function = 58) Black spruce forested edges/southern rim is classed as "C" wetlands. *A 15-foot transitional buffer shall be maintained between fill permitted under General Permits and "B" wetland.* Remainder classed as "B" wetlands due to higher habitat, flood control and water quality values. Connection to fork of Chester Creek at the north. Russian Jack Park is "A" wetland area; most of the park area is important to Chester Creek.	Developable Conservation Preservation	A/B/C
17A	46	23	NORTH OF NORTHERN LIGHTS BOULEVARD AND WESLEYAN (3 acres; Private Ownership) (Scores: Hydrology = 91; Habitat = 55; Species Occurrence = 54; Social Function = 60) Partially disturbed area and old gravel pit; minimum values.	Developable	C
18	48	22, 23 and 33	GOOSE LAKE (36 acres; Public Ownership) (Scores: Hydrology = 88; Habitat = 120; Species Occurrence = 122; Social Function = 97) Documented high values for habitat, water quality and recreation. *Minor park amenities could be permitted but shall be concentrated at north end only.*	Special Study	A

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
18	48	23, 33 and 34	GOOSE LAKE (22.5 acres; Public Ownership) (Scores: Hydrology = 68; Habitat = 83; Species Occurrence = 15; Social Function = 74) Includes upper Mosquito Lake drainage. Important as feeder area for Mosquito Lake. *Fringes could be developed but key drainage sections shall be avoided.*	Special Study	B
18	48	22, 23 and 33	SOUTH SIDE OF NORTHERN LIGHTS/BRAGAW, EAST OF GOOSE LAKE (35 acres; Public Ownership) (Scores: Hydrology = 76; Habitat = 75; Species Occurrence = 17; Social Function = 74) All "C" wetland sites surrounding "B" wetlands. Revised wetland boundary. *Drainage into B areas shall be avoided, i.e., maintained in present condition. A 15-foot transitional buffer shall be maintained between fill authorized under these GPs and adjacent "B" wetlands. A 25-foot transitional buffer shall be maintained between fill authorized under these GPs and adjacent "A" wetlands to the west. A 65-foot setback shall be maintained as a minimum along all drainageways. No development shall be authorized by the GPs east of the trail where the interface between areas designated B and C is closest to the trail. No fill shall be allowed to be placed under the GPs from April through June within 200 feet of the A-designated wetlands and within 50 feet of B-designated wetlands due to concern for nesting. If no damage would result to private property, treated, local storm water shall be directed into the wetland.*	Special Study	C
18A	48	33	MOSQUITO LAKE (14 acres; Public Ownership) (Scores: Hydrology = 85; Habitat = 88; Species Occurrence = 67; Social Function = 76) *Lake proper and northerly "A" wetlands shall be preserved without disturbance.* Isolated lobes south of lake and bike trail less valuable and could be filled for recreation or road expansions. *A 25-foot transitional buffer shall be maintained between fill authorized under these GPs and adjacent "A" wetlands. A 65-foot waterbody setback shall be maintained as a minimum around Mosquito Lake. No fill shall be allowed from April through July in this unit under the GPs to protect nesting near Mosquito Lake.*	Special Study	A/C
18B	48	33 and 34	NORTH SIDE PROVIDENCE, ALONG BRAGAW RIGHT-OF-WAY (21 acres; Public Ownership) (Scores: Hydrology = 58; Habitat = 73; Species Occurrence = 12; Social Function = 64) *Although identified and justified as developable in Goose Lake Plan; this site provides waterbird habitat in flooded westerly areas which shall be maintained.* Site filters runoff from easterly sections to Mosquito Lake complex. Key wetland areas lie in westerly portions and easterly transitional areas could be developed. *Runoff drainageways into flooded Mosquito Lake complex shall be maintained.*	Special Study	B
18C	47	33	CHESTER CREEK CORRIDOR: NORTHERN LIGHTS TO SOUTH OF PROVIDENCE HOSPITAL (19.2 acres; Public & Private Ownership) (Scores: Hydrology = 95; Habitat = 86; Species Occurrence = 79; Social Function = 82) Direct connection to Chester Creek: provides flood storage, water quality functions and wildlife habitat. *Providence Hospital improvements shall be located outside the wetland corridor. Other development shall be avoided except for minor recreation amenities.*	Preservation Special Study	A

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
18D	49	33	WEST SIDE PROVIDENCE, NORTH OF 36TH, BETWEEN CHESTER CREEK & PROVIDENCE DRIVE, SOUTH OF MALLARD (1.6 acres; Public Ownership) (Scores: Hydrology = 76; Habitat = 50; Species Occurrence = 48; Social Function = 41) *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding, maintain both surface and subsurface cross drainage, and prevent drainage of adjacent wetlands. It shall be used in determining the placement of fill that would minimize interference with the local hydrology. A 25-foot transitional buffer shall be maintained between fill authorized under the GPs and adjacent "A" wetlands to the west.*	Special Study	C
18E	47	33	SOUTH OF CHESTER CREEK CORRIDOR NEAR PROVIDENCE HOSPITAL, NORTH OF EAST 40TH AVENUE (1.5 acres; Public Ownership) (Scores: Hydrology = 95; Habitat = 79; Species Occurrence = 48; Social Function = 41) *Minimum 25-foot buffer shall be required from greenbelt/"A" wetlands. Drainage connections, or low areas adjacent to Chester Creek corridor and "A" wetland shall be maintained.*	Special Study	B
19	48	22	NORTHWEST CORNER OF NORTHERN LIGHTS/BRAGAW (6.6 acres; Public Ownership) (Scores: Hydrology = 87; Habitat = 49; Species Occurrence = 24; Social Function = 67) Fragmented; partially developed. *A 100-foot setback shall be maintained adjacent to Chester Creek due to its anadromous fish resources.*	Special Study	C
20	49	22	CHESTER CREEK PARK: NORTH OF NORTHERN LIGHTS BOULEVARD (76.2 acres; Public Ownership) (Scores: Hydrology = 134; Habitat = 97; Species Occurrence = 61; Social Function = 80) Portions are within Chester Creek greenbelt. Importance for water quality, recharge, flood storage, open space and habitat. *Drainage connections to the creek shall be maintained via avoidance or fill setbacks.* "B" wetland area runs from East 20th Avenue southward for approximately 225 feet. Development should be limited to northern and eastern portions of site. *Drainage channel which crosses Northern Lights and runs across the southern portion of Heritage Land Bank parcel #3-019 shall be retained with a 25-foot buffer.* This area, east of Goose Lake Drive, was designated "Conservation" in the Goose Lake Plan (1983.) The site's highest values are within the Chester Creek floodplain. *North-south channel in ditch shall include a 65-foot setback.*	Preservation	A/B
21	15	21	CHESTER CREEK GREENBELT/SITKA STREET (85 acres; Public Ownership) (Scores: Hydrology = 142; Habitat = 120; Species Occurrence = 106; Social Function = 89) Importance for water quality and recharge of Chester Creek. *Park development shall be placed on wetlands fringes. Run-off from snow dump site east of Sitka Street shall be treated before entering creek/wetlands.* The Municipality should ultimately move the North Fork of Chester Creek out of the roadside ditch into the wetlands proper. The Department of Public Works should provide engineering feasibility analyses and cost estimates and incorporate them into future Capital Improvement Programs.	Preservation	A

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21A	15	21	ORCA STREET (3 acres; Public Ownership) (Scores: Hydrology = 87; Habitat = 53; Species Occurrence = 18; Social Function = 54) Importance for water quality filtering of Merrill Field area and flood control as part of larger "A" wetland. Municipal ownership. *Site shall be undisturbed to the maximum extent.*	Developable	B
21B	15	21	SOUTHWEST CORNER OF DEBARR & LAKE OTIS INTERSECTION (4 acres; Private Ownership) (Scores: Not Assessed) Classed as "C" wetland. New channel of the North Fork of Chester Creek has been daylighted on-site. *A 65-foot setback shall be maintained along the North Fork of Chester Creek.*	Developable	C
22	14	20	D STREET TO A STREET, 17TH TO 18TH & ALONG CHESTER CREEK GREENBELT (16 acres; Public & Private Ownership) (Scores: Hydrology = 70; Habitat = 50; Species Occurrence = 18; Social Function = 48) (South side "A" area = Not Assessed) Minimal values. *A 25-foot transitional buffer shall be maintained on outside margin of greenbelt. Drainage shall be treated by development (in filled areas) prior to its release into adjacent water bodies and wetlands. A100-foot setback shall be maintained adjacent to Chester Creek due to its anadromous fish resources. "A" wetland along bike trail below Mulcahy, south of creek, shall be preserved.*	Preservation Developable	A/C
23	14	19	WESTCHESTER LAGOON (27 acres; Public Ownership) (Scores: Hydrology = 118; Habitat = 112; Species Occurrence = 147; Social Function = 103) Includes western Chester Creek greenbelt. Documented high habitat, recreation and water quality values. *Minor recreation amenities shall be permitted only if no other practicable alternatives exist on-site.*	Preservation	A
24	5A	18+	FISH CREEK CORRIDOR (2.6 acres—Public Ownership; 10.10 acres—Private Ownership) (Scores: Hydrology = 89; Habitat = 79; Species Occurrence = 61; Social Function = 48) *Previous fill permit areas with protected setbacks shall be treated as "A" wetlands.* Road crossings, trails and channel improvements should be permitted if no upland alternatives are available. Important to Fish Creek flood control and water quality.	Developable	A
24A	5A	41	NORTHWOOD PARK (10 acres; Public Ownership) (Scores: Hydrology = 113; Habitat = 111; Species Occurrence = 97; Social Function = 86) "A" wetlands within park lands; significant water quality recharge and flood storage values. *All park developments shall be consistent with the locally adopted park plan.*	Conservation	A

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
25	5	29	MILKY WAY/BROADMOOR ESTATES COMPLEX (Private Ownership) a) Main section = 75 acres (Scores: Hydrology = 96; Habitat = 57, Species Occurrence = 47; Social Function = 51), north spur = 17 acres (not assessed). **NOTE**: In the Assembly's final Plan approval, this site was changed, via amendment, from "B/C" to all "C". For clarification, this designation change (to "C") was meant only to apply to the Broadmoor Estates parcel, and specifically to, *"The westerly 300 feet around Aero Drive extended (~11 acres)"*. The remaining southerly 1.9 acres in a 10-acre parcel south of W. 40th and the Southern Spur (item b.) remain as "B" wetlands. The rest of the large area is designated "C". Although the Assembly approved this change to "C" for Broadmoor Estates, the Corps of Engineers will not include this new "C" area in the General Permits and fill activities for this area will continue to require an Individual Permit from the Corps of Engineers. The Management Strategy for site #25 otherwise remains unchanged. Higher value habitat and wetter areas located at the west side at "A" wetland edge and at the south portion of southern tract. Identified school site located at east end. Isolated site north of park has been disturbed and drained and is of low value. *Cross drainage shall be maintained to "A" wetlands towards the west. A 25-foot transitional buffer shall be maintained between fill authorized under the GPs and adjacent "B" wetlands. No work shall be done within 100-foot of the adjacent "B" wetlands under the GPs between April and July. If no damage would result to private property, treated, local storm water shall be directed into the unfilled wetland. Aero Drive shall be permitted but cross-drainage to "A" wetlands shall be retained and insured in design.* Southern end of 10-acre parcel south of W. 40th ("B" area) could be enhanced and linked to isolated "B" site to south for habitat. b) Southern spur = 2.8 acres (Scores: Hydrology = 75; Habitat = 52; Species Occurrence = 42; Social Function = 44) Designated "B" and owned by church to east. *If to be permitted, shall retain northern undisturbed portion to maximum extent, as hydrologic and habitat link to main wetlands.*	Developable Undesignated	B/C
26	5	16 and 27	SOUTHWEST CORNER OF NORTHERN LIGHTS/POSTMARK DRIVE (8.5 acres; Public Ownership) (Scores: Hydrology = 75; Habitat = 68; Species Occurrence = 62; Social Function = 55) *Drainage shall be maintained throughout site*. Most of site is being developed at time of Plan revision.	Developable	C
26A	5	17	SOUTH SIDE NORTHERN LIGHTS: POSTMARK DRIVE TO EARTHQUAKE PARK (0.7 acres; Public Ownership) (Scores: Hydrology = 57; Habitat = 80; Species Occurrence = 18; Social Function = 39) Drainageway area serves as outflow from main bog. *Drainageway from bog shall be retained or replaced.* Limited habitat values.	Undesignated	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
26A and 26B	5	16 17 27 and 28	TURNAGAIN BOG PROPER (435 acres; Public Ownership) (Scores: Hydrology = 149; Habitat = 190; Species Occurrence = 113; Social Function = 65) Fill permit applications should be consistent with the land use designations and the alternatives analysis contained in the Anchorage International Airport (AIA) Master Plan. Priority should be given to airport location-dependent enterprises. Fill permit requirements should fully consider other Municipal plans such as trails, roads, and drainage planning for the airport area. The following apply to "C" sites: *A written plan shall be submitted to the Municipal Department of Community Planning and Development for review and approval describing efforts to minimize and avoid impacts to the habitat values to the higher value wetlands at the northern end of the "C" area, such as timing windows, additional setbacks, vegetative screening, reduction of fill, and onsite enhancements. In #26A, a 65-foot transitional buffer shall be maintained between fill authorized in the GPs and adjacent "A" sites. This is to provide an adequate buffer for nesting around the water body in the adjacent "A" wetland. An impervious barrier shall be placed at the margins of any fill authorized by these GPs, to the bottom of the peat layer, or to a minimum of one foot below the bottom of gravel fill, to preclude groundwater outmigration from as adjacent wetland.* Only land uses designated in the AIA Master Plan should be considered for coverage under the GPs. *A mitigation plan shall be developed in consultation with a Special Mitigation Committee (composed of State and Federal resource agencies and the Municipality) during the environmental analysis, engineering, design, and construction of the project. A report reflecting this consultation and final approval by the Corps of Engineers shall be submitted with the request for a GP. A 65-foot setback shall be maintained from all waterbodies.* The following apply to "A" and "B" sites: AIA strategic development plan will establish appropriate types and levels of compensatory mitigation for airport wetland fills in "A" and "B" sites, and will be developed in conjunction with the resource agencies. Projects that address airport safety issues and neighborhood-airport conflicts (e.g., noise impacts, clear-zone requirements), including minor road, trail, utility lines, taxiway and runway projects, should be permitted with no or reduced mitigation requirements. The other areas of the main Turnagain Bog core, particularly at the northwest, central west, and southeast fringes are transition zones where wetlands grade out into adjacent upland woods, and are of lower value than the main patterned ground core.	Special Study; Developable; Preservation	A/B/C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
26C	5	17	EARTHQUAKE PARK (84 acres; Public Ownership—"A" Wetlands; Private Ownership—"C" Wetlands) (Scores: Hydrology = 106; Habitat = 105; Species Occurrence = 64; Social Function = 69) Platted portion at east end contains lower value wetlands—classed as "C" wetlands. Remainder of wetlands contains pools and ponds, mixed habitat; higher values of site. Conveys storm drain system from Northern Lights Boulevard. Public parkland areas remain protected as "A" wetlands. *Minor recreation amenities and trails could be placed in "A" wetlands, but shall be at least 50 feet away from waterbodies.* Jones Creek corridor east of the main 26C site is "A" wetland; *requires wetland delineation prior to permitting.*	Preservation	A/C
26C	None	16	COASTAL TRAIL NORTHEAST OF POSTMARK DRIVE/NORTHERN LIGHTS INTERSECTION (1.6 acres; Public Ownership) (Scores: Hydrology = 47; Habitat = 41; Species Occurrence = 15; Social Function = 64) No known wetland function; some drainage values. *Any fill projects shall maintain drainage through site.*	Undesignated	C
26D	5	27	POSTMARK DRIVE WEST (78 acres; Public Ownership) (Scores: Hydrology = 128; Habitat = 87; Species Occurrence = 67; Social Function = 73) Corps of Engineers requires mitigation plan approval prior to permit issuance . Significant site due to both migratory and nesting habitat values. Proximity to runways requires off-site mitigation. *All fill and excavation work in this wetland shall be conducted and scheduled in a manner to minimize disturbance to migratory birds to the maximum extent.*	Developable	A
26E	None	41	LAKE SPENARD (Approximately 4 acres; Public Ownership) (Scores: Not Assessed) *Wetlands fringe shall be maintained with adequate setbacks from the lake.* Provides important filtering function for the lake's water quality control.	Undesignated	A/Open Water
27	None	26	ALONG BLUFF/COASTAL TRAIL, SOUTH OF POINT WORONZOF (11.7 acres; Public Ownership) (Scores: Hydrology = 71; Habitat = 60; Species Occurrence = 23; Social Function = 33) Limited habitat values. *Two primary drainageways shall be maintained. Full wetland delineation required prior to permitting.*	Special Study	C
28	1	50	LITTLE CAMPBELL LAKE (16.1 acres; Public Ownership) (Scores: Hydrology = 83; Habitat = 95; Species Occurrence = 89; Social Function = 74) Wetlands important for habitat and open space. *Park amenity development shall occur outside wetlands to the maximum extent.*	Preservation	A
29	4A	52	SOUTH AIRPARK LAKE (2 acres approx.; Public Ownership) (Scores: Not Assessed) *Lake and fringe wetlands shall be preserved.* Provides waterbird habitat and water quality functions.	Preservation	A

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29A	None	52	NORTHEAST AIR GUARD/RASPBERRY ROAD (0.62 acres; Private Ownership) (Scores: Hydrology = 65; Habitat = 55; Species Occurrence = 18; Social Function = 18) Seasonal pond with possible connection to DeLong Lake; *storm drainage and lake connection shall be maintained or adequately handled in development design.* Conveys drainage across Raspberry Road.	Undesignated	C
29A	None	52	NORTHWEST AIR GUARD/RASPBERRY ROAD (0.67 acres; Public Ownership) (Scores: Hydrology = 52; Habitat = 47; Species Occurrence = 18; Social Function = 18) Isolated; seasonal flooding which drains east and across Air Guard Road to DeLong Lake drainage. No known species use. *Drainage functions to lake shall be maintained or replaced.*	Undesignated	C
30	4	40, 41 and 52	DELONG LAKE/MEADOW LAKE (46 acres; Public & Private Ownership) (Scores: Hydrology = 119; Habitat = 122; Species Occurrence = 133; Social Function = 73) This lake system has important waterbird and fish habitat as recognized by the Alaska Department of Fish and Game. *Preservation of the north side wetlands on Meadow Lake shall be identified in the Anchorage International Airport Master Plan. Airport expansions shall remain buffered from Meadow Lake and adjacent wetlands. An 85-foot setback in "C" areas shall be maintained around the lake to maintain the habitat and hydrologic values of the southeast corner of Delong Lake. The easterly 35-foot of Lot 1 Block 2, Alderwood Subdivision shall remain undisturbed. Either trees shall be planted or a fence shall be constructed at the east edge of fill authorized under the GPs (on Lot 1) to visually screen development from adjacent wetlands. The active drainageway in the north side of Lot 1 , Block 2 Alderwood Subdivision shall remain undisturbed. Homeowner recreational amenities in "A" areas shall be limited to pile-supported structures.* Most of the south side wetlands are common areas or park reserve tracts. Ideally, Lots 35A and B at the lake's east shore should be merged with "A" wetland (currently designated as "C") under fee simple acquisition.	Preservation Developable	A/C
31	6	41	BENTZEN LAKE (6.1 acres; Public Ownership) (Scores: Hydrology = 91; Habitat = 91; Species Occurrence = 73; Social Function = 64) *Wetlands within park land shall be preserved*; importance for habitat, flood control.	Preservation	A
31A	6	41 and 42	NORTHWEST OF MINNESOTA/INTERNATIONAL: NORTHWOOD/VAN BUREN (three sites) (6 acres; Public and Private Ownership) (Scores: Hydrology = 69; Habitat = 43; Species Occurrence = 22; Social Function = 48) Sites mostly disturbed; northern half has a higher potential for enhancement. Site south of International Airport Road is isolated from rest of Connors Bog and has low values.	Developable/ Preservation	C
32	6	42	DELANEY LAKE (3.5 acres; Public Ownership) (Scores: Hydrology = 116; Habitat = 89; Species Occurrence = 46; Social Function = 47) Moderate migratory bird habitat/some nesting. May provide flood attenuation/water quality control for Fish Creek. *The lake and, to the maximum extent, most of fringe on the north side of the railroad tracks, shall be preserved.*	Developable	B

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33	6	42	SOUTHEAST INTERSECTION OF MINNESOTA/INTERNATIONAL (9.7 acres; Public Ownership) (Scores: Hydrology = 114; Habitat = 81; Species Occurrence = 24; Social Function = 48) Provides moderate open water habitat; actual nesting use limited; currently permitted for roadway improvements; remainder of site could be used for storm drainage retention/treatment. *Sufficient area shall be retained at west edge for storm drain storage and filtration.*	Developable	B
34 and 34B	6	41, 42 and 53	CONNORS-STRAWBERRY BOG (310 acres; Public & Private Ownership) (Scores: Assessed in two parts: Hydrology = 114, 98; Habitat = 138, 131; Species Occurrence = 98, 113; Social Function = 80, 49) "A" wetlands designation for all public wetlands and portions of privately-owned parcels #012-051-75 and 012-053-01. A significant waterbird migratory and nesting habitat complex. The DRAFT Connors-Strawberry Bog Master Plan should serve as the basis for the management and restoration of the Connors-Strawberry Bog System. *Municipally-leased airport lands in the northwest corner of the bog shall be managed to retain wetland functions and other values covered in lease terms restrictions. Municipal lands within Connors-Strawberry bog shall be managed for open space, wildlife habitat, and wetlands functions.* A DRAFT Connors-Strawberry Bog Master Plan outlines recreation development limited to passive and interpretive uses. *Trails in wetlands shall be built on piles to the maximum extent.* Required Raspberry and Minnesota road and interchange expansions are recognized as in the best public interest, and should be permitted with minimal encroachment. *Measures shall be taken to maintain natural drainage patterns and enhance or restore disturbed areas.* Road design should be consistent with Master Plan recommendations for intended discharge of treated road drainage into public lands in Connors Lake recharge areas. *Portions of parcels #012-071-14 and 012-051-75 within the Connors Lake recharge zone have significant habitat functions which shall be preserved;* recommend fee simple acquisition of these sites.	Preservation	A/Open Water
34A	6	54	EAST OF INTERSTATE CIRCLE (1.92 acres; Private Ownership) (Scores: Hydrology = 48; Habitat = 35; Species Occurrence = 24; Social Function = 33) *A formal wetland delineation shall be required with development plans.* Site is a low value transitional wetland.	Undesignated	C

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34A	6	42 and 54	BLUEBERRY LAKE, INCLUDING AREAS TO THE NORTH AND SOUTH (three sites) (Blueberry Lake: approx. 9.5 acres; Private Ownership; Scores: Hydrology = 99; Habitat = 98; Species Occurrence = 41; Social Function = 32). (Areas North and South of Lake: 33.18 acres; Public and Private Ownership; Scores: Hydrology = 83; Habitat = 53; Species Occurrence = 17; Social Function = 53) Blueberry Lake proper and adjacent 100-foot fringe setback is designated "A". This area was platted with a 65-foot setback which was expanded in the 1982 plan to 100 feet for additional protection. *This area is currently under a U.S. Department of Justice/EPA court-imposed judgment and future fills shall require compliance with this federal action.* The narrow wetland to the north of Dowling Road extended is mostly filled and remains "C". Wetlands south of Dowling Road right-of-way, and outside the lake "A" zone , are "B". *A hydrologic analysis shall be required in future actions to determine the extent of recharge zones to the lake. A 15-foot buffer shall be required at the border of "C" areas with the "B" zone.*	Preservation Developable	A/B/C
34C	6	54	SOUTHEAST INTERSECTION OF MINNESOTA/RASPBERRY (20.20 acres; Public Ownership) (Scores: Hydrology = 79; Habitat = 47; Species Occurrence = 18; Social Function = 63) Site developable but has great potential for habitat enhancement/flood storage/mitigation site. *A hydrologic analysis shall be done for any fill proposed on the west side, and this shall meet the acceptable standards of the Municipal Department of Public Works in order to ensure that adjacent homes will not be adversely affected by the proposed fill. Any road expansion on the west side shall address drainage impacts on adjacent homes prior to permit.*	Developable	C
34D	6	53	IRIS SUBDIVISION (Raspberry Road/Connors Bog) (3.5 acres; Private Ownership) (Scores: Assessed with Site #34) *Cluster development and minimal fill shall be used in development designs; fill shall be limited to the roadside and westerly portions of the lot or to higher portions of the site. If permitted: runoff shall be treated before entering bog, landscape screening shall be required between development and bog; any development shall include habitat enhancement in bog.* Intent: majority of site should be retained; development to occur in Corps of Engineers process.	Preservation	A

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34E	6	53	NORTHWOOD/RASPBERRY (2.75 acres; Public Ownership) (Scores: Hydrology = 83; Habitat = 59; Species Occurrence = 57; Social Function = 59) High enhancement/mitigation potential. *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding, maintain both surface and subsurface cross drainage, and prevent drainage of adjacent wetlands. It shall be used in determining the placement of fill that would minimize interference with the local hydrology and prevent flooding of the road and adjacent subdivision. The semi-permanent pond at the central/east side shall be avoided with a 65-foot setback. An impervious barrier shall be placed at the margins of any fill authorized by the GPs to the bottom of the peat or a minimum of one foot below the bottom of gravel fill to preclude groundwater outmigration from an adjacent wetland. New fill shall be visually buffered from the ponds. If no damage would result to private property, treated local storm water shall be directed into the wetland. No fill shall be allowed under the GPs from April to July to protect nesting habitat.* Recommend site remain undeveloped in Heritage Land Bank inventory	Developable	C
34F	6	66 and 67	SOUTH CONNORS BOG: BOTH SIDES OF STRAWBERRY ROAD (48+ acres; Private Ownership) (Scores: Hydrology = 106; Habitat = 95; Species Occurrence = 50; Social Function = 49) First 100 feet from Strawberry Lake to be classed as "A" wetland. High waterbird and recharge values. Additional 200 feet south of "A" wetland and irregular area further west to be classed as "B" wetlands. Remainder outward area classed as "C" wetlands . *A 25-foot transitional buffer shall be maintained from "B" wetlands. Storm water shall be treated before entering adjacent wetlands from fill permitted under GP. A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding, maintain surface and subsurface cross drainage, and prevent drainage of adjacent wetlands. It shall be used in determining the placement of fill that would minimize interference with the local hydrology and help establish appropriate setbacks from drainages and water bodies. If fill is authorized by GPs, then the two ditches shall be filled in the adjacent undeveloped areas. An impervious barrier shall be placed at the margins of any fill authorized in the GPs to the bottom of the peat layer or a minimum of one foot below the bottom of gravel fill to preclude groundwater outmigration from an adjacent wetlands. If no damage would result to private property, treated local storm water shall be directed to the bog from fill authorized in the GPs. Hydrologic analysis of "B" wetlands shall indicate importance and role of 200-foot setback to hydrology/habitat of Strawberry Lake and important areas to be avoided to the west.* Southerly area may serve as spillover/drainage site between Connors/Strawberry Bog and Campbell Creek. *Drainage zones shall be identified and protected.*	Preservation Developable	A/B/C

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34G	6	53	CONNORS BOG/64TH AVENUE, TRACT A (9.7 acres; Private Ownership) (Scores: Hydrology = 88; Habitat = 75; Species Occurrence = 55; Social Function = 47) Southern portion of lower value where topography grades up and plant communities change. Northerly portion similar to flooded areas in main Connors Bog immediately to north of site. *A visual buffer shall be established at the edge of any future fill and remaining unfilled sections to north and east. If no damage to private property, on-site treated storm water shall be directed into the Connors Bog wetlands.*	Developable	B
35	6	53	RASPBERRY TO STRAWBERRY/NORTHWOOD TO JEWEL LAKE (Four sites) (15 acres; Private Ownership) (Scores: Hydrology = 87; Habitat = 62; Species Occurrence = 41; Social Function = 35) *Shady Birch Terrace Subdivision, a large unplatted area south of 71st Avenue, contains a pond and fringe habitat which shall be retained via a 65-foot setback.* This area of Shady Birch is designated "B". Isolated small parcels are "C" wetlands.	Developable	B/C
35A	6	53	73RD AND JEWEL LAKE (2.4 acres; Private Ownership) (Scores: Hydrology = 87; Habitat = 72; Species Occurrence = 53; Social Function = 40) Portions previously permitted by Corps of Engineers Individual Permit; setbacks from pond previously required under Individual Permits. High bird use and habitat diversity. Significant run-off and water quality control for Sand Lake. *Pond habitat, water quality and drainage values shall be maintained via avoidance.*	Developable	B
36	6	66	HATHOR SUBDIVISION (27.12 acres; Public & Private Ownership) (Scores: Hydrology = 103; Habitat = 104; Species Occurrence = 29; Social Function = 42) Main sections nearly developed: south of Kronos Drive to be classed as "C" wetlands. Northernmost half of Block 2 and West 80th right-of-way to the ponds to be classed as "A" wetlands (Hathor Park); *shall be retained due to habitat, water quality, flood control and recreation values. A 25-foot buffer shall be maintained between any fill permitted under the GPs and adjacent "A" wetlands.*	Developable	A/C
36A	None	66	BLACKBERRY/DIMOND (2.5 acres; Private Ownership) (Scores: Hydrology = 55; Habitat = 75; Species Occurrence = 18; Social Function = 39) Provides flood storage and water quality functions: connection between Sand Lake wetlands and Campbell Lake. *The drainageway shall be maintained between Sand Lake wetlands and Campbell Lake; no fill shall be allowed within 25-foot of the main channel in order to protect the area's flood storage and water quality functions. Silt fences shall be used in association with placement of any fill. Fill slopes shall be vegetated to minimize erosion and reduce turbidity.*	Undesignated	C
36B	6	66	BIRCH LAKE (5.7 acres; Public & Private Ownership) (Scores: Hydrology = 80; Habitat = 93; Species Occurrence = 56; Social Function = 74) High hydrology and habitat values. *Minor recreation amenities may be considered but shall be built on piles or at the fringes only.*	Developable	A

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37	2	52	SAND LAKE FRINGE WETLANDS (20.25 acres approx. = Public Ownership; 2.75 acres = Private Ownership) (Scores: Hydrology = 138; Habitat = 170; Species Occurrence = 143, Social Function = 89) Includes fringe wetlands on north side of Sand Lake, park land at east end of lake, and isolated pond and drainage area south of West 72nd Avenue. *Lakeside wetlands shall be avoided via appropriate setbacks throughout. Isolated pond and drainageway below West 72nd Avenue shall be preserved. (Assessment included lake acreage).*	Preservation	A
37A	2	65	SAND, SUNDI, JEWEL LAKES (62 acres; Public & Private Ownership) (Scores: Hydrology = 86; Habitat = 92; Species Occurrence = 110; Social Function = 45) "A" wetlands designation for those lakeside wetlands around Sand, Sundi and the unnamed lake immediately east of Sundi Lake, and the wetland complex that connects these waterbodies. Municipally-owned park lands are also classified as "A" wetlands and are connected to the lake setback preservation zone at a common boundary near Sundi Lake. Fringe wetlands exist around Jewel Lake. *Prior to any development of the Jewel Lake edge, a wetland delineation and Corps of Engineers approval shall be required.* These wetlands are vital to water quality, water level maintenance and flood storage, as well as the habitat and open space functions of the lakes and canals. *The functions shall be maintained and preserved by adherence to the policies below.* "A" wetland designated within the lake setbacks could be used in subdivision design as a platted open space area, with development restrictions consistent with a "Preservation" classification. *At the time of application, hydrological analysis of the entire site by the applicant/developer shall provide the relationship of the wetlands to water quality, recharge and flood storage to the four area lakes.* Field records and surveys show very high habitat and hydrological values. *Thus, prior to future permitting, additional information on habitat values shall be provided by an applicant. Analysis of potential fill impacts on habitat and hydrology functions shall be required by the applicant. Fill projects shall not threaten viability of the lakes and adjacent habitat. Development potential exists but the Corps of Engineers standards shall be met.*	Preservation	A
37B	2	65	SOUTH SIDE SAND LAKE: CHARLOTTE CIRCLE, VICTORIA SUBDIVISION (3.83 acres; Private Ownership) (Scores: Hydrology = 48; Habitat = 52; Species Occurrence = 11; Social Function = 48) Realign wetland boundary to the vegetation break (eastward) of the original. *A 25-foot transitional buffer shall be maintained from adjacent "A" wetlands. An impervious barrier shall be placed at the margins of new fill authorized by the GPs adjacent to the "A" wetlands to the bottom of the peat layer or a minimum of one foot below the bottom of the gravel fill to preclude groundwater outmigration from the adjacent wetland. If no damage would result to private property, treated local storm water shall be directed into the bog from wetlands to the east.*	Developable	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
37C	2	65	ST. BENEDICT'S (5.4 acres; Private Ownership) (Scores: Hydrology = 75; Habitat = 59; Species Occurrence = 68; Social Function = 44) Westernmost 150 feet includes key habitat and hydrology areas, with connection to "A" wetland. Ponded in spring; nesting use, significant species present. *A 200-foot transitional buffer shall be maintained from the "A" wetlands to protect habitat values of the "A" wetlands and at the west end of this site. New fill shall be visually screened from the setback along the "A" wetlands. If no damage would result to private property, treated. local stormwater shall be directed into the bog. No work shall be done on this site under the GPs between April and July. An impervious barrier shall be placed at the margins of fill authorized in the GPs adjacent to the "A" wetlands to the bottom of the peat layer or a minimum of one foot below the bottom of gravel fill to preclude groundwater outmigration from adjacent wetlands.*	Developable	C
37D	2	65	WEST OF JEWEL LAKE ROAD: 84TH TO 86TH (8.2 acres; Private Ownership) (Scores: Hydrology = 87; Habitat = 67; Species Occurrence = 35; Social Function = 45) Significant disturbance already. *A 200-foot transitional buffer shall be maintained from "A" wetlands to protect the nesting habitat in "A" wetlands. An impervious barrier shall be placed at the margins of any fill authorized in the GPs adjacent to "A" wetlands to the bottom of peat layer or a minimum of one foot below the bottom of gravel fill to preclude groundwater outmigration from adjacent wetlands.*	Developable	C
37E	None	52	WEST 72ND AVENUE (1.75 acres; Public Ownership) (Three sites) (Scores: Hydrology = 49; Habitat = 40; Species Occurrence = 18; Social Function = 47) Three previously Undesignated sites. Northerly and eastern areas are isolated sinkholes = "C" wetland. *Southerly site's drainage function shall be retained or replaced.* May have hydrologic connection to lake to the south. *A hydrological analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding, maintain both surface and subsurface cross drainage, and prevent drainage from adjacent wetlands. It shall be used in determining the placement of fill that would minimize interference with the local hydrology and replace drainage functions. Additional small wetland pools and depressions are scattered in this parcel and they shall be delineated prior to development.* Any additional wet areas are very small and can be covered under the General Permit.	Undesignated	C
38	12	43+	CAMPBELL CREEK GREENBELT (165+ acres = Greenbelt areas; Public Ownership) (Scores: Hydrology = 140; Habitat = 112; Species Occurrence = 102; Social Function = 54) "A" wetlands designation applies to those areas within the greenbelt which are protected under Municipal park ownership and stream protection ordinance. Important to fish habitat, flood control and recreation. *Permits for public use trails, additions and changes shall be placed as far from creek as possible and shall avoid wetlands to the maximum extent.*	Preservation	A
38	None	68	TAKU LAKE (14.5 acres; Public Ownership) (Scores: Not Assessed) Park amenities allowed but must maintain drainageway at south end of lake; *minimum setbacks of 65 feet shall be required from lake shore.* Provides flood storage, habitat.	Undesignated	A/Open Water

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
38A	12	44	INTERNATIONAL: CAMPBELL CREEK, EAST AND WEST OF HIGHWAY (11.3 acres; Private Ownership) (Scores assessed in two parts: Hydrology = 86, 63; Habitat = 50, 34; Species Occurrence = 18, 18; Social Function = 45, 46) *A 25-foot non-disturbance buffer shall be maintained from "A" wetlands. Run-off from any new development shall be treated before entering the creek.*	Developable	C
38B	12	55	OLD SEWARD HIGHWAY/64TH AVENUE (12.4 acres; Private Ownership) (Scores: Hydrology = 80; Habitat = 63; Species Occurrence = 26; Social Function = 35) Although disturbed, considerable habitat values exist where ponded. Potential for habitat enhancement. *Eastern one-third of site and ponds shall be retained and enhanced with 65-foot setbacks.* Cluster development could occur on western and southern fringes with buffering from ponds. Ponded sites east of foot trail require Individual Permit.	Developable	C
38B	12	55	NEAR TAKU ELEMENTARY (7.5 acres; Private Ownership) (Scores: Hydrology = 81; Habitat = 66; Species Occurrence = 24; Social Function = 59) Marginal wetlands on east side of creek. *A 25-foot buffer shall be maintained from "A" wetland/greenbelt. On-site drainage shall be treated before entering creek.*	Developable	C
38C	12	55	ALONG C STREET: DOWLING TO 76TH AVENUE (14.01 acres; Public & Private Ownership) (Scores: Hydrology = 85; Habitat = 88; Species Occurrence = 28; Social Function = 49) Artificially created ponds: road decreases habitat values; nesting ducks present. Area has drainage problems. *A written plan shall be submitted to the Municipal Department of Community Planning and Development describing how proposed fill would minimize impacts to nesting habitat, such as timing windows, additional setbacks, vegetative screening, reduction of fill, and onsite enhancement. A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding, maintain both surface and subsurface cross drainage, and prevent drainage of adjacent wetlands. It shall be used in determining the placement of fill that would minimize interference with the local hydrology. In Tract 3B, the seasonal drainage pattern (west to east toward Campbell Creek) shall be maintained via fill avoidance of seasonal surface flow low points. The water body at the south end of tract within the C Street right-of-way, south of Raspberry Road, and a 25-foot setback around the water body shall be treated as an "A" wetland. No work shall be done in this setback under the GPs from April through July.* Area has permanent and seasonal ponds. "B" area includes parcels at SE Hart and 72d intersection.	Developable	B/C
38D	None	75	EAST SIDE OF CAMPBELL LAKE, AT VICTOR ROAD (1.6 acres; Public & Private Ownership) (Scores: Hydrology = 98; Habitat = 77; Species Occurrence = 78; Social Function = 41) Includes lakeshore wetlands. Good species use, i.e., salmon, and stormwater filtering values; *area shall be preserved.*	Undesignated	A

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
39	12A	43 and 55	TINA LAKE (10 acres; Public & Private Ownership) (Scores: Hydrology = 135; Habitat = 93; Species Occurrence = 73; Social Function = 36) Values for water retention/filtering and significant species use. Remaining wetlands have direct connection to lake's hydrology values. Assumed that outer fringes of wetland could be filled. *Additional projects shall not occur during waterfowl breeding season (April-July). Fill edges shall include visual landscaped buffer. If Dowling Road is to be developed, any mitigation that may be required shall be off-site.*	Developable	A
40	13	43	BUSINESS PARK (Public Ownership—"A" wetland site; & Private Ownership) a) West Side of Business Park Boulevard. (8.38 acres) (Scores: Hydrology = 112; Habitat = 67; Species Occurrence = 94; Social Function = 65) Municipal and Business Park Coalition-owned land classed as "A" wetlands due to high hydrology, habitat values, enhancement/mitigation potentials identified; local snow dump nearby. Small privately owned parcel west of road remains as a "C" wetland . *A 25-foot transitional buffer shall be maintained between fill authorized under the GPs and the "A" wetland. No work shall be done on this site under the GPs from April through July. An impervious barrier shall be placed at the margins of any fill authorized by these GPs adjacent to the "A" wetlands to the bottom of the peat layer or a minimum of one foot below the bottom of the gravel fill to preclude groundwater outmigration from an adjacent wetland..*	Developable	A/C
40A	13	43	b) East Side of Business Park Boulevard (approximately 8 acres) (Scores: Hydrology = 94; Habitat = 59; Species Occurrence = 71; Social Function = 49) (Area has a semi-permanent pond) Lower values due to disturbance; recommend Municipal support to the Coalition to acquire Tracts 2, 3, and 4. Enhancement potential, species use. *A written plan shall be submitted in the permit process describing how fill will minimize impacts on nesting habitats. This shall include avoidance and/or cluster design.*	Developable	B

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
40B	13	43	SOUTHEAST INTERSECTION OF TUDOR/C STREET (South of EXXON gravel pit pond) (34 acres; Private Ownership) (Scores: Hydrology = 86; Habitat = 50; Species Occurrence = 18; Social Function = 40) Mixed woods. *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding, maintain both surface and subsurface cross drainage, and prevent drainage of adjacent wetlands. It shall be used in determining the placement of fill that would minimize interference with the local hydrology, particularly with movement of runoff from snow dumps. A 100-foot setback shall be required from the EXXON gravel pit pond. A written plan shall be submitted to the Municipal Department of Community Planning and Development for review and approval describing efforts to avoid and minimize impacts to the tract's habitat values, particularly avoidance of construction in Site 40B during waterfowl nesting and migration peaks. Additional examples of possible measures to avoid and minimize impacts to habitat include additional setbacks, vegetative screening, reduction of fill, and onsite enhancement. No work shall be done on this site under the GPs from April through July.*	Developable	C
40B	13	43	SOUTHWEST INTERSECTION OF INTERNATIONAL/C STREET (4 acres; Private Ownership) (Scores: Hydrology = 71; Habitat = 43; Species Occurrence = 18; Social Function = 33) Minimal values; could be used for storm drain treatment.	Developable	C
40B	13	43	SOUTHEAST INTERSECTION OF INTERNATIONAL/C STREET (1.1 acres; Private Ownership) (Scores: Hydrology = 72; Habitat = 42; Species Occurrence = 18; Social Function = 50) Minimal values; could be used for storm drain treatment.	Developable	C
41	13	31	A STREET TO C STREET/36TH TO 40TH (3.4 acres; Public Ownership) (Scores: Hydrology = 68; Habitat = 36; Species Occurrence = 18; Social Function = 46) Fragmented and already partially developed. *Development associated with fill authorized under the GPs shall include a means of water quality treatment of stormwater to prevent further degradation of the water quality of Fish Creek; any method proposed shall be approved by the Municipal Department of Public Works.* Local storm drains lead directly to Fish Creek.	Developable	C
41	13	31	WETLANDS SOUTH OF LOUSSAC LIBRARY (4 acres; Public Ownership) (Scores: Hydrology = 79; Habitat = 63; Species Occurrence = 54; Social Function = 60) Significant disturbance but has moderate waterfowl use/nesting. Ponded areas artificially created and water levels may be supplemented. *Development shall avoid all ponded areas in this Tract. A 65-foot setback shall apply around the permanent pond. Development associated with fill authorized under the GPs shall include a means of water quality treatment of stormwater to prevent further degradation of the water quality of Fish Creek; any method proposed shall be approved by the Municipal Department of Public Works. No work shall be done in this site under the GPs from April through July.*	Developable	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
41	13	31	A STREET TO FAIRBANKS: 40TH TO TUDOR ROAD (47.5 acres; Private Ownership) (Scores: Hydrology = 99; Habitat = 70; Species Occurrence = 60; Social Function = 40) Portions developed. Could serve as storm drain treatment/collection site. *Development shall direct storm water through appropriate treatment prior to entrance into storm drain as it leads directly into Fish Creek.*	Developable	C
42	13A	32	NE NEW SEWARD HIGHWAY/TUDOR ROAD (13 acres; Private Ownership) (Scores: Hydrology = 105; Habitat = 85; Species Occurrence = 28; Social Function = 54) Ponds provide high species use and habitat diversity. *Ponds or species use and habitat diversity shall be maintained with a minimum 65-foot setback.* Outlet ditch could be filled to retain wetland characteristics. Pond area could be tracted out. Performs storm drain filter function. Cluster housing recommended for eastern edge of site. (Unplatted areas zoned Residential.)	Developable	B
43	16	32	LAKE OTIS (9 acres; Public & Private Ownership) (Scores: Hydrology = 109; Habitat = 96; Species Occurrence = 96; Social Function = 80) Wetland fringe important for lake water quality, wildlife habitat and open space values. *Park improvements shall be developed at wetland fringes and on pilings whenever practicable. Future modifications to the lake water level control structure shall be reviewed under the Individual Permit review process to preclude any dewatering impacts on wetlands. A minimum 65-foot setback shall be maintained from lake for all new structures.* Minor accessory structures may be built on piles.	Preservation	A
44	17	32	MACINNES STREET/TUDOR ROAD, ALONG FISH CREEK (3 acres; Private Ownership) (Scores: Hydrology = 93; Habitat = 98; Species Occurrence = 52; Social Function = 78) Importance for habitat, water quality values. Wetland was retained as on-site mitigation for a previously permitted project. Area extends as narrow, wet drainageway north and east to East 40th Avenue right-of-way.	Conservation	A
45	17	44	WALDRON DRIVE WETLANDS (13.8 acres; Private Ownership) (Scores: Hydrology = 110; Habitat = 85; Species Occurrence = 61; Social Function = 53) *A minimum 85-foot setback shall be maintained from creek (headwaters of Fish Creek) in any future permitting.* Southern fringe could be developed without mitigation and appropriate buffering. *On-site drainage treatment shall be included in any new development.*	Conservation	B
46	18	43	WEST SIDE OLD SEWARD HIGHWAY: EAST 57TH/DOWLING (2.5 acres; Private Ownership) (Scores: Hydrology = 63; Habitat = 34; Species Occurrence = 18; Social Function = 46) Minimal values; could be used in storm drain treatment.	Developable	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
46	18	44	55TH TO DOWLING: SEWARD HIGHWAY TO LAKE OTIS (24 acres; Private Ownership) (Scores: Hydrology = 87; Habitat = 52; Species Occurrence = 42; Social Function = 12) Minimal values; could be used for storm drain treatment. All but west end disturbed and that is isolated by fills and roads and is too small to provide habitat. *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to determine if a pond is present and a setback is required.*	Developable	C
46	18	44	NORTHWEST INTERSECTION OF DOWLING/SEWARD HIGHWAY (17 acres; Private Ownership) (Scores: Hydrology = 106; Habitat = 50; Species Occurrence = 18; Social Function = 39) Minimal values; could be used for storm drain treatment/habitat enhancement.	Developable	C
46	18	56	SOUTHWEST INTERSECTION: DOWLING/SEWARD HIGHWAY (1.45 acres; Private Ownership) (Scores: Hydrology = 85; Habitat = 33; Species Occurrence = 18; Social Function = 46) Minimal values.	Developable	C
47	19	45	TUDOR DOG TRACK AND SITE BEHIND DEPT. OF PUBLIC WORKS (4.8 acres; Public Ownership) (Scores: Not Assessed) *A 25-foot transitional buffer shall be maintained between any fill permitted under the GPs and adjacent "A" wetlands.*	Developable	C
47	19	45	EAST SIDE OF LAKE OTIS AT 52ND AVENUE AND NORTH OF DOWLING (21 acres; Private Ownership) (Scores assessed in two parts: Hydrology = 80, 47; Habitat = 64, 30; Species Occurrence = 18, 18; Social Function = 53, 54) Northern section currently drains south to north at Folker Street right-of-way. *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, particularly of the developed infrastructure and homes in Simonian Subdivision; to maintain both surface and subsurface cross drainage; and to prevent drainage of adjacent wetlands. It shall be used in determining the placement of fill that would minimize interference with the local hydrology, particularly with movement of water to Campbell Creek. A 50-foot transitional buffer shall be maintained between any fill permitted under these GPs along the eastern and southern boundaries of Lot 72 and adjacent "A" wetlands. A 25-foot transitional buffer shall be maintained between any fill permitted under these GPs and adjacent "A" wetlands.*	Developable	C
48	41	45+	CAMPBELL TRACT (1400 acres; Public Ownership) (Scores: Hydrology = 126; Habitat = 156; Species Occurrence = 137; Social Function = 52) Portions have a direct link to Campbell Creek hydrologic regime. *Basher Lake wetlands shall be preserved because of high hydrology and habitat values.* Park development allowed if consistent with Bicentennial Park Master Plan. *Any activity shall avoid/minimize disturbance to surface water connections to Campbell Creek, its tributaries and Basher Lake. Trails in wetlands shall be set back at least 100 feet from Campbell Creek/tributaries. Utilities and roads shall be placed in the least sensitive areas.*	Preservation	A

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48	37	71 to 73	NORTH OF SERVICE HIGH SCHOOL: SOUTHERNMOST CAMPBELL CREEK (269.4 acres; Public Ownership) (Scores: Hydrology = 117; Habitat = 150; Species Occurrence = 48; Social Function = 69) *Wetlands within Bicentennial Park shall be preserved with minor park/recreational improvements allowed, but limited to non-fill activities if practicable. Best Management Practices shall be used during construction, but drainage and surface run-off connections shall be preserved.*	Preservation	A
48	43	48	SOUTH SIDE OF TUDOR/MULDOON CURVE (68 acres; Public Ownership) (Scores: Hydrology = 113; Habitat = 99; Species Occurrence = 24; Social Function = 59) *High habitat/hydrology (drainage/recharge) functions shall be preserved*: headwaters of branch of Campbell Creek. *Impervious dikes shall be placed at the margins of any fill to the bottom of the peat layer or a minimum of one foot below the new fill to separate and isolate fills from "A" wetland.* Utilities, minor park amenities, and Foothills Park, as previously outlined in Utility Corridor and Anchorage Bowl park plans, could be developed without compensatory mitigation in the northerly disturbed areas.	Special Study	A
48	19	58	ALONG ABBOTT LOOP ROAD: NORTHWEST END OF BLM TRACT (80 acres; Public Ownership) (Scores: Hydrology = 84; Habitat = 124; Species Occurrence = 29; Social Function = 59) Headwaters for forks of Little Campbell Creek. Values for water quality, storage, recharge and habitat. Minor utility, park development possible on eastern fringes; *a 100-foot setback shall be maintained from waterbodies and all cross-drainage shall be protected.*	Special Study	A
48	None	72	EAST OF SERVICE HIGH SCHOOL TO HILLSIDE PARK (2 acres; Public Ownership) (Scores: Hydrology = 78; Habitat = 65; Species Occurrence = 28; Social Function = 56) *Drainage to the "A" wetlands shall be maintained.*	Undesignated	B
48A	37	71	ZODIAK MANOR SUBDIVISION (3.2 acres; Public Ownership) (Scores: Hydrology = 73; Habitat = 54; Species Occurrence = 17; Social Function = 55) Northern edges at "A" wetland are wetter. *A 25-foot setback shall be maintained along the drainage conveyance (southeast to northwest) from Service High School. A 50-foot transitional buffer shall be maintained between fill permitted under the GPs and the "A" wetlands.*	Developable	C
48B	None	48	SOUTHEAST MULDOON-TUDOR-KLUTINA DRIVE (3 acres; Public Ownership) (Scores: Hydrology = 61; Habitat = 47; Species Occurrence = 18; Social Function = 44) Isolated site. Minimum values.	Undesignated	C
49 East	42	46	SOUTH SIDE OF TUDOR ROAD: ARMORY TO ADOT/PF (7.5 acres; Public Ownership) (Scores: Hydrology = 66; Habitat = 57; Species Occurrence = 24; Social Function = 42) May serve to filter run-off before entering Campbell Creek; *local drainage shall be maintained.* Reference Tudor Road PLI Plan for recommended use. *A 25-foot buffer shall be maintained from "A" wetland to the south.* Small isolated area south of ADOT/PF building is of minimal value and is classed as "C".	Special Study	B/C

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49 West	42	46	SOUTH SIDE OF TUDOR ROAD: EAST OF POLICE DEPARTMENT (81 acres; Public Ownership) (Scores: Hydrology = 90; Habitat = 70; Species Occurrence = 24; Social Function = 56) Much of these wetlands designated as good/excellent suitability zones in Tudor Road PLI Plan. *Developer shall provide hydrology/habitat evaluations necessary to delineate fill areas/setbacks in "B" area. All fills shall include a 100-foot setback from the north bank of Campbell Creek.* "C" wetland west of upland forest, which bisects this area, is isolated, of lower value, and could be filled under a General Permit. Southern portions of this wetland require additional delineation, especially south of East 45th Avenue and the Animal Control facility.	Special Study	B/C
49A	None	36	TUDOR/MULDOON CURVE (~3 acres; Public & Private Ownership) (Scores: Hydrology = 100; Habitat = 94; Species Occurrence = 49; Social Function = 38) *High habitat/hydrology functions shall be maintained.* Adjacent surrounding transition area could be used for additional stormwater detention. Important for local roadway drainage/water quality.	Undesignated	B
50	62	61	STUCKAGAIN: END OF MIDDEN WAY (2.9 acres; Private Ownership) (Scores: Hydrology = 73; Habitat = 77; Species Occurrence = 22; Social Function = 21) Pond is stream headwaters; good potential fish habitat. *Retain pond as open space; drainageway shall be tracted out in platting. A minimum 85-foot setback shall be maintained from pond and creek (where wetlands adjacent.).*	Developable	B
50	None	61	STUCKAGAIN: MIDDEN WAY (0.4 acres; Private Ownership) (Scores: Hydrology = 64; Habitat = 45; Species Occurrence = 18; Social Function = 29) Unique local site. No known species use. *Lot development shall be consistent with large lot zoning to preclude extensive fill coverage. Local drainage patterns shall be maintained around the sinkhole.*	Undesignated	C
51	19	57 and 70	STREAMSIDE SITES, 68TH AVENUE TO 80TH/LAKE OTIS TO ABBOTT LOOP (81.4 acres; Private Ownership) (Scores: Hydrology = 127; Habitat = 107; Species Occurrence = 69; Social Function = 50) *A 100-foot setback shall be maintained along Little Campbell Creek to maintain its anadromous fish resources and its flood storage/hydrology functions. Setback areas shall be treated as "A" wetlands.* Most areas scored high in the assessments, but the high value sites are concentrated at the stream corridors and these are to be protected via the setbacks.	Developable	C
51A	None	70	CANDYWINE CIRCLE (4.7 acres; Private Ownership) (Scores: Hydrology = 102; Habitat = 88; Species Occurrence = 49; Social Function = 40) Includes north branch, south fork of Little Campbell Creek. Important for flood storage, water quality maintenance; possible fish use. *Entire floodplain area shall be included in setback; additional setbacks/requirements to be determined in permit process, with minimum of 100 feet of setback required.*	Undesignated	B

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
52	19	57 and 70	#19A ISOLATED SITES: LAKE OTIS TO ABBOTT LOOP/68TH TO ABBOTT (45 acres; Private Ownership) (Scores: Hydrology = 118; Habitat = 63; Species Occurrence = 44; Social Function = 40) Mostly isolated, partially disturbed, low value areas. Minimal impacts foreseen if filled. *A 100-foot setback shall be maintained along all forks of Little Campbell Creek due to anadromous fish resources. A hydrologic analysis shall be done for work proposed in the northern portion of 72nd and Abbott Loop to prevent flooding of existing and future homes and roadways at the northern end of Travis Street. A field delineation shall be done to determine the northerly extent of the wetland northeast of intersection of 80th and Snow View Drive. If a hydrologic connection to Little Campbell Creek is observed, a 65-foot waterbody setback shall be required along it. Setback areas shall be treated as "A" wetlands.*	Developable	C
53	19	57	TIFFANY TERRACE TO BABY BEAR DRIVE/64TH TO 68TH (16.2 acres; Private Ownership) (Scores: Hydrology = 87; Habitat = 80; Species Occurrence = 48; Social Function = 43) Pebblebrook Subdivision site was issued General Permit; "A" designation applies to remaining wetland setback after development and the narrow remaining strip along the creek to the west parallel with 66th Avenue. *A 100-foot setback shall be maintained along channels of Little Campbell Creek. A 25-foot transitional buffer shall be maintained between fill authorized under the GPs and adjacent "A" wetlands.* (See permit #C-521.) Remaining wetlands to the north are "C" wetlands with a setback per plats.	Developable	A/C
54	19	56 and 57	64TH AND DOWLING/LAKE OTIS TO NEWT DRIVE (18.7 acres; Private Ownership) (Scores: Hydrology = 66; Habitat = 58; Species Occurrence = 18; Social Function = 49) Isolated site; possible use for storm drain treatment.	Developable	C
55, 56 and 57	19	56	DOWLING TO LORE ROAD/SEWARD HIGHWAY TO LAKE OTIS (71.41 acres; Private Ownership) (Scores: Hydrology = 117; Habitat = 86; Species Occurrence = 24; Social Function = 54) Sites located south of 68th Avenue and north of 64th ROW classed as "C" wetlands. Creekside sites at O'Brian Street and on lots east of Lake Otis classed as "B" wetlands due to direct hydrologic connection to creek with water quality, flood storage values; development could occur on outer fringes. Galatea Estates Subdivision classed as a "B". *A 100-foot setback shall be maintained along channels of Little Campbell Creek in order to maintain anadromous fish resources as well as water quality and flood storage functions.*	Developable	B/C

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58	19	69	LORE ROAD TO 82ND AVENUE: SEWARD HIGHWAY TO LAKE OTIS (18.88 acres; Private Ownership) (Scores: Hydrology = 76; Habitat = 65; Species Occurrence = 37; Social Function = 21) All sites isolated except for a 13.2 acre site adjacent to the creek. Possible for a sedimentation basin site. *A 100-foot setback shall be maintained along Little Campbell Creek due to its anadromous fish resources. All drainage corridors shall be maintained to the creek. The southerly ponded parcel southeast of the soccer field is designated "B" and shall be maintained with a 65-foot setback.*	Developable	B/C
58A	None	69	HARTZELL/DIMOND INTERSECTION (1.06 acres; Private Ownership) (Scores: Hydrology = 97; Habitat = 80; Species Occurrence = 38; Social Function = 36) Direct connection to south fork of Little Campbell Creek. Flow from springs/pond within floodplain; flood storage/recharge functions; fish rearing habitat. *Portions of site which may be filled shall be determined during project review. Integrity of springs/tributary shall be retained with minimum 85-foot setback.*	Undesignated	B
58B	None	69	SOUTHEAST INTERSECTION: DIMOND/SEWARD HIGHWAY (0.88 acres; Private Ownership) (Scores: Hydrology = 70; Habitat = 56; Species Occurrence = 28; Social Function = 44) Site could be used for stormwater detention/treatment—connects via pipe directly to Little Campbell Creek. *A 65-foot setback from the north edge outflow shall be maintained along the site's northwest corner.* Approximate area of wetlands includes 400 feet running south along Dimond exit ramp and for at least 125 feet to the east, e.g., the low corner. Important for flood control and water quality.	Undesignated	C
58C	None	69	LITTLE CAMPBELL CREEK FLOODPLAIN AT OLD SEWARD HIGHWAY (0.1 acres approx.; Private Ownership) (Scores: Not Assessed) This site includes an old channel, associated floodplain and several remnant pools of Little Campbell Creek. *Any new development shall have a minimum 100-foot (in wetlands) setback from the new channel at the east end of the parcel;*. The setback could be reduced in the permit process along the north border since the creek was moved to a ditch.	Undesignated	B

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
59	9	68	SOUTH OF DIMOND CENTER MALL/WEST OF OLD SEWARD HIGHWAY (8.5 acres; Private Ownership) (Scores: Hydrology = 79; Habitat = 79; Species Occurrence = 45; Social Function = 5) No connection to ponds to the west; minimal values. Large permanent pond provides bird nesting and migratory habitat functions . *A 100-foot setback shall be maintained around the pond. The conveyance of industrial area runoff to Campbell Creek shall be maintained.* Remainder of "C" area low value and highly disturbed. The Anchorage GPs have 2 additional conditions: *As long as a waterbody (> or = to 2500 sq ft) is present in the 3.5 acre site offormerly undesignated wetlands west of the main wetlands, work proposed in the water body or in the 65-foot setback shall require an Individual Corps of Engineers Permit; No fill shall be allowed under the GPs in the 3.5 acre site west of the main area of wetlands from April through July if there is evidence of active waterfowl nesting.*	Developable Undesignated	C/Open Water
59	9	68	KING STREET: SOUTH OF DIMOND (52 acres; Private Ownership) (Scores: Hydrology = 88; Habitat = 75; Species Occurrence = 30; Social Function = 32) Serves as local industrial area drainage; likely feeds into Campbell Creek, conveying industrial run-off; attenuates flows to Campbell Creek. *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Public Works Department to assure retention of a sufficient corridor through low point of wetlands to convey storm flows to Campbell Creek, attenuate flows, and convey industrial runoff. It shall be used in determining the placement of fill that would minimize interference with the local hydrology, particularly with movement of water to Campbell Creek. Cluster development techniques shall be utilized to the maximum extent if developed.*	Developable	C
59	9	77	WEST OF OLD SEWARD HIGHWAY, EAST OF RAILROAD, NORTH OF 100TH AVENUE (11.9 acres; Private Ownership) (Scores: Hydrology = 81; Habitat = 59; Species Occurrence = 17; Social Function = 27) *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain both surface and subsurface cross drainage, and prevent drainage of adjacent wetlands. It shall be used in determining the placement of fill that would minimize interference with the local hydrology, particularly with movement of water to Campbell Creek.*	Developable Undesignated	C
60	9	76	NORTH OF 100TH/WEST OF MINNESOTA (33 acres) (Private Ownership) (Scores: Assessed with Site No. 60 North) Site is marginal, disturbed and drying wetlands. *Additional wetland delineation shall be required before permit is issued.* No known surface water sites or drainage patterns.	Developable	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
60	9	77	OLD SEWARD HIGHWAY TO C STREET TO NORTH SIDE OF O'MALLEY: SOUTH OF 104TH AVENUE (16.9 acres; Private Ownership) (Scores: Hydrology = 88; Habitat = 55; Species Occurrence = 42; Social Function = 31) *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent road and property, maintain both surface and subsurface cross drainage, and prevent drainage of adjacent wetlands. It shall be used in determining the placement of fill that would minimize interference with local hydrology, particularly with movement of water to Campbell Creek.*	Developable	C
60 North	9	76 and 77	EAST OF MINNESOTA DRIVE/NORTH OF WEST 100TH AVENUE TO C STREET RIGHT-OF-WAY (167.1 acres; Public & Private Ownership) (Scores: Hydrology = 131; Habitat = 101; Species Occurrence = 46; Social Function = 39) This area has known drainage problems and moderate to high migratory habitat. The site has enhancement possibilities, i.e., diversify plant community, create open water for more habitat. *Hydrology , habitat, and drainage information shall be required in the permit and platting process.* Fill avoidance zones may be required. Scores skewed slightly by the size of the site. Site is extremely disturbed, drained and ditched and is typically dry after May.	Developable	B
60 South	9	76 and 77	INSIDE MINNESOTA/O'MALLEY CURVE (162 acres; Public & Private Ownership) (Scores: Hydrology = 106; Habitat = 98; Species Occurrence = 68; Social Function = 47) *Groundwater, recharge/flood storage, and habitat information (relating to the Klatt Bog core) shall be required through the permit process.* Fill is better suited for the northwest corner (i.e., park amenities.) Area treats snowmelt and run-off from industrial areas. Most habitat occurs at the fringes. Future site developments should require determination of how storm drain systems either fit the South Anchorage Drainage Master Plan or how the Plan will be modified. Site treats snowmelt prior to discharge to 100th Ave. storm drain system. Parcel has significantly lower values than the core of Klatt Bog, located across Minnesota Dr. Historic hydrologic connection to Klatt Bog has been diminished by Minnesota Dr. and local drainage improvements. Development of parcel may consider directing surface water runoff to Klatt Bog drainage ditch , if needed to support other efforts to restore Klatt Bog hydrology. This parcel contains areas of higher and lower value wetlands. Higher value areas occur along the north and southwest boundaries of the parcel and lower value wetlands occur in the central portion, generally coinciding with areas of mature paper birch and white spruce. Higher vlaue areas should be retained during development process for snowmelt ans storm water treatment and habitat purposes. Additional assessment may demonstrate that the site has lower value areas that warrant a "C" designation and that should be included within the GPs. Access improvements to the parcel from Minnesota Drive and 100th Ave. should be accommodated. Emphasis during the development process should be on on-site mitigation efforts.	Developable	B

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
60	None	77	NORTH OF 104TH/C STREET (10.6 acres; Private Ownership) (Scores: Hydrology = 95; Habitat = 78; Species Occurrence = 65; Social Function = 13) This area has known drainage problems. Values for filtering, water supply into Klatt Bog system. Moderate bird use concentrated around ponds. *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands, in particular with regard to Klatt Bog. It shall be used in determining the placement of fill that would minimize interference with the local hydrology. A written plan shall be submitted to the Municipal Department of Community Development describing how proposed fill would minimize impacts to nesting habitat. Examples of possible measures include timing windows, additional setbacks, vegetative screening, reduction of fill and onsite enhancement. A 100-foot setback shall be maintained around the two existing ponds or new ponds would be constructed near the outflow to maintain the water filtering and storm drainage collection functions of the existing ponds. If no damage would result to private property, treated local, storm water shall be directed to Klatt Bog. No work shall be done on this site under the GPs from April through July.* The pond edge shall be delineated by Planning staff or the Corps of Engineers prior to permitting.	Developable	C
60A	9	76	PATRICIA SUBDIVISION (61 acres; Private Ownership) (Scores: Hydrology = 96; Habitat = 107; Species Occurrence = 79; Social Function = 47) Portions of the core area are recognized by the U.S. Fish and Wildlife Service and the Anchorage Coastal Management Program as critical wildlife habitat. Individual ownership of lots compounds the difficulty of future permitting: Municipal and individual lot owners should coordinate a solution before permitting. *Olympic Drive shall be permitted as a secondary access (previously a plat requirement). Methods shall be utilized to maintain habitat and hydrology connections and to limit the dewatering of core areas.*	Conservation	B
60B	None	77	C STREET/O'MALLEY: TEMPORARY SEDIMENTATION PONDS (5.5 acres; Public Ownership) (Scores: Hydrology = 97; Habitat = 83; Species Occurrence = 66; Social Function = 52) *No fill shall be permitted in the ponds under the GPs unless the water quality and flow regulation functions into Klatt Bog ditch are replaced. A written plan shall be submitted to the Municipal Department of Community Planning and Development for review and approval describing efforts to avoid and minimize impacts to the tract's habitat values, such as timing windows, additional setbacks, vegetative screening, reduction of fill, and onsite enhancement.* Important for water quality/regulation of flow in Klatt Bog ditch; good species use.	Undesignated	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
60C	None	78	O'MALLEY/SEWARD HIGHWAY SNOW DUMP AREA (2.0 acres approx.; Public Ownership) (Scores: Not Assessed) Site has been created from snow dump and trail and road fills. Moderate habitat and run-off storage. *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works. The study shall be used in determining the placement of fill that would minimize interference with the local hydrology. Ponds shall be avoided to the maximum extent. No work shall be done on this site under the GPs from April through July.*	Undesignated	C
61	7	74	RESOLUTION POINT SUBDIVISION (10.1 acres; Private Ownership) (Scores: Hydrology = 74; Habitat = 41; Species Occurrence = 26; Social Function = 35) *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works to enable delineation and protection of drainage corridors to the bluff. The study shall be used in determining the placement of fill that would minimize interference with local hydrology.*	Developable	C
62	8	75 and 83	BAYSHORE DRIVE (26.3 acres; Private Ownership) (Scores: Hydrology = 83, Habitat = 87; Species Occurrence = 61; Social Function = 59) Elongated section to the east is "A" wetland and conveys subsurface water from Klatt Bog to Bayshore Lake; westerly section is "A" wetland which is important to the Bayshore Lake floodplain. Southerly "C" area is marginal black spruce forest wetlands and appears unconnected to Bayshore Creek. *A 25-foot transitional buffer shall be maintained between fill authorized under the GPs and "A" wetlands. A 25-foot setback from the top of the bluff along Bayshore Creek shall be maintained.*	Preservation Conservation Developable	A/C
62	8	75 and 83	BAYSHORE LAKE (9 acres; Public & Private Ownership) (Scores: Hydrology = 91; Habitat = 96; Species Occurrence = 85; Social Function = 75) Documented high habitat, recreation and water quality values. *Shall be preserved.*	Preservation	A

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
63	9	75 76 83 and 84	MAIN KLATT BOG CORE (520 acres; Public & Private Ownership) (Scores: Hydrology = 86; Habitat = 123; Species Occurrence = 88; Social Function = 53) a) "A" wetlands: Set aside mitigation areas of Concord Hills subdivision, and east edge of Southport PUD behind dike. b) "B" wetlands: Southwest portions, mostly south and west of O'Malley Road. Central sections of the southwest wetlands (Simpson Tracts B and parts of C, especially Bureau of Land Management lands south of O'Malley) are recognized by the U.S. Fish and Wildlife Service as critical wildlife habitats. Cumulative impacts from development and infrastructure have altered the bog's fringes and hydrologic regime. *The permit review process shall require information necessary to identify or substantiate the local drainage regime, water table depths and critical wildlife zones.* Development may occur selectively on portions of this area following the permit review process. *Methods shall be utilized to maintain the critical habitat and hydrological connections important to the critical habitat zones and areawide drainage. Subdivision design and Best Management Practices, including cluster housing, shall be used to avoid dewatering of critical areas and drainageways.* Scores for Habitat and Species Occurrence are high and correspond with the U.S. Fish and Wildlife Service's critical habitat identification, although hydrologic changes may have reduced bird usage. The bog may serve as important storm drain collection treatment site as it now conveys storm drain output from industrial sites to the east. Area could also be used for habitat enhancement/mitigation site for other projects in Anchorage. Ideal scenario would call for public ownership of remaining critical and undevelopable sections of the bog's core. c) "C" wetlands: Four isolated and disturbed sites south of Klatt Road (see Maps 83 and 84) and additional sites in the Southport PUD, west of Southport Boulevard. It is recognized that portions of the Southport PUD, specifically the dense black spruce woods north of Ensign Drive and west of Southport Boulevard, and other wooded wetlands between Southport Boulevard and Bayshore Drive south of Ensign Drive, are lower value sites compared to the Klatt Bog core. These areas are designated "C."	Conservation/ Developable	A/B/C
64	11	91 and 92	JOHN'S PARK NORTH/BOTANICAL GARDEN SUBDIVISION (15 acres; Public & Private Ownership) (Scores: Hydrology = 84; Habitat = 77; Species Occurrence = 39; Social Function = 42) *A stream corridor setback of 25 feet shall be retained from "A" wetland.* Large portions (Tracts B and C) already permitted by Corps of Engineers.	Undesignated	B

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
64	10	84 and 85	SOUTH OF KLATT ROAD: WEST OF MARY STREET TO TIMBERLANE DRIVE (8.3 acres; Public & Private Ownership) (Scores: Hydrology = 91; Habitat = 41; Species Occurrence = 18; Social Function = 75) *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works to enable delineation and protection of drainage conveyance corridors, especially on the west side. The study shall be used in determining the placement of fill that would minimize interference with the local hydrology.* Site could be used for drainage treatment (Tract A). *Fill shall minimize any local drainage.* The drainage ditch and catch basin should be cleaned regularly to avoid local flooding problems with adjacent homes.	Developable	C
64	11	92	SOUTHEAST INTERSECTION OF JOHNS ROAD AND HUFFMAN ROAD (2.7 acres; Private Ownership) (Scores: Hydrology = 66; Habitat = 35; Species Occurrence = 18; Social Function = 59) Minimal values.	Developable	C
65	11	92	JOHN'S PARK/FURROW CREEK CORRIDOR (8 acres; Public Ownership) (Scores: Not Assessed) *Shall be completely preserved.* Trail crossings of creek are permissible but must follow 404 process.	Preservation	A
66	26	86	MOOSE MEADOWS (Huffman/Seward Highway) (70 acres; Public & Private Ownership) (Scores: Hydrology = 112; Habitat = 110; Species Occurrence = 65; Social Function = 57) Scores equivalent to those of "A" wetland values but functions focused in central sections . Development possible on fringes with central portion retained for water quality/flood control. *Water levels and headwaters of the north fork of Furrow Creek functions shall be maintained.* Cluster development suitable at south end. *Landscaped screening shall be required between development and central area.* Central portions may be enhanced. Could be used as collection basin for Lake Otis storm drain system.	Conservation	B
67	22	78	NORTH OF O'MALLEY ALONG INDEPENDENCE DRIVE (10.7 acres; Private Ownership) (Scores: Hydrology = 90; Habitat = 70; Species Occurrence = 50; Social Function = 37) Conveys minor former tributary of Furrow Creek; drainage and high groundwater table problems. West side of Independence Drive may remain as "C" wetland; *creekside sites and drainage functions shall be retained via a 65-foot setback from the tributary of Furrow Creek . A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain both surface and subsurface cross drainage, and prevent drainage of adjacent wetlands. It shall be used in determining the placement of fill that would minimize interference with the local hydrology, particularly with movement of water to Furrow Creek.* Although scores were moderately high, the site is highly disturbed . Key stream area is located and protected in site #67A.	Developable	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
67	22	78	INDEPENDENCE PARK: VANGUARD DRIVE AND SENTRY DRIVE (11.5 acres; Private Ownership) (Scores: Hydrology = 73; Habitat = 58; Species Occurrence = 36; Social Function = 55) Vanguard Drive conveys general drainage which eventually reaches Little Campbell Creek. *Drainage functions shall be retained.*	Developable	C
67A	None	78	CREEK: LAKE OTIS TO O'MALLEY (1.9 acres; Private Ownership) (Scores: Hydrology = 68; Habitat = 68; Species Occurrence = 18; Social Function = 42) 65-foot minimum setback precludes lower designation. *Shall be platted as undisturbed stream corridor.* Importance for conveyance of original fork of Furrow Creek, flood control and water quality. *Since flows are only occasionally confined in a defined channel, the entire site shall be retained to the maximum extent.*	Undesignated	A
68	21	70	84TH TO ABBOTT/SPRUCE STREET RIGHT-OF-WAY (42.1 acres; Private Ownership) (Scores: Merged with Sites #51 and #52) *A 100-foot setback shall be maintained along the channels of Little Campbell Creek to maintain its anadromous fish resources as well as flood storage and hydrologic functions. A 65-foot setback shall be maintained from the small tributary in the wetland at Lake Otis and Abbott. A written plan shall be submitted to the Municipal Department of Community Planning and Development for review and approval describing efforts to avoid and minimize impacts to the tract's habitat values, such as timing windows, additional setbacks, vegetative screening, reduction of fill and onsite enhancement No change shall be allowed in the bottom or invert elevation of the culvert under Abbott Road in the westerly parcel or other modification of this drainage which would increase drainage flow rate or volume: this is to prevent lowering of the water table in wetland # 69. Setbacks shall be treated as an "A" wetlands area.* Acquisition and enhancement possible. Scores merged with Sites #51 and #52.	Developable	C
69	21	79	RUTH ARCAND PARK, SOUTHEAST OF LAKE OTIS/ABBOTT (184.1 acres; Public Ownership) (Scores: Hydrology = 146; Habitat = 145; Species Occurrence = 54; Social Function = 80) Municipal park lands: manage under adopted park plans. Conveys forks of Little Campbell Creek and Furrow Creek. Limited active recreation fill construction permitted in peripheral wetlands as outlined in the park plan. Sedimentation basins are allowed as part of water quality control.	Preservation	A

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
70	21	80	BIRCH/104TH (51 acres; Private Ownership) (Scores: Hydrology = 102; Habitat = 99; Species Occurrence = 65; Social Function = 44) a) East of Springhill Drive. North of E 90th; Classed as "B" wetlands due to unplatted area and headwaters functions. Headwaters of fork of Little Campbell Creek; *if permitted, shall retain minimum 85-foot setback.* South of E 90th; Also classed as "B" wetlands. *Hydrology connection to "B" wetland areas to north shall be retained.* b) West of Springhill Drive. Classed as "C" wetland; *A 100-foot setback shall be maintained along Little Campbell Creek to maintain its andromous fish resources as well as its flood storage functions Fill shall be limited to the minimum necessary for a single-lane access driveway, utilities, accessory structure, and house pad. Fill for yards is not authorized in this unit under the GPs.* c) HLB Parcels (Lots 89, 90, 91 and 97) adjacent to creek, just east of Abbott Loop are "A", as required in Furrow Creek 2 mitigation terms. Trails are permitted here.	Developable	A/B/C
70	21	80	SOUTH FORK, LITTLE CAMPBELL CREEK (3.3 acres; Private Ownership) (Scores: Hydrology = 84; Habitat = 68; Species Occurrence = 44; Social Function = 34) 100-foot minimum setback precludes lower designation. Importance for conveyance, water quality, flood control, fish habitat. *Stream corridor has pockets of wetlands which shall remain undisturbed (using 100-foot setbacks* or avoidance). Assumed would not be filled for residential development. Utility corridors, driveways should be permitted if no practical alternatives exist.	Undesignated	A
71	None	81	CRAIG CREEK CT/BIRCH (9.1 acres; Private Ownership) (Scores: Hydrology = 91; Habitat = 83; Species Occurrence = 50; Social Function = 47) Importance for flood storage, water quality, recharge. Unique local habitat. *Development possible on fringes but shall preserve integrity and functions of the site. Hydrology and stream information shall be required in permit process.* Stream may be seasonal.	Undesignated	B
71A	None	82	EAST OF HILLSIDE DRIVE: NORTH END OF HAMPTON DRIVE AND EAST OF SCHUSS DRIVE (1.5 acres; Private Ownership) (Scores: Not Assessed) Two sites. *Additional information required on hydrology and drainage functions before permitting. Fill shall avoid permanent ponds and emergent vegetation low points where seasonal pools develop.*	Undesignated	B/Open Water
72	None	89	LAKE-O-THE-HILLS (7.5 acres; Private Ownership) (Scores: Hydrology = 99; Habitat = 98; Species Occurrence = 44; Social Function = 51) Associated wetlands along the lake fringe. *Site shall be retained via 65-foot non-disturbance setback for wetland fringes.*	Undesignated	A/Open Water

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
72A	None	89	115TH AVENUE/HILLSIDE DRIVE (6.4 acres; Private Ownership) (Scores: Hydrology = 93; Habitat = 87; Species Occurrence = 24; Social Function = 32) Site has known drainage problems. Serves for recharge, flood storage of Little Campbell Creek. *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage of Little Campbell Creek, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill that would minimize interference with local hydrology. A 100-foot setback shall be maintained along Little Campbell Creek to maintain its anadromous fish resources. A 65-foot setback shall be maintained from drainageways and seeps. Fill shall be limited to the minimum necessary for a single lane access driveway, utilities, accessory structure, and house pad. Fill for yards is not authorized in the GPs.*	Undesignated	C
72A	None	89	WEST OF HILLSIDE DRIVE, ALONG CREEK (14.13 acres; Private Ownership) (Scores: Hydrology = 106; Habitat = 95; Species Occurrence = 28; Social Function = 50) Values for flood storage, recharge, water quality and fish habitat. *A 100-foot setback from Little Campbell Creek and an 85-foot setback from local springs shall be maintained to preserve fish habitat, flood storage, recharge, and water quality functions. Additional delineation required before permitting. Fill shall be limited to the minimum necessary for a single lane access driveway, utilities, accessory structure, and house pad. Fill for yards is not authorized in the GPs.* Creek corridor is important to large mammal movements,especially bears. Linear fill crossing these areas should beminimized or configured to avoid disrupting the migratory movements.	Undesignated	C
72B	None	90	115TH AVENUE/COBRA AVENUE (11 acres; Private Ownership) (Scores: Hydrology = 81; Habitat = 63; Species Occurrence = 14; Social Function = 27) Headwaters for Craig Creek—poorly defined channel. *An 85-foot setback shall be maintained from Craig Creek unless a hydrologic analysis indicates that a reduced setback in Sly Fox Subdivision, Lot 2, would not adversely affect Craig Creek. Fill shall be limited to the minimum necessary for a single-lane access driveway, utilities, house pad, and accessory structure. Fill for yards is not authorized in this unit in the GPs. Additional wetland delineation shall be required before permitting in Boulder Springs Subdivision between Vosikof Place and Boulder Circle. Septic systems shall be located as far from creek as possible.* Creek corridor is important to large mammal movements,especially bears. Linear fill crossing these areas should beminimized or configured to avoid disrupting the migratory movements.	Undesignated	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
72B	None	90	SOUTH FORK, LITTLE CAMPBELL CREEK (18.3 acres; Private Ownership) (Scores: Hydrology = 85; Habitat = 81; Species Occurrence = 34; Social Function = 25) *A 100-foot setback shall be maintained along Little Campbell Creek to maintain its anadromous fish resources. Fill shall be limited to the minimum necessary for a single-lane access driveway, utilities, house pad, and accessory structure. Fill for yards is not authorized in this unit in the GPs.* Creek corridor is important to large mammal movements,especially bears. Linear fill crossing these areas should beminimized or configured to avoid disrupting the migratory movements.	Undesignated	C
72C	34	89	NORTHEAST OF LAKE-O-THE HILLS (Craig Creek) (3 acres; Private Ownership) (Scores: Site scored with Site #72F) *A 100-foot setback shall be maintained from Craig Creek to maintain flood storage/water quality functions and values. Fill shall be limited to the minimum necessary for a single-lane access driveway, utilities, house pad, and accessory structure. Fill for yards is not authorized in this unit in the GPs.* Creek corridor is important to large mammal movements,especially bears. Linear fill crossing these areas should beminimized or configured to avoid disrupting the migratory movements.	Developable	C
72D	34	90	SOUTH OF HIDEAWAY LAKE (7.2 acres; Private Ownership) (Scores: Hydrology = 88; Habitat = 98; Species Occurrence = 44; Social Function = 40) Contains springs/channels to Hideaway Lake; Craig Creek headwaters area; ponds have flood storage capacity values. Site serves as a drainage basin and flood storage area. *Detailed drainage analyses shall be required before permitting. Common drainage connections to lake and springs shall be retained via avoidance.* Creek corridor is important to large mammal movements,especially bears. Linear fill crossing these areas should beminimized or configured to avoid disrupting the migratory movements.	Developable	B
72E	34	82 and 90	HIDEAWAY LAKE (7.8 acres; Private Ownership) (Scores: Hydrology = 83; Habitat = 86; Species Occurrence = 43; Social Function = 40) *Wetlands adjacent to lake and feeder creek shall be preserved.*	Developable	A/Open Water
72F	32	88 and 89	FORSYTHE PARK AREA (25 acres; Public & Private Ownership) (Scores: Hydrology = 94; Habitat = 92; Species Occurrence = 33; Social Function = 37) *A 100-foot setback shall be maintained along Little Campbell Creek to maintain its anadromous fish resources. Fill shall be limited to the minimum necessary for a single-lane access driveway, utilities, and pads for a house and accessory structure. Fill for yards is not authorized in this unit under the GPs.* The narrow strip along Little Campbell Creek upstream of the park is designated "A". *Homes shall be placed as far from setback as practicable.* Creek corridor is important to large mammal movements,especially bears. Linear fill crossing these areas should beminimized or configured to avoid disrupting the migratory movements.	Mixed Developable	A/C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
73	31	89 and 96	DOWNEY FINCH TO DEARMOUN ROAD (49.4 acres; Private Ownership) (Scores: Hydrology = 98; Habitat = 111; Species Occurrence = 18; Social Function = 47) No wetlands north of Downey Finch; small sites north of Huffman right-of-way classed "C" wetlands. Larger site to the south to be classed as "B" wetlands, due to high groundwater, ponds and poor drainage. Development possible on southern fringes. *Fill shall be limited to the minimum necessary for a single-lane access driveway, utilities, accessory structure, and house pad. Fill for yards is not authorized in this unit in the GPs. A 65-foot minimum setback shall be maintained around the pond. Small creek and wetland at Trappers Trail Road and Birch shall be retained as "A"—requires better delineation and may extend south of Trappers Trail Road.*	Developable/ Undesignated	A/B/C
74	24	87	CANGE STREET ALONG CLEO RIGHT-OF-WAY (10.6 acres; Private Ownership) (Scores: Hydrology = 70; Habitat = 68; Species Occurrence = 18; Social Function = 42) *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage of the north fork of Furrow Creek, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill that would minimize interference with the local hydrology and maintain an adequate drainage corridor. The topographic drainage (i.e., the low point) shall be retained in its undisturbed state without a setback. A 65-foot setback shall be retained along the creek. The creek shall be retained in an open channel. A limited pre-discharge notification procedure shall be instituted by the Corps of Engineers. The Corps will FAX copies of the application and of the hydrologic analysis to EPA, USFWS, NMFS, ADFG, ADGC, and ADEC after being provided these by the Municipality. Any concerns specifically related to the hydrologic analysis shall be raised within five working days of the FAX and conditions proposed to resolve concerns within 15 calendar days of the FAX. The Corps will determine if these conditions are appropriate for inclusion on the GP authorization.*	Developable	C
75	23	87	BOTH SIDES OF LAKE OTIS, NORTH OF ALDERWOOD LOOP (18.23 acres; Private Ownership) (Scores: Hydrology = 73; Habitat = 62; Species Occurrence = 18; Social Function = 43) *The drainageway function at north end of site across Lake Otis shall be maintained .*	Developable	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
75	25	86	NORTH SIDE OF HUFFMAN ROAD: GREGORY ROAD TO ALDERWOOD LOOP (17.52 acres; Private Ownership) (Scores: Hydrology = 82; Habitat = 80; Species Occurrence = 28; Social Function = 38) *A 65-foot setback from the creek shall be maintained in the northwest corner of the tract. A 65-foot setback shall be maintained around the spring. A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage of the north fork of Furrow Creek, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill that would minimize interference with the local hydrology and maintain an adequate drainage corridor.*	Developable	C
76	26	93	TANAGA TERRACE AND HUFFMAN HILLS SUBDIVISIONS (16.8 acres; Private Ownership) (Scores: Hydrology = 110; Habitat = 86; Species Occurrence = 64; Social Function = 43) Currently Corps of Engineers permitted. Site contains main fork and north fork of Furrow Creek; high hydrology values. *Eastern one-third of Tanaga Terrace has key habitat and flood storage zone and shall be retained per current permit and plat. Setback shall be designated "A" per permit.* Tract 1 of Huffman Hills North Addition #2 is preserved per conditions of 404 permit.	Conservation Developable	A/B
77	25	94	SOUTHEAST MERGANSER TO LAKE OTIS (4.2 acres; Private Ownership) (Scores: Hydrology = 58; Habitat = 39; Species Occurrence = 18; Social Function = 41) Minimal values.	Developable	C
78	None	100	ELMORE CREEK, WEST OF ELMORE DRIVE (2.2 acres; Private Ownership) (Scores: Hydrology = 93; Habitat = 65; Species Occurrence = 48; Social Function = 28) Southern portion along creek classed as "A" wetlands. Northern spur without creek classed as "C" wetlands. *A 25-foot transitional buffer shall be maintained between fill permitted under the GPs and the adjacent "A" wetland. Fill shall be limited to the minimum necessary for utilities, an accessory structure, a single-lane access driveway and house pad. Fill for yards is not authorized in this unit in the GPs.* Creek corridor is important to large mammal movements,especially bears. Linear fill crossing these areas should beminimized or configured to avoid disrupting the migratory movements.	Undesignated	A/C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
78	27	101	ELMORE STREET TO MANYTELL AVENUE (Timberlux Subdivision) (10.8 acres; Private Ownership) (Scores: Hydrology = 107; Habitat = 106; Species Occurrence = 48; Social Function = 35) Elmore Creek flows through site providing open water habitat, hydrology values. *Any drainage areas connected by culverts to the "B" wetlands located north of Manytell Avenue shall remain undisturbed. Fill shall be limited to the minimum necessary for utilities, an accessory structure, a single-lane access driveway and house pad. Fill for yards is not authorized in this unit under the GPs. Fill shall avoid topographic low points. A 65-foot setback shall be maintained around the pond.* Creek corridor is important to large mammal movements,especially bears. Linear fill crossing these areas should beminimized or configured to avoid disrupting the migratory movements.	Developable	B/C
79	29	101	PARK HILLS TO EVERGREEN STREET (6.8 acres; Private Ownership) (Scores: Hydrology = 62; Habitat = 43; Species Occurrence = 18; Social Function = 39) Provides local area storm water retention and serves as headwaters of Gold Creek. *Future development shall include fill avoidance to retain storm water functions. Creek corridor and drainage areas shall be delineated and avoided via 65-foot setbacks.*	Developable	B
79A	None	101	EAST OF BUFFALO STREET, SOUTH OF 140TH AVENUE (4.75 acres; Private Ownership) (Scores: Hydrology = 57; Habitat = 34; Species Occurrence = 18; Social Function = 29) Isolated site with minimum values. *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage of the Little Rabbit Creek, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill that would minimize interference with the local hydrology.*	Undesignated	C
80	30	102	NORTH OF RABBIT CREEK ROAD/ANDOVER (10 acres; Private Ownership) (Scores: Hydrology = 87; Habitat = 79; Species Occurrence = 18; Social Function = 40) Partial headwaters for Elmore Creek; moderate habitat diversity, flood control, water quality values. Lots, as platted, could avoid fill in wetlands by placing structures next to road. *A 65-foot setback shall be maintained along the creek channel and ponds. Fill shall not be placed in the pond and drainage outlet at the northwest corner of the unsubdivided area north of Fernwood Avenue extended. Fill shall be limited to the minimum necessary for a single-lane access driveway, utilities, and pads for a house and an accessory structure. Fill for yards is not authorized in this unit under the GPs* . This area is used by moose as a calving area and is also a high use corridor for large animal movements.	Developable	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
80	30	102	PICKETT STREET/142ND AVENUE (9.6 acres; Private Ownership) (Scores: Hydrology = 66; Habitat = 79; Species Occurrence = 18; Social Function = 35) *Pond and adjacent wetlands shall be retained as open space in future subdivision plans.* (Note headwaters of Gold Creek). "A" wetland designation conforms with open space reserve and drainage easements in Equestrian Heights Subdivision. *Future fill in Kijik Subdivision shall avoid wetlands to the maximum extent and, if required, shall be limited to single lane access and primary structures.*	Developable	A/Open Water
81	60	102 and 103	SECTION 36 (118.30 acres; Public Ownership) (Scores: Hydrology = 134; Habitat = 132; Species Occurrence = 31; Social Function = 62) *Development shall be concentrated at upland edges wherever practicable and per Section 36 Land Use Plan. Wetlands shall be preserved for flood control and water quality.* Headwaters of Rabbit Creek. Creek corridor is important to large mammal movements,especially bears. Linear fill crossing these areas should beminimized or configured to avoid disrupting the migratory movements.	Preservation	A
81	60	102 and 103	CLARK'S ROAD TO BEAR VALLEY, LITTLE RABBIT CREEK (5.07 acres; Public Ownership) (Scores: Hydrology = 79; Habitat = 67; Species Occurrence = 48; Social Function = 52) Within the floodplain; provides for flood storage, water quality, some habitat values. *Site is within Section 36 and shall be preserved.*	Undesignated	A
82	60	102	BEAR VALLEY SCHOOL—NORTH (27.5 acres; Public Ownership) (Scores: Hydrology = 80; Habitat = 89; Species Occurrence = 18; Social Function = 55) On Municipal land; water present due to back-up from fill. North of 149th Avenue to be classed as "B" wetland to protect pond habitat and flows to the northwest. South of 149th Avenue to be classed as "C" wetland. *A 25-foot transitional buffer shall be maintained between fill authorized by the GPs and both "A" and "B" wetlands. In addition, a visual buffer of trees or a fence shall be placed at the edge of the fill authorized under the GPs to reduce the impacts to wildlife use in adjacent wetlands. A 25-foot water body setback shall be maintained along any drainage corridor and channels. Fill shall be limited to the minimum necessary for utilities, a single-lane access driveway, an accessory structure, and house pad. Fill for yards is not authorized in this unit under the GPs.* Drainage flows in channel across Clarks Road to Rabbit Creek.	Developable	B/C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
83	60	108	BEAR VALLEY: CARL/JAMIE STREETS (70.12 acres; Private Ownership) (Scores: Hydrology = 109; Habitat = 105; Species Occurrence = 28; Social Function = 50) *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage of the Little Rabbit Creek, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirement for 100-foot setbacks along drainageways that would minimize interference with the local hydrology. A 100-foot setback shall be maintained along all identified creeks to protect anadromous fish resources. Fill shall be limited to the minimum necessary for utilities, a single-lane access driveway and house and accessory structure pads. Fill for yards is not authorized in this unit under the GPs. A written plan shall be submitted to the Municipal Department of Community Planning and Development for review and approval describing efforts to avoid and minimize impacts to the tract's habitat values for large mammals, especially bear. Linear fills crossing this area shall be minimized or confined to avoid disrupting migratory movement. Examples include timing windows, additional setbacks, vegetative screening, reduction of fill, and onsite enhancement.* Because of past development including ditches, road, driveway and house fills, utility lines, etc., the local hydrology in Bear Valley, especially between Jamie Street, Diane Drive, and Nickleen Street, may have changed to the point that sites previously identified as wetlands may no longer be wet. In addition, it should be understood that the wetlands mapping for the Bear Valley area may be generalized and additional delineations may be necessary to clarify actual wetland boundaries.	Developable	C
84	61	102 through 108	VANTAGE POINTE SUBDIVISION (36.06 acres; Private Ownership) (Scores: Hydrology = 80; Habitat = 112; Species Occurrence = 54; Social Function = 40) *Future fill projects shall adhere to EPA action on previous violation. A 100-foot setback shall be maintained from stream channels and waterbodies to retain water quality, flood control values of pond and creeks during permit process. Area is source for drinking water downstream. A hydrologic and drainage impacts study shall be submitted prior to permitting.* Partial headwaters of Little Rabbit Creek and contains two small tributaries. Creek corridor is important to large mammal movements,especially bears. Linear fill crossing these areas should beminimized or configured to avoid disrupting the migratory movements.	Developable	B

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
84	60	108	BEAR VALLEY (2 sites) (28.7 acres; Private Ownership) (Scores: Hydrology = 96; Habitat = 77; Species Occurrence = 28; Social Function = 50) *A comprehensive hydrologic analysis of surface flows shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage of the Little Rabbit Creek, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks along drainageways that would minimize interference with the local hydrology. Fill shall be limited to the minimum necessary for utilities, a single-lane access driveway and a house and accessory structure pads. Fill for yards is not authorized in this unit under the GPs. A minimum setback of 100 feet shall be maintained from any creek or drainageways identified in the hydrologic analysis.* Southerly site appears isolated, without inflows or outflows. Creek corridor is important to large mammal movements,especially bears. Linear fill crossing these areas should beminimized or configured to avoid disrupting the migratory movements.	Developable	C
85	28	106	164TH/STONERIDGE (12.5 acres; Private Ownership) (Scores: Hydrology = 113; Habitat = 86; Species Occurrence = 70; Social Function = 45) *An 85-foot setback shall be maintained from creek for flood control, water quality.* This site requires an accurate wetland boundary determination. Large lot zoning allows for adequate setbacks and avoidance of flood control areas. A full watershed analysis of Little Survival Creek should be developed and should include identification of all feeder springs and drainageways, and the main channel to its source. *Minimum setbacks from any permanent channel shall be 85 feet and 25 feet from ephemeral drainageways.*	Developable	B

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
85	28	106	RICKY ROAD TO 164TH AVENUE—OFF GOLDENVIEW DRIVE (58.7 acres; Private Ownership) (Scores: Hydrology = 114; Habitat = 95; Species Occurrence = 30; Social Function = 46) *Site with creek in northern half towards Ricky Road (tributary of Little Rabbit Creek) conveys surface run-off from east and south; shall be classed as "B" wetlands. Southern site shall be classed as "C" wetlands (162nd to 164th Avenues). A hydrologic analysis of surface flows shall be done for any projects in either wetland area, and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage of the Little Rabbit and Little Survival Creeks, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks along drainageways that would allow maintenance of existing surface drainage for southern site (162nd to 164th Avenues) and whether there is a connection to Little Rabbit Creek in the area west of St. James Street right-of-way. A 65-foot setback shall be required from all drainages identified in the hydrologic analysis. A limited pre-discharge notification procedure shall be instituted by the Corps of Engineers. The Corps will FAX copies of the application and of the hydrologic analysis to EPA, USFWS, NMFS, ADFG, ADGC, and ADEC after being provided these by the Municipality. Any concerns specifically related to the hydrologic analysis shall be raised within five working days of the FAX and conditions proposed to resolve concerns within 15 calendar days of the FAX. The Corps of Engineers will determine if these conditions are appropriate for inclusion on the GP authorization. Fill shall be limited to the minimum necessary for utilities, a single-lane access driveway and house and accessory structure pads. Fill for yards is not authorized in this unit under the GPs.*	Developable	B/C
85A	None	106	VIRGO AVENUE (6.07 acres; Private Ownership) (Scores: Hydrology = 77; Habitat = 48; Species Occurrence = 18; Social Function = 33) *A hydrologic analysis of surface flows shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks along drainageways and the ephemeral pond at the southern end of the tract that would allow maintenance of existing surface drainage.* Additional wetlands and ephemeral drainageways may be located in low lying areas of parcels south of Virgo Avenue and above the bluff east of the Old Seward Highway. *Additional field delineation and hydrologic information shall be required prior to any future plat or development activities, particularly in HLB parcels 2-127 through 2-136.*	Undesignated	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
86	None	105 and 110	POTTER MARSH (425.56+ acres; Public & Private Ownership) (Scores: Not Assessed) *These critical habitat wetlands shall be preserved under the refuge management jurisdiction of the Alaska Department of Fish and Game. Any use proposals shall be presented to that Department and shall be consistent with refuge goals and policies.* Portions of these wetlands are within the state right-of-way for Seward Highway. It is recognized that future highway expansions may require fill activities. These are permissible, given the public need and associated benefits. *If necessary, mitigation requirements shall be determined at the time of permitting.*	Preservation	A
86A	None	110	POTTER CREEK MOUTH (3.5 acres approx.; Public Ownership) (Scores: Not Assessed) Area includes partly intertidal wetlands at mouth of Potter Creek, east of the Seward Highway, but included here because it is primarily freshwater influenced. *High habitat and water quality site shall be preserved in its entirety.* Minor Alaska Railroad track and bridge projects should be permitted with minimal review.	Undesignated	A

EAGLE RIVER-EKLUTNA

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
100	131	3	EKLUTNA FLATS NORTH (115 acres; Public & Private Ownership) (Scores: Not Assessed) *High habitat values. Roadway and Railroad expansion shall avoid drainages and ponds to the maximum extent.*	Special Study	A
101	131	2 through 6	EKLUTNA FLATS (176.5 acres; Public & Private Ownership) (Scores: Hydrology = 104; Habitat = 143; Species Occurrence = 60; Social Function = 26) High habitat values; could be enhanced by enlarging ponds. *Hydrology connections, cross-drainage and ponds shall be preserved to the maximum extent.* Minor highway improvements should be permitted.	Special Study	A
102	131	12 and 13	EKLUTNA RIVER AND THUNDERBIRD CREEK CORRIDOR AND ONE ISOLATED SITE UPSTREAM (10.5 acres; Public & Private Ownership) (Scores: Hydrology = 72; Habitat = 88; Species Occurrence = 43; Social Function = 25) *A precise wetland delineation shall be required prior to permitting. A 65-foot setback shall be maintained along waterways/drainages.* Isolated site can be filled with a General Permit.	Developable	A/C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
102 A	None	None	BARBARA LAKE/EKLUTNA VALLEY WETLANDS (Private Ownership) (Scores: Not Assessed) A large wetland basin exists within Sections 34/35 of Township 16N, Range 1E, south of Eklutna Lake Road and west of Barbara Lake. These areas were not delineated or evaluated for this revision. *Any development here shall require Corps of Engineers notification and/or approval.* Individual 404 permits are recommended in this area as it includes several springs and ephemeral creeks, which shall be identified in permit and plat process.	Undesignated	B
103	122	12	THUNDERBIRD HEIGHTS SUBDIVISION (11.2 acres; Private Ownership) (Scores: Hydrology = 81; Habitat = 74; Species Occurrence = 15; Social Function = 21) A *65-foot setback shall be maintained along the drainageway in southern site.* Tract C near Sandpiper classed as "C" wetland due to minimum values. Highest values concentrated at drainageway. *Fill shall be limited to the minimum necessary for a single-lane access driveway, utilities, house pad, and accessory structure. Fill for yards is not authorized in this unit in the GPs.*	Developable	C
103 A Pond	121	12	THUNDERBIRD HEIGHTS (1 acre; Private Ownership) (Scores: Hydrology = 79; Habitat = 64; Species Occurrence = 23; Social Function = 21) *Pond at Old Glenn Highway classed as "B" wetland; flood storage, drainage functions shall be maintained. Additional information on inflow/storage shall be required during permit process. Inflow identified as creek shall be maintained with 65-foot setback.*	Undesignated	B
104	None	16	THUNDERBIRD FALLS SUBDIVISION: AT CREEK (11.6 acres; Private Ownership) (Scores: Hydrology = 75; Habitat = 53; Species Occurrence = 23; Social Function = 28) Substantial streamflow; has flood storage values. Habitat values not fully known. A *65-foot setback shall be maintained along the creek to maintain flood storage values. Fill shall be limited to the minimum necessary for utilities, a single-lane access driveway and house and accessory structure pads. Fill for yards is not authorized in this unit under the GPs.* Large lot zoning should allow for minimum fill to retain drainages.	Undesignated	C
104	121	16 and 17	BETWEEN GLENN HIGHWAY AND PARADIS LANE, NORTH OF EDMONDS LAKE (9.5 acres; Public & Private Ownership) (Scores: Hydrology = 86; Habitat = 82; Species Occurrence = 30; Social Function = 26) *Wetlands adjacent to the tributary channel shall be retained by a 65-foot setback. Fill shall be limited to the minimum necessary for a single-lane access driveway, utilities, house pad, and accessory structure. Fill for yards is not authorized in this unit in the GPs.*	Preservation Undesignated	C
104	121	17	NORTH OF EDMONDS LAKE/EAST OF GLENN HIGHWAY (7.8 acres; Private Ownership) (Scores: Hydrology = 76; Habitat = 50; Species Occurrence = 17; Social Function = 22) A *25-foot transitional buffer shall be maintained between areas covered under the GPs and "A" wetlands.*	Developable	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
104	131	11	EKLUTNA FLATS (18.5 acres; Private Ownership) (Scores: Not Assessed) *Drainageway/outlet stream west of Glenn Highway shall be preserved with 65-foot setback. Shall include drainage analysis and location of channel on permits.*	Special Study	B
105	119	17	WEST OF GLENN HIGHWAY - WEST OF EDMONDS LAKE (46.3 acres; Private Ownership) (Scores: Hydrology = 96; Habitat = 96; Species Occurrence = 56; Social Function = 50) *Creek channel shall be maintained undisturbed. A master development plan shall be required, including a hydrology analysis and shall include a 65-foot setbacks from creeks. Drainageway and ephemeral flows shall be maintained.* Other setbacks and fill restrictions may be required during the platting process.	Special Study	B
106	118	17 and 18	MIRROR LAKE OUTLET (8.6 acres; Private Ownership) (Scores: Hydrology = 70; Habitat = 76; Species Occurrence = 48; Social Function = 35) *Fish present in stream which shall be maintained with a minimum 65-foot setback. Creek crossings shall require bridges or arched culverts to protect habitat. A master development plan shall be required, including a hydrology analysis which shall include design to retain drainageway and ephemeral flows.* Other setbacks and fill restrictions may be required in permit and plat process.	Undesignated /Special Study	B
106	125	19	NORTH OF RANKIN ROAD (55 acres; Private Ownership) (Scores: Hydrology = 80; Habitat = 53; Species Occurrence = 21; Social Function = 28) *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks along drainageways that would allow maintenance of existing surface drainage.* Large site size pushed scores higher than expected. Site is isolated basin with minimal values.	Undesignated /Special Study	C
107	118	17	WEST OF GLENN HIGHWAY - SOUTH OF EDMONDS LAKE (11.9 acres; Private Ownership) (Scores: Hydrology = 59; Habitat = 41; Species Occurrence = 23; Social Function = 47) *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks along drainageways and ephemeral flows that would allow maintenance of existing surface drainage. A 65-foot setback shall be maintained along creeks.* A master development plan is recommended. Other setbacks and fill restrictions may be required. Isolated sites are "C" wetlands.	Special Study	B/C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
108	117	17	OUTLET OF EDMONDS LAKE (18.1 acres; Public & Private Ownership) (Scores: Hydrology = 86; Habitat = 88; Species Occurrence = 48; Social Function = 57) Possible fish habitat; important hydrological conveyance. *All disturbance shall be avoided to the maximum extent.*	Preservation	A
108 A	116	16	EAST SIDE OF EDMONDS LAKE (2.8 acres; Private Ownership) (Scores: Hydrology = 87; Habitat = 73; Species Occurrence = 29; Social Function = 49) Minimal fringe wetlands present on lakeshore. Minor road maintenance/expansion fills could be permitted via Nationwide Permit. *Fringe areas shall otherwise be preserved.*	Developable	Open Water/ A
109	113	17 and 26	MIRROR LAKE AND FRINGE WETLANDS (92.9 acres; Public & Private Ownership) (Scores: Hydrology = 116; Habitat = 150; Species Occurrence = 123; Social Function = 82) Fringe wetlands and open water of Mirror Lake assessed together. *Minimum setback of 75 feet shall be required where wetlands are contiguous with the lake or, if less than 75 feet of wetlands, the setback shall be the width of those wet areas. Minor fills for lake access are permitted but shall be limited to lake access dock structures whenever practicable.*	Undesignated	A
109	113	26	MIRROR LAKE, SOUTH SIDE (63.15 acres; Private Ownership) (Scores: Hydrology = 113; Habitat = 101; Species Occurrence = 18; Social Function = 34) *Fill shall be the minimum necessary for utilities, pads for a house and an accessory structure and single lane access driveway. Fill for roads is not authorized in this unit under the GPs. A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks along drainageways that would allow maintenance of existing surface drainage. A minimum of a 65-foot setback shall be maintained along the creek and pond south of Lakeshore Drive. A 75-foot setback from ordinary high water shall be maintained along Mirror Lake; lakefront structures on piles may be permitted under the GPs in the 75-foot setback. No work shall be done within 200 feet of Mirror Lake from April through July.*	Developable	C
109 A	113	26	SOUTHEAST OF ANTHEM AND LAKESHORE DRIVE (2 acres; Private Ownership) (Scores: Hydrology = 86; Habitat = 67; Species Occurrence = 18; Social Function = 34) *A 65-foot setback shall be maintained around the seasonal pond and drainage area into site.*	Developable	C
110	115A	17	MIRROR LAKE TO EDMONDS LAKE (40.2 acres; Public Ownership) (Scores: Hydrology = 99; Habitat = 89; Species Occurrence = 91; Social Function = 80) A master park plan for the area should be developed which identifies allowed uses and appropriate activities. *Any major park amenity development shall avoid drainage patterns and open water areas.* The master park plan should also identify those wetland areas to be protected for water quality maintenance.	Preservation	A

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
111	113A	27	MEADOW LAKE (27.27 acres; Private Ownership) (Scores: Hydrology = 113; Habitat = 103; Species Occurrence = 44; Social Function = 62) Wetlands fringe around the lake is not wide enough for development as a "C" site with a setback. Therefore, the entire site is designated as "A" wetland. Minor lake access structures are permitted.	Developable	A
112	None	27	PETERS GATE SUBDIVISION: THREE SITES (46.84 acres; Private Ownership) (Scores: Hydrology = 93; Habitat = 93; Species Occurrence = 18; Social Function = 36) Provides water quality, detention for Peters Creek. *A 65-foot setback shall be maintained along secondary drainageways and creek. A written plan shall be submitted to the Municipal Department of Community Planning and Development for review and approval describing efforts to avoid and minimize impacts to the tract's habitat, water quality, and hydrologic values. Examples of possible measures to consider include timing windows, additional setbacks, vegetative screening, reduction of fill, and onsite enhancement. Cross-drainage shall be maintained. Fill shall be the minimum necessary for utilities, pads for a house and an accessory structure and a single-lane access driveway. Fill for yards is not authorized under the GPs .*	Undesignated	C
113	115	25	MIRROR DRIVE (7.6 acres; Private Ownership) (Scores: Hydrology = 78; Habitat = 47; Species Occurrence = 27; Social Function = 39) Use of cluster development should be incorporated in plats to protect seasonal pond and to identify drainages. *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks along drainageways and the seasonal pond that would allow maintenance of existing surface drainage.*	Preservation	C
114	126	24	TWO ISOLATED SITES: NORTH OF OBERG ROAD (8.5 acres; Private Ownership) (Scores: Hydrology = 61; Habitat = 35; Species Occurrence = 18; Social Function = 20) *Drainage shall be maintained through sites.*	Special Study	C
114	115	18 and 25	NORTH OF DEER PARK, WEST OF WATER LINE (14.7 acres; Private Ownership) (Scores: Hydrology = 66; Habitat = 67; Species Occurrence = 22; Social Function = 20) Topographic low point conveys storm drain flows through site. *Storm drainage through site shall be maintained. A 100-foot setback shall be maintained along tributary channel.*	Preservation	C
115	115	23 28 and 29	PETERS CREEK CORRIDOR AND ADJACENT DRAINAGE (5 acres approx.; Public & Private Ownership) (Scores: Not Assessed) Includes wetlands along creek. *Work adjacent to creek or other connecting drainages shall require wetland delineation and Corps approval. Riparian wetlands shall be preserved.*	Preservation	A

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
116	130	31 32 and 35	LOWER FIRE CREEK AND BEACH LAKE COMPLEX (300 acres approx.; Public & Private Ownership) (Scores: Not Assessed) Municipal parkland shall be preserved. Minor park and trail amenities and road access are permissible. Private lands at creek mouth controlled by the 1979 Agreement of Compromise and Settlement between the Municipality and Eklutna, Inc. Under this agreement, the 100-year floodplain is to be preserved except for trails. *Areas outside the floodplain shall require an Individual Permit and an additional 25-foot setback from "A" wetland areas.*	Preservation	A/B
117	108	35 and 36	MINK CREEK: WERE/JERRY (85+ acres; Public & Private Ownership) (Scores: Hydrology = 118; Habitat = 93; Species Occurrence = 36; Social Function = 42) "A" wetland designation for Creek corridor (150-feet wide at creek forks, and includes the lake feeding Mink Creek.) *A 25-foot buffer shall be maintained between any fills and the "A" wetland sites.* "C" wetland designation for area north of the lake. "B" wetland designation for remainder of site. Area is generally valuable to Mink Creek flood control, water quality and wildlife habitat. *Drainage and flood control functions shall be maintained. Any fill authorized under the GPs shall be a minimum of 200 feet from the edge of Mink Lake. Fill shall be the minimum necessary for utilities, pads for a house and an accessory structure and a single-lane access driveway. Fill for yards is not authorized in this unit under the GPs. An impervious barrier shall be placed at the margins of any fill authorized by these GPs to the bottom of the peat layer or a minimum of one foot below the bottom of the gravel fill to preclude groundwater outmigration from an adjacent wetland.*	Developable	A/B/C
117	110	30	SOUTH BIRCHWOOD/TOFSON STREET (86 acres; Private Ownership) (Scores: Hydrology = 110; Habitat = 151; Species Occurrence = 54; Social Function = 40) *Ponded areas and drainage corridor out of Tofson Street lobe, which drains into Mink Creek shall be retained; contributes as headwaters. Fringes could be developed with appropriate setbacks to drainage zones, which shall be determined in the platting and permitting processes. Northerly lobe (approximately 12 acres) is "C" wetland and shall include a 25-foot buffer to "A" wetland areas.*	Preservation	B
117 A	110A	30 and 31	OFF BIRCHWOOD—JAYHAWK RIGHT-OF-WAY (10.11 acres; Private Ownership) (Scores: Hydrology = 90; Habitat = 66; Species Occurrence = 18; Social Function = 37) Poorly defined stream channel. *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks (minimum of 65 feet) along drainageways that would allow maintenance of existing surface drainage.*	Undesignated	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
117 A	107	35	BEVERLY/SOUTH BIRCHWOOD (4 acres; Private Ownership) (Scores: Hydrology = 74; Habitat = 48; Species Occurrence = 18; Social Function = 36) Minimal values.	Developable	C
118	107	39	OLD GLENN HIGHWAY: NORTH SIDE OF PARKS CREEK (12.7 acres; Private Ownership) (Scores: Hydrology = 66; Habitat = 45; Species Occurrence = 18; Social Function = 30) Isolated site. *A hydrologic analysis shall be done and shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks along drainageways that would allow maintenance of the south end connection to Parks Creek such that existing surface drainage will be maintained.*	Developable	C
119	128	37 and 38	OLD GLENN HIGHWAY: CANYON (13.62 acres; Public & Private Ownership) (Scores: Hydrology = 89; Habitat = 89; Species Occurrence = 24; Social Function = 51) Canyon labeled Open Water and creek channel. *A hydrologic analysis shall be done if the drainages or Parks Creek would be affected, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks along drainageways that would allow maintenance of the drainage conveyance to Parks Creek such that existing surface drainage will be maintained.* Isolated site on north side of Old Glenn Highway remains as "C" wetland.	Conservation	A/C/Open Water
120	128	39 and 40	PARKS CREEK - EAST SIDE OF HIGHWAY (45.5 acres; Private Ownership) (Scores: Hydrology = 95; Habitat = 89; Species Occurrence = 18; Social Function = 34) Setbacks encompass most of wetland. *Riparian sites are classed "A" and shall remain undisturbed to the maximum extent for flood values/water quality and probable fish habitat.* Non-connected spur wetlands away from creek floodplain is "C" wetlands.	Developable	A/C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
121	111	40	BEAVER POND: PARKS CREEK (North of Chugiak High School) (38.56+ acres; Public & Private Ownership) (Scores: Hydrology = 104; Habitat = 123; Species Occurrence = 42; Social Function = 50) Southern areas to remain as "C" wetlands; remainder of site, including pond/creek to be classed as "A" wetlands due to hydrology/habitat values. Flood control and high habitat value site. *A hydrologic analysis shall be done, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks along drainageways that such that existing surface drainage will be maintained. A 100-foot setback shall be maintained along Parks Creek to protect anadromous fish resources. A 65-foot setback shall be maintained along the tributary of Parks Creek in the southern lobe of the beaver pond site.*	Developable	A/C
122	100	34 41 and 46	FIRE CREEK COMPLEX DOWNSTREAM OF THE ALASKA RAILROAD (230 acres approx.; Public Ownership) (Partial Area Assessment Scores: Hydrology = 107; Habitat = 109; Species Occurrence = 78; Social Function = 41) Public land, including part of Beach Lake park. *Site shall be preserved as indicated.* Minor trails, park amenities, road access and utility placement to be permitted where no practicable upland alternatives exist. *Any fills shall be set back a minimum of 85 feet from the creek.*	Preservation	A
123	112	34 and 41	PSALM LAKE COMPLEX (24 acres; Public Ownership) (Scores: Not Assessed) Includes the open water and wetland fringe of Psalm Lake. *Site shall be preserved.*	Preservation	A
124	97 and 98	33 42 and 43	MILITARY LANDS (5.8 acres; Public Ownership) (Scores: Not Assessed) *Shall be preserved and managed via EO #11990 for military lands.*	Preservation	A
125	None	46	PIONEER DRIVE: TWO SITES (7.5 acres; Private Ownership) (Scores: Hydrology = 61; Habitat = 36; Species Occurrence = 18; Social Function = 48) Minimal values. *A hydrologic analysis shall be done, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks along drainageways that such existing surface drainage will be maintained.*	Undesignated	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
125	102	46	HILLCREST/WATERLINE (35.5 acres; Private Ownership) (Scores: Hydrology = 88; Habitat = 69; Species Occurrence = 18; Social Function = 41) *A 100-foot setback shall be maintained around the ephemeral pond at the northern end of the site and the drainage into and out of the pond, as well as along the stream that exits the wetland toward the northeast at See-Saw right-of-way.* Could be used as open space in cluster zone/PUD.	Developable	C
126	106	47	NORTHEAST INTERSECTION OF SOUTH BIRCHWOOD/GLENN HIGHWAY (21.27 acres; Public & Private Ownership) (Scores: Hydrology = 96; Habitat = 79; Species Occurrence = 32; Social Function = 39) "C" wetlands designation for isolated southern site. "B" wetlands designation for remainder of site; *requirement for permit shall include hydrology analysis to identify stream channels and functions.*	Preservation	B/C
127	103	47	DRAINAGE INTO LOWER FIRE LAKE (8.76 acres; Private Ownership) (Scores: Hydrology = 93; Habitat = 88; Species Occurrence = 24; Social Function = 61) Pond to be designated as "Open Water; revise wetland boundary. *Drainage through northern unconnected site shall be identified and maintained.*	Developable	A/Open Water
127	103	47	DARBY ROAD (9.65 acres; Private Ownership) (Scores: Hydrology = 76; Habitat = 64; Species Occurrence = 18; Social Function = 59) *A hydrologic analysis shall be done, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks along drainageways and creek such that existing surface drainage will be maintained. Platting process shall provide hydrology information.*	Developable	C
128	105	46 and 49	LOWER FIRE LAKE (including Fire Creek) (68 acres; Public & Private Ownership) (Scores: Hydrology = 130; Habitat = 145; Species Occurrence = 117; Social Function = 64) High value habitat, flood control and water quality values. *Where wetlands fringe is on the lake edge, setbacks shall be a minimum of 65 feet. Fills into the lake and creek shall be avoided.* Septic setback requirements for new lots should be handled by variance rather than by allowing fill into the lake. The Department of Health and Human Services should review variance requests for this unusual area.	Preservation	A
129	104	47 and 48	UPPER FIRE LAKE/CREEK (29.35 acres approx.; Public & Private Ownership) (Scores: Hydrology = 112; Habitat = 84; Species Occurrence = 29; Social Function = 37) Includes lake fringe and inlet creek wetland corridors. Important to fish habitat, water quality, flood control of Fire Creek and lake complex. *Any wetland fills shall be separated from waterbodies via 100-foot minimum setbacks.*	Mixed Developable	A

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
130	103	45 49 and 50	MIDDLE FIRE CREEK COMPLEX (Glenn Highway to Alaska Railroad) (175 acres approx.; Private Ownership) (Scores: Hydrology = 87; Habitat = 112; Species Occurrence = 90; Social Function = 40) "A" wetlands to include major portions of 100-year floodplain via a 100-foot setback on each side of creek. Remaining parallel wetlands designated "C". *Beaver ponds at the Alaska Railroad shall be preserved. Area where Site #136 connects to Fire Creek corridor (Map 50) is "B"; the hydrologic connection shall be delineated and retained. A setback of at least 100 feet shall be maintained along the creek due to its anadromous fish resources. A 25-foot transitional buffer shall be maintained between fill authorized under the GPs and "A" wetlands: a 15-foot transitional buffer shall be maintained between fill authorized under the GPs and "B" wetlands*	Preservation Developable	A/B/C
131	77 through 83	44 and 51	CLUNIE LAKE COMPLEX (372 acres; Public and Private Ownership) (Scores: Hydrology = 127; Habitat = 177; Species Occurrence = 127; Social Function = 48) *Military lands shall be preserved and managed via EO #11990.* Private lands at east end could be developed under cluster housing or PC zoning. *Any design shall include building and fill setbacks of 100 feet or more from waterbodies and local drainages.*	Preservation	A
132 and 133	76	50	WEST FIRE CREEK COMPLEX (24 acres approx.; Public & Private Ownership) (Scores: Not Assessed) Outer wetland of Fire Creek complex, west of creek corridor. *A hydrologic analysis shall be done, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill such that existing surface drainage will be maintained. A 100-foot setback shall be maintained around the pond and any channel with above-ground flow. A 65-foot setback shall be maintained along subsurface drainage corridors.*	Developable	C
134	100	49	FIRE CREEK: PRIOR TO HIGHWAY CROSSING (18.2 acres; Private Ownership) (Scores: Hydrology = 85; Habitat = 90; Species Occurrence = 48; Social Function = 47) *A 25-foot transitional buffer shall be maintained between "A" and "C" sites. and a 100-foot setback shall be maintained along Fire Creek due to its anadromous fish resources.*	Preservation	A/C
135	None	49	UPPER CAROL CREEK (29.6 acres approx.; Public Ownership) (Scores: Hydrology = 97; Habitat = 90; Species Occurrence = 33; Social Function = 68) Contains main channel and numerous feeder springs and tributaries. Provides flood control and water quality values. *Developer shall provide wetland determination for the site above the Old Glenn Highway. Four feeder springs are present and shall be avoided.*	Developable	B
135	Part 76	49	LOWER CAROL CREEK (8.35 acres; Private Ownership) (Scores: Hydrology = 102; Habitat = 82; Species Occurrence = 48; Social Function = 51) Provides fish habitat. *Area within floodplain and tributary of creek shall be preserved.*	Preservation	A

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
136	76	53	SOUTHEAST END OF POWDER RESERVE COMPLEX (75 acres approx.; Public & Private Ownership) (Scores: Not Assessed) Includes main corridor of wetlands to Fire Creek. *A hydrologic analysis shall be done, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill such that existing surface drainage will be maintained. A written plan shall be submitted to the Municipal Department of Community Planning and Development describing how the proposed fill would minimize impacts to habitat. Examples of possible measures to consider include timing windows, additional setbacks, vegetative screening, reduction of fill, and onsite enhancement. Developer shall submit hydrologic and habitat information for projects in the "B" site during an Individual Section 404 permit review and plat processing for determination of future additional setbacks and avoidance zones.*	Preservation Developable	B/C
137	None	54	SCHROEDER SUBDIVISION PONDS (3.7 acres; Private Ownership) (Scores: Hydrology = 72; Habitat = 57; Species Occurrence = 18; Social Function = 52) *A hydrologic analysis shall be done, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks around the pond and along drainageways such that drainage into the site is maintained. "B" wetlands designation for pond and fringe on north side of Schroeder Road. Pond shall be preserved.*	Preservation	B/C
137 A	75	53	SOUTH REGENCY DRIVE (1.4 acres; Private Ownership) (Not Assessed) Site is highly disturbed, remnant wetland. *A hydrologic analysis shall be done and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property and to maintain surface and subsurface cross drainage.*	Developable	C
138	None	54	SPRINGBROOK LOOP (3.66 acres; Private Ownership) (Scores: Hydrology = 82; Habitat = 79; Species Occurrence = 18; Social Function = 49) Site has considerable run-off, drainage problems. *A hydrologic analysis shall be done, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks such that surface drainage patterns are maintained.*	Undesignated	C
138	None	54	LUGENE AND SPRINGBROOK (1.03 acres; Private Ownership) (Scores: Hydrology = 58; Habitat = 36; Species Occurrence = 18; Social Function = 33) Minimal values; *drainageways shall be maintained through the site.*	Developable	C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
139	63 through 75	53 and 58	MILITARY LANDS (60 acres; Public Ownership) (Scores: Not Assessed) *Shall be preserved and managed via EO #11990.*	Preservation	A
140	63 through 75	58	MILITARY LANDS (Acreage unknown; Public/Private Ownership) (Scores: Not Assessed) *Shall be preserved and managed via EO #11990.* Note private parcel on north side of river, west of Lots 41 & 51. Includes a drainageway/tributary.	Preservation	A
141	85	58	MOUTH OF MEADOW CREEK (1.67 acres; Public & Private Ownership) (Scores: Hydrology = 94; Habitat = 77; Species Occurrence = 48; Social Function = 61) Provides for fish habitat. *Wetlands shall be maintained in an undisturbed state.*	Preservation	A
142	70	58 and 61	MILITARY LAND (Public Ownership) (Scores: Not Assessed) *Shall be preserved and managed via EO #11990.*	Preservation	A
143	90	62 through 86	EAGLE RIVER GREENBELT (Public Ownership) (Scores: Not Assessed) *Entire wetland complex shall be preserved to the maximum extent.* Minor trail and park amenities, and access roads permissible if no other practicable location possible. Very high habitat, flood control and recreation values. *Further field delineation of wetlands shall be required prior to permitting in the greenbelt.*	Preservation Conservation Developable	A
143 A	91	69 70 78 and 84	LOWER EAGLE RIVER VALLEY, LANDS OUTSIDE THE EAGLE RIVER GREENBELT (25 acres approx.; Public & Private Ownership) (Scores: Not Assessed) The upstream areas on maps 69-71 are transitional between the river floodplain and the old river terraces and are "B" wetlands; *drainageways, channels, and ponds shall be identified and preserved. The downstream sites are generally within the floodplain and are "A" wetlands and shall be avoided to the maximum extent.*	Preservation Conservation	A/B
144 144 A	90 and 91	62	SOUTH SIDE OF EAGLE RIVER (Greenbelt = Public Ownership; 8 acres = Private Ownership) (Scores: Not Assessed) "B" wetlands: located west of the North Eagle River bridge (outside the greenbelt), = #144. "C" wetlands: Dena'Ina Estates Subdivision and piece east of new loop road = #144A. If platted, wetlands above greenbelt on upper shelf are developable. These are isolated and low value. *A 25-foot transitional buffer shall be maintained between "A" wetlands and any fill authorized under the GPs.*	Conservation	B/C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
145	90	72	HILAND ROAD/STONEHILL (39 acres; Private Ownership) (Scores: Hydrology = 90; Habitat = 92; Species Occurrence = 18; Social Function = 43) *A jurisdictional determination shall be done for the previously undesignated areas. A hydrologic analysis shall be done, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks (minimum 65 feet) such that surface drainage patterns are maintained. Fill shall be the minimum necessary for utilities, pads for a house and an accessory structure and a single-lane access driveway. Fill for yards is not authorized in this unit under the GPs.* Cluster development should be used to preserve streams and surface drainage corridors in "B" areas. Small isolated sites are "C" .	Developable	B/C
146	87+	63	EAST OF PARKVIEW TERRACE (14 acres approx.; Private Ownership) (Scores: Hydrology = 83; Habitat = 56; Species Occurrence = 18; Social Function = 42) Minimal values. Assessment mostly applied to "C" wetland areas. Easterly site adjacent to river and floodplain is "B" wetland. *Cluster design shall be applied to avoid floodplain and higher value sites near river.* Recent delineation identified less wetland area on bluff; three isolated pockets are low value. Large area on east side drains into higher value sedge ponds. *A 25-foot transitional buffer shall be maintained between "A" wetlands and any fill authorized under the GPs.*	Conservation Developable	B/C
147	89	63 and 64	DRAINAGEWAY BELOW RAVENWOOD SCHOOL (13.9 acres; Private Ownership) (Scores: Hydrology = 105; Habitat = 84; Species Occurrence = 48; Social Function = 45) Conveys drainage from subdivisions above and natural seeps into Eagle River via small channels in gullies. *Shall be preserved.*	Preservation	A
148	84	71	SOUTH SIDE OF EAGLE RIVER/HILAND ROAD (5.7 acres; Private Ownership) (Scores: Hydrology = 73; Habitat = 78; Species Occurrence = 48; Social Function = 34) Includes spurs not located within the greenbelt. *Habitat areas and hydrologic connections to the greenbelt and Eagle River shall be preserved and buffered.*	Conservation	B

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
149	92	64 through 69	LARGE "MIXED DEVELOPMENT" SITE SOUTH OF EAGLE RIVER ROAD (420.2 acres; Private Ownership) (Scores: Hydrology = 131; Habitat = 114; Species Occurrence = 80; Social Function = 35) Provides direct hydrological connection to Eagle River. *Stream channels, ponds and surface flows shall be maintained with setbacks as open space, i.e., PC or cluster development techniques. Identification of permanent channels and general hydrology shall precede the plat and permit processes.* Protection of site hydrology should emphasize more permanent surface waters because water table in much of this wetland varies widely during the year. Development should be directed and permitted in upland and lower value wooded wetlands. Northern spur into Sunny Valley Subdivision needs a wetland determination. *Road crossings shall be minimized and non-dewatering techniques shall be incorporated into design in the area.* Intent of the designation is to maintain significant hydrology values and connections to Eagle River. Includes "B" sites between greenbelt/floodplain and upper river terraces north of the river.	Conservation Developable	B
150	94	79 and 80	STREAM CORRIDOR/WETLANDS ADJACENT TO THE GREENBELT OUT EAGLE RIVER ROAD, NORTH OF THE RIVER (18 acres approx.; Public & Private Ownership) (Scores: Not Assessed) Includes old slough, ponds and tributary of Eagle River. *High habitat and flood control functions shall be preserved.*	Conservation	A

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Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
160	None	4	INDIAN: NORTH SIDE OF VALLEY (6.6 acres; Private Ownership) (Scores: Hydrology = 65; Habitat = 76; Species Occurrence = 19; Social Function = 35) *Small creek, springs shall be maintained for water quality, flood control via 65-foot setback. A hydrological analysis shall be done and meet the acceptable standards of the Municipal Department of Public Works in order to prevent local flooding of adjacent property, and to maintain surface and subsurface drainage and to prevent wetlands drainage.* Additional wetlands delineation may be required.	Undesignated	B
161	None	5	SOUTH INDIAN (16.4 acres; Private Ownership) (Scores: Hydrology = 78; Habitat = 76; Species Occurrence = 50; Social Function = 64) *Creeks shall be maintained with 65-foot setbacks.* Remainder of site could be developed; center of wetland is a possible enhancement area.	Undesignated	B

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
170	None	6	BIRD CREEK FLOODPLAIN (24.9 acres; Public Ownership) (Scores: Hydrology = 85; Habitat = 95; Species Occurrence = 96; Social Function = 57) *Significant hydrology, fisheries values which shall be preserved in its entirety.*	Undesignated	A
171	None	7	BIRD CREEK VALLEY (5.1 acres; Public & Private Ownership) (Scores: Hydrology = 71; Habitat = 68; Species Occurrence = 28; Social Function = 45) Small isolated sites with creek connections; maintain function as headwaters for local creeks. *A hydrologic analysis shall be done, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks such that surface drainage patterns are maintained and headwaters are protected. The parcel north of and adjacent to the highways is designated B"; streams shall be identified and avoided via 65-foot setbacks.*	Undesignated	B/C
172	None	8 and 9	SOUTH OF BIRD—ROADSIDE (16.3 acres; Public Ownership) (Scores: Hydrology = 77; Habitat = 77; Species Occurrence = 37; Social Function = 44) Possible fish-rearing habitat in ponds; *a fish survey shall be done before permitting to evaluate the presence and use of fish in the area. A hydrologic analysis shall be done, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks such that surface drainage patterns are maintained. Cross-drainage shall be maintained.* Map 8 sites classed as "C" wetlands; map 9 sites classed as "B" wetlands and fill could be placed at fringes, away from key hydrologic zones.	Undesignated	B/C
173	None	10 and 12	SMALL SITES—ROADSIDE (5.5 acres; Public Ownership) (Scores: Hydrology = 67; Habitat = 53; Species Occurrence = 33; Social Function = 40) Isolated sites; *drainageways shall be maintained through the sites via avoidance.*	Undesignated	C
174	None	12	LARGE POND—BIRD POINT (9 acres; Public Ownership) (Scores: Hydrology = 83; Habitat = 82; Species Occurrence = 65; Social Function = 32) High bird use, water quality, retention values. Unique site; one of few open freshwater sites between Anchorage and Girdwood. *Minor transportation/utility-related fills could occur but shall avoid open water and drainages.*	Undesignated	B

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
180	None	42	PORTAGE CAFE (5.6 acres; Private Ownership) (Scores: Hydrology = 58; Habitat = 65; Species Occurrence = 61; Social Function = 27) *Habitat values shall be retained by minimizing fills. A written plan shall be provided to the Municipal Department of Community Planning and Development for review; it shall describe the efforts to avoid and minimize impacts to habitat by reduction in fill and design. Examples of possible measures to consider include timing windows, additional setbacks, vegetative screening, reduction of fill, and onsite enhancement. A 25-foot transitional buffer shall be maintained between this tract and adjacent "A" and coastal wetlands. All drainage must be treated on-site before being released to adjacent wetlands.*	Undesignated	C
201	160	24 and 25	TIDEWATER SLOUGH (25.4 acres; Public Ownership) (Scores: Hydrology = 97; Habitat = 106; Species Occurrence = 85; Social Function = 50) Downstream portion, below Railroad tracks, is within intertidal wetlands. Upstream portion provides high fish/wildlife habitat; could be used for a habitat enhancement site. *Limited trails, utility development may be possible but shall be limited to existing easements or at fringes.*	Preservation	A
202	None	25	NORTHEAST CORNER HIGHWAY/GIRDWOOD ACCESS ROAD (29.2 acres; Public Ownership) (Scores: Hydrology = 94; Habitat = 108; Species Occurrence = 42; Social Function = 57) Site mostly non-tidal, has freshwater influence; limited habitat, water quality, open space values. Habitat enhancement possible by developing interconnected ponds. Ephemeral drainageway in Northwest corner shall be retained for recharge, run-off. Northeast corner (approximately 3-5 acres) is a lower value transitional wetland and classed "C". *A pre-discharge notification procedure shall be used the Corps of Engineers shall FAX the application to EPA, USFWS, NMFS, ADGC, ADEC, and ADFG; the agencies shall respond within five working days if they have a problem with the proposal: within fifteen calendar days of the FAX the agencies shall provide substantive comments if they have noted a problem earlier. If no resolution can be reached at that time, the Corps shall proceed with the application as an individual permit application. A 25-foot transitional buffer shall be maintained between "A" wetlands and any fill authorized under the GPs.* This site is one of very few potential transportation facility zones within the Girdwood area and the Draft GIRDWOOD AREA PLAN (Spring 1994) further identifies this wetland for Commercial Land Use. *Encroachment of fill into "A" wetland zone is permittable for commercial uses and/or public facilities but drainage and habitat functions shall be avoided and retained or replaced in the same general area—shall be assessed and determined in the Individual 404 process.*	Undesignated	A/C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
203	None	25	OLD GIRDWOOD TOWNSITE (3.8 acres; Private Ownership) (Scores: Not Assessed) Area is highly disturbed. *A hydrologic analysis shall be done, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks such that surface drainage patterns are maintained.* .	Undesignated	C
204	None	25	SOUTH OF GOLD AVENUE, WEST OF GLACIER CREEK (3.8 acres; Private Ownership) (Scores: Hydrology = 69; Habitat = 73; Species Occurrence = 28; Social Function = 56) Conveys flows out of old townsite; may provide fish habitat; higher fringes could be developed; *the large meadow adjacent to the highway shall be preserved.*	Undesignated	B
205	None	25 and 27	EAST OF GLACIER CREEK/NORTH TO VIRGIN CREEK (93.8 acres; Public Ownership) (Scores: Hydrology = 77; Habitat = 126; Species Occurrence = 82; Social Function = 58) High values for bird and fish habitat; conveys middle and lower Virgin Creek system. Could be used for habitat enhancement. This side of the valley is the only location for an alternate road and utility access for upper Girdwood Valley which may in the future require placement through wetlands. *Minor fills for railroad/highway improvements and utilities should be permitted but these shall avoid channels and floodplain to the maximum extent.* Assessment refers only to area between the Alaska Railroad and the Seward Highway.	Undesignated	A
206	152	25 and 26	ISOLATED SITES NORTHEAST OF SITE #205 (15 acres approx.; Public Ownership) (Scores: Not Assessed) In floodplain of Virgin and Glacier Creeks. *Provides flood storage and fish habitat functions which shall be preserved.*	Preservation	A
207	148 and 157	25	NEW INDUSTRIAL SUBDIVISION AND AREAS BETWEEN CALIFORNIA AND GLACIER CREEKS (30 acres; Public Ownership) (Scores: Not Assessed) Southern wetland contains confluence zone of California and Glacier Creeks; important fish habitat = "A" wetland. Northern site is mostly developed. Remaining wetlands restricted in previous Corps of Engineers permit.	Preservation Undesignated	A
208	159	23 and 25	ABOVE GIRDWOOD ACCESS ROAD, IN LOWER VALLEY (5.5 acres; Private Ownership) (Scores: Hydrology = 73; Habitat = 42; Species Occurrence = 17; Social Function = 43) Minimal values. *A hydrologic analysis shall be done, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks such that surface drainage patterns are maintained.*	Developable	C

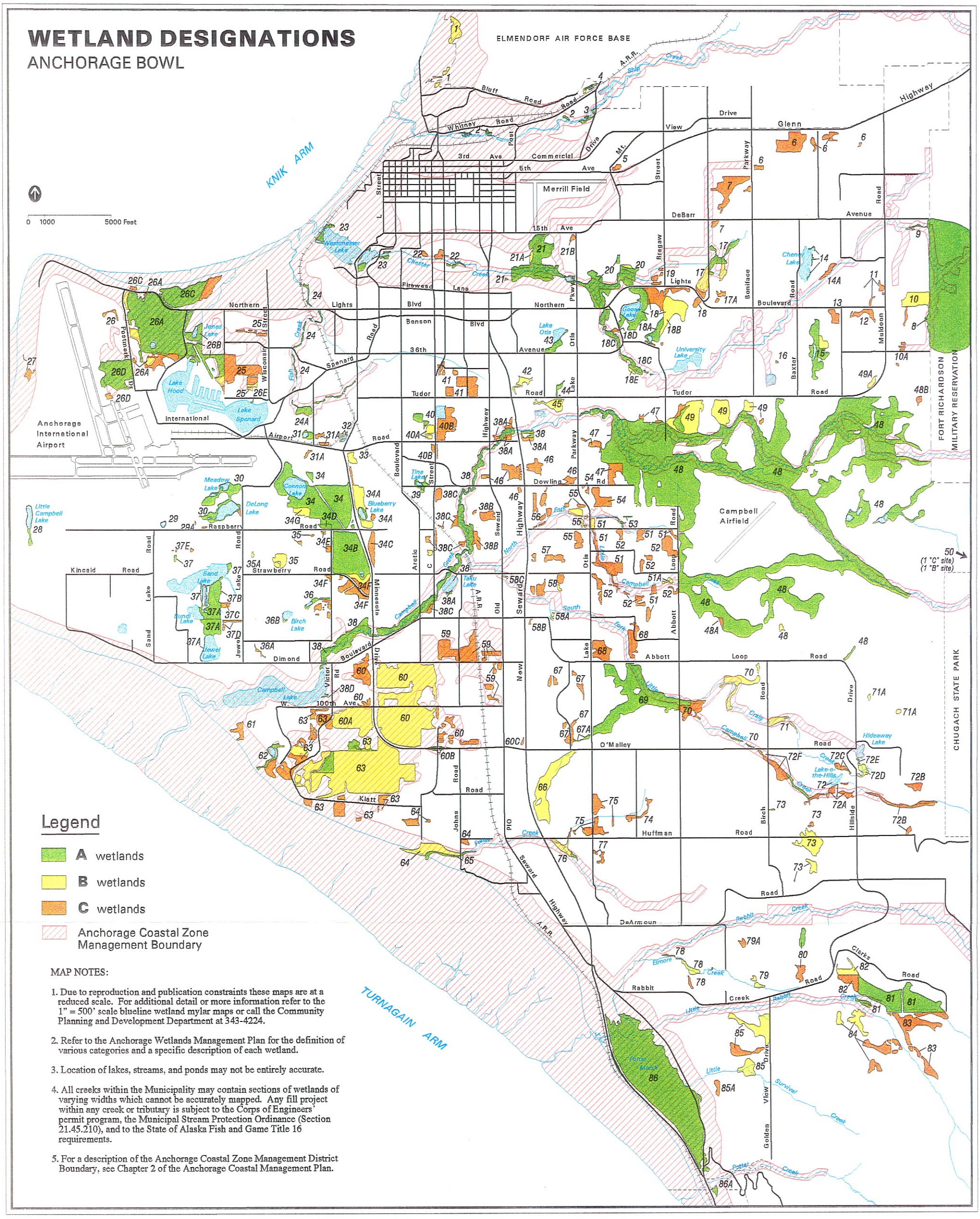
Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
209	148	22 and 23	"SQUIRREL CAGE" (88.2 acres; Public & Private Ownership) (Scores: Hydrology = 110; Habitat = 130; Species Occurrence = 85; Social Function = 56) Located within the floodplain of California Creek. Provides diverse, high value fish/wildlife habitat functions; breeding area for several significant species. *Recreation amenities could be permitted but shall be located at the fringes where wetland transitions to upland, to the maximum extent.*	Preservation	A
210	155	23	ISOLATED SITE ABOVE ALYESKA HIGHWAY/CROW CREEK ROAD (5 acres; Public Ownership) (Scores: Not Assessed) *A hydrologic analysis shall be done, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks such that surface drainage patterns are maintained. A 100-foot setback shall be maintained along creeks and drainageways.*	Preservation	C
211	145	22	SOUTHWEST OF ALYESKA SUBDIVISION (14 acres approx.; Public Ownership) (Scores: Not Assessed) Lower areas of Municipal Heritage Land Bank land adjacent to Glacier Creek. *The Official Streets and Highways Plan identifies a future right-of-way which could be permitted but shall be located in less valuable wetland fringes, along with minor park and trail amenities.* Located in only suitable area for such transportation and recreation corridors.	Preservation	A

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
212, 213	144 through 147	21 and 22	ALYESKA SUBDIVISION (56.18 acres; Public Ownership—"A" wetlands; Private Ownership—"C" wetlands) (Scores: Hydrology = 112; Habitat = 96; Species Occurrence = 60; Social Function = 47) *Permit and platting process shall require identification of recharge, flood storage and habitat areas throughout Sites 212 and 213.* Municipal lands in Site 212 mostly classed as "A" wetlands.. Park plan identifies active development; OS&HP identifies collector road in portions of Site 212. *These developments shall be permitted in less valuable portions* . Site 213 is the largest and only area of private land suitable for residential expansion in the Girdwood Valley.. *A hydrologic analysis shall be done, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks such that surface drainage patterns are maintained. Fill shall be limited to the minimum necessary for utilities, pads for a house and accessory structure, and single-lane access driveway. Fill for yards is not authorized in this unit under the GPs. Cross-drainage shall be maintained. A 100-foot setback from creeks shall be maintained to protect anadromous fish resources. A written plan shall be submitted to the Municipal Department of Community Planning and Development describing how the proposed fill would minimize impacts to fish and wildlife habitat. Examples of possible measures to consider include timing windows, additional setbacks, vegetative screening, reduction of fill, and onsite enhancement. A limited pre-discharge notification procedure shall be instituted by the Corps of Engineers. The Corps will FAX copies of the application and of the hydrologic analysis and habitat review to EPA, USFWS, NMFS, ADFG, ADGC, and ADEC after being provided these by the Municipality. Any concerns specifically related to the hydrologic analysis shall be raised within five working days of the FAX and conditions proposed to resolve concerns within 15 calendar days of the FAX. The Corps will determine if these conditions are appropriate for inclusion on the GP authorization. For the wetlands area west of Timberline and North of Alpina, a full pre-discharge notification procedure shall be instituted by the Corps of Engineers if work is proposed under the GPs. The Corps will FAX copies of the application and of the hydrologic analysis and habitat review to EPA, USFWS, NMFS, ADFG, ADGC, and ADEC after being provided these by the Municipality. Any concerns shall be raised within five working days of the FAX and conditions proposed to resolve concerns within 15 calendar days of the FAX. If resolution of concerns cannot be reached at that time, review of the application shall be completed under the Individual Permit process.*	Preservation/ Developable	A/C

Site #	'82 #	Map #	Site Description, Enforceable and Administrative Policies and Management Strategies	1982 Designation	New Designation
214	143	21	CORTINA DRIVE (2.8 acres; Private Ownership) (Scores: Hydrology = 84; Habitat = 61; Species Occurrence = 26; Social Function = 42) *A hydrologic analysis shall be done, and this analysis shall meet the acceptable standards of the Municipal Department of Public Works in order to prevent flooding of adjacent property, maintain groundwater recharge and flood storage, as well as both surface and subsurface cross drainage, and prevent drainage of wetlands. It shall be used in determining the placement of fill and requirements for setbacks such that surface drainage patterns are maintained.*	Developable	C
215 and 216	149 through 151	22	ABOVE CROW CREEK ROAD (43 acres; Public & Private Ownership) (Scores: Hydrology = 98; Habitat = 73; Species Occurrence = 32; Social Function = 59) Lies partly within Municipal park land. Provides hydrology values of flood storage and recharge to California Creek and open space functions. *These main functions shall be retained.*	Conservation	B
217	137	17	CROW CREEK ROAD (27.6 acres; Public Ownership) (Scores: Hydrology = 81; Habitat = 85; Species Occurrence = 61; Social Function = 42) *Drainageways and small creeks shall be maintained with a minimum 65-foot setback for flood control, water quality and moderate habitat values.*"B" sites west of road.	Preservation Undesignated	A/B
217	138 and 139	18	CROW CREEK ROAD—CREEK (2.6 acres; Public Ownership) (Scores: Hydrology = 68; Habitat = 76; Species Occurrence = 50; Social Function = 44) *Creek associated drainageway shall be maintained.* (Lies within floodplain and retention area). Additional wetland delineation may be required.	Preservation Undesignated	A
218	141	21	MOOSE MEADOWS (121.5 acres; Public Ownership) (Scores: Hydrology = 111; Habitat = 105; Species Occurrence = 67; Social Function = 64) Unique habitat type within Municipality. Provides recharge and flood control for several tributaries of Glacier Creek. *Recreation potential high: fills for minor enhancements could be permitted, i.e., trails, parking pull-outs, but these shall be placed at fringes.* Separate wetland along Aspen Road designated "C"; provides buffer to Alyeska Creek; *shall be maintained with a 75-foot setback from creek.*	Preservation Developable	A/C
219	None	19 and 22	WINNER CREEK WETLANDS (60 acres approx.; Public Ownership) (Scores: Not Assessed) Includes wetlands in valley floor and on plateau up the Winner Creek Valley. Contains numerous ponds and tributaries. Important for flood control in lower valley and for limited fish and wildlife habitat. Some designations may change as a result of the ongoing Municipal-state Glacier-Winner Creek planning efforts currently underway. Habitat values limited to those areas adjacent to waterbodies since most sites are diminished by shorter, cooler growing seasons because of higher elevations and distance from the coast. *Fill actions shall be avoided or located at fringes to the maximum extent. An 85-foot setback shall be maintained from any creeks, drainageways, and waterbodies. Upper Winner Creek Valley sites are mostly riparian and in the floodplain and shall be preserved to the maximum extent.*	Undesignated	B

WETLAND DESIGNATIONS

ANCHORAGE BOWL



Legend

- **A** wetlands
- **B** wetlands
- **C** wetlands
- Anchorage Coastal Zone Management Boundary

MAP NOTES:

1. Due to reproduction and publication constraints these maps are at a reduced scale. For additional detail or more information refer to the 1" = 500' scale blueline wetland mylar maps or call the Community Planning and Development Department at 343-4224.

2. Refer to the Anchorage Wetlands Management Plan for the definition of various categories and a specific description of each wetland.

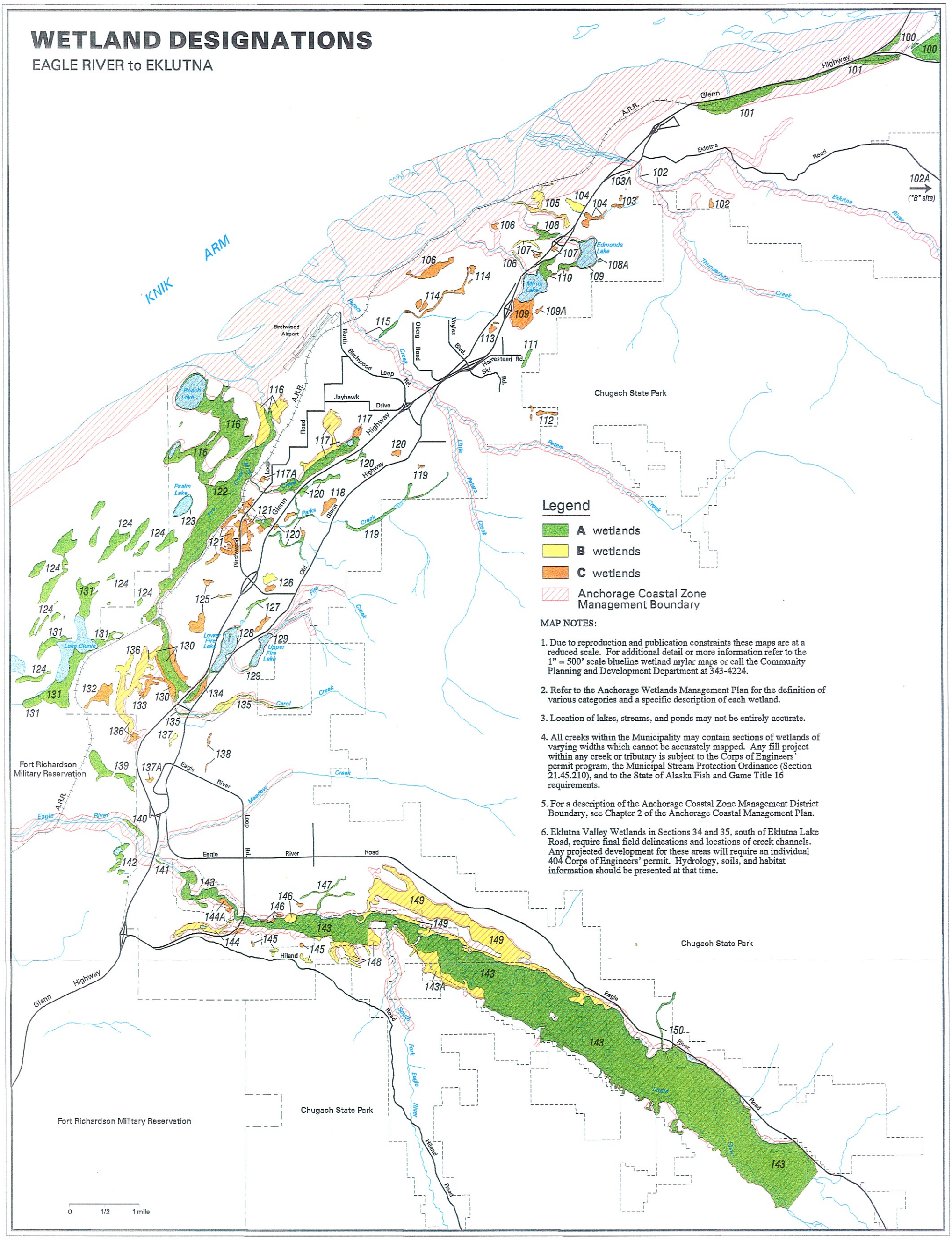
3. Location of lakes, streams, and ponds may not be entirely accurate.

4. All creeks within the Municipality may contain sections of wetlands of varying widths which cannot be accurately mapped. Any fill project within any creek or tributary is subject to the Corps of Engineers' permit program, the Municipal Stream Protection Ordinance (Section 21.45.210), and to the State of Alaska Fish and Game Title 16 requirements.

5. For a description of the Anchorage Coastal Zone Management District Boundary, see Chapter 2 of the Anchorage Coastal Management Plan.

WETLAND DESIGNATIONS

EAGLE RIVER to EKLUTNA



Legend

- **A** wetlands
- **B** wetlands
- **C** wetlands
- Anchorage Coastal Zone Management Boundary

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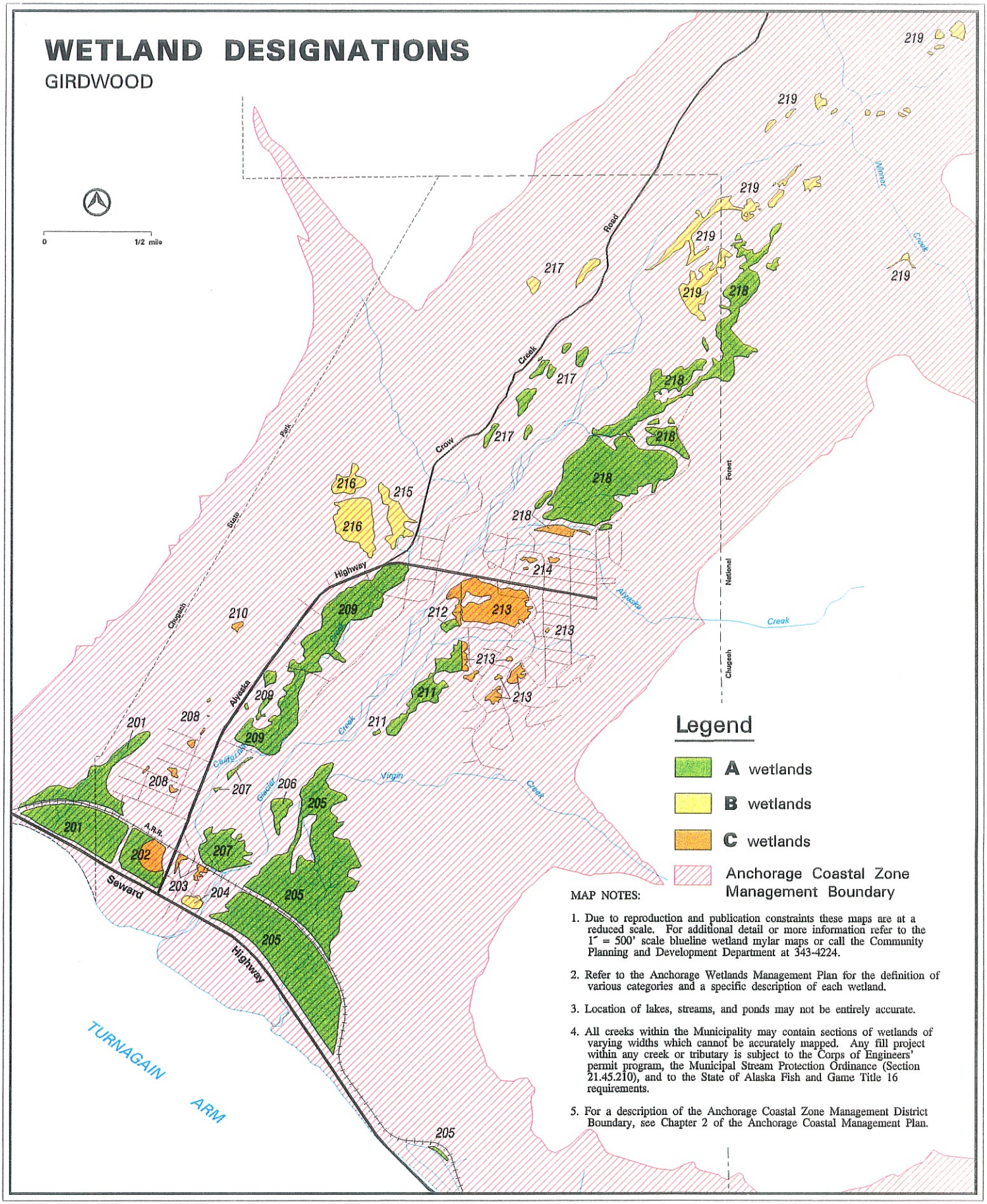
5. For a description of the Anchorage Coastal Zone Management District Boundary, see Chapter 2 of the Anchorage Coastal Management Plan.

6. Eklutna Valley Wetlands in Sections 34 and 35, south of Eklutna Lake Road, require final field delineations and locations of creek channels. Any projected development for these areas will require an individual 404 Corps of Engineers' permit. Hydrology, soils, and habitat information should be presented at that time.

WETLAND DESIGNATIONS

GIRDWOOD



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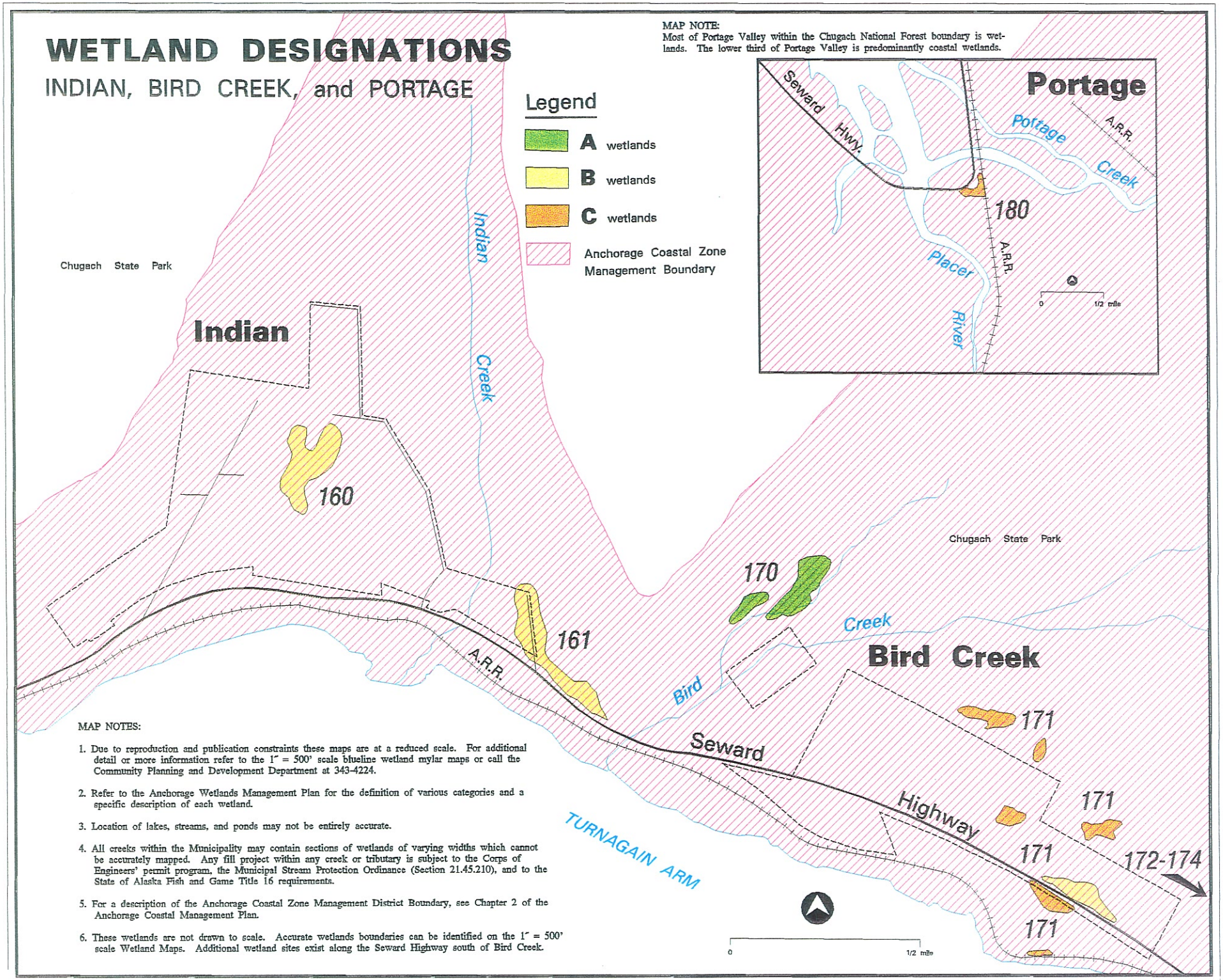
2. Refer to the Anchorage Wetlands Management Plan for the definition of various categories and a specific description of each wetland.
3. Location of lakes, streams, and ponds may not be entirely accurate.
4. All creeks within the Municipality may contain sections of wetlands of varying widths which cannot be accurately mapped. Any fill project within any creek or tributary is subject to the Corps of Engineers' permit program, the Municipal Stream Protection Ordinance (Section 21.45.210), and to the State of Alaska Fish and Game Title 16 requirements.
5. For a description of the Anchorage Coastal Zone Management District Boundary, see Chapter 2 of the Anchorage Coastal Management Plan.

WETLAND DESIGNATIONS

INDIAN, BIRD CREEK, and PORTAGE



MAP NOTE:
Most of Portage Valley within the Chugach National Forest boundary is wetlands. The lower third of Portage Valley is predominantly coastal wetlands.

MAP NOTES:

1. Due to reproduction and publication constraints these maps are at a reduced scale. For additional detail or more information refer to the 1" = 500' scale blueline wetland mylar maps or call the Community Planning and Development Department at 343-4224.
2. Refer to the Anchorage Wetlands Management Plan for the definition of various categories and a specific description of each wetland.
3. Location of lakes, streams, and ponds may not be entirely accurate.
4. All creeks within the Municipality may contain sections of wetlands of varying widths which cannot be accurately mapped. Any fill project within any creek or tributary is subject to the Corps of Engineers' permit program, the Municipal Stream Protection Ordinance (Section 21.45.210), and to the State of Alaska Fish and Game Title 16 requirements.
5. For a description of the Anchorage Coastal Zone Management District Boundary, see Chapter 2 of the Anchorage Coastal Management Plan.
6. These wetlands are not drawn to scale. Accurate wetlands boundaries can be identified on the 1" = 500' scale Wetland Maps. Additional wetland sites exist along the Seward Highway south of Bird Creek.

CHAPTER 5: IMPLEMENTATION

This chapter provides information for the public, land owners, coastal industries and developers, the District, and state and federal permitting agencies about the methods and authorities to be used to implement the Municipality of Anchorage's Wetlands Management Plan.

Various mechanisms and authorities can be used to implement a coastal management program, including land and water use plans, municipal ordinances and resolutions (including zoning and subdivision ordinances and building codes); capital improvement programs; the purchase, sale, lease or exchange of coastal land and water resources; cooperative agreements; memoranda of understanding; state and federal statutes and regulations; and coordinated project or permit review procedures. In this case, the Municipality of Anchorage is incorporating the Anchorage Wetlands Management Plan as a sub-element and implementation method for Anchorage's Coastal Management Plan.

I. DISTRICT OFFICIALS RESPONSIBLE FOR IMPLEMENTATION

Fulfillment of coastal program objectives and local implementation/enforcement of coastal management policies are the responsibility of the Municipality's Department of Community Planning and Development. Implementation of the Municipality of Anchorage's Coastal Management Program is assigned to the Director of the Department of Community Planning and Development, who in turn delegates coastal management-related duties to the Coastal District Coordinator in the Physical Planning Division. The District Coordinator can be reached at the following address:

Coastal District Coordinator
Physical Planning Division
Department of Community Planning and Development
Municipality of Anchorage
P.O. Box 196650
Anchorage, AK 99519-6650

Phone: 343-4224
FAX: 343-4220

The District Coordinator performs several key functions to ensure that communication, information transfer, and coastal project reviews are handled properly. The District Coordinator will function under the direction of the Director of Community Planning and Development in representing local interests in coastal and wetlands affairs. The District Coordinator will:

1. Act as a contact for local residents on the Alaska Coastal Management Program and the district program;

2. Provide staff support for activities related to coastal management and keep the Planning and Zoning Commission, Municipal Assembly, and municipal departments advised of activities;

3. Circulate materials among municipal staff, as appropriate;

4. Provide guidance in the application of program policies to municipal staff during local reviews;

5. Decide which projects are routine, and which projects have great significance to the coastal area and should be reviewed and discussed with the Planning and Zoning Commission; routine approvals would be processed by the District Coordinator;

6. Determine if the information received from a state coordinating agency is adequate for a state consistency recommendation; if not, the coordinator would submit a timely request for more information;

7. Evaluate the proposed project to identify potential impacts and appropriate conditions or project modifications based on the district coastal program and wetlands management plan policies;

8. Prepare and submit to the state coordinating agency the district's consistency recommendation in a timely manner, and participate in any subsequent discussions and elevations, as appropriate.

II. LOCAL IMPLEMENTATION

Municipal implementation of the Anchorage Wetlands Management Plan shall take place through the Management Strategies and Enforceable Policies identified throughout Chapter 4; the implementation direction provided in this chapter; and, where not in conflict with this plan, the implementation provisions of the Anchorage Coastal Management Plan.

For coastal development and wetland areas activities which require local approvals, and may not require state and federal permits, the Municipality of Anchorage will use its Title 29 authority to implement and enforce this program at the local level. The Municipality of Anchorage intends to continue to implement the coastal management program and the Anchorage Wetlands Management Plan at the local level as follows:

- Prior to issuing a conditional permit, variance, plat approval, or General Permit, projects will be subject to a local consistency review that evaluates a proposed project against the district's enforceable policies, Coastal Plan and Anchorage Wetlands Management Plan.

    * The comprehensive plan will be reviewed and revised, as appropriate, to be compatible with the district coastal management program.

* Zoning and/or subdivision ordinances will be revised as necessary, to incorporate new enforceable policies and other measures outlined in the new plan..

The original Wetlands Plan's adopting ordinance (Administrative Order #82-33S) both incorporated the plan into Municipal Code and affected additional changes to various other municipal ordinances as appropriate. The ordinance presented to the Assembly for the plan's final adoption contains appropriate changes to the Municipal Code in order to incorporate new policies and keep text consistent between the new plan and Title 21. This ordinance may include possible code revisions at 21.05.030 and .115, to amend the Comprehensive Plan, and at 21.80, to amend, as warranted, zoning and platting actions, and at 21.15.030 and .110 to amend Conditional Use and Preliminary Plat procedures.

Table 3 outlines municipal department responsibilities related to implementation of the Anchorage Wetlands Management Plan.

A. INSTITUTIONAL STRUCTURES

Chapter 7 of the 1982 Wetlands Plan was devoted to a description and analysis of alternative wetland management strategies and a specific management approach to be implemented for individual wetlands by the Municipality. Management alternatives were offered in planning and programming activities, and included 19 specific possible strategies to further protect important wetland areas. Of these alternatives, the Municipality has acted on, or otherwise institutionalized, actions for approximately 8 specific strategies. These include:

1. Incorporation of land use categories for higher value wetlands into the Turnagain Arm, Chugiak-Eagle River, and Anchorage Bowl comprehensive plans;
2. A cluster zoning ordinance (AMC 21.50.210);
3. Subdivision reviews via new platting requirements (AMC 21.15.030);
4. Adoption of Planned Unit Development standards (AMC 21.50.130);
5. Creation of stream setback buffers (AMC 21.45.210);
6. Tax assessment reductions for Preservation ("A") and Conservation ("B") wetlands;
7. Capital improvement program planning and Municipal bond packages for wetlands acquisition; and
8. Subarea studies.

Since these management strategies have been institutionalized, no new strategies have been recognized or proposed. The original Chapter 7 is no longer relevant and has been dropped from the current Anchorage Wetlands Management Plan revision.

Table 3

INSTITUTIONAL RESPONSIBILITIES
ANCHORAGE WETLANDS MANAGEMENT PLAN IMPLEMENTATION

	Primary Responsibility	Secondary Responsibility
Programming		
Land Use	Community Planning & Development	
Marginal Lands	Community Planning & Development	
Phasing Strategies	Community Planning & Development	
Phasing Strategies		
Phasing Strategies	Community Planning & Development	
Specific		
Access to Facilities	Community Planning & Development	Water & Wastewater Utility Public Works
Implementation		
Traditional Zoning	Community Planning & Development	
Innovative Zoning	Community Planning & Development	
Cluster		
Flexible		
Bonus		
Creek Maintenance District	Community Planning & Development	Public Works
Acquisition		
Fee Simple	Property & Facility Management	Community Planning & Development Cultural & Recreational Services
Less than Fee Simple	Property & Facility Management	Community Planning & Development Cultural & Recreational Services
Municipal Lands		
Use Designation	Community Planning & Development	
Land Trade/Land Banking	Property & Facility Management	Community Planning & Development, Heritage Land Bank
Institutional		
Federal	Corps of Engineers	
Local		
Water Quality Management	Community Planning & Development	Public Works
Coastal Zone Management	Community Planning & Development	
Subdivision Regulation	Community Planning & Development	
Site Plan Review Criteria	Community Planning & Development	
General Permits	Community Planning & Development	Public Works

The current Anchorage Wetlands Management Plan revision has been built around existing ordinances, programs, and other land use plans, all of which are administered by the Municipality of Anchorage.

- ***Department of Community Planning and Development***. Implementation of the Anchorage Wetlands Management Plan shall be the responsibility of the Department of Community Planning and Development. Most management strategies and enforceable policies deal with land regulations and land controls which are administered by this Department. The Department shall be responsible for various reviews and General Permits conducted under local, state, and federal environmental and land use decision-making progress. The Department shall be responsible for development of additional techniques necessary to implement the Anchorage Wetlands Management Plan. The Department shall also be responsible for plan maintenance and future revisions.

- ***Department of Property and Facility Management*** and ***Department of Cultural and Recreational Services***. These Departments shall be responsible for those activities involving acquisition and future management of acquired wetlands. Guidance as to the areas to be acquired under fee simple or other methods shall occur through the development of the Municipality of Anchorage's capital improvement program. Recommendations and priorities of wetland sites for future acquisition will be dependent on funding and priorities will be forwarded by the Department of Community Planning and Development through the Anchorage Bowl, Turnagain Arm and Chugiak-Eagle River comprehensive plans, and other means as appropriate.

- ***Department of Public Works***. The Department of Public Works is the lead Municipal agency responsible for review of any and all drainage plans and water quality issues related to wetland permits, rezonings and plats, and subdivision reviews. The Department of Public Works, together with the Departments of Cultural and Recreational Services and Health and Human Services, and Anchorage Water and Wastewater Utility, act as reviewing and comment agencies on all wetland permits. Their responses to permit applications are coordinated by the Department of Community Planning and Development and are included in final Municipal response letters.

- ***Implementation Schedule***. In the original Anchorage Wetlands Management Plan, Section 8.3 outlined a series of actions linked to passage of the Plan, which initiated various elements of the Plan's implementation. These included: Programming Recommendations, Phasing Strategies, Zoning Strategies, and Acquisition Strategies. These techniques and programs were implemented and remain ongoing, as appropriate, and are no longer required for implementation.

B. GENERAL PERMIT IMPLEMENTATION

The Corps of Engineers had previously authorized the Municipality of Anchorage's Department of Community Planning and Development to implement its General Permits for Anchorage, for the period of the original General Permit administration; i.e., from 1983 to 1993. The Corps of Engineers reissued new General Permits to the Municipality for projects located in "C" wetlands in October 1994.

Once a project is designated in a "C" wetlands, an applicant must fill out a General Permit application to the Department of Community Planning and Development. Each project must meet enforceable policies contained in Chapter 4 of this Anchorage Wetland Management Plan for each site and conditions outlined in the Corps of Engineers' General Permits. Appropriate drainage plans and other Best Management Practices, as necessary, shall be reviewed and approved by the Municipality of Anchorage's Department of Public Works prior to permit authorization. Each application has a $50 fee.

Each General Permit is considered a "project" under the ACMP [6 AAC 50.190(14)] and is subject to a state consistency review and determination. Any amendment to the Municipality's General Permits must comply with requirements for an amendment to a coastal consistency determination. Project modifications require agency review and a new coastal consistency determination.

III. STATE IMPLEMENTATION

Once a coastal district program's sub-element plan is approved, it becomes part of the Alaska Coastal Management Program (ACMP). The district's coastal management policies are then implemented through the State's review of proposed projects. The state ACMP consistency review (authorized under 6 AAC 50) is a coordinated process for evaluating proposed development projects affecting Alaska's coastal zone. A proposed coastal project is reviewed for its consistency with the ACMP, including a district coastal management program. Each state resource agency reviews a proposed project against its own regulations, the district's enforceable policies, and the standards of the ACMP (6 AAC 80). Districts are obligated to implement their coastal programs by participating in this state consistency review process. If a proposed project meets the ACMP Standards, district policies, and state regulatory requirements, the project is found consistent, and the appropriate state agencies issue the required permits, provided there are no outstanding concerns unrelated to the ACMP.

The Division of Governmental Coordination (DGC) is the coordinating agency for the review of a direct federal action and a project requiring federal permits or permits from two or more state agencies. (See Table 4 for an outline of steps in the ACMP consistency review process). If a project requires permits from only one state agency, that agency coordinates the state consistency review. An applicant requesting a permit for a coastal project must complete a coastal project questionnaire which can be obtained from the DGC and state resource agencies. This questionnaire identifies all necessary permits and the agencies to contact for information about those permits. A

completed coastal project questionnaire, and all necessary applications for permits, must be submitted to the appropriate coordinating agency.

Once all necessary materials are received, the state coordinating agency begins the ACMP consistency review with the distribution of the project information to state resource agencies, the coastal district and other interested parties. The coordinating agency, a state resource agency or an affected coastal district may request additional information from the applicant. A comment period follows and, if required, a public notice and a public hearing may be held during this time. Written comments must state whether the project is consistent as proposed, inconsistent with ACMP standards or district policies; or consistent with stipulations identified in the comments. The commenter must explain why a project would be inconsistent or provide a brief justification for each stipulation.

The coordinating agency gives careful consideration to all comments and due deference to state resource agencies and the affected coastal district, as appropriate in the context of the commenter's expertise and area of responsibility (6 AAC 50.120). Evidence available to support any factual assertions is also considered. A coastal district with a coastal program incorporated into the ACMP is the expert in the interpretation and application of its enforceable policies. State agencies also rely on the district as a source of information on local concerns about a proposed project or activity.

Table 4

ALASKA COASTAL MANAGEMENT PROGRAM CONSISTENCY REVIEW PROCESS

	30-Day Review	50-Day Review
Start-up: Consistency review begins	Day 1	Day 1
Information Requests: Deadline for reviewers to request additional information	Day 15	Day 25
Comment Deadline: Public, district and agency reviewer comments due	Day 17	Day 34
Proposed Determination: Proposed consistency determination issued	Day 25	Day 44
Deadline for notification of elevation	Day 29	Day 49
Conclusive Determination: Conclusive determination issued (unless elevation requested)	Day 30	Day 50
Elevation Process: If elevated, directors' determination	Day 45	Day 65
Elevation Process: If elevated again, commissioners' determination	Day 60	Day 80

Notes: Some permits may involve a different review process; in all cases, the appropriate state agency regulations should be reviewed for the correct procedure.

The coordinating agency must complete the consistency review of a project within 30 or 50 days. A 30-day review schedule will be used if all associated state permits must, by statute or regulation, be issued in 30 days. A 50-day review schedule will be used for projects with permits requiring a 30-day public notice. The coordinating agency may grant extensions to these reviews as provided in 6 AAC 50.110(b). The deadlines may also be extended at the request of the applicant or to receive additional information requested by a state resource agency or an affected coastal district with an approved program. In addition, when a project involves a disposal of interest in state land or resources, the review schedule may be extended to coordinate the consistency review and Alaska Department of Natural Resources disposal process [6 AAC 50.110(b)(3)].

The coordinating agency notifies the parties of the proposed consistency determination which states whether the project is consistent or not and identifies any conditions or stipulations to ensure the project is consistent. If the applicant, affected coastal district, or state resource agencies do not object to the proposed determination within 5 days, a conclusive determination is issued. The consistency review is considered complete, and agency permits are issued within 5 days of the conclusive determination.

In accordance with 6 AAC 50.050, the State has determined that certain projects or activities may not require a full ACMP consistency review, as outlined above. DGC maintains a list of the different types of projects which would receive:

- A "categorically consistent approval" ("A" list), because the projects are determined to have insignificant effects on coastal resources and uses;
- A "general concurrence determination" ("B" list), because the projects are routine activities that can be made consistent with the ACMP by imposing standard conditions on a permit; or
- "Individual project review" ("C" list), because the projects may have significant effects on the coastal zone and must undergo a full ACMP consistency review.

A person proposing a project should submit a completed coastal project questionnaire (CPQ) to the appropriate state coordinating agency. The DGC, in consultation with other state agencies which may be coordinating the consistency review, would review the coastal project questionnaire and determine whether a categorical approval, general concurrence, or individual project review applies.

IV. FEDERAL IMPLEMENTATION

While federal lands and waters are excluded from the ACMP coastal zone, uses and activities on federal lands or waters are subject to consistency review if the action affects any land or water use or natural resource within the Municipality of Anchorage coastal zone boundaries. According to federal regulations (15 CFR 930), direct federal activities, federal development projects, and Outer Continental Shelf (OCS) oil and gas lease sales, shall be carried out in a manner which is consistent, to the maximum extent practicable, with the ACMP, including the enforceable policies

of the Municipality of Anchorage coastal management program and the Anchorage Wetlands Management Plan.

At the earliest practicable time in the planning of a direct federal action, federal agencies shall determine which activities affect Alaska's coastal zone and provide a consistency determination to DGC. The determination will indicate whether the proposed project will be undertaken in a manner consistent to the maximum extent practicable with the ACMP, including the Municipality of Anchorage's enforceable district program and Anchorage Wetlands Management Plan policies.

If the proposed project is not a direct federal activity, but is an activity that requires a federal license or permit, or is a plan for exploration, development or production of any area leased under the OCS Lands Act, then the activity must be carried out in a manner consistent with the ACMP, including the Municipality of Anchorage's enforceable policies. The applicant must provide certification to the federal agency and to the State that the proposed project is consistent with the ACMP.

In either case, DGC would coordinate the state consistency review of any proposed project on federal lands or waters. Following the review, the State notifies the federal agency whether it concurs with the federal agency's or applicant's certification.

V. APPEALS

A. MUNICIPAL-LEVEL APPEAL

An applicant for a local General Permit approval can appeal a municipal decision. The Corps of Engineers would review General Permit appeals.

B. STATE-LEVEL APPEALS

Typically, state consistency reviews occur at a regional staff level. If agreement cannot be reached at that level, a proposed consistency determination can be appealed by the affected district, the state resource agencies, or the applicant first to the Division Directors and then to the Commissioners through the elevation process described in 6 AAC 50.070(j).

Under AS 46.40.100 of the Alaska Coastal Management Act, a citizen of a district, a coastal district or a state agency may also petition, or appeal to, the Alaska Coastal Policy Council about the implementation of, or enforcement of, or compliance with a district coastal management program. After a hearing, the Council may direct the coastal district or state agency to take corrective action which the Council deems necessary to implement, enforce, or comply with the district coastal management program.

C. FEDERAL-LEVEL APPEAL

In addition to the state elevation process under 6 AAC 50, an applicant for a project requiring a federal permit or license may appeal the State's conclusive consistency determination to the U.S. Secretary of Commerce, as provided in 15 CFR 930.125(h).

VI. MONITORING AND ENFORCEMENT

District coastal plan and wetlands management plan policies and ACMP standards are implemented at the state level, through conditions and terms placed on state resource agency permits, approvals, leases or authorizations. 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 stipulations on their permits. However, in cases where a stipulation is carried on the permit for which the authorizing agency has no authority (e.g., a stipulation based on other agencies' concerns or on a coastal district's policy which is more stringent than the authorizing agency's regulations), the enforcement of that particular stipulation would fall to the Alaska Department of Law.

The Municipality of Anchorage continues to monitor and enforce General Permits and other wetlands projects, both through the Department of Community Planning and Development staff and code enforcement. Wetland violations are typically passed on to the Corps of Engineers' enforcement division for permit violations. Municipal enforcement is implemented for Municipal standards and regulations via code enforcement.

The Municipality of Anchorage will notify the appropriate state agency if it observes an action that appears to violate a state consistency-related permit stipulation. The Municipality strongly encourages the State to take action to ensure compliance by the permittee. In cases where a local permit is issued, the district will enforce permit conditions through its own municipal authorities.

VII. PROGRAM AMENDMENTS

A. BACKGROUND

Any changes to adopted wetlands designations or enforceable management strategies shall require Municipal Assembly approval and shall be based on results of an application of the Municipal Wetland Assessment Methodology, and any new site information. Final designation changes or management strategy changes shall be made only after necessary approvals by the Corps of Engineers and Division of Governmental Coordination or Coastal Policy Council are given and the amendment is filed with the Lieutenant Governor. Proposed development in any newly identified wetland is subject to conditions attached to any Corps of Engineers Section 404 Individual Permit and ACMP consistency determination.

An amendment to the Municipality of Anchorage's Coastal Management Program can be considered at any time. The amendment must be approved by the Municipal Assembly in the same

manner as the program itself was approved. Once locally approved, the program amendment is sent to DGC which determines whether the amendment constitutes a significant amendment or a routine amendment to the district program. The program amendment must be approved by the Alaska Coastal Policy Council and the U.S. Department of Commerce.

If DGC finds the program amendment to be significant, the revision must undergo a public hearing and the review process required for the original plan. If the amendment is determined to be routine, DGC approves the amendment on behalf of the Council and seeks federal approval. An amendment becomes effective after it is filed with the Lieutenant Governor.

B. AMENDMENT PROCESS

The following is an outline of the process that must be followed to amend a wetland designation. Designation change requests can be submitted to the Municipal Department of Community Planning and Development at any time, but must include the following *new data* to justify a change request:

1. A map of the wetland site indicating existing wetland boundaries and designation;
2. A completed Anchorage Wetland Assessment Methodology for the subject site;
3. Any and all new relevant data from the site, including soils, hydrology, plant community, fish and wildlife, and social function information;
4. A formal written request for the change and the reasons for the request.

Upon receiving a complete packet for each designation change request, the Department of Community Planning and Development will determine the validity of the request and the supporting data. If the information is complete and appropriate, the department will forward the request, with a staff recommendation, to the Assembly for Public Hearing. If the Assembly approves the request, the Municipality will then submit the formal amendment and back-up data to the Corps of Engineers and the state Division of Governmental Coordination for review and approval.

If the request includes a site that is being downgraded to a "C" designation, the Corps of Engineers will require a Public Notice. The designation of the new site can only be officially changed and added to the General Permit after both a state consistency and Corps of Engineers Public Notice reviews.

Although this Plan revision incorporates many previously undesignated wetlands which were missed in the original plan, it is likely that there remain several wetlands which are still unidentified. Land owners and contractors should be conscious of this fact and be alert to the possibility that areas may be technically wetland but not included in this plan. Planning

Department staff or the Corps of Engineers can provide wetland delineations of these areas. **Any undesignated wetlands will fall under the Corps of Engineers permit process.**

C. ADMINISTRATION

The original adopting ordinance for the 1982 Wetlands Plan required that the plan be reviewed and revised in ten years. This was also a Plan Review Process in Chapter 8. Given potential changes in federal wetlands legislation, and the fact that new General Permits are authorized for five year periods, the Municipality shall revisit this plan in five years from final adoption. At that time, the following information shall be evaluated:

1. The effectiveness of the individual management strategies in protecting and facilitating development;
2. The consistency of the plan with both federal and state coastal management/wetlands law and management programs;
3. The effectiveness of enforcement actions and Best Management Practices in newly filled wetlands.

If significant discrepancies are revealed in this review, the plan should be revised accordingly, in a format consistent with State of Alaska coastal zone statutes. If the review reveals mixed results or indicates that the plan is continuing to be effective, revision should wait a further five years.

Once this Concept Approved Draft receives state and federal approval and final Assembly adoption, the adopting ordinance will include additional sections, as necessary, to amend Title 21. Most of these amendments will simply replace language to acknowledge the change to "A," "B," and "C" from "Preservation," "Conservation," "Developable," etc.

VIII. WETLANDS PLAN REVIEW PROCESS

As outlined in Chapter 4, a process has been institutionalized for amendments to the Wetlands Plan for specific sites. The Plan itself shall be reviewed by the Planning Department five years following its adoption. At that time, the effectiveness of the management strategies, the consistency of the plan with federal and state law and programs, and the effectiveness of enforcement actions and Best Management Practices shall all be evaluated, and the Plan shall be amended as appropriate. The Municipal Department of Community Planning and Development shall be responsible for the evaluation effort.

CHAPTER 6: MITIGATION

As described in Chapter 4, the approach taken in the Anchorage Wetlands Management Plan has been to allow for some development to occur, while retaining the most critical wetlands areas in a protected status. A balance has been achieved between developing wetlands with a subsequent loss of function and preserving wetlands in a city with limited land available for development. Although wetlands for which development is recommended are generally those with limited beneficial values, the proposed development should incorporate mitigating measures to minimize the degradation or loss of wetland values and functions to the maximum extent practicable. It should be clearly recognized that whether and if these mitigation techniques can be applied will depend on the adoption of land management techniques providing increased site design flexibility and changes to current Municipal site review procedures. These changes to Municipal land regulations are described in greater detail later in this chapter.

Mitigation is generally defined to include:

1. Avoiding the adverse impacts altogether by not taking a certain action;
2. Minimizing impacts by limiting the degree or magnitude of the action;
3. Rectifying the impact by repairing, rehabilitating or restoring the affected environment;
4. Reducing or eliminating the impacts over time by preservation and maintenance operations during the life of the action; or
5. Compensating for the impact by replacing or providing substitute resources or environments.

I. DESCRIPTION OF POTENTIAL MITIGATION MEASURES

In order to determine which mitigating measures are likely to be most effective and economic, the type and extent of impacts must be understood. Although each development proposal must be examined in relation to the wetland and wetland resources potentially affected, it is useful to consider the impacts which are typically associated with the more common development activities.

It is possible to define certain general classes of mitigation techniques according to the three phases of development: planning and design; construction; and operation. In all cases, specific wetland development plans and initiation measures must be approved by the Municipality prior to initiating site preparation and construction.

Actual on-site mitigation measures may include certain of the following descriptive mitigation methods or some combination of these and other methods. Table 5 should be referred to for a more definitive listing of mitigation techniques relative to Anchorage wetlands.

A. PLANNING AND DESIGN

The best, and essentially the only, time to develop effective and economical wetlands mitigation measures is during initial project planning and conceptual design. It cannot be emphasized too strongly that the effectiveness of this plan and its associated mitigation techniques will greatly depend upon an adequate development review process and the capability of including mitigation measures in project development plans. Revising a plan after it has been finalized is not only costly, but it is less likely to be effective in protecting the wetland values. Major mitigation measures for typical wetland developments in Anchorage are discussed in Table 5.

B. SELECT AN ACCEPTABLE DEVELOPMENT SITE

In the past, development sites have often been selected without regard for the wetland values which may be impacted. With growing awareness of the importance of wetlands and knowledge of the costs of construction and facility installation in these areas, development in wetlands is expected to become much more selective. Increasingly, development should occur in areas of least critical wetland areas, with the most important hydraulic and habitat regions being protected.

C. LIMIT THE SIZE OF DEVELOPMENT

All other considerations being equal, the loss of wetland values is a direct function of the size of development. In the Anchorage Wetlands Management Plan, critical areas are given a protected status, with development being allowed to proceed in other areas under the "C" designation. Nonetheless, certain of the large "C" areas may contain pockets of important wetlands that should, to the extent practicable, be avoided in the construction of the project. A major incentive for locating a development in the more acceptable wetland sites is that the regulatory bodies will probably require costly mitigation measures at the less acceptable sites. Where feasible, information from the Municipality of original Anchorage Wetlands Study, the results of each 1993 Wetlands Assessment, and from various resource agencies should be evaluated prior to final project sizing.

D. PROVIDE BUFFER ZONE

The interface between the wetland and the surrounding uplands is the most critical impact zone. If these wetland edges can be protected from significant disturbance, loss of wetland values can be minimized. One means of achieving this protection is by providing a buffer zone, such as a greenbelt or vegetative screen, between the wetland and the development. By clustering homesites and providing a community greenbelt, the maximum housing density can be achieved with minimum impacts.

Table 5

MITIGATION MEASURES

Activity	Mitigation Measures	Wetland Type		
		"A"	"B"	"C"
Planning	Roads, Utility Lines			
	Delete from long range plan	1	1	2
	Restrict hook-ups		1	2
	Use common corridors		1	1
	Housing			
	Trade density for open space		1	1
	Retain wetlands as drainageways		1	1
	Land Exchange			
	Encourage land trades	1	2	1
	Restoration			
	Restore valuable areas	1	2	2
Design	Site Design			
	Cluster building		1	1
	Creek, lake and wetland setbacks		1	1
	Minimize paved areas		1	1
	Facility Design			
	Pilings for foundations		2	1
	Minimize structure pad size		2	1
	Impervious barriers in trenches		1	1
	Avoid perforated storm drains		1	1
	Decrease road right-of-way		1	1
	Use thin road pads		2	1
	Use filter fabric, porous pad material		2	1
	Consider elevated causeways		1	1
	Use multiple culverts		1	1
	Replace lost wetland functions		1	1
	Avoid stream re-channelization		1	1
Construction	Surcharging		2	1
	Avoid Critical Wildlife Cycles		1	1
	Consider Winter Construction		1	1
Construction	Proper Disposal of Debris		1	1
	Minimize Ground Cover Disturbance		2	1
	Avoid Fill in Creeks and Lakes		1	1

Notes: 1 = Primary mitigation measure
2 = Secondary mitigation measure

The mitigation measures recommended in this Table are to be used as guidelines, not as requirements. The Table is to be viewed as a checklist of techniques which reduce the impacts of development on wetlands. It can be used as an aid in evaluating future site-specific proposals.

E. MINIMIZE DREDGING AND FILLING

The most serious impacts to a wetland are caused by dredging and filling. Dredging of wetlands may change flow or circulation patterns as well as bottom elevations. The release of sediments during dredging may also cause physical and chemical changes, such as reduced light transmission, smothering of bottom organisms, and alteration of substrate composition. Pollutants associated with sediments may be released by dredging, and pH and dissolved oxygen levels may be adversely affected.

Placement of fill into a wetland not only destroys the existing resource in the area filled, but it may also have far reaching effects on adjacent areas. Placement of fill may impair natural circulation and flow patterns and be a source of sediment that alters bottom substrate, reduces light transparency, and smothers or damages aquatic organisms. If the fill is dredge spoil or industrial waste, fine particle size or high organic or toxic contents may create additional water quality problems. Alternatives to filling wetlands, such as the use of pilings, should be addressed before final development plans are prepared, especially for those wetlands within the category.

If dredging is necessary, sediments suspended by dredging should be contained to the maximum extent possible. This can be accomplished by surrounding dredge locations with a curtain or similar device. Another effective method is "dry" dredging; i.e., leaving a dike or earth plug between open water and the dredge area.

If filling is necessary, fill should not be placed in main channels but in areas of future development. As necessary, fill should be contained to prevent sediment erosion and transport back to the water bodies. This can be accomplished by surrounding the fill area with a filter fabric. If the filled area is large or if it may affect water flow, provide open channels, culverts, or permeable areas to allow for water circulation. In all cases, fill areas subject to erosion should be protected by planting vegetation, applying filter blankets, or both.

F. MINIMIZE DRAINAGE

A wetland without water is no longer a wetland. Drainage and water diversion change the habitat and composition of vegetation and wildlife. These activities result in lowered water tables that also affect adjacent areas. In many cases, wetlands have been shown to purify incoming water by removing sediments and nutrients. Diversion of water may result in water quality problems (usually eutrophication) for the lakes or streams which previously received water "purified" by the wetland.

As a general policy, drainage and water diversion should be avoided unless the wetland is isolated and the entire wetland is intended for development. Drainage of an area that is hydrologically linked with, or in close proximity to, other wetland areas should be avoided unless the entire wetland area is to be developed. Diverted water should, in general, not be directed into receiving waters unless retention structures and water quality control devices are used prior to discharge.

G. MINIMIZE CHANNELIZATION

Channelization is potentially very damaging to wetland areas. It may result in increased erosion, the lowering of local water tables, and increased peak run-off flows, as well as direct land loss. It may also cause the transfer of water to downstream water bodies without the benefit of purification that often occurs when water has passed through a wetland area. Channelization also results in the production of dredge spoil which may lead to disposal problems.

As a general policy, channelization should only be considered if all alternative practices have been rejected. Channelization should be restricted to existing stream channels or to existing drainage ditches. Construction of blind channels and finger-fill development, which often cause adverse circulation and water quality impacts, should be avoided. If an existing channel is to be widened, only one side should be enlarged. Vegetation which shades a stream should be retained. Culverts should be installed in such a way as to not create a barrier to aquatic life.

H. MINIMIZE SITE CLEARING AND GRADING

Clearing and grading will not only destroy the wetland habitat, but may also have adverse effects on surrounding areas through erosion of sediments and destruction of drainage and flow patterns. As a general policy, the time and extent of exposed soil should be minimized and existing drainage patterns should be retained. Dirt should not be pushed onto stream banks or onto areas where it will be transported into the watercourse. Where feasible, crawlers should be used rather than wheeled vehicles to reduce the impact upon soils. Run-off should be diverted around the exposed area until it is stabilized. Temporary sediment barriers should be utilized to reduce run-off velocities and entrap suspended sediments. Vegetation should be retained along the edge of the wetland.

I. CONSTRUCTION SCHEDULING

Although construction impacts are generally short term, they are often very intense and, consequently, may produce lasting changes in the wetlands environment. Measures to mitigate impacts through scheduling of construction activities are discussed below.

J. AVOID CRITICAL PERIODS FOR FISH AND WILDLIFE POPULATIONS

Critical fish and wildlife periods generally include mating and reproduction activities. Such activities vary in kind and intensity from wetland to wetland, so site specific information is needed. This information can be obtained from the original Anchorage Wetlands Study documents, from the Alaska Department of Fish and Game, the U.S. Fish and Wildlife Service, and from other resource agencies.

K. POST-CONSTRUCTION ACTIVITIES

The longest term effects of development in wetlands will result form the use or operation of the facility after construction. It is important that developments not merely be built and then forgotten. Some of the means to mitigate the long term operational impacts of these developments are as follows:

1. Maintain All Mitigative Design Measures

If culverts are included in a fill design, it is necessary that they be inspected routinely to prevent clogging and retardation of flow. If greenbelts or vegetative screens are dedicated, they must be maintained so that heavy use does not result in water quality impacts. In general, a developer must demonstrate a commitment to protecting wetland values even after the facility is built and in operation.

2. Restore or Rehabilitate Lost Resources

In certain cases, loss of a wetland value may be an inevitable result of development. However, such a loss may be acceptable as long as the value is restored either after construction or at some other location. Because the possibilities for wetland restoration and rehabilitation are numerous, depending on the value lost and the approach taken, these should be discussed between the Municipality and the developer on a case-by-case basis.

II. RELATIONSHIP OF MITIGATION MEASURES TO PLAN DESIGNATIONS

There is an intended, direct relationship between the planning use designations given in this Plan and the associated mitigation measures. Particular uses are associated with the various plan designations, and correspond to limited activities and uses within the "A" wetland environment and to fairly extensive permitted uses in "C" wetland zones. The intent of the "A" zone is to protect the natural features of the wetland by leaving it in a natural state. Full development, consistent with zoning use categories and the use categories of the comprehensive plan, is anticipated within "C" wetland areas as long as mitigation measures and proper engineering practices are utilized. The mitigation measures are therefore nominal in the "A" wetland environment and potentially extensive in the "C" wetland category.

It should be stressed that the mitigation techniques identified here are generalized methods. It is intended that both developers and reviewing agencies will use these techniques as a checklist in the plan/project review process.

It is further intended that the developer is to be provided flexibility in the type of mitigation techniques to be used in project design and construction. Depending on the type of wetland, severity of impact, and cost/feasibility of technique, any one or combination of techniques may be selected. In this sense, the concept to be applied in project review is that of performance criteria. The developer is to be allowed flexibility in design, but must demonstrate an adequate

incorporation of available, feasible mitigation measures in the planning, design, construction and post-construction aspects of project development. The plat and regulatory review processes are expected to ensure the satisfactory consideration and incorporation of these mitigation features.

It must be reiterated that the effective use of mitigation measures in a systematic and comprehensive manner will depend greatly on changes to the Municipality's land control ordinances, as described earlier in this Chapter.

III. MITIGATION RECOMMENDATIONS

A. USE OF MITIGATION MEASURES

The intent of the Anchorage Wetlands Management Plan is to identify and designate Anchorage wetlands by type, according to their relative functions and values. Critical wetland areas performing significant habitat, water quality, or other functions have been designated "A" for protection. Those of less critical value are classified either "B" or "C" and it is these wetlands, since they are intended to be impacted by development, that the mitigation techniques are to be applied.

It is important to recognize that the use of mitigation techniques, while applicable to all "C" wetlands, is especially critical within areas designed as "B" wetlands and in certain large undisturbed wetland tracts, e.g., portions of Connors Bog and Campbell/Klatt Bog. These areas have important, associated open space and wildlife values due to their size and isolation. Major portions of these wetlands be reserved in their natural state or protected through the use of mitigation measures that allow the important wetland values to be retained.

In wetlands classified as "C," techniques generally will be limited to those mitigating the major impacts of development. It must also be recognized that the use of these techniques will require the amendment of current Municipal codes and regulations, especially those related to the review and approval of zoning ordinances and subdivision plats. Because "A" wetlands are to be retained in their original state, the use of mitigation techniques is not as necessary. Such techniques should be carefully considered, however, for those wetlands designated "C" adjoining critical wetland areas.

The effective use of mitigation techniques will vary greatly, depending upon major changes in current Municipal review procedures and land use ordinances. Currently, the site plan review process of development proposals within wetlands does not require a thorough consideration of mitigation measures. Accordingly, each of the following processes must be established or amended in order to ensure the use of mitigation techniques.

B. PLAT PRE-APPLICATION CONFERENCE

The current pre-application plat review process administered by the Municipality should be expanded to include representatives of the resource agencies. This review should take place for all development proposals in wetlands, including Section 404, Nationwide, and all other

classifications. Currently, the platting process requires, as a condition of plat approval, the issuance of a fill permit from the Corps of Engineers. However, the design aspects of the subdivision plat are approved prior to Corps of Engineers review and action, thus minimizing any effective inclusion of mitigation measures. Amendment of the process, as identified earlier in this Plan, would correct this deficiency.

C. SUBDIVISION ORDINANCE AMENDMENT

The existing subdivision ordinance does not require the inclusion of mitigation measures as a feature of subdivision design. Lacking a specific requirement for such measures, adequate authority to mandate these techniques does not exist. It is therefore recommended that the subdivision ordinance (AMC 21.85) be amended, as appropriate to:

1. Require the consideration of all appropriate Enforceable Policies and wetland mitigation techniques within areas classified as "B" or "C" wetlands; and
2. Require the inclusion of such design features in the subdivision design, if found to be feasible and appropriate.

This process will enable the developer to tailor mitigation technique(s) to specific characteristics of the topography and environmental functions of a particular site, thereby allowing flexibility in site design and the types of engineering measures to be applied. The techniques identified in this Chapter are to be utilized by the Departments of Community Planning and Development and Public Works as a type of checklist in this review and evaluation process.

D. ZONING ORDINANCE AMENDMENT

Many mitigation techniques identified here cannot be effectively applied under the current district-use zoning procedures. For example, front, back and side yard setbacks; lot coverage; and density level requirements within each zoning category effectively preclude any of the clustering techniques described in Chapter 4. Since adoption of the original Anchorage Wetlands Management Plan, the Cluster Housing Ordinance (AMC 21.50.210) was initiated.

To utilize mitigation measures which require the avoidance of critical land areas and the minimization of site clearing and grading, zoning ordinance changes allowing the clustering of structures have been implemented. These techniques, and the Planned Unit Development standards, allow development to take place at specific, limited areas on the site, actually in a concentrated pattern, and usually to the underlying densities of the district use zone. The cluster use ordinance is now in the process of development and will be expanded to identify its use in wetland areas.

IV. SUMMARY

The use of mitigation techniques is generally confined to wetlands designated for conservation and development. These wetlands are to accommodate development to varying degrees and it is these areas for which mitigation is especially critical. The types of mitigation techniques vary widely, and generally affect either the planning, design, construction, and post-construction aspects of a development project. The use of mitigation techniques is strongly encouraged. It is recognized that current review and land management requirements have adopted some of the initial mitigation ideas from the original Wetlands Plan. This Plan therefore recommends:

1. Continuation of a coordinated wetland review process; and
2. Inclusion of a design review process and design/construction requirements, as appropriate, in the Anchorage Subdivision Ordinance.

These changes would ensure the adequate consideration and use of wetland construction mitigation techniques.

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APPENDIX A

Municipal Assembly Approval

AO No. 95-129

AM 775-95

AIM 109-95

8-22-95 FAILED
NOTICE OF RECONSIDERATION GIVEN BY MR. CAMPBELL
RECONSIDERED 9-12-95

Submitted by: Chairman of the Assembly at the Request of the Mayor
Prepared by: Department of Community Planning and Development
For Reading: May 9, 1995

CLERK'S OFFICE
AMENDED AND APPROVED
Date: 3-12-96

Anchorage, Alaska
AO No. 95-129

AN ORDINANCE ADOPTING THE ANCHORAGE WETLANDS MANAGEMENT PLAN AS AN ELEMENT OF THE ANCHORAGE COMPREHENSIVE PLAN AND AMENDING CHAPTER 21.05 AND 21.15 OF THE ANCHORAGE MUNICIPAL CODE.

THE ANCHORAGE MUNICIPAL ASSEMBLY ORDAINS that:

Section 1. The Anchorage Wetlands Management Plan, originally adopted and dated April, 1982, is hereby amended by the Anchorage Wetlands Management Plan 10 Year Revision, dated April 1995 (originally dated July, 1993, revised October, 1993, conceptually approved by the Municipal Assembly in December 1993, and approved by the State of Alaska Coastal Policy Council in October, 1994), and is hereby adopted as an element of the Anchorage Comprehensive Development Plan.

Section 2. AMC 21.05. 030 is amended as follows:

21.05.030 Comprehensive Plan Elements

The Comprehensive Plan consists of the following elements, which are incorporated in this chapter by reference:

. . .

L. Wetlands Management Plan (AO 95- , effective (month), 1995).

. . .

Section 3. AMC 21.05.115 B. & C. is amended as follows:

21.05.115 Implementation--Anchorage Wetlands Management Plan

. . .

B. Municipal Zoning and Platting Actions.

1. Municipal zoning and platting actions taken under this title shall be consistent with the Anchorage Wetlands Management Plan. It is the intent of the municipality that wetlands designated ["PRESERVATION"] "A" in Table [6-3] 2 will be

protected as indicated in that table and in Chapter [7] 4 of the Anchorage Wetlands Management Plan.

2. The provisions of AMC 21.80.100-110 may be applied to plats showing development of wetlands designated "[PRESERVATION] A" under the plan where fee simple acquisition is required by the plan. If at the end of the 15-month period for acquisition provided by AMC 21.80.110, the "[PRESERVATION] A" wetlands have not been acquired, by mutual agreement of the property owner and the municipality, the reserve tract designation may be extended, in consideration of which agreement the municiaplity shall pay an amount equal to the taxes accumulated on the property for the period of reservation. If the municipality and the property owner do not agree on an extension of the reserve tract designation, the property owner must obtain a Section 404 permit required by the Federal Clean Water Act of 1972, as amended, before submitting a plat for that property. In conducting the Section 404 review, the [PRESERVATION STANDARD] "A" Wetlands - Management Guidelines and Implications found in Section [6.6] II. B. of the Wetlands Management Plan shall be applied.

3. Any development of a ["PRESERVATION"] "A" wetland allowed by the platting authority after a developer has acquired a Section 404 permit shall be conditioned on use of the recommended mitigation techniques to the maximum extent practicable.

4. In order to maximize protection of wetlands designated ["CONSERVATION"] "B", in addition to the criteria normally considered in subdivision and conditional use applications, the platting authority or the Planning and Zoning Commission must, prior to approval, make explicit findings that:

   a. through c. (no change)

5. Whenever practicable, the platting authority or the Planning and Zoning Commission shall include the recommended construction mitigation techniques and conditions and Enforceable Policies in Table 2 when approving plats or

conditional use permits in wetlands designated ["DEVELOPABLE"] "C" under the plan.

C. Application of plan to approved projects.

1. Conditional uses and preliminary plats approved prior to [APRIL 20, 1982] (month, day), 1995, the date of adoption of the revised Anchorage Wetlands Management Plan, shall not have additional conditions imposed upon them as a result of requirements of the plan except as follows:

a. the ["PRESERVATION"] "A" designation shall apply regardless of prior approvals;

b. approved plats or conditional uses in wetlands which are returned to the platting authority or Planning and Zoning Commission for major amendment may be examined for conformity with plan goals and Enforceable P[p]olicies.

Section 4. AMC 21.05.130 E. is amended as follows:

21.05.130 Implementation--Coastal Zone Management Plan.

The following elements of the Anchorage Coastal Zone Management Plan, dated July 1979, are adopted as elements of the Comprehensive Plan:

. . .

E. Map 12, Vol. I and Map 12, Vol. II entitled "Coastal Management Zone: Preservation" found in the Anchorage Coastal Resource Atlas, with the exception that the designation of freshwater marshes and wetlands for preservation is superseded by [THE PRESERVATION DESIGNATIONS] wetlands designated "A" and shown on Map[S 6-4, 6-5, AND 6-6] Figures 3, 4, 5, 6 and as further described in Table [6-3] 2 of the Anchorage Wetlands Management Plan.

Section 5. AMC 21.15.030 C. is amended as follows:

21.15.030 Site Plans and Conditional Uses.

. . .

C. 2. a. (3). site drainage within and adjacent to the property that is subject to the application, including the specific location of all water features, such as lakes, ponds, bogs, swamps, springs, intermittent (seasonal) or continuous streams, drainage courses, and the location of floodplain and wetland areas as defined in Chapter 21.60 and Section 21.05.[087]115, respectively;

. . .

C. 3. Where the property that is the subject of the application contains wetlands designated ["CONSERVATION"] "B" in the Anchorage Wetlands Management Plan, the applicant shall submit the following:

. . .

Section 6. AMC 21.15.110 C. is amended as follows:

21.15.110 Preliminary plat--Application and submission requirements.

C. For areas, if any, determined by the Corps of Engineers to require individual permitting within a subdivision proposed in a wetland designated ["CONSERVATION"] "B" under the Anchorage Wetlands Management Plan, in addition to the items required by subsection B, the following shall also be required whenever and to the extent that the municipality lacks data showing:

. . .

Section 7. This ordinance shall become effective immediately upon passage and approval.

PASSED AND APPROVED by the Anchorage Assembly this _____ day of _____, 1995.

Chair

ATTEST:

Municipal Clerk

ASSEMBLY AMENDMENT:

The Assembly amended the plan as stated in AM 775-95 and AIM 109-95. The Assembly further amended the plan by changing the designation of Site #25 from B/C to C.

MUNICIPALITY OF ANCHORAGE

ASSEMBLY MEMORANDUM

No. AIM 109-95

Meeting Date: May 30, 1995

From: MAYOR

Subject: WETLANDS PLAN ADDITIONS

Since the most recent Final Draft Anchorage Wetlands Management Plan was printed, a few corrections and changes have been identified and are presented below for consideration by the Assembly for adoption into the final plan document. None of these are significant or substantive, rather they are simple corrections and/or inclusions of information inadvertently omitted from the current Draft. Most important of these is the re-inclusion of several items from AM 1363-93, which were simply missed in the Concept Approved Draft version of the Plan that went into the State of Alaska review after Assembly adoption in early 1994. These items are not significant and should simply be added to the final version of the Plan here. None of these items are likely significant enough to warrant a new State and federal review, rather they will be considered simple routine plan changes. Where appropriate, an explanation is presented to explain why an item was omitted, rearranged, or rewritten between the December 1993 Assembly resolution and this current draft.

From the Assembly Memorandum #1363-93:

1. The following language was not completely added to the management strategy for site #149, and should be incorporated now. The wording is minimally changed based on the Corps GP language and for space limits. This paragraph should replace the version in the current draft.

> "Portions of this wetland provide direct hydrological input to Eagle River. *Stream channels, ponds, and surface flows shall be maintained with setbacks as open space, i.e. PC or cluster development techniques, Identification of permanent channels and general hydrology shall precede the plat and permit processes.* Protection of site hydrology should emphasize more permanent surface waters because the water table in much of this wetlands varies widely during the year. Development should be directed and permitted in upland and lower value wooded wetlands. Northern spur into Sunny Valley Subdivision needs a wetland determination. *Road crossings shall be minimized and non-dewatering techniques shall be incorporated into design in the area.* The intent of the designation is to maintain higher value hydrology functions."

2. Item #5 in AM 1363-93 recommended that four sentences from the discussion section of "A" Wetlands be made into Enforceable Policies for "A" Wetlands. After review with State and federal agencies, it was since determined that the current draft Enforceable Policies for "A" Wetlands better incorporates the intent of these issues in a more comprehensive manner. One of the four original items (#d.) was added as an enforceable policy (see page 44). The other sentences were left in the "A" Wetland discussion section (see page 36) to reiterate their importance and provide continued guidance.

3 The following language was missed in the revision and should be added here as the original recommendation. The section where it is to be added has changed: it should now go on the third line in the last paragraph on page 32, between the words "...flooding..." and "... foundation problems...".

> "..., failed septic systems, and..."

4. The following was recommended originally in AM 1363-93 to be added to the end of the first paragraph on page 13, and now should be added to the end of the third paragraph on page 33:

> "High-use moose areas extend in wetlands and upland areas east of Goldenview Drive and south of Rabbit Creek. Prime bear corridors include Rabbit, Little Rabbit, and Little Survival Creeks."

5. The following should be added to management strategies of site's 72, 78, 81, 84, 84. It was only added to site # 83.

> "These corridors are important to large mammal movements, especially bears. Linear fill crossing these areas should be minimized or configured to avoid disrupting the migratory movements."

6. The following was inadvertently left out of the management strategy for site #60 South, and should be added to that section. The *italicized* sections of site #60 South's management strategy should remain as written in the final draft. These *italicized* policies will be placed at the end of this paragraph.

> "Site treats snowmelt runoff prior to discharge to 100th Avenue storm drain system. Parcel has significantly lower values than the core of Klatt Bog, located across Minnesota Drive. Historic hydrologic connection to

Klatt Bog to 100th Avenue storm drain system. Parcel has significantly lower values than the core of Klatt Bog, located across Minnesota Drive. Historic hydrologic connection to Klatt Bog has been diminished by Minnesota Drive and local drainage system improvements. Development of parcel may consider directing surface water runoff to Klatt drainage ditch, if needed to support other efforts to restore Klatt Bog hydrology. This parcel contains areas of higher and lower value wetlands. Higher value wetlands occur along the north and southwest boundaries of the parcel and lower value wetlands occur in the central portion of the parcel, generally coinciding with areas of mature paper birch and white spruce. Higher value areas should be retained during development process for snowmelt and storm water treatment and habitat purposes. Additional assessment may demonstrate that the site has lower value areas that warrant a "C" designation and that should be included within the general permit. Access improvements to the parcel from Minnesota Drive and 100th Avenue should be accommodated. Emphasis during the development process shall be on on-site mitigation efforts."

ADDITIONAL CORRECTIONS:

7. Site #49A. TUDOR/MULDOON CURVE, has been remeasured and the wetlands acreage should be changed from [10] acres. to 3 acres.

8. Site #58B has an error that has been carried through several versions of the Plan and was recently uncovered. The third sentence was always meant to be a site description and should read, " Approximate area of wetlands includes 400 feet running south along Dimond exit ramp and for at least 125 feet to the east, e.g. the lower corner." This sentence is not meant to be policy and should not be italicized--it was meant to describe the limits of wetland on-site.

9. Site #59, SOUTH OF DIMOND CENTER MALL/WEST OF OLD SEWARD HIGHWAY has two (2) conditions left out from the Corps General Permit. The following should be added to reflect those conditions which were meant to be included verbatim, as enforceable policies, for each "C" site. This language was added to the GPs after the State approved the Plan in October 1994.

> *"As long as a water body (greater or equal to 2,500 square feet in areal extent) is present in the 3.5-acre site of formerly undesignated wetlands west of the main area of wetlands, work proposed in the water body or in*

the 65-foot setback around it shall require an individual permit. No fill shall be allowed under the GPs in the 3.5-acre site west of the main area of wetlands from April through July if there is evidence of active nesting by waterfowl."

There may be additional changes once public testimony is concluded.

Concurred by:

Larry D. Crawford
Municipal Manager

Prepared by:

Michael J. Meehan, Director
Community Planning & Development

Respectfully submitted:

Rick Mystrom
Mayor

MUNICIPALITY OF ANCHORAGE

ASSEMBLY MEMORANDUM

No. AM 775-95

Meeting Date: July 25, 1995

From: Mayor

Subject: Anchorage Wetlands Management Plan

The Assembly is currently holding a Public Hearing for the Anchorage Wetlands Management Plan 10-year revision. The Administration has addressed this revision in Assembly Memorandum 528-95 and herein offers additional language to be incorporated into the new proposed Plan. Both of the following sections should be added to the final version of the proposed Plan as preface items to be placed before the Table of Contents.

A. Preface to the Anchorage Wetlands Management Plan

The 1982 Anchorage Wetlands Management Plan is amended to continue to serve several important functions for the Municipality. This proposed Plan:

1. Provides an inventory and analysis of wetlands within the Municipality as required by the Alaska Coastal Management Program per Alaska Statutes AAC 85.040.100.

2. Acts as a vehicle for regulatory body consensus on allowable wetland activities, since the Corps is required to consider comments from numerous State and Federal agencies when considering a fill or dredging permit in wetlands. This consensus helps expedite and facilitate the permit process in all wetlands designations.

3. Specifies the conditions set out by the Corps under which the Municipality can authorize discharges under the new General Permits. Use of the General Permits significantly reduces the time and expense needed to obtain project approvals. However, if a project sponsor does not wish to pursue permitting via the General Permits, he/she may seek an Individual 404 Permit through the Corps of Engineers.

4. Brings the Municipality into consistency with the State's Coastal Zone Management Program and avoids problems associated with wetland actions located within Coastal Zone Management areas that would otherwise arise. Without Municipal adoption of the proposed Plan, the Federal agencies would

follow the same Enforceable Policies as proposed in the new Plan but the State would be required to adhere to the original 1982 Plan. Permit decisions would take longer and otherwise predictable development would be jeopardized.

Equally important are several things the proposed Plan does not do:

1. It **does not** prevent a property owner from developing, or attempting to develop, in "A" sites. In no case does the Plan identify private property where all potential development is prohibited.

2. It **does not force** a property owner to comply by the proposed Enforceable Policies in order to develop a wetland area. If the property owner does not agree with these Enforceable Policies, he or she may still petition the Corps and apply for an Individual Permit that modifies the Enforceable Policies.

3. It **does not** preclude the Municipality from amending the Plan in the event that Federal Wetlands Regulations are changed or modified through Congressional action.

B. Letter of Transmittal to the Residents of Anchorage

The following is the second section that would appear as a letter from the Mayor in front of the final document.

> Date
>
> To the Residents of Anchorage:
>
> This 10-Year Revision of the Anchorage Wetlands Management Plan is based on current Federal Clean Water Act regulations. It has been crafted over a two-year period of public hearings and negotiations with federal and State regulatory agencies. It represents the Municipality's efforts to expedite and facilitate wetlands permitting. This Plan is to be used as a guideline for the issuance of both Individual and General Permits. Property owners are not precluded by this Plan from applying for an Individual 404 Permit from the Corps if they do not agree with the conditions of development outlined herein. Although I would prefer more local flexibility and

less restriction on the use of wetland properties within Anchorage, I understand that until Federal law is changed, the Municipality's local wetland planning effort is governed by existing regulations and permit conditions.

If the Clean Water Act's wetland sections are changed, the Administration will direct the Department of Community Planning and Development to revise the Plan and request that the Assembly adopt the appropriate changes.

Sincerely,

Rick Mystrom
Mayor

Concurred by:

Larry D. Crawford
Municipal Manager

Prepared by:

Michael J. Meehan, Director
Community Planning & Development

Respectfully submitted:

Rick Mystrom
Mayor

APPENDIX B

Anchorage Wetlands Assessment Method

ANCHORAGE WETLANDS ASSESSMENT METHOD

Data Sheets

Date of Field Work _____ Investigators: _____

_____

A. WETLAND NAME AND/OR NUMBER: _____

B. MAP # _____

C. DESIGNATION IN AWMP _____

(If not designated in the AWMP, check here _____)

D. MUNICIPALITY SUB-REGION, GEOZONE _____

E. LEGAL DESCRIPTION

Section _____ Township _____ Range _____ Quarter _____

Subdivision _____ Lot _____ Block _____

F. GENERAL LOCATION AND DESCRIPTION OF WETLAND BOUNDARY

G. MAP AND AIR PHOTO REFERENCES

1. USGS 1:63,360 Map # _____
2. National Wetlands Inventory Map # _____
3. Aerial Photos:
   a. Date most recent photo taken _____
   b. Scale _____
   c. Flight Line # _____

H. WETLAND SIZE

Total Wetland Size: _____ Acres

SECTION 1. HYDROLOGICAL COMPONENT

FLOW STABILIZATION

1.1 TYPE OF STORMWATER THAT WETLANDS DETAINS (Check one)

(10) _____ Man-induced and natural (ambient) storm flows
(5) _____ Man-induced stormwater flows only
(2) _____ Natural (ambient) stormwater flow
(1) _____ Minimal stormwater detention

1.2 POSITION OF WETLANDS WITHIN WATERSHED (State Park or National Forest boundary as upper limit)

(10) _____ In upper third of watershed
(5) _____ In middle third of watershed
(2) _____ In lower third of watershed

1.3 LAND USE ALONG WATERWAY OR WETLANDS FOR .5 MILES BELOW WETLAND (Check one)

(10) _____ Developed residential/commercial/industrial area located within .5 miles of outflow
(5) _____ Lands below outflow are undeveloped and/or outflow enters lake, stream or wetland
(2) _____ Developed residential/commercial/industrial area located >.5 miles downstream of outflow

SIZE

1.4 SIZE EVALUATION

Wetland Size (Acres)	Total Points	Wetland Size (Acres)	Total Points
< 1	1	44 - 53	10
1 - 4	2	54 - 64	12
5 - 8	3	65 - 77	14
9 - 12	4	78 - 92	16
13 - 17	5	93 - 110	18
18 - 22	6	111 - 128	20
23 - 28	7	129 - 160	22
29 - 35	8	161 - 200	24
36 - 43	9	> 200	25

Points: _____ (maximum = 25 points)

FLOW RETENTION/FLOOD CONTROL

1.5 SIZE OF CATCHMENT BASIN _____ acres

Wetlands area as a % of catchment basin size _____%

Catchment Basin Evaluation Points Table

Basin Size (acres)	Wetland Area as % of Basin Size								
	<3	3-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80+
<1	1	1	3	5	7	9	11	13	15
1 - 3	2	4	6	8	10	12	14	16	18
4 - 9	4	6	8	10	12	14	16	18	20
10 - 27	6	8	10	12	14	16	18	20	22
28 - 81	9	11	13	15	18	21	23	25	25
82 - 243	12	15	18	21	24	25	25	25	25
244 - 729	15	19	23	25	25	25	25	25	25
730 - 2,100	18	22	25	25	25	25	25	25	25
2,101 - 6,500+	22	25	25	25	25	25	25	25	25

Points for Flow Augmentation: _____ (maximum = 25 points)

1.6 SUBJECT WETLANDS AS A PERCENTAGE OF TOTAL WETLANDS ACREAGE IN CATCHMENT BASIN

(2) _____ 0-20%
(5) _____ 21-40%
(10) _____ 41-60%
(15) _____ 61-80%
(20) _____ 81-100%

WATER QUALITY

1.7 SITE TYPE (Check dominant site)

(1) _____ Palustrine (isolated)
(5) _____ Palustrine (with permanent or ephemeral flow)
(7) _____ Riverine
(10) _____ Riverine (at river mouth)
(8) _____ Lacustrine (exposed to lake)

1.8 SENSITIVE AREAS BELOW SUBJECT WETLANDS (Identify types of areas/uses downstream of outlet or downgradient of groundwater outflow that are positively influenced by subject wetlands.)

Check all that apply.

_____ Fish spawning and rearing habitat
_____ Sport fishing area
_____ Potable water sources
_____ Contact water recreation area
_____ Waterbird nesting habitat (high numbers and diversity of nesting species)

2 points each (maximum = 10 points)

1.9 ACTUAL WETLANDS AREA DOMINATED BY ROBUST EMERGENTS AND SUBMERGENTS (Check one)

(1) _____ < 5% coverage
(2) _____ 5-10% cov
(3) _____ 10-20% coverage
(6) _____ 20-40% coverage
(10) _____ 40-60% coverage
(15) _____ >60% coverage

1.10 GENERALIZED LAND USE IN CATCHMENT BASIN (Check one)

(1) _____ Mainly parks and open space
(3) _____ Mixture of parks/open space and residential
(5) _____ Mainly residential
(7) _____ Mixture of residential and commercial
(9) _____ Mainly commercial
(11) _____ Mixture of commercial and industrial
(15) _____ Mainly industrial

1.11 LONG-TERM NUTRIENT TRAP (Check one)

(10) _____ Wetland with organic soils on 50%+ of area
(5) _____ Wetland with organic soils on < 50% of area, mineral soils or very shallow peat

1.12 WATER QUALITY MAINTENANCE (Check one)

(20) _____ Inflow to wetlands is of poor quality (e.g., storm drains, snow disposal, industrial runoff) and detention time is several days and storage capacity is high. Wetlands is obvious filter and/or is a nutrient sink
(12) _____ Inflow is from stream flows or from storm event overflow and detention time is moderate. Area has moderate storage capacity and moderate nutrient uptake
(8) _____ Inflow is from stream flows or storm events but is from relatively undisturbed or undeveloped areas and detention time and storage capacity are moderate
(2) _____ Essentially no inflow and/or very short detention time and low storage capacity

EROSION CONTROL

1.13 EROSION BUFFER (Lacustrine/Riverine only)

Riverine Wetlands (shoreland and floodplain) (check principal vegetation form)

(10) _____ Trees or shrubs
(5) _____ Emergents, submergents
(1) _____ Sparsely vegetated

Lacustrine Wetlands (including floodplain)

(10) _____ Trees or shrubs
(8) _____ Emergents
(4) _____ Submergents or floating
(1) _____ Sparsely vegetated

TOTAL FOR HYDROLOGIC COMPONENT: _____
(Maximum = 200 points)

SECTION 2. HABITAT COMPONENT

HABITAT STRUCTURE AND FUNCTION

2.1 VEGETATION COMMUNITY STRUCTURE (see Figs., this Appendix.) Identify forms for each community type in subject wetland. Particular form must cover at least 5 percent of site. (Maximum points = 25)

Example: Subject wetlands has 4 communities. Within each community, identify each (and all) form(s) and fill in appropriate lines below:

A. One Form (1 point per community)

Community # List Form

_____ _____
_____ _____
_____ _____

B. Two Forms (2 points per community)

Community # List Forms

_____ _____ _____
_____ _____ _____
_____ _____ _____

C. Three Forms (3 points per community)

Community # List Forms

_____ _____ _____ _____
_____ _____ _____ _____
_____ _____ _____ _____

D. Four Forms (4 points per community)

Community # List Forms

_____ _____ _____ _____ _____
_____ _____ _____ _____ _____
_____ _____ _____ _____ _____

E. Five Forms (5 points per community)

Community # List Forms

_____ _____ _____ _____ _____ _____
_____ _____ _____ _____ _____ _____
_____ _____ _____ _____ _____ _____

F. Six or More Forms (6 points per community)

Community # List Forms

_____ _____ _____ _____ _____ _____ _____
_____ _____ _____ _____ _____ _____ _____
_____ _____ _____ _____ _____ _____ _____

SPATIAL ATTRIBUTES

2.2 NUMBER OF WETLANDS PLANT COMMUNITIES (From Hogan and Tande, 1983, see Plant Communities list, this Appendix.) (Count only numbered plant communities.)

(5) _____ > 7 List Communities:
(4) _____ 5 - 7
(3) _____ 2 - 4
(1) _____ 1

2.3 INTRASPERSION/EDGE EFFECT OF COMMUNITY TYPES (See Figures, this Appendix.) (Find pattern which most closely resembles subject wetlands)

(1) _____ Type 1
(2) _____ Type 2
(3) _____ Type 3
(4) _____ Type 4

2.4 DIVERSITY OF SURROUNDING HABITAT (Check all that apply) (Within .25 mile of wetlands edge = Migratory Corridors) (maximum = 12 points)

(1) _____ Pasture, open fields, nursery or sod farm
(2) _____ Mixed deciduous/coniferous forest
(1) _____ Urban residential development
(3) _____ Open lake
(2) _____ Undulating, undeveloped terrain and/or wooded ravines
(3) _____ Creeks, drainageways or ephemeral streams

2.5 PROXIMITY TO OTHER WETLANDS HABITATS

(10) _____ Hydrologically connected by surface flow to other wetlands (different type) within .25 mile

(8) _____ Hydrologically connected by surface flow to other wetlands (different type) from .25 to .5 miles away

(6) _____ Hydrologically connected by surface flow to other wetlands (same type) or open water within .25 mile

(5) _____ Hydrologically connected by surface flow to other wetlands (same type) or open water from .25 to .5 mile away

(4) _____ Within .5 mile of other wetlands (different type) or open water, but not hydrologically connected by surface flow

(2) _____ Within .5 mile of other wetlands (same type) but not hydrologically connected by surface flow

(0) _____ No wetland within .5 mile

2.6 OPEN WATER TYPES (See Figures; this Appendix.) (Find pattern which most closely resembles subject wetlands.)

(0) _____ No open water
(4) _____ Type 1
(5) _____ Type 2
(7) _____ Type 3
(9) _____ Type 4
(12) _____ Type 5
(4) _____ Type 6
(7) _____ Type 7
(3) _____ Type 8

WETLAND PRODUCTIVITY

2.7 HARDINESS ZONE (See Appendix B.) (Extrapolate for outlying areas.)

(5) _____ Zone 5-6
(3) _____ Zone 4
(2) _____ Type 3
(1) _____ Type 2

2.8 SOILS TYPE (In upper 3 feet, from SCS, or other soils survey)_____

	% of Area		
Mineral	_____	X 5	_____
Organic	_____	X 2	_____
Clays	_____	X 1	_____

2.9 TYPE OF WETLAND (smallest unit = 4,000 sq ft)

Approximate Area (acres)		% of Total		
_____	Palustrine (isolated)	_____	X 2 =	_____
_____	Palustrine (with outflow)	_____	X 3 =	_____
_____	Riverine	_____	X 4=	_____
_____	Riverine (at mouth)	_____	X 5 =	_____
_____	Lacustrine (next to lake)	_____	X 4 =	_____
_____	Lacustrine (open water)	_____	X 2 =	_____

Total Points = _____

2.10 NUTRIENT STATUS OF SURFACE WATER

A. Write conductivity reading and calculate Total Dissolved Solids (TDS) @ 25°C per tables in Appendix C. Readings to be taken at all outflows of subject wetlands.

Location Sampled	Initial Specific Conductants	Temperature	TDS mg/l
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Average TDS: _____

B. Check category from A

Average TDS, mg/l

(2)	_____	< 100
(6)	_____	100 - 300
(3)	_____	301 - 500
(2)	_____	> 500Type 2

WATER REGIME

2.11 SURFACE WATER PERSISTENCE (% probability of surface water present during the period April to July)

(2) _____ 0 to 50% of April-July
(6) _____ 50 to <100% of April-July
(10) _____ 100% of April-July

2.12 WATER BODY SIZE (Estimate size of smallest open water body during period April-July)

(2) _____ 400 sq ft or less
(5) _____ 400 sq ft to .5 acre
(10) _____ .5 acre to 4 acres
(15) _____ > 4 acres

2.13 WETLAND CONTIGUITY WITH STREAM OR LAKE

(0) _____ Wetland isolated from stream/lake
(3) _____ Wetland drains/is connected to stream/lake
(5) _____ Stream or lake lies within wetland

2.14 WETLAND SIZE

*Add points from 2.1 to 2.13

Size (Habitat Component) Evaluation Table

Acres	Sum of Habitat Component Points*						
	< 15	15 - 30	31 - 45	46 - 60	61 - 75	76 - 90	> 90
< 2	4	6	7	8	9	10	11
2 - 4	4	6	8	9	10	11	14
5 - 8	5	7	9	11	13	15	18
9 - 12	5	8	10	12	14	17	20
13 - 17	6	9	11	14	16	19	24
18 - 23	6	11	14	16	18	22	29
24 - 28	7	11	14	18	20	27	35
29 - 37	7	12	16	21	25	32	39
38 - 49	7	13	18	23	27	34	44
50 - 62	8	15	20	26	31	38	48
63 - 81	8	17	23	32	36	43	53
82 - 105	9	18	26	34	38	47	57
106 - 137	9	19	29	36	42	52	62
138 - 178	10	20	32	39	45	57	67
179 - 233	10	22	36	43	48	62	72
234 - 302	10	24	39	48	52	68	78
303 - 400	11	26	43	53	56	73	80
> 400	11	30	46	58	63	78	80

Total Points: _____ (maximum = 80)

TOTAL FOR HABITAT POTENTIAL COMPONENT: _____ (Maximum = 200 points)

SECTION 3. SPECIES OCCURRENCE COMPONENT

Note: Answers to all sections marked with an * should be listed on the final page score sheet.

RARITY AND/OR SCARCITY

3.1* HABITAT FOR PLANT SPECIES OF STATEWIDE SIGNIFICANCE (See this Appendix.) (Species listed as threatened/endangered in Alaska; or known from a very few sites statewide)

Name of Species: _____ (1 species = 10 points)
_____ (2 species = 15 points)
_____ (3+ species = 25 points)
_____ (0 species = 0 points)

3.2* BREEDING, FEEDING, SPAWNING, OR REARING HABITAT FOR BIRD OR ANADROMOUS FISH SPECIES SIGNIFICANT TO THE MUNICIPALITY OF ANCHORAGE (Existing or historic within past 5 years) (See this Appendix.)

Name of Species: _____ (1 species = 5 points)
_____ (2 species = 8 points)
_____ (3+ species = 15 points)
_____ (0 species = 0 points)

3.3* HABITAT FOR PLANT SPECIES RARE OR UNIQUE IN THE MUNICIPALITY OF ANCHORAGE (See this Appendix)

Name of Species: _____ (1 species = 4 points)
_____ (2 species = 7 points)
_____ (3 species = 12 points)

3.4 SCARCITY VALUE (Subject wetlands type as % of total type in catchment basin; calculate % for all types in subject area.)

Wetland Type in Acres (A)	Total Acreage of Type in Basin (B)	A/B as %	A/B (%) X 10

Total Points: _____ (maximum = 16 points)

SIGNIFICANT FEATURES

3.5 NESTING OF COLONIAL WATERBIRDS (Red-necked Grebe, Canada Goose, Glaucous-Winged/Herring Gull, Mew Gull, Bonaparte's Gull)

(12)* _____ Currently nesting; name species
(9) _____ Known to have nested in past 5 years; name species
(6) _____ Active feeding area in nesting season
(3) _____ Staging area for colonial waterbirds
(0) _____ None known

3.6 WATERFOWL STAGING (Check highest level)

(15)* _____ High importance within Municipality; supports high numbers of several species
(10) _____ Moderate importance
(5) _____ Very local importance
(0) _____ Not used for staging

3.7 WATERBIRD PRODUCTION (Check highest level)

(15)* _____ High importance; produces several broods of several species
(10) _____ Moderate importance
(5) _____ Minimal or no significance

3.8 BREEDING BIRD DIVERSITY

(25)*	_____	Nesting occurs for >8 obligate wetlands species, and/or (circle one) >15 total species
(15)	_____	Nesting occurs for 4 to 8 obligate wetlands species, and/or (circle one) 8-15 total species
(5)	_____	Nesting occurs for <4 obligate wetlands species, and/or (circle 1) <8 total species

3.9 MIGRATORY BIRD STAGING AREA (Non-waterfowl species)

(15)*	_____	High significance (annual use by >25 species)
(5)	_____	Moderate significance (can occasionally be significant; annual use by 10-25 species)
(1)	_____	No significance (annual use by <10 species)

3.10 SIGNIFICANCE FOR FISH SPAWNING (Number of species that spawn in immediately adjacent waterbody)

(25)*	_____	5+ species
(15)	_____	2-4 species
(5)	_____	1 species
(0)	_____	No species

3.11 SIGNIFICANCE FOR FISH REARING (Number of fish species that use wetlands or immediately adjacent waterbody for rearing)

(25)*	_____	5+ species
(15)	_____	2-4 species
(5)	_____	1 species
(0)	_____	No species

TOTAL FOR SPECIES OCCURRENCE COMPONENT:_____
(Maximum = 200 points)

SECTION 4. SOCIAL FUNCTION COMPONENT

EXISTING RECREATIONAL ACTIVITIES

4.1 TYPE OF WETLAND-ASSOCIATED USE

Use Intensity (see definitions below)	Hunting	Passive Recreation	Fishing	Boating	Other
High (10 points)					
Moderate (5 points)					
Low (2 points)					
None Known/Not Possible (0 points)					

Use Intensities:

High	Used in several seasons by numerous individuals and/or groups
Moderate	Used in one to two seasons by a few individuals (from local area) and/or by a single group
Low	Used irregularly by a very few individuals

Points: _____ (maximum = 50 points)

4.2 EDUCATIONAL USE (Known or potential)

(15) _____ Frequent: Used 5+ times per year by schools, clubs or tour groups
(8) _____ Occasional: Used 2-5 times per year
(4) _____ Infrequent: Used by organized groups once/year
(2) _____ No known educational use but in close proximity to schools
(0) _____ No known or potential use

List groups utilizing the wetlands: _____
_____
_____
_____

4.3 FACILITIES AND PROGRAMS

(5) _____ Area has interpretive trail or other educational function
(0) _____ No facilities or programs

WETLANDS RECREATION POTENTIAL

4.4 LANDSCAPE DISTINCTNESS (Identify subject wetland's relative position and value to viewshed from all perspectives.)

(15) _____ Clearly distinct in urban area
(8) _____ Distinct in rural area
(0) _____ Indistinct

4.5 TYPES OF DISTURBANCE (Check all that apply and total.)

_____ Roads/trails
_____ Buried utility corridor
_____ Surface utility corridor
_____ Channelization
_____ Drainage
_____ Filling
_____ Water pollution
_____ Clearing/grubbing
_____ ORV use

Add and subtract from total points (either 0 or a minus number)

4.6 DEGREE OF DISTURBANCE/AESTHETIC VALUES

(15) _____ Human disturbance absent or nearly so
(10) _____ One or several single, or local disturbances
(6) _____ Moderate disturbance or local water pollution
(2) _____ Impaired natural quality is intense in some areas or severe local water pollution
(0) _____ Extremely intense disturbance or widespread, severe water pollution

4.7 PUBLIC USE/OPEN SPACE VALUE (Deficiency is based on Municipal park plans)

(15) _____ Wetland is within 1 mile of area known to be relatively deficient in parkland/open space or provides direct access to adjacent public lands
(8) _____ Wetland is within 1 to 2.5 miles of an area known to be deficient in parkland or could (but does not) provide access to adjacent public lands
(0) _____ Wetland is >2.5 miles away from area known to be deficient in parkland and does not provide access to public lands

4.8 LAND IDENTIFICATION AS PARKLAND (Specific to Municipality of Anchorage)

(10) _____ Wetlands identified as dedicated parkland in Municipal document
(5) _____ Wetlands identified as potential future park, open space or trail in Parks/Trails plan
(2) _____ Wetlands is identified Municipal selection from State or is in Heritage Land Bank and of little commercial value
(0) _____ Not applicable

4.9 RESEARCH AND STUDIES

(5) _____ One or more wetland-related paper published
(2) _____ One or more reports written about some aspect of the wetlands
(0) _____ No reports or papers

List reports or papers _____

_____

_____

_____

4.10 OWNERSHIP/ACCESSIBILITY (Estimate % of area, enter in the space, and multiply by points values (in brackets). Round off figures to nearest whole number and total points.)

	Ownership				
	Public/ Unrestricted	**Public/ Restricted**	**Private/Open to Public**	**Private/Closed to Public**	**Private/ Posted**
Easy by Road, Water or Trail	_____ (20)	_____ (15)	_____ (8)	_____ (3)	_____ (2)
Easy Only at Certain Times	_____ (15)	_____ (8)	_____ (4)	_____ (3)	_____ (2)
Limited, With Some Effort	_____ (8)	_____ (7)	_____ (4)	_____ (3)	_____ (2)
Difficult	_____ (7)	_____ (6)	_____ (3)	_____ (2)	_____ (0)

Total Points: _____

TOTAL FOR SOCIAL FUNCTION COMPONENT: _____
(Maximum = 150 points)

POINTS TOTALS:

SECTION 1. HYDROLOGIC COMPONENT _____

SECTION 2. HABITAT COMPONENT _____

SECTION 3. SPECIES OCCURRENCE COMPONENT _____

SECTION 4. SOCIAL FUNCTION COMPONENT _____

List all significant features marked with an * in Sections 3.1 - 3.11

MANAGEMENT RECOMMENDATIONS:

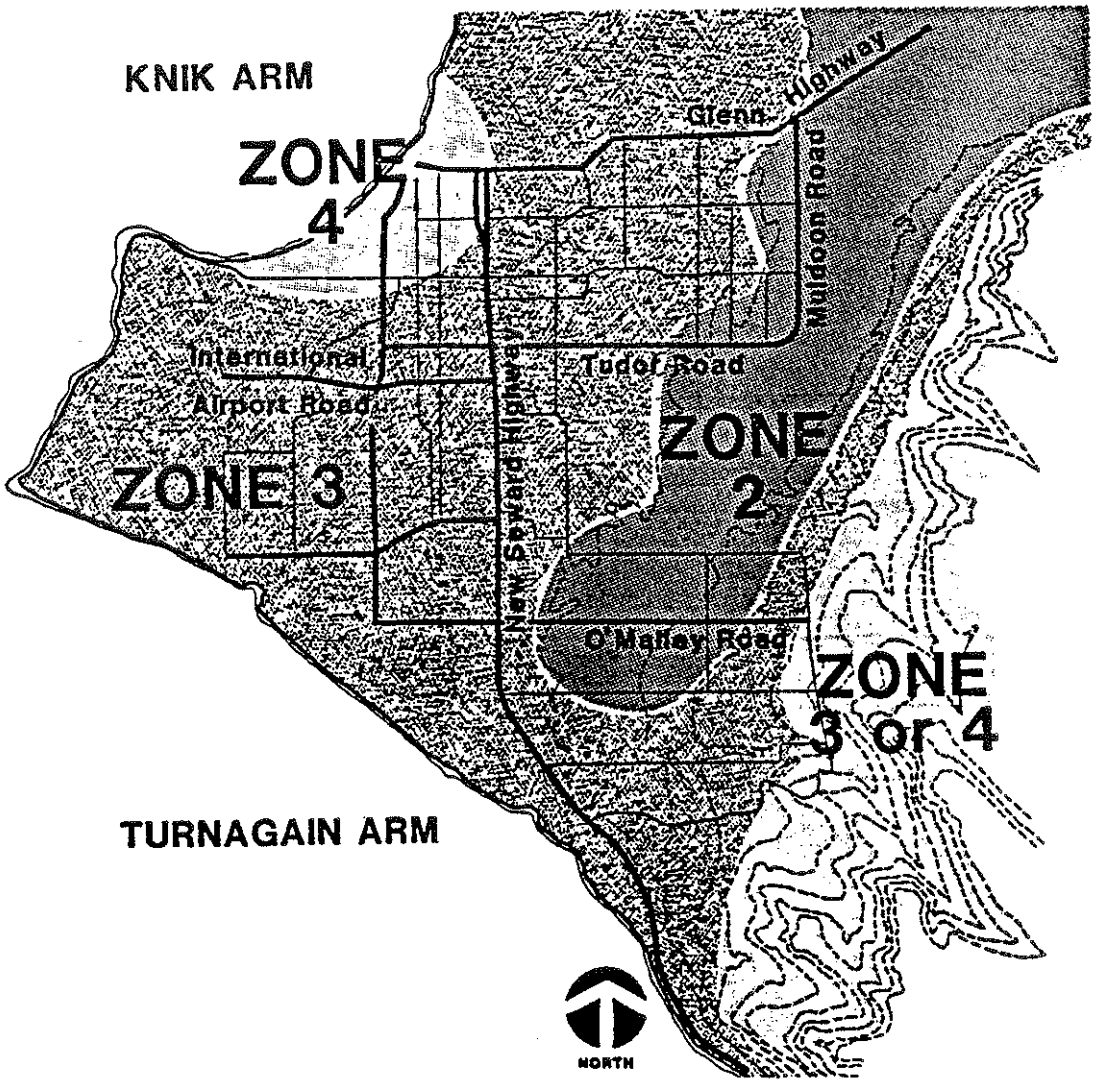
MISCELLANEOUS COMMENTS/EXISTING CONDITIONS:

SKETCH MAP OF AREA AND IMPORTANT FEATURES (on back of sheet, if appropriate):

APPENDIX C

Anchorage Bowl Hardiness Zone Map

Anchorage Bowl Hardiness Zone Map



ZONE 2 Cold-Air Basin

A cold-air basin is formed at the base of the Chugach Mountains from the downhill flow of cold air, and intensified by channelled winter winds from the North.
Zone 2 is classified with -50 to -35 degrees minimum annual temperature.*

ZONE 3 Predominant Climate

Zone 3 is the predominant and average climate for the Anchorage Bowl. This area is classified with -35 to -20 degrees minimum annual temperature.

ZONE 4 Milder Pockets

Two micro-climates exhibit Zone 4 temperatures: a coastal pocket near the Knik Arm with milder winters, cooler summers, and a longer growing season; and a hillside thermal belt above the cold-air basin with milder winters, but a significantly shorter growing season.
Zone 4 is classified with -20 to -10 degrees minimum annual temperature.*

* Based on the hardiness zones for North America developed by the Arnold Arboretum in Boston.

APPENDIX D

Conductivity – TDS Conversion Chart

CELL TEMPERATURE °C

INITIAL SPECIFIC CONDUCTANCE umhos/cm

	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
15.0	17.2	16.6	16.1	15.6	15.1	14.7	14.3	13.9	13.5	13.1	12.8	12.5	12.2	11.9	11.6	11.4	11.1	10.9	10.6	10.4	10.2	10.0	9.8	9.6	9.4	9.3	9.1	15.0
15.5	17.8	17.2	16.8	16.1	15.6	15.2	14.7	14.3	13.9	13.6	13.2	12.9	12.6	12.3	12.0	11.7	11.5	11.2	11.0	10.8	10.5	10.3	10.1	9.9	9.7	9.6	9.4	15.5
16.0	18.4	17.8	17.2	16.6	16.1	15.7	15.2	14.8	14.4	14.0	13.7	13.3	13.0	12.7	12.4	12.1	11.8	11.6	11.3	11.1	10.9	10.7	10.4	10.2	10.1	9.9	9.7	16.0
16.5	18.9	18.3	17.7	17.2	16.6	16.2	15.7	15.3	14.8	14.5	14.1	13.7	13.4	13.1	12.8	12.5	12.2	11.9	11.7	11.4	11.2	11.0	10.8	10.6	10.4	10.2	10.0	16.5
17.0	19.5	18.9	18.3	17.7	17.2	16.8	16.2	15.7	15.3	14.9	14.5	14.2	13.8	13.5	13.2	12.9	12.6	12.3	12.0	11.8	11.6	11.3	11.1	10.9	10.7	10.5	10.3	17.0
17.5	20.1	19.4	18.8	18.2	17.7	17.1	16.6	16.2	15.7	15.3	14.9	14.6	14.2	13.9	13.6	13.2	12.9	12.7	12.4	12.1	11.9	11.7	11.4	11.2	11.0	10.8	10.6	17.5
18.0	20.7	20.0	19.3	18.7	18.2	17.6	17.1	16.6	16.2	15.8	15.4	15.0	14.6	14.3	13.9	13.6	13.3	13.0	12.8	12.5	12.2	12.0	11.8	11.5	11.3	11.1	10.9	18.0
18.5	21.2	20.5	19.9	19.3	18.7	18.1	17.6	17.1	16.6	16.2	15.8	15.4	15.0	14.7	14.3	14.0	13.7	13.4	13.1	12.8	12.6	12.3	12.1	11.8	11.6	11.4	11.2	18.5
19.0	21.8	21.1	20.4	19.8	19.2	18.6	18.1	17.6	17.1	16.6	16.2	15.8	15.4	15.1	14.7	14.4	14.1	13.8	13.5	13.2	12.9	12.7	12.4	12.2	11.9	11.7	11.5	19.0
19.5	22.4	21.6	20.9	20.3	19.7	19.1	18.6	18.0	17.5	17.1	16.6	16.2	15.8	15.5	15.1	14.8	14.4	14.1	13.8	13.5	13.3	13.0	12.7	12.5	12.3	12.0	11.8	19.5
20.0	23.0	22.2	21.5	20.8	20.2	19.6	19.0	18.5	18.0	17.5	17.1	16.6	16.2	15.9	15.5	15.1	14.8	14.5	14.2	13.9	13.6	13.3	13.1	12.8	12.6	12.3	12.1	20.0
22.5	25.8	25.0	24.2	23.4	22.7	22.0	21.4	20.8	20.2	19.7	19.2	18.7	18.3	17.8	17.4	17.0	16.6	16.3	15.9	15.6	15.3	15.0	14.7	14.4	14.1	13.9	13.6	22.5
25.0	28.7	27.7	26.9	26.0	25.2	24.5	23.8	23.1	22.5	21.9	21.3	20.8	20.3	19.8	19.4	18.9	18.5	18.1	17.7	17.3	17.0	16.6	16.3	16.0	15.7	15.4	15.1	25.0
27.5	31.6	30.5	29.5	28.6	27.7	26.9	26.2	25.4	24.7	24.1	23.5	22.9	22.3	21.8	21.3	20.8	20.3	19.9	19.5	19.1	18.7	18.3	18.0	17.6	17.3	17.0	16.6	27.5
30.0	34.4	33.3	32.2	31.2	30.3	29.4	28.5	27.7	27.0	26.3	25.6	25.0	24.4	23.8	23.2	22.7	22.2	21.7	21.3	20.8	20.4	20.0	19.6	19.2	18.8	18.5	18.2	30.0
32.5	37.3	36.1	34.9	33.8	32.8	31.8	30.9	30.1	29.2	28.5	27.7	27.1	26.4	25.8	25.2	24.6	24.0	23.5	23.0	22.5	22.1	21.6	21.2	20.8	20.4	20.0	19.7	32.5
35.0	40.2	38.8	37.6	36.4	35.3	34.3	33.3	32.4	31.5	30.7	29.9	29.1	28.4	27.7	27.1	26.5	25.9	25.3	24.8	24.3	23.8	23.3	22.9	22.4	22.0	21.6	21.2	35.0
37.5	43.1	41.6	40.3	39.0	37.8	36.7	35.7	34.7	33.7	32.9	32.0	31.2	30.5	29.7	29.0	28.4	27.7	27.1	26.6	26.0	25.5	25.0	24.5	24.0	23.6	23.1	22.7	37.5
40.0	45.9	44.4	43.0	41.6	40.4	39.2	38.1	37.0	36.0	35.1	34.2	33.3	32.5	31.7	31.0	30.3	29.6	29.0	28.3	27.7	27.2	26.6	26.1	25.6	25.1	24.7	24.2	40.0
42.5	48.8	47.2	45.7	44.2	42.9	41.6	40.4	39.3	38.2	37.2	36.3	35.4	34.5	33.7	32.9	32.2	31.4	30.8	30.1	29.5	28.9	28.3	27.8	27.2	26.7	26.2	25.7	42.5
45.0	51.7	49.9	48.3	46.8	45.4	44.1	42.8	41.6	40.5	39.4	38.4	37.5	36.5	35.7	34.8	34.1	33.3	32.6	31.9	31.2	30.6	30.0	29.4	28.8	28.3	27.8	27.2	45.0
47.5	54.5	52.7	51.0	49.4	47.9	46.5	45.2	43.9	42.7	41.6	40.6	39.5	38.6	37.7	36.8	35.9	35.1	34.4	33.7	33.0	32.3	31.6	31.0	30.4	29.8	29.3	28.8	47.5
50.0	57.4	55.5	53.7	52.0	50.5	49.0	47.6	46.2	45.0	43.8	42.7	41.6	40.6	39.6	38.7	37.8	37.0	36.2	35.4	34.7	34.0	33.3	32.6	32.0	31.4	30.8	30.3	50.0
55.0	63.2	61.0	59.1	57.2	55.5	53.9	52.3	50.9	49.5	48.2	47.0	45.8	44.7	43.6	42.6	41.6	40.7	39.8	39.0	38.2	37.4	36.6	35.9	35.2	34.6	33.9	33.3	55.0
60.0	68.8	66.6	64.5	62.4	60.5	58.8	57.1	55.5	54.0	52.6	51.2	49.9	48.7	47.6	46.5	45.4	44.4	43.4	42.5	41.6	40.8	40.0	39.2	38.4	37.7	37.0	36.3	60.0
65.0	74.6	72.1	69.8	67.6	65.6	63.7	61.8	60.1	58.5	57.0	55.5	54.1	52.8	51.5	50.3	49.2	48.1	47.1	46.1	45.1	44.2	43.3	42.4	41.6	40.8	40.1	39.4	65.0
70.0	80.4	77.7	75.2	72.8	70.6	68.6	66.6	64.7	63.0	61.3	59.8	58.3	56.9	55.5	54.2	53.0	51.8	50.7	49.6	48.6	47.6	46.6	45.7	44.8	44.0	43.2	42.4	70.0
75.0	86.1	83.2	80.6	78.0	75.7	73.5	71.4	69.4	67.5	65.7	64.0	62.4	60.9	59.5	58.1	56.8	55.5	54.3	53.1	52.0	51.0	49.9	49.0	48.0	47.1	46.3	45.4	75.0
80.0	91.9	88.8	85.9	83.2	80.7	78.4	76.1	74.0	72.0	70.1	68.3	66.6	65.0	63.4	62.0	60.5	59.2	57.9	56.7	55.5	54.5	53.3	52.2	51.2	50.3	49.3	48.4	80.0
85.0	97.6	94.3	91.3	88.5	85.8	83.2	80.9	78.6	76.5	74.5	72.6	70.8	69.0	67.4	65.8	64.3	62.9	61.5	60.2	59.0	57.8	56.6	55.5	54.4	53.4	52.4	51.5	85.0
90.0	103.3	99.9	96.7	93.7	90.8	88.1	85.6	83.2	81.0	78.9	76.8	74.9	73.1	71.4	69.7	68.1	66.6	65.2	63.8	62.4	61.2	59.9	58.8	57.6	56.5	55.5	54.5	90.0
95.0	109.1	105.4	102.0	98.9	95.9	93.0	90.4	87.9	85.5	83.2	81.1	79.1	77.2	75.3	73.6	71.9	70.3	68.8	67.3	65.9	64.6	63.3	62.0	60.8	59.7	58.6	57.5	95.0
100.0	114.8	111.0	107.4	104.1	100.9	97.9	95.1	92.5	90.0	87.6	85.4	83.2	81.2	79.3	77.4	75.7	74.0	72.4	70.9	69.4	68.0	66.6	65.3	64.0	62.8	61.7	60.5	100.0
125.0	143.5	138.7	134.3	130.1	126.1	122.4	118.9	115.8	112.5	109.5	106.7	104.1	101.5	99.1	96.8	94.6	92.5	90.5	88.6	86.7	84.9	83.2	81.6	80.0	78.5	77.1	75.7	125.0
150.0	172.2	166.5	161.1	156.1	151.4	146.9	142.7	138.7	135.0	131.4	128.1	124.9	121.8	118.9	116.2	113.5	111.0	108.6	106.3	104.1	101.9	99.9	97.8	96.1	94.2	92.5	90.8	150.0
175.0	200.9	194.2	188.0	182.1	176.6	171.4	166.5	161.9	157.5	153.4	149.4	145.7	142.1	138.7	135.5	132.4	129.5	126.7	124.0	121.4	118.9	116.5	114.3	112.1	110.0	107.9	106.0	175.0
200.0	229.7	222.0	214.8	208.1	201.8	195.9	190.3	185.0	180.0	175.3	170.8	166.5	162.4	158.6	154.9	151.4	148.0	144.8	141.7	138.7	135.9	133.2	130.6	128.1	125.7	123.3	121.1	200.0
225.0	258.4	249.7	241.7	234.1	227.0	220.4	214.1	208.1	202.5	197.2	192.1	187.3	182.7	178.4	174.2	170.3	166.5	162.9	159.4	156.1	152.9	149.8	146.8	144.1	141.4	138.8	136.2	225.0
250.0	287.1	277.5	268.5	260.2	252.3	244.9	237.8	231.2	225.0	219.1	213.5	208.1	203.0	198.2	193.6	189.2	185.0	181.0	177.1	173.4	169.9	166.5	163.2	160.1	157.1	154.2	151.4	250.0
275.0	315.8	305.2	295.4	286.2	277.5	269.3	261.6	254.4	247.5	241.0	234.8	228.9	223.4	218.0	213.0	208.1	203.5	199.1	194.8	190.8	186.9	183.1	179.6	176.1	172.8	169.6	166.5	275.0

Table A – CONDUCTIVITY — TDS CONVERSION CHART

March 1982

INITIAL SPECIFIC CONDUCTANCE umhos/cm

CELL TEMPERATURE °C

	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
300.0	344.5	333.0	322.3	312.2	302.7	293.8	285.4	277.5	270.0	262.9	256.2	249.7	243.7	237.9	232.3	227.0	222.0	217.2	212.6	208.1	203.9	199.8	195.9	192.1	188.5	185.0	181.6	300.0
325.0	373.2	360.7	349.1	338.2	328.0	318.0	309.2	300.6	292.5	284.8	277.5	270.8	264.0	257.7	251.7	246.0	240.5	235.3	230.3	225.5	220.9	216.4	212.2	208.1	204.2	200.4	196.8	325.0
350.0	401.9	388.5	376.0	364.2	353.2	342.8	333.0	323.7	315.0	306.7	298.8	291.4	284.3	277.6	271.0	264.9	259.0	253.4	248.0	242.8	237.9	233.1	228.5	224.1	219.9	215.8	211.9	350.0
375.0	430.6	416.2	402.8	390.2	378.4	367.3	356.8	346.9	337.5	328.6	320.2	312.2	304.6	297.3	290.4	283.8	277.5	271.5	265.7	260.2	254.8	249.7	244.9	240.1	235.6	231.3	227.0	375.0
400.0	459.3	444.0	429.7	416.2	403.6	391.8	380.6	370.0	360.0	350.5	341.5	333.0	324.9	317.1	309.8	302.7	296.0	289.6	283.4	277.5	271.8	266.4	261.2	256.2	251.3	246.7	242.2	400.0
425.0	488.0	471.7	456.5	442.3	428.9	416.2	404.4	393.1	382.5	372.4	362.9	353.8	345.2	337.0	329.1	321.6	314.5	307.7	301.1	294.8	288.8	283.0	277.5	272.2	267.0	262.1	257.3	425.0
450.0	516.7	499.5	483.4	468.3	454.1	440.7	428.1	416.2	405.0	394.3	384.2	374.6	365.5	356.8	348.5	340.6	333.0	325.8	318.8	312.2	305.8	299.7	293.8	288.2	282.7	277.5	272.5	450.0
475.0	545.4	527.2	510.2	494.3	479.3	465.2	451.9	439.4	427.5	416.2	405.6	395.4	385.8	376.6	367.8	359.5	351.5	343.9	336.5	329.5	322.8	316.3	310.1	304.2	298.4	292.9	287.6	475.0
500.0	574.1	555.0	537.1	520.3	504.5	489.7	475.7	462.5	450.0	438.2	426.9	416.2	406.1	396.4	387.2	378.4	370.0	362.0	354.3	346.9	339.8	333.0	326.5	320.2	314.2	308.3	302.7	500.0
525.0	602.8	582.7	564.0	546.3	529.8	514.2	499.5	485.6	472.5	460.1	448.3	437.1	426.4	416.2	406.6	397.3	388.5	380.1	372.0	364.2	356.8	349.6	342.8	336.2	329.9	323.8	317.9	525.0
550.0	631.6	610.5	590.8	572.3	555.0	538.7	523.3	508.7	495.0	482.0	469.6	457.9	446.7	436.1	425.9	416.2	407.0	398.2	389.7	381.6	373.8	366.3	359.1	352.2	345.6	339.2	333.0	550.0
575.0	660.3	638.2	617.7	598.4	580.2	563.2	547.1	531.9	517.5	503.9	491.0	478.7	467.0	455.9	445.3	435.2	425.5	416.2	407.4	398.9	390.8	382.9	375.4	368.2	361.3	354.6	348.1	575.0
600.0	689.0	666.0	644.5	624.4	605.5	587.6	570.9	555.0	540.0	525.8	512.3	499.5	487.3	475.7	464.7	454.1	444.0	434.3	425.1	416.2	407.8	399.6	391.8	384.2	377.0	370.0	363.3	600.0
625.0	717.7	693.7	671.4	650.4	630.7	612.1	594.6	578.1	562.5	547.7	533.7	520.3	507.6	495.5	484.0	473.0	462.5	452.4	442.8	433.6	424.7	416.2	408.1	400.2	392.7	385.4	378.4	625.0
650.0	746.4	721.5	698.2	676.4	655.9	636.6	618.4	601.2	585.0	569.6	555.0	541.1	527.9	515.4	503.4	491.9	481.0	470.5	460.5	450.9	441.7	432.9	424.4	416.3	408.4	400.8	393.5	650.0
675.0	775.1	749.2	725.1	702.4	681.1	661.1	642.2	624.4	607.5	591.5	576.3	561.9	548.2	535.2	522.7	510.9	499.5	488.6	478.2	468.3	458.7	449.5	440.7	432.3	424.1	416.3	408.7	675.0
700.0	803.8	777.0	751.9	728.4	706.4	685.6	666.0	647.5	630.0	613.4	597.7	582.7	568.5	555.0	542.1	529.8	518.0	506.7	496.0	485.6	475.7	466.2	457.1	448.3	439.8	431.7	423.8	700.0
725.0	832.5	804.7	778.8	754.5	731.6	710.1	689.8	670.6	652.5	635.3	619.0	603.6	588.8	574.8	561.5	548.7	536.5	524.8	513.7	503.0	492.7	482.8	473.4	464.3	455.5	447.1	439.0	725.0
750.0	861.2	832.5	805.6	780.5	756.8	734.6	713.6	693.7	675.0	657.2	640.4	624.4	609.1	594.6	580.8	567.6	555.0	542.9	531.4	520.3	509.7	499.5	489.7	480.3	471.2	462.5	454.1	750.0
775.0	889.9	860.2	832.5	806.5	782.0	759.0	737.4	716.9	697.5	679.1	661.7	645.2	629.5	614.5	600.2	586.5	573.5	561.0	549.1	537.7	526.7	516.1	505.8	496.3	486.9	477.9	469.2	775.0
800.0	918.6	888.0	859.4	832.5	807.3	783.5	761.1	740.0	720.0	701.1	683.1	666.0	649.8	634.3	619.5	605.5	592.0	579.1	566.8	555.0	543.7	532.8	522.4	512.3	502.6	493.3	484.4	800.0
825.0	947.3	915.7	886.2	858.5	832.5	808.0	784.9	763.1	742.5	723.0	704.4	686.8	670.1	654.1	638.9	624.4	610.5	597.2	584.5	572.3	560.7	549.4	538.7	528.3	518.3	508.6	499.5	825.0
850.0	976.0	943.5	913.1	884.5	857.7	832.5	808.7	786.2	765.0	744.9	725.8	707.6	690.4	673.9	658.3	643.3	629.0	615.3	602.2	589.7	577.7	566.1	555.0	544.3	534.1	524.2	514.6	850.0
875.0	1004.7	971.2	939.8	910.6	883.0	857.0	832.5	809.4	787.5	766.8	747.1	728.4	710.7	693.7	677.6	662.2	647.5	633.4	619.9	607.0	594.6	582.7	571.3	560.3	549.8	539.6	529.8	875.0
900.0	1033.4	999.0	966.8	936.6	908.2	881.5	856.3	832.5	810.0	788.7	768.5	749.2	731.0	713.6	697.0	681.1	666.0	651.5	637.7	624.4	611.6	599.4	587.6	576.3	565.5	555.0	544.9	900.0
925.0	1062.2	1026.7	993.6	962.6	933.4	906.0	880.1	856.6	832.5	810.6	789.8	770.1	751.3	733.4	716.3	700.1	684.5	669.6	656.4	641.7	628.6	616.0	604.0	592.4	581.2	570.4	560.0	925.0
950.0	1090.9	1054.5	1020.5	988.6	958.6	930.4	903.9	878.7	855.0	832.5	811.2	790.9	771.6	753.2	735.7	719.0	703.0	687.7	673.1	659.1	645.6	632.7	620.3	608.4	596.9	585.8	575.2	950.0
975.0	1119.6	1082.2	1047.3	1014.6	983.9	954.9	927.6	901.9	877.5	854.4	832.5	811.7	791.9	773.0	755.1	737.9	721.5	705.8	690.6	676.4	662.8	649.3	636.6	624.4	612.6	601.3	590.3	975.0
1000.0	1148.3	1110.0	1074.2	1040.6	1009.1	979.4	951.4	925.0	900.0	876.3	853.8	832.5	812.2	792.9	774.4	756.8	740.0	723.9	708.5	693.7	679.6	666.0	652.9	640.4	628.3	616.7	605.5	1000.0
1050.0	1206.7	1165.5	1127.9	1092.7	1059.5	1028.4	999.0	971.2	945.0	920.1	896.5	874.1	852.8	832.5	813.1	794.7	777.0	760.1	743.9	728.4	713.6	699.3	685.6	672.4	659.7	647.5	635.7	1050.0
1100.0	1263.1	1221.0	1181.6	1144.7	1110.0	1077.4	1046.6	1017.5	990.0	963.9	939.2	915.7	893.4	872.1	851.9	832.5	814.0	796.3	779.4	763.1	747.6	732.6	718.2	704.4	691.1	678.3	666.0	1100.0
1150.0	1320.5	1276.5	1235.3	1196.7	1160.5	1126.3	1094.1	1063.7	1035.0	1007.8	981.9	957.4	934.0	911.8	890.6	870.3	851.0	832.5	814.8	797.8	781.5	765.9	750.9	736.4	722.5	709.2	696.3	1150.0
1200.0	1377.9	1332.0	1289.0	1248.7	1210.9	1175.3	1141.7	1110.0	1080.0	1051.6	1024.6	999.0	974.6	951.4	929.3	908.2	888.0	868.7	850.2	832.5	815.5	799.2	783.5	768.5	754.0	740.0	726.5	1200.0
1250.0	1435.3	1387.5	1342.7	1300.8	1261.4	1224.3	1189.3	1156.2	1125.0	1095.4	1067.3	1040.6	1015.2	991.1	968.0	946.0	925.0	904.9	885.6	867.2	849.5	832.5	816.2	800.5	785.4	770.8	756.8	1250.0
1300.0	1492.8	1443.0	1396.5	1352.8	1311.8	1273.2	1236.9	1202.5	1170.0	1139.2	1110.0	1082.2	1056.9	1030.7	1006.7	983.9	962.0	941.1	921.1	901.9	883.5	865.8	848.8	832.5	816.8	801.7	787.1	1300.0
1350.0	1550.2	1498.5	1450.2	1404.8	1362.3	1322.2	1284.4	1248.7	1215.0	1183.0	1152.7	1123.9	1096.5	1070.4	1045.5	1021.7	999.0	977.3	956.5	936.6	917.4	899.1	881.5	864.5	848.2	832.5	817.4	1350.0
1400.0	1607.6	1554.0	1503.9	1456.9	1412.7	1371.2	1332.0	1295.0	1260.0	1226.8	1195.4	1165.5	1137.1	1110.0	1084.2	1059.5	1036.0	1013.5	991.9	971.2	951.4	932.4	914.1	896.5	879.6	863.3	847.6	1400.0
1450.0	1665.0	1609.5	1557.6	1508.9	1463.2	1420.1	1379.6	1341.2	1305.0	1270.7	1238.1	1207.1	1177.7	1149.6	1122.9	1097.4	1073.0	1049.7	1027.3	1005.9	985.4	965.7	946.8	928.6	911.0	894.2	877.9	1450.0
1500.0	1722.4	1665.0	1611.3	1560.9	1513.6	1469.1	1427.1	1387.5	1350.0	1314.5	1280.8	1248.7	1218.3	1189.3	1161.6	1135.2	1110.0	1085.9	1062.8	1040.6	1019.4	999.0	979.4	960.6	942.5	925.0	908.2	1500.0
1550.0	1779.8	1720.5	1665.0	1613.0	1564.1	1518.1	1474.7	1433.7	1395.0	1358.3	1323.5	1290.4	1258.9	1228.9	1200.3	1173.1	1147.0	1122.1	1098.2	1075.3	1053.4	1032.3	1012.1	992.6	973.5	955.8	938.5	1550.0
1600.0	1837.2	1776.0	1718.7	1665.0	1614.5	1567.1	1522.3	1480.0	1440.0	1402.1	1366.2	1332.0	1299.5	1268.6	1239.1	1210.9	1184.0	1158.3	1133.6	1110.0	1087.3	1065.6	1044.7	1024.6	1005.3	986.7	968.7	1600.0

Table A (cont'd) -CONDUCTIVITY — TDS CONVERSION CHART March 1982

APPENDIX E

Plant Communities

PLANT COMMUNITIES

UF	Upland Forest
1	Closed Needleleaf Forest
2	Open Needleleaf Forest
3	Closed Broadleaf Forest
4	Broadleaf Woodland
5	Closed Mixed Forest
6	Needleleaf Woodland
7	Dwarf Tree Scrub Woodland
8	Open Dwarf Tree Scrub
9	Closed Tall Shrub Scrub a. Alder/Willow b. Alder
10	Open Tall Shrub Scrub a. Shrub Swamp b. Alder
11	Open Low Shrub Scrub a. Sweetgale - Sphagnum Bog b. Ericaceous Shrub - Sphagnum Bog c. Ericaceous Shrub - Sedge - Sphagnum Bog d. Sweetgale Sedge Fen e. Cinquefoil - Sphagnum Bog f. Dwarf Birch - Ericaceous Shrub - Sphagnum Bog g. Sweetgale - Sedge - Fan Moss Fen h. Cinquefoil - Sweetgale - Ericaceous Shrub - Feathermoss Bog i. Willow - Bluejoint Grass Moss Bog j. Low Willow Bog
12	Open Dwarf Shrub Scrub a. Ericaceous Shrub - Sphagnum Bog
13	Wet Graminoid Herbaceous a. Sedge Tussock - Mixed Shrub - Sphagnum Bog b. Subarctic Lowland - Sedge - Bog Meadow c. Subarctic Lowland - Sedge - Moss - Bog Meadow d. Subarctic Lowland - Sedge - Wet Meadow
14	Bryoid Moss - Wet Moss
15	Freshwater - Aquatic Herbaceous - Pond Lily
OW	Open Water

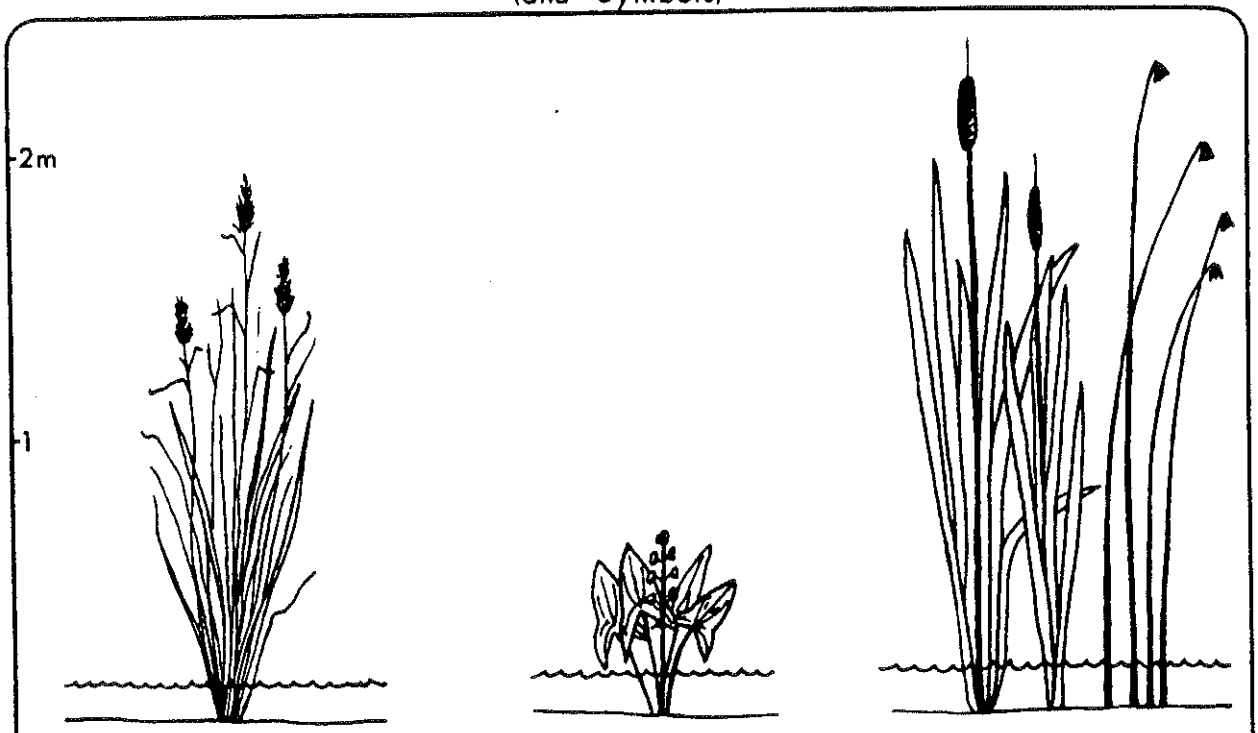
Note: Identify only numbered plant communities; e.g., if subject wetlands has community #11g, it should be identified as #11 only. Some areas may not fit into these communities, in which case extrapolation will be necessary to match subject community to the nearest identifier in this list.

APPENDIX F

Wetland Vegetation Forms and Symbols

Wetland Vegetation Forms

(and Symbols)



Narrow-leaved Emergents

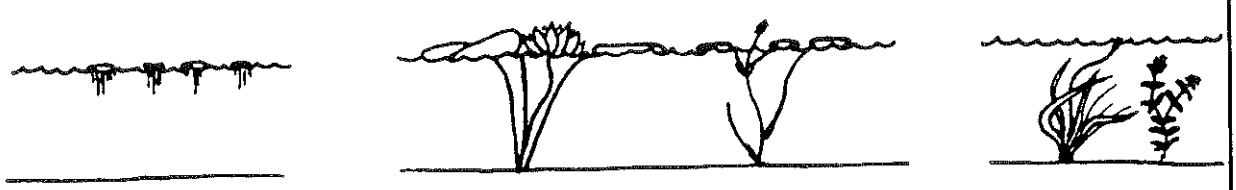
ne

Broad-leaved Emergents

be

Robust Emergents

re



Free-floating Plants

ff

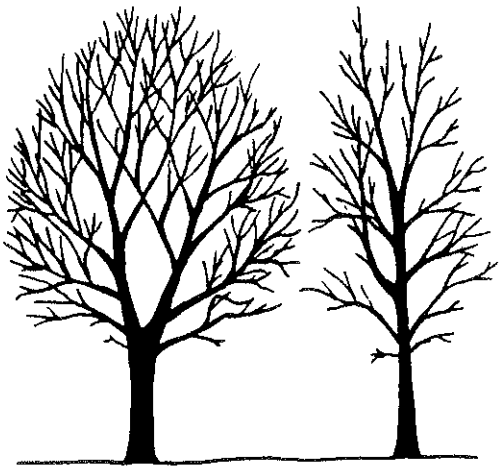
Floating Plants (rooted)

f

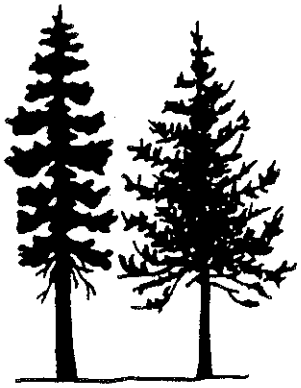
Submerged Plants

su

Wetland Vegetation Forms
(and Symbols)

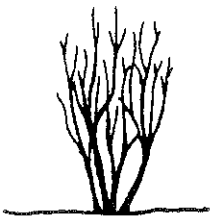


Deciduous Trees
(Broad-leaved)
h



Coniferous Trees
(Needle-leaved)
c

Dead Trees
dh, dc

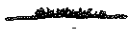


Tall Shrubs
ts

Low Shrubs
ls

Dead Shrubs
ds

Herbs
gc



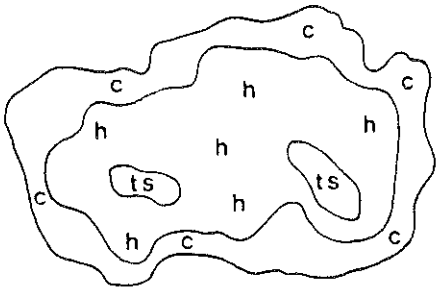
Moss
m

APPENDIX G

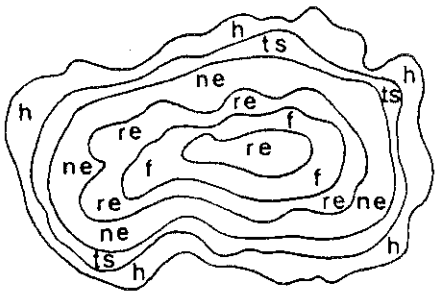
Interspersion Types

Interspersion Types

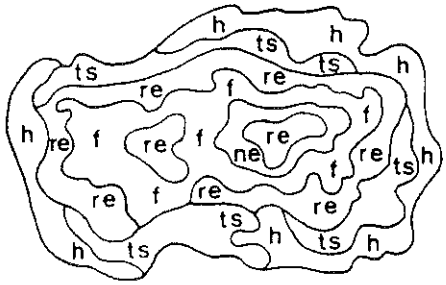
Type 1



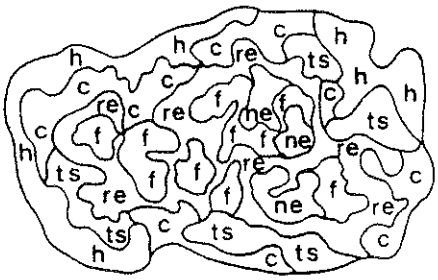
Type 2



Type 3



Type 4



KEY

- c – Coniferous Trees
- h – Deciduous Trees
- ts – Tall Shrubs
- ne – Narrow-leaved Emergents
- re – Robust Emergents
- f – Floating Plants (rooted)

Source: Adapted from Golet, 1976

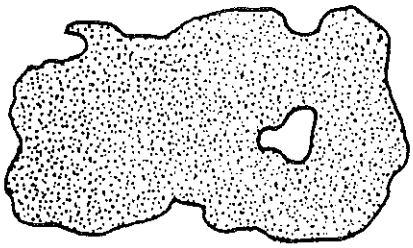
APPENDIX H

Open Water Types

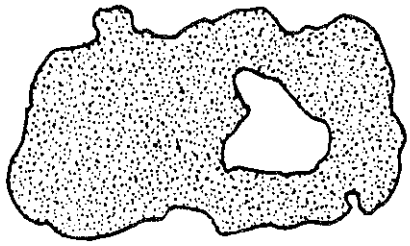
Open Water Types

White areas indicate open water (including floating and submerged plants). Stippled areas indicate emergents, shrubs and trees.

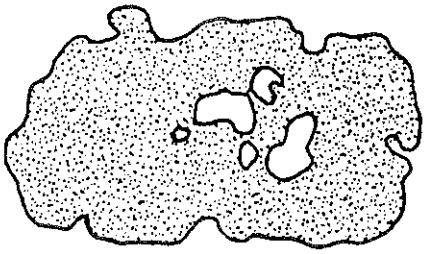
Type 1



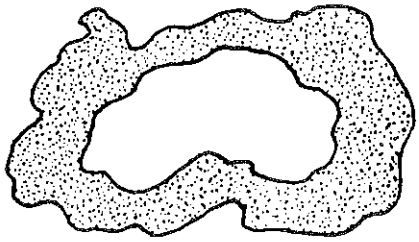
Type 2



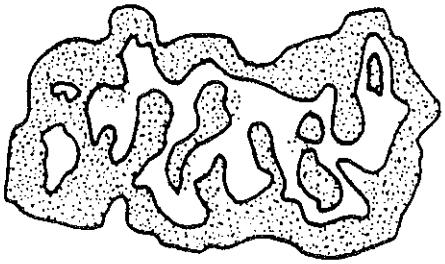
Type 3



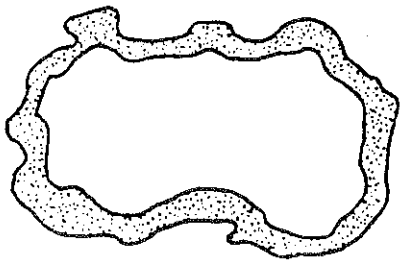
Type 4



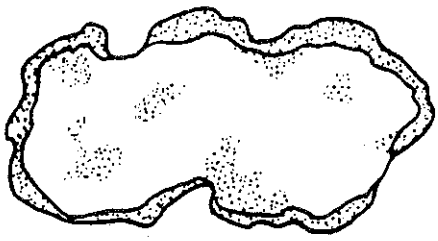
Type 5



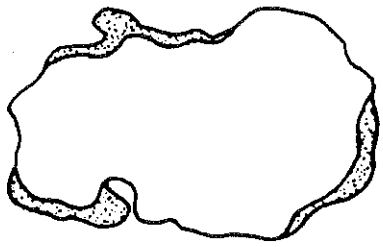
Type 6



Type 7



Type 8



Source: Adapted from Golet, 1976

APPENDIX I

Statewide Significant Plant Species Occuring in Southcoastal Alaska

STATEWIDE SIGNIFICANT PLANT SPECIES OCCURRING IN SOUTHCOASTAL ALASKA

Note: Many of these forms are of questionable taxonomic status or occur typically in non-wetland conditions.

Botrychium virginianum	Blysmus rufum
Scheuchzeria palustris	Smilacina stellata
Phalaris arundinacea	Malaxis monophylla
Glyceria striata	Hammarbya paludosa
Carex atrostachya	Rannunculus abortivus
Carex Preslii	Viola Selkirkii
Carex interior	Thalaspi arcticum
Carex Parrayana	Crassula aquatica
Carex lanuginosa	Papaver alboroseum

APPENDIX J

Plants Significant to the Municipality of Anchorage Region or of High Public Interest

PLANTS SIGNIFICANT TO THE MUNICIPALITY OF ANCHORAGE REGION OR OF HIGH PUBLIC INTEREST

Gymnocarpinium robertianum
Typha latifolia
Sparganium minimum
Potamogeton Friesii
Podagrostis Thurberiana
Calamagrostis nutkaensis
Danthonia intermedia
Mitella pentandra
Eriophorum gracile
Eriophorum viridi-carinatum
Scirpus microcarpus
Eleocharis Kamtschiatica
Drosera anglica
Rhynchospora alba
Carex phyllomanica
Carex Ramenskii
Carex rariflora
Carex (oederi) vividula
Juncus supiniformis
Cypripedium guttatum
Sanguisorba Menziesii
Cladothamnus pyrolaeflorum
Lysimachia thyrsiflora
Pedicularis parviflora
Aster junciformis

APPENDIX K

Significant Municipality of Anchorage Bird and Anadromous Fish Species

SIGNIFICANT MUNICIPALITY OF ANCHORAGE BIRD AND ANADROMOUS FISH SPECIES

Note: Rare, limited or unique in Southcentral, and especially in the Upper Cook Inlet Region. Species is localized, does not occupy all suitable habitat and/or suitable habitat is limited, or species is extremely sensitive to disturbance. * = Obligate wetlands species. Include if one or more from this list has used the subject wetlands within the past five years. Some of these represent species of National Concern.

Red-throated Loon *
Pacific Loon *
Common Loon *
Red-necked Grebe *
Horned Grebe *
Trumpeter Swan *
Gadwall *
Blue-winged Teal *
Canvasback *
Redhead *
Ring-Necked Duck *
American Dipper *
Northern Harrier *
Sandhill Crane
Killdeer
Solitary Sandpiper *
Hudsonian Godwit *
Short-billed Dowitcher *
Red-necked Phalarope
Short-eared Owl
Black-backed Woodpecker
Belted Kingfisher
Song Sparrow
American Tree Sparrow
Red-winged Blackbird *

Chinook (King) Salmon
Coho (Silver) Salmon
Sockeye (Red) Salmon

Note: These lists are subject to change based on new or revised information. The plant lists should be updated using the Alaska Heritage Program's Database as information becomes available. Mammals were originally considered for these lists but local mammalogists had no data to support inclusion of mammals at this time.

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