



WILLOW SUB-BASIN AREA PLAN

A Land Use Plan For Public Lands

October 1982

**Alaska Department of Natural Resources
Matanuska - Susitna Borough
Alaska Department of Fish and Game**

**with the assistance of
Soil Conservation Service,
United States Department of Agriculture**

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF RESEARCH & DEVELOPMENT

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The Commissioner finds that the

Willow Sub-basin Land Use Plan

meets the requirements of AS 38.04.065 and 11 AAC 55.010-.030 for Area Land Use Plans and does hereby adopt it as policy of the Department of Natural Resources for state lands within the planning area.

Sept 28, 1982

John R. Katz



Commissioner

Department of Natural Resources

MATANUSKA-SUSITNA BOROUGH

RESOLUTION SERIAL NO. 82-17

A RESOLUTION OF THE ASSEMBLY OF THE MATANUSKA-SUSITNA BOROUGH
ADOPTING THE LAND USE PLAN FOR PUBLIC LANDS IN THE WILLOW
SUB-BASIN AND CHANGES THERETO

WHEREAS, the Land Use Plan for Public Lands in the Willow Sub-Basin addresses important resource management concerns of mutual interest to the Borough and State; and

WHEREAS, this plan has been developed through interaction of several interested State agencies, Borough staff, private interest groups, general public input and public review and hearings and represents a balance of all interests involved; and

WHEREAS, the Borough Planning Commission has reviewed and recommended that the plan be approved; and

WHEREAS, certain changes and an amendment procedure to the draft plan of October 1981 have been recommended by the Department of Natural Resources in a letter from Commissioner Katz dated February 1, 1982 with concurrence by the Planning Commission; and

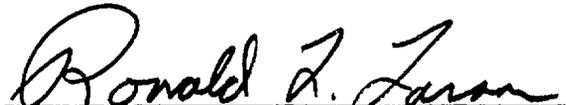
WHEREAS, this plan should be incorporated into the Borough's current Comprehensive Development Planning program;

NOW THEREFORE BE IT RESOLVED, that the Assembly of the Matanuska-Susitna Borough adopts the Land Use Plan for Public Lands in the Willow Sub-Basin (draft of October 1981) along with changes and amendment procedure recommended in Commissioner of Natural Resource's letter of February 1, 1982 and subject to the provision that all Borough land with Class

II and III soils in the Susitna Corridor be designated as agricultural land; and

BE IT FURTHER RESOLVED, that the Assembly directs that the plan be incorporated within the Borough's Comprehensive Planning program.

PASSED AND APPROVED by the Assembly of the Matanuska-Susitna Borough this 24th day of February, 1982.


RONALD L. LARSON, MAYOR

ATTEST:

REVIEWED AND APPROVED:


Evelyn Thompson, Clerk


Gary Thurlow, Manager

(Seal)

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ACKNOWLEDGEMENTS

The Department of Natural Resources and the Matanuska-Susitna Borough wish to thank the following organizations and local governments for their participation in the Willow Sub-basin planning effort. During 1980-1981 staff from the Department of Natural Resources met at least once with each of these groups. These meetings provided essential information to the Willow Sub-basin Planning Team. The Matanuska-Susitna Borough Trails Committee and other organizations are to be especially commended for their efforts at mapping their recommendations.

Alaska Air Guides	National Audubon Society
Alaska Center for the Environment	Sierra Club
Alaska Miners Association	Alaska Center for the Environment
Alaska Power Authority	Palmer and Wasilla Agricultural
Anchorage Fish and Game Advisory	Conservation Subdistricts
Board (included representatives	Knik Kampers and Kayakers
of various outdoor groups)	Matanuska-Susitna Borough
Anchorage Motor Mushers	Trails Committee
Audubon Society	Mat-Valley Sportsmen
City of Houston	Moutaineering Club of Alaska
City of Wasilla	Overall Economic Development
Palmer Fish and Game Advisory Board	Program (OEDP)
Iditarod Trail Committee	Toskosha Citizens Council
Independent Loggers Association	Wasilla Chamber of Commerce

This land use plan is based on data and analysis produced through the Susitna River Basin Cooperative Study - a three year effort on the part of the United States Department of Agriculture (USDA), the Alaska Department of Natural Resources, and the Alaska Department of Fish and Game. Special acknowledgement is due Sterling Powell and the River Basin Study Team of the USDA Soil Conservation Service, lead agency in the study.

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LIST OF ACRONYMS

ADF&G	-	Alaska Department of Fish and Game
DEC	-	Alaska Department of Environmental Conservation
DL&WM	-	(DNR) Division of Land and Water Management
DGGS	-	(DNR) Division of Geological and Geophysical Surveys
DMEM	-	(DNR) Division of Minerals and Energy Management
DNR	-	Alaska Department of Natural Resources
DOT/PF	-	Alaska Department of Transportation and Public Facilities
GOP	-	Grazing Operations Plan
MLUP	-	Miscellaneous Land Use Permit
RMP	-	Range Management Plan
SCS	-	(USDA) Soil Conservation Service
USDA	-	United States Department of Agriculture
USGS	-	United States Geological Survey

Chapter 1
INTRODUCTION

INTRODUCTION

THE STUDY AREA

This document is a land use plan for state and certain borough lands in the southcentral portion of the Matanuska-Susitna Borough. The plan addresses these public lands in an area of about one million acres known as the Willow Sub-basin, a hydrologic sub-basin of the Susitna River Basin (Map 1). The northern border of the sub-basin is the Kashwitna River drainage, the western border the Susitna River, the southern border Cook Inlet, and the eastern border the drainage divide between the Matanuska and Susitna Rivers.

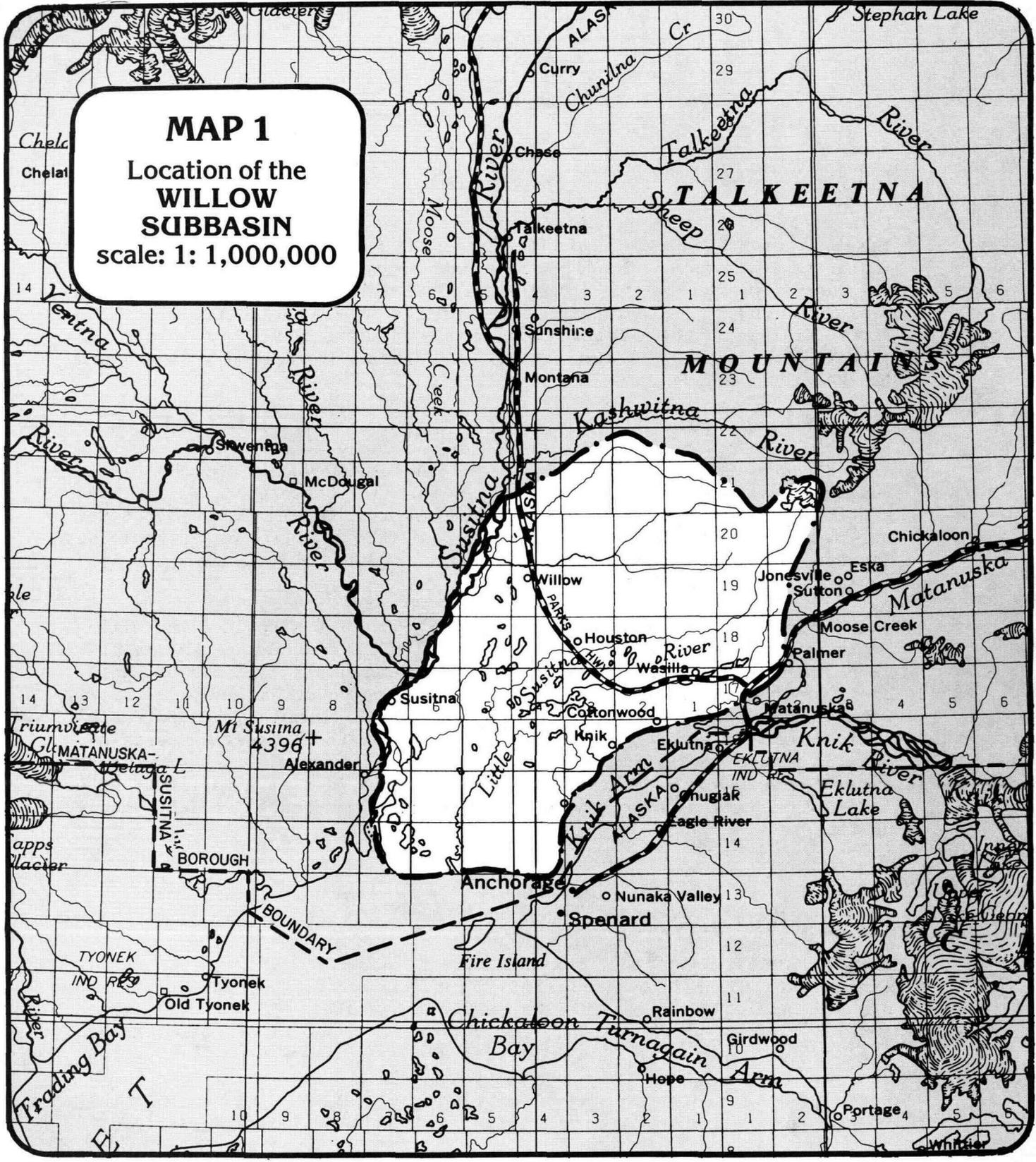
The sub-basin generally slopes to the southwest from the rugged Talkeetna Mountains to low, undulating country, with many lakes and muskeg among wooded hills. Drainages in the sub-basin are the Little Susitna River and Goose, Fish, Lucille, Wasilla, Cottonwood, Willow, and Little Willow Creeks. Familiar landmarks are Hatcher Pass, Big Lake, Pt. MacKenzie, the Susitna Game Flats, and the communities of Wasilla, Houston, and Willow on the George Parks Highway. The sub-basin also contains the proposed capital site.

The State of Alaska owns approximately 65% (619,740 acres) of the Willow Sub-basin, the Matanuska-Susitna Borough 14% (135,830 acres), and private landowners 20% (193,730 acres). Of the private land, 13,300 acres are owned by native regional and village corporations. (See Map 2, Generalized Land Ownership.) The public lands include high potential agricultural and timber lands, mining areas in the Talkeetna Mountains, and important recreation resources, including several anadromous fish streams and some of the state's best hunting. This plan is intended to insure that these public resources provide maximum benefit to the people of the state.

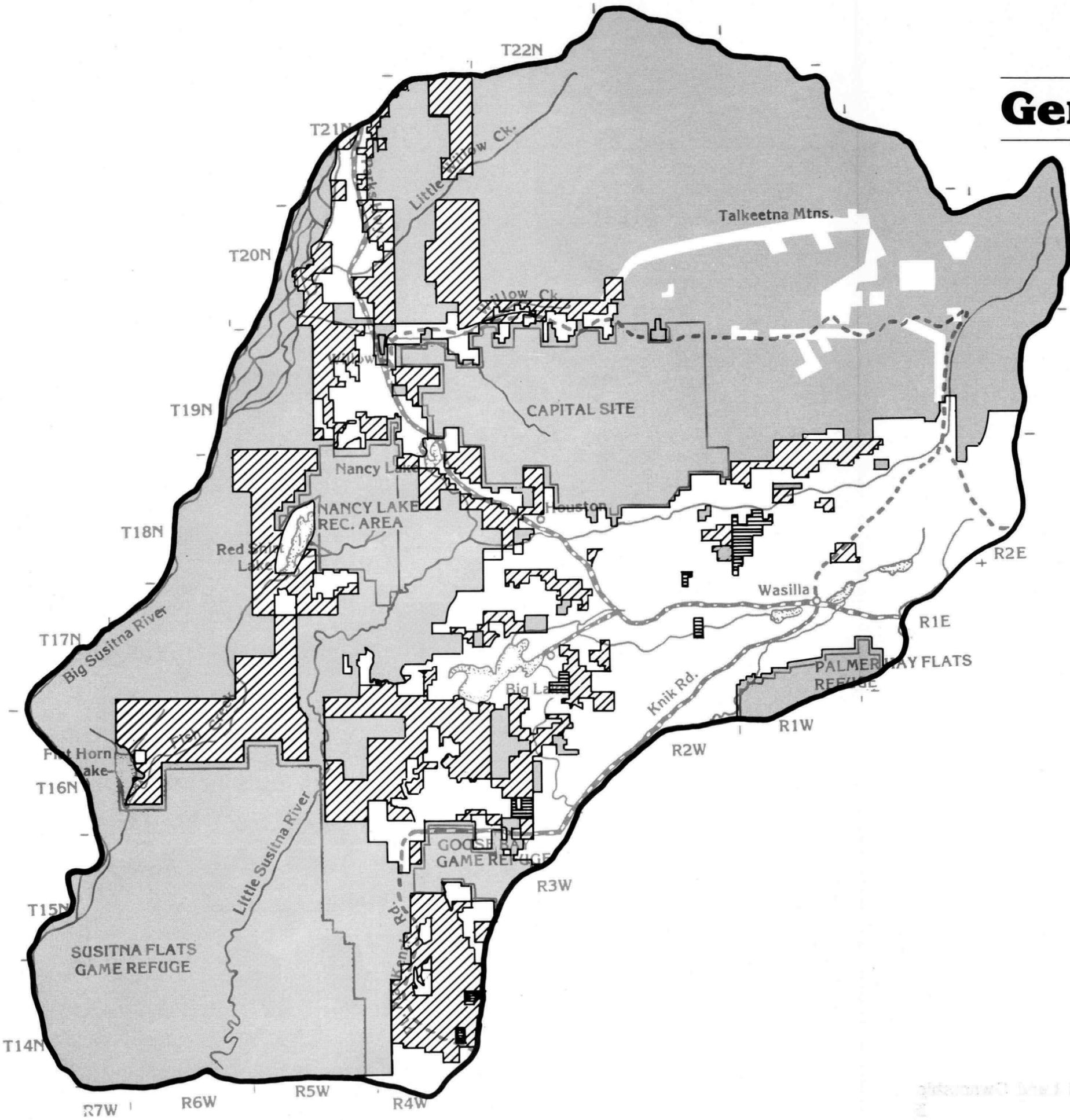
THE ORGANIZATION OF THIS DOCUMENT

This plan designates the uses that are to occur on much of the public land within the Willow Sub-basin; it shows areas to be sold for private use and areas to be retained in public ownership. (The plan does not control uses on private land.) Since more than one use is permitted on most public lands, the plan also establishes rules which allow various uses to occur without serious conflicts. For example, in an area intended for agricultural use, the plan explains how public access to streams and trails is to be maintained and how important wetlands are to be protected from pollution.

MAP 1
 Location of the
WILLOW
SUBBASIN
 scale: 1: 1,000,000



Generalized Land Ownership



-  **State — 619,740 ac. (65%)**
 - within legislative designated areas - 232,890 ac.
 - other state land - 386,850 ac.
-  **University - 6,270 ac. (1%)**
-  **Private/Federal - 193,730 ac. (20%)**
(includes approximately 13,300 acres of land held by native regional and village corporations)
-  **Borough - 135,830 ac. (14%)**

Total land in the Willow Subbasin — 970,000 acres
(includes lakes and land in miscellaneous ownership categories)



scale: 1: 332,000
June 1, 1982

To present this information, the plan is organized into four chapters. Chapter I is the Introduction. Besides this brief overview, the Introduction explains why a land use plan is necessary for public lands in the Willow Sub-basin, and why this is a joint borough and state plan. The Introduction also contains a review of the planning process that has led to this document and a preview of how the plan will be implemented.

Chapter II presents land use designations on borough and state lands in the Willow Sub-basin. The chapter also discusses the practical effect of these land use designations and explains their relationship to the Department of Natural Resources' State-wide Planning Program. Through the State-wide Plan the Department has developed goals and land use designations on a general scale for all state-owned lands.

Chapter III contains goals, policies, and management guidelines for each of the major resources or land use categories for which public lands will be managed or sold; e.g., forestry, agriculture, mining, settlement, etc. (Resource summaries for each of these categories are presented in Appendix 2.) Chapter III also contains policies and management guidelines for the following environmental conditions and land uses: wetlands, river and stream corridors, trails, and public access. The policies and management guidelines presented in Chapter III will control the day-to-day land management decisions affecting public lands in the sub-basin.

Chapter IV applies the land use designations presented in Chapter II and the policies and management guidelines presented in Chapter III to each of 25 "management units" in the Willow Sub-basin. (A management unit is an area that is generally homogeneous with respect to resources, topography, and land ownership.) For most of the management units, the following are presented: a statement of management intent, a list of designated land uses, and a set of management guidelines. The designated land uses are shown at the detailed scale of 1 inch to 1 mile. Units with very little public land are addressed by a statement of management intent and a set of recommended land uses.

Chapter IV is followed by four appendices. Appendix 1 presents recommendations from the report "Scenic Resources Along the Parks Highway" (Alaska Department of Natural Resources, 1980). These recommendations are designed to protect the views seen from the highway. Management of public lands along the highway will be consistent with the recommendations presented in Appendix 1. Appendix 2 presents basic information about the land and resources in the sub-basin. Lands with high value for agricultural development, settlement, recreation, mining, and other important resources are mapped and described. The land use designations established in this plan are based, to a great extent, on the information presented in Appendix 2. Appendix 3 presents formal state land classifications which implement the land uses designated in this plan. These land classifications comprise the official record of the primary uses for which state land will be managed. Appendix 4 presents procedures for making modifications of and exceptions to the plan as it affects state lands.

WHY PLAN FOR THE USE OF PUBLIC LAND?

Through the management of public lands, the state and borough greatly influence the physical development patterns and the general quality of life in the Susitna Basin. Major development projects such as mining, timber harvests, or agriculture influence local job opportunities. Land retained for public hunting and fishing and land made available for housing clearly affect the character of community life. Because the use of public land so powerfully affects both the physical landscape and the quality of life, it is essential that there be an open public process of deciding how to manage that land.

Providing an open, public process for making land use decisions is a primary objective of the Willow Sub-basin land use planning program. The plan is a means of openly reviewing available resource information and public concerns prior to making long-range decisions about land management. It is also a means of considering and resolving conflicting land use objectives and making clear to the public what decisions have been made and why they have been made.

In addition to major land use decisions such as agricultural development projects or mineral leases, land managers face many day-to-day decisions about land use, such as whether to issue permits to build roads, cut timber, or extract sand and gravel. People who make both the major development project decisions and the day-to-day decisions need clear and consistent guidelines. Therefore, it is essential for land managers to have a written document which establishes long-range commitments for the use of public land and which provides clear policies for the management of those lands.

This document, or land use plan, is also valuable for private land-owners. If the state and borough are publicly committed to a land use pattern and land management policies, private investors can feel more secure in making decisions about their own land. For example, if someone is contemplating developing a subdivision adjacent to state land, it is important to know whether that state land is apt to become a gravel pit or a recreation area.

THE PURPOSE OF A JOINT BOROUGH-STATE PLAN

A land use pattern which meets both local and statewide objectives is fundamentally dependent on cooperative borough and state planning. Many of the important resource lands in the sub-basin are in mixed borough-state ownership. These lands can be developed most productively through projects which entail joint land use commitments, joint planning for roads and other infrastructure, coordinated disposals/lease schedules, and the like. For example, a major agricultural development project proposed by this plan is entirely dependent on these joint commitments.

Many of the benefits of joint planning are as obvious as they are critical to rational land management. For example, this document proposes parts of the Little Susitna River as a wilderness/recreation corridor. It would make little sense for the borough to pursue that intent by restricting use on one side of the river if the state were selling land for houses on the opposite bank. In another area where the state allocates land for grazing, the feasible farm headquarter sites for the grazing land are on borough land - this plan accordingly designates the borough land for farm use. In short, because what the state does with its lands affects the borough and vice versa, cooperative planning is essential.

Land disposals in particular require borough and state cooperation. If state land disposals are based on demand, as now mandated by the state legislature, the borough and state should agree what the demand is and which public lands - borough or state - best meet that demand. Not only the amount of land sold, but also its location require cooperative planning. The pattern of land disposals dramatically affects service costs, community character, feasibility of providing access, and the ability to manage adjacent lands for other purposes, such as mining or forestry. These are important matters that should be dealt with coherently and consistently by major public land owners. In light of these considerations, the Matanuska-Susitna Borough, the Alaska Department of Natural Resources, and the Alaska Department of Fish and Game are jointly planning for the use of public lands in the Willow Sub-basin.

THE PLANNING PROCESS

The diagram on the following page illustrates the planning process that led to the Willow Sub-basin Plan. In 1977 the United States Department of Agriculture and the Alaska Department of Natural Resources began the Susitna River Basin Study, a cooperative data inventory effort which produced much of the resource information used to develop this plan. Data about soils, vegetation, hydrology, geologic hazards, recreation potential, and other resources were compiled and analyzed. (Most of this information is available in a report on the Willow Sub-basin published by the Soil Conservation Service in Anchorage). In late summer 1980, an interagency planning team was formed to develop a plan for state lands in the sub-basin. Team members included representatives from the various divisions within the Department of Natural Resources, the Department of Fish and Game, the Alaska Department of Transportation and Public Facilities, the Matanuska-Susitna Borough, and the U. S. Department of Agriculture. Because of the necessity for cooperative planning discussed above, the planning team studied both borough and state lands. As indicated in the diagram, the planning team prepared maps showing resource values, held public workshops to discuss resources and appropriate land uses - then prepared a draft plan. The final plan was prepared after intensive public and agency review of the draft.

THE PLANNING PROCESS

AN INTERAGENCY PLANNING TEAM IS FORMED. STATE AND BOROUGH TEAM MEMBERS REPRESENT EACH OF THE IMPORTANT RESOURCES IN THE AREA: FORESTRY, AGRICULTURE, MINERALS AND ENERGY, SETTLEMENT, RECREATION, AND FISH AND WILDLIFE.

THE TEAM IDENTIFIES OBJECTIVES AND MAPS THE LAND NECESSARY TO MEET THESE OBJECTIVES FOR EACH RESOURCE.



RESOURCE MAPS ARE COMPARED TO IDENTIFY COMPATIBLE USES AND CONFLICTS. AFTER PUBLIC MEETINGS THE PLANNING TEAM PREPARES A DRAFT PLAN FOR PUBLIC AND AGENCY REVIEW.

AFTER PUBLIC HEARINGS AND NECESSARY MODIFICATIONS, THE COMMISSIONER OF THE DEPARTMENT OF NATURAL RESOURCES AND THE BOROUGH ASSEMBLY APPROVE THE FINAL PLAN WHICH GUIDES PUBLIC LAND MANAGEMENT DECISIONS IN THE WILLOW SUB-BASIN.

The public participation program received special emphasis. The Department of Natural Resources (DNR) began a public participation program for Willow Sub-basin Plan early in 1980. In April and May of that year DNR held meetings in Willow and Palmer (2 meetings in each place) to present results of the data inventory effort and to discuss appropriate uses of state lands. The completion date and intended products of the plan were announced at these meetings.

In the year following the meetings, members of the planning team met with many special interest groups to inform them of the plan's schedule and to provide them an opportunity to review resource data. (See the list of interest groups on page iii.) The Matanuska-Susitna Borough Trails Committee and other organizations made especially commendable efforts at mapping their recommendations.

In early spring 1981, the planning team circulated a questionnaire through three newspapers: the Frontiersman, the Anchorage Daily News, and the Anchorage Times. The questionnaire requested readers to rank the importance of various goals for the use of state land and asked them detailed questions about how specific resources should be managed. Over 400 people responded.

In April 1981, the planning team held four public workshops -two in Anchorage and two in Wasilla. Participants discussed goals for the use of state land, reviewed resource information, and mapped their recommendations for land uses. As expected, the maps recommended by people at the Anchorage workshops differed from those of the Wasilla workshop. The people in Anchorage were most concerned with using the recreation resources of the basin both for personal enjoyment and to stimulate the economy. The people at the Wasilla workshop were more interested in economic development - especially through agriculture and forestry.

After studying the questionnaire results and the maps from the public workshops and reviewing available resource information, the planning team prepared a draft plan which presented a set of recommended land uses, land management policies, and guidelines. The draft plan was a compromise among competing interests. However, it included much of what each of the two public workshop groups wanted. As will be clear to those who attended the workshops and the numerous public meetings, the public has had a major hand in developing this plan.

CHANGES IN THE DRAFT PLAN

The draft plan was circulated for public review in October 1981. The borough and state held public hearings in November, 1982 in Palmer and Anchorage, and again in February 1982 in Palmer. As a result of public and agency comment there were a number of changes in the draft plan. The major changes are highlighted below:

1. Additional Land for Agriculture

Approximately 3,500 additional acres of borough land between the Nancy Lakes State Recreation Area and the Susitna River are now designated for agricultural use. This land was designated for forestry management by the draft plan.

2. Eminent Domain

The draft plan indicated that the state may purchase land adjacent to the Little Susitna River for public access to the river. The final plan specifies that the state will not use the power of eminent domain in such cases but will only purchase small parcels for river access from willing sellers.

3. Closure of Game Refuges to Coal Propecting and Development

The draft states that the Susitna Game Flats, the Palmer Hay Flats, and the Goose Bay Game Refuges shall be closed to coal prospecting and development. This statement is eliminated in the final plan. The decision whether to close these areas to coal prospecting and development will not be made through this planning process.

4. Proposed Closure of Portions of Little Willow Creek Willow Creek, and the Little Susitna River to All Mining

The draft proposes that portions of the above streams be closed to all mining. In the final plan only the Little Susitna Corridor Management Unit is closed to all mineral leasing and to locatable mineral entry. Portions of the other streams (identified in the plan) are closed to coal prospecting and development.

5. Oil and Gas Exploration and Development

The draft does not clearly state that the entire sub-basin, except for portions of the Little Susitna River, is open to oil and gas exploration and potential development. This point is stated clearly in the final plan.

6. Disposal of Land in the 100-Year Floodplain

The draft states that there will be no disposal of public land in the 100-year floodplain. The final plan allows disposals in the regulatory flood fringe - that portion of the 100-year floodplain where development can occur without significant

danger to life and property and without significantly increasing flood heights downstream.

7. Seasonal Grazing Limitations on State Land

The draft states that no stock may be released on state lands in the Willow Sub-basin before June 1. The final plan does not specify such a date. Seasonal limitations, when necessary, will be developed through range management plans for particular locations after more detailed study.

8. Instream Flows

The draft states that water appropriations may not reduce surface water resources below the amount required for maintenance of fish and wildlife resources. This policy cannot be implemented because necessary data are not available. The final plan identifies streams which the Department of Fish and Game and the Division of Parks recommend for instream flow studies.

9. Procedures for Modifications of and Exceptions to the Plan

The final plan explains procedures for changing the plan and for making minor exceptions to its provisions as it affects state land. Similar procedures for modifying the plan as it affects borough lands will be set forth in the borough's comprehensive plan.

IMPLEMENTATION

After the plan is signed by the Commissioner of the Alaska Department of Natural Resources it is state policy for the management of state lands in the Willow Sub-basin. All decisions (land disposals, classifications, timber sales, road building, mineral leasing and all other actions on state lands) shall comply with the provisions of this plan. The plan's effect on state land may be changed by amendment or by specific direction from the Alaska Legislature. After the plan is approved by the borough it controls land use decisions on borough lands, and all decisions (land disposals, timber sales, road building, mineral leasing, and all other actions on borough lands) shall comply with the provisions of this plan. The plan's effect on borough lands may be changed by amendment approved by the Matanuska-Susitna Borough Assembly.

The land use designations made in this plan will be officially established in state records through the state's land classification system. The system is a formal record of the primary uses for which each parcel of state land will be managed. (Classifications are presented in Appendix 3.) These classifications will be shown on land status plats

which can be viewed at various offices of the Department of Natural Resources. These plats will indicate the primary uses designated by this plan and will refer the reader to the plan for more detailed information, including secondary land uses and land management guidelines.

Another important step in DNR's implementation of this plan will be more detailed planning for specific management units in the study area. These detailed plans are referred to as "management plans" as distinguished from this document which is an "area plan." An area plan sets forth permitted land uses, related policies and management guidelines for a particular study area but does not include the detailed planning necessary for implementation. For example, an area plan does not design land disposals or pinpoint the location of roads or utility lines; it does not establish the schedule for timber sales and agricultural development projects. These design and scheduling decisions on state land are addressed by management plans which implement the provisions of an area plan on a site specific basis. In Chapter II there is a discussion of specific management plans necessary for implementation of the Willow Sub-basin Plan.

MODIFICATION OF THE PLAN

A plan can never be so far-seeing as to provide solutions to all land use problems, nor can it be inflexible. Therefore, the land use designations, the policies, and the management guidelines of this plan may be changed if conditions warrant. The plan will be periodically updated as new data become available and as changing social and economic conditions place different demands on public lands. An interagency planning team will coordinate periodic review of this plan when the Alaska Department of Natural Resources and the Matanuska-Susitna Borough consider it necessary. The plan review will include meetings with all interested groups and the general public.

In addition to periodic review, modification of the plan or exceptions to its provisions may be proposed at any time by members of the public or government agencies. Appendix 4 presents procedures for amendments to and minor modifications of the plan which will be followed by the Department of Natural Resources with regard to state-owned land within the Willow Sub-basin. Procedures for amendments to and minor modifications of the plan which will be followed by the Matanuska-Susitna Borough with regard to borough-owned lands in the Willow Sub-basin will be set forth in the borough's comprehensive plan. Appendix 4 also presents procedures for making special exceptions to the provisions of the plan when modifications are not necessary or appropriate.

Chapter 2

**LAND USE
DESIGNATIONS ON
PUBLIC LANDS**

LAND USE DESIGNATIONS ON PUBLIC LANDS

INTRODUCTION

This chapter presents land use designations for public lands in the Willow Sub-basin. These designations indicate the uses for which the lands will be managed or sold. Both primary and secondary uses may be shown for any given management unit. (As explained in Chapter I the sub-basin has been divided into 25 management units for the purposes of illustrating designated land uses and developing area specific management guidelines). A secondary use is permitted within a management unit when its occurrence will not adversely affect achieving the objectives of primary uses. Proposed transportation routes necessary for implementation of land use designations are also presented in this chapter.

In several management units more than one primary use is designated. This occurs principally in units where the major values are complementary, especially where the dominant values are forestry, recreation, fish and wildlife, and watershed. A joint primary use designation simply means that neither use indicated is a dominant value with priority over the others. Potential conflicts between joint primary uses are dealt with through management guidelines for each unit presented in Chapter IV.

Designated land uses shown on Map 4 in this chapter are shown in greater detail in Chapter IV, which contains large scale maps for each management unit. Both primary and secondary land use designations shown in Chapter II are subject to the policies and management guidelines contained in Chapters III and IV. The policies and guidelines are intended to insure compatibility among the various uses occurring within each management unit.

The land use designations shown in this chapter are not inflexible. Uses not shown on Map 4 may be permitted on a case-by-case basis if the Department of Natural Resources and the Matanuska-Susitna Borough determine that they are consistent with the statement of management intent for the management unit in question (see Chapter IV) and consistent with the policies and guidelines affecting the unit.

In several management units "recommended land uses" are specified rather than land use designations. These are units which contain relatively small amounts of public land. Although the plan does not regulate private land, the recommended uses indicate development patterns the borough and the state wish to encourage. In some cases public land within these management units is given a specific land use designation (principally in the case of material and recreation sites). Management of the remaining public lands will be consistent with the recommended land uses.

MANAGEMENT UNITS AFFECTED BY THIS PLAN

Map 3 shows the 25 management units in the Willow Sub-basin. Each unit has been given a name which appears on the map. The units fall into three general categories. The shaded units are those for which specific land use designations have been made on state and borough lands. In Chapter IV of this plan, the land use designations and guidelines for each of the shaded units on Map 3 are presented in detail. The unshaded units contain isolated parcels of state and borough land. Appropriate land uses in these areas are addressed in Chapter IV through general recommendations and, in some instances, specific land use designations. Finally, those units enclosed by a dashed line have been designated for specific uses by the state legislature. The plan does not address these areas.

Map 4 presents primary and secondary land use designations on public lands in the sub-basin. The designations are shown by management unit. (Borough lands affected are indicated by diagonal lines.) These management units are divided into subunits to illustrate land use designations in greater detail. The table accompanying Map 4 shows both primary and secondary designations within each subunit. (Refer to Map 2 for land ownership information.)

OVERVIEW OF LAND USE DESIGNATIONS BY RESOURCE

FORESTRY

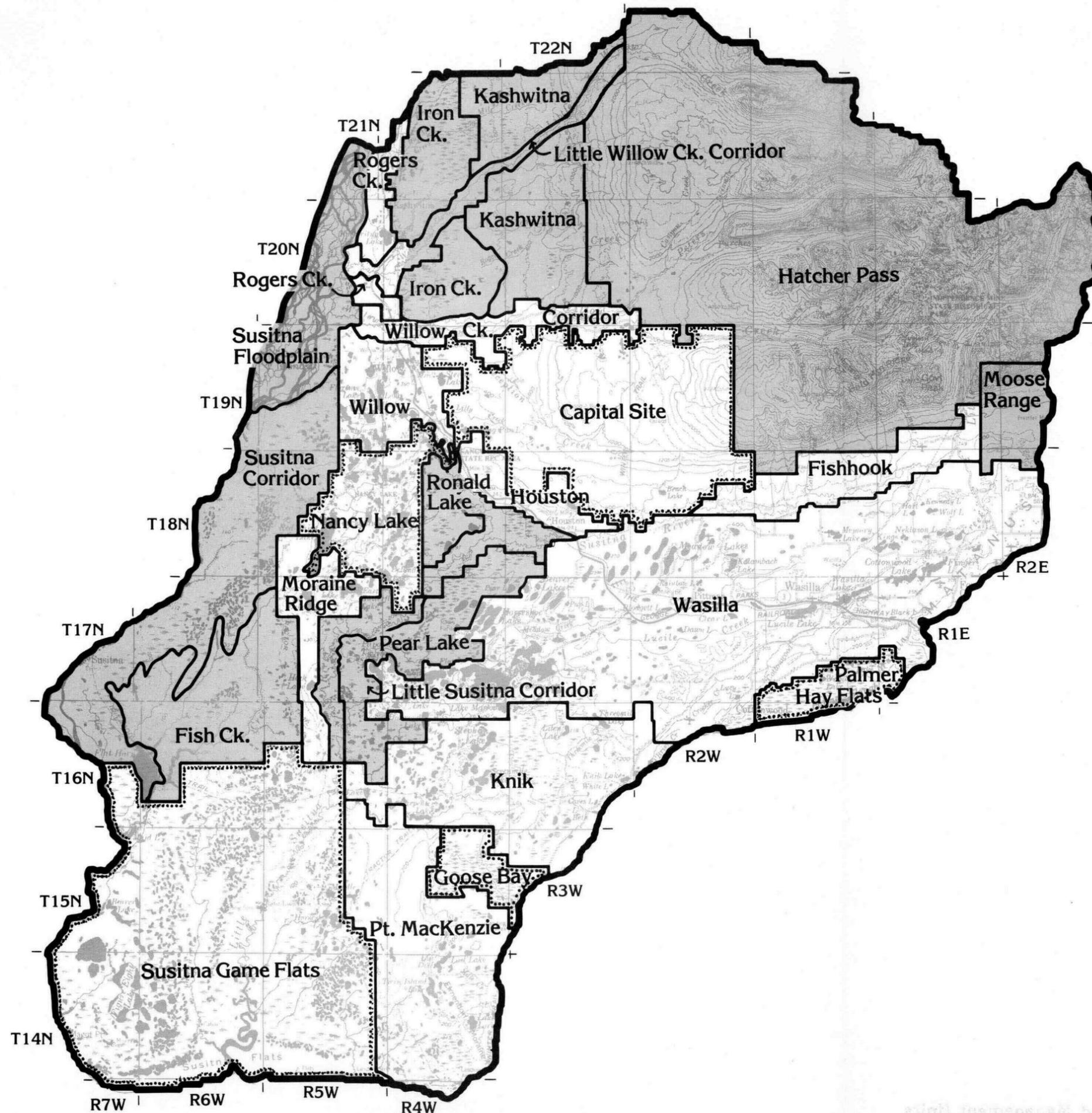
This plan designates forestry management as a primary use on approximately 60,000 acres of state land and 6,500 acres of borough land. Secondary use designations are made on approximately 20,000 acres of state land and 24,000 acres of borough land. All forestry primary designations will also be managed for other important values such as recreation and wildlife.

The important forestry areas located in the plan include the primary designations in the Kashwitna, Susitna Floodplain, and Susitna Corridor Management Units, and a secondary designation in Fish Creek for agricultural timber salvage. In addition, there are a number of other areas which are available for limited harvest. None of these other areas will make a large contribution to either commercial or personal timber supply. However, they are important for local personal use and limited commercial harvests.

Timber salvage from agricultural lands presents a unique opportunity for the local forest industry. It can provide a large but short-term supply of timber to help a developing industry. For this reason secondary designation of Fish Creek (for timber salvage purposes) is particularly important.

MAP 3

Land Management Units



MANAGEMENT UNITS

The subbasin is divided into 25 management units. Management unit boundaries encompass areas with similar resources, ownership patterns and access characteristics. Three general categories of management units are described below:

Legislatively Designated Areas - Land uses within these areas (the Capital Site, Nancy Lakes Recreation Area and three game refuges) have been previously determined by the State legislature. Consequently, these areas are not addressed by the plan.

Areas with Specific Land Use Designations - Management units shown in gray are primarily owned by the state and borough. In these areas detailed land use designations are prepared as well as management guidelines to control how these uses occur.

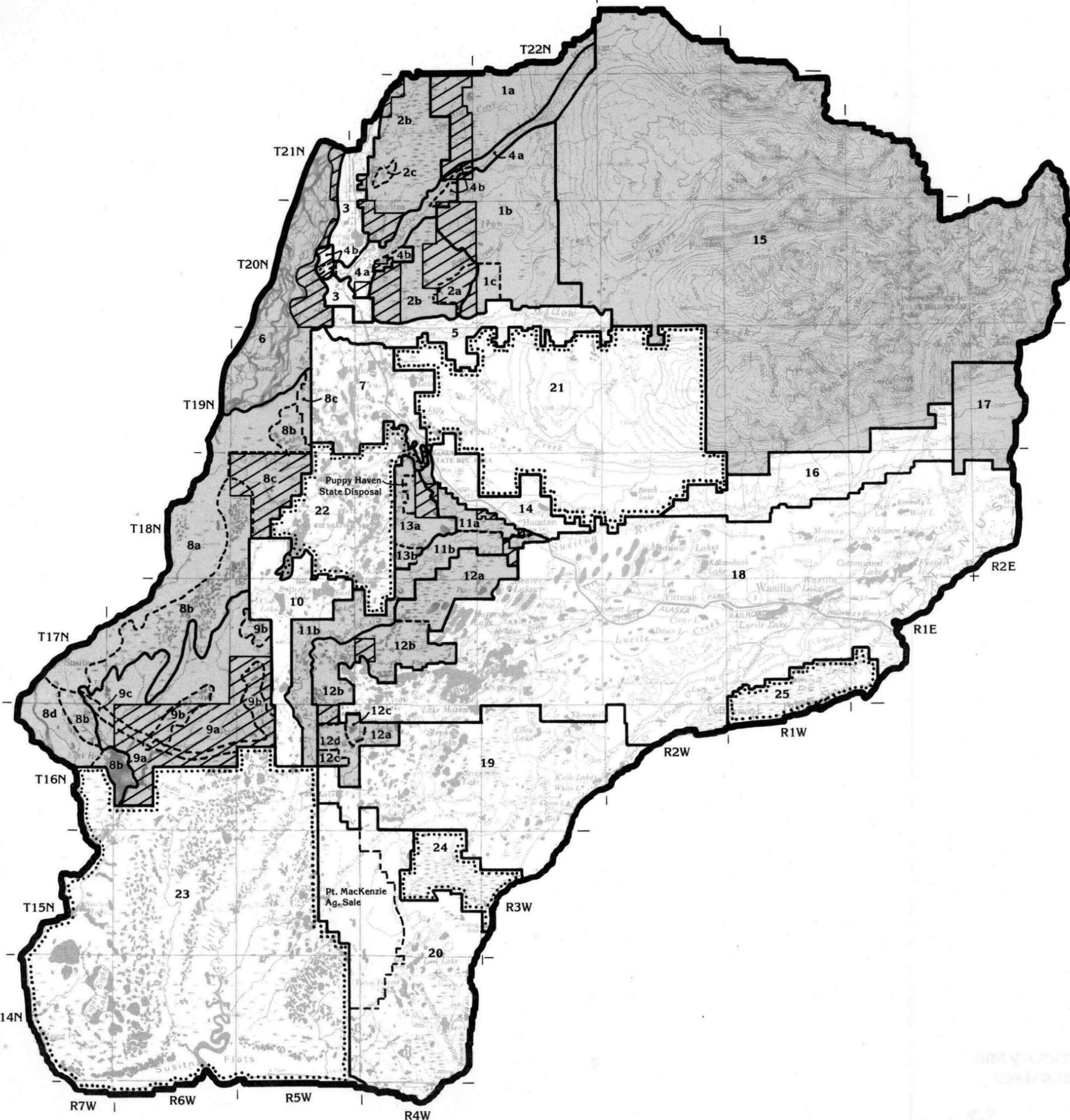
Areas with General Land Use Objectives - Management units shown in white (excluding legislatively designated areas) are primarily privately owned but contain some parcels of state/borough lands. The area plan addresses appropriate land uses in these areas through general land use objectives prepared for each management unit; specific land use designations are made for state land in some cases.



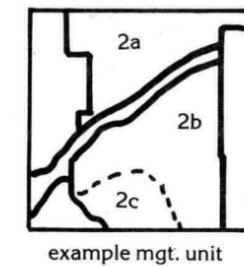
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June 1, 1982

Willow Subbasin Area Plan

Primary and Secondary Designated Land Uses



-  **Legislatively designated areas**
-  **Areas with specific land use designations**
Management units shown in gray are primarily owned by the state and borough. In these areas detailed land use designations are prepared as well as management guidelines to control how these uses occur.
-  Diagonal lines indicate where land use designations are made on borough lands.
-  **Areas with general land use objectives**
Management units shown in white (excluding legislatively designated areas) are primarily privately owned but contain some parcels of state/borough lands. The area plan addresses appropriate land uses in these areas through general land use objectives prepared for each management unit; specific land use designations are for state land in some cases.



example mgt. unit

The map and the accompanying chart show primary and secondary land uses. Numbers on the map identify management units and management subunits; the chart shows the designated land uses within each of these areas.



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WILLOW SUB-BASIN AREA PLAN: PRIMARY & SECONDARY DESIGNATED LAND USES

Management Unit & No.	Subunit	Primary Uses	Secondary Uses
1. Kashwitna	1a	Forestry/Fish & Wildlife	Recreation
	1b	Forestry/Fish & Wildlife	Grazing
	1c	Small Farms	Grazing, Fish & Wildlife, Forestry
2. Iron Creek	2a	Small Farms	Grazing, Fish & Wildlife, Forestry
	2b	Watershed/Fish & Wildlife	—
	2c	Small Farms	Fish & Wildlife
3. Rogers Creek	Recommended Land Uses	*Settlement *Fish & Wildlife (Migration & Harvest) *Parks Highway Scenic Areas *Forestry	
4. Little Willow Creek Corridor	4a	Fish & Wildlife Recreation	Forestry
	4b	Small Farms	Forestry, Fish & Wildlife, Recreation
5. Willow Creek Corridor	Recommended Land Uses	*Fish & Wildlife *Small Farms *Settlement *Recreation	
6. Susitna Floodplain	—	Forestry/Fish & Wildlife	Recreation
7. Willow	Recommended Land Uses	*Community Land Needs *Parks Highway Scenic Areas	
8. Susitna Corridor	8a	Forestry/Fish & Wildlife	Recreation
	8b	Fish & Wildlife/Watershed	—
	8c	Agriculture	Forestry, Fish & Wildlife, Watershed
	8d	Fish & Wildlife	Grazing
9. Fish Creek	9a	Agriculture	Forestry, Settlement, Small Farms, Recreation
	9b °streams	Fish & Wildlife/Recreation	Forestry
	9c °wetlands	Fish & Wildlife/Watershed Recreation (Iditarod)	Forestry Forestry
10. Moraine Ridge	—	Settlement	Forestry, Fish & Wildlife, Recreation
11. Little Susitna Corridor	11a	Watershed/Fish & Wildlife	—
	11b	Recreation/Fish & Wildlife	Forestry
12. Pear Lake	12a	Fish & Wildlife/Watershed	—
	12b	Small Farms/Settlement	Forestry
	12c	Small Farms/Settlement	Recreation
	12d	Fish & Wildlife/Forestry	—
13. Ronald Lake	13a	Settlement/Small Farms	Fish & Wildlife, Forestry
	13b	Fish & Wildlife/Watershed	—
14. Houston	Recommended Land Uses	*Community land needs *Parks Highway Scenic Areas	
15. Hatcher Pass	All sub-units	Mining, Recreation, Fish & Wildlife Grazing	— —
16. Fishhook	Recommended Land Uses	*Settlement *Watershed *Fish & Wildlife (Moose Habitat)	*Recreation *Forestry
17. Moose Range	—	Fish & Wildlife	Forestry, Grazing
18. Wasilla	Recommended Land Uses	*Settlement *Small Farm & Commercial Agriculture *Recreation (fishing - local & regional parks)	*Forestry (personal use) *Parks Highway Scenic Areas
19. Knik	Recommended Land Uses	*Small Farms *Settlement *Recreation (Iditarod & other trails)	*Fish & Wildlife (stream buffers) *Forestry (personal use)
20. Pt. MacKenzie	Pt. MacKenzie Agricultural Project. Recommended Land Uses (in remainder of area)	*Development of Port, Industrial Area, Community	
Legislatively Designated Areas:	21. Capital site 22. Nancy Lakes Recreation Area	23. Susitna Flats Refuge 24. Goose Bay Refuge	25. Palmer Hay Flats Refuge

Note: For details of subsurface resource management, see Chapter III (Subsurface resources, goals and policies)

SUBSURFACE RESOURCES

The Effects of the Plan on Opportunities to Explore and Develop Subsurface Resources on State-owned Subsurface Land*

The large majority of state-owned subsurface areas in the Willow Sub-basin are currently open to exploration and development of subsurface resources and will remain open under this land use plan. However, an important effect of this plan is that it closes certain areas to specific types of subsurface resource exploration and development. The following section describes the areas closed by the plan. It is important to note that these mineral closures and other policies resulting from this plan do not alter or replace existing regulations, nor do they affect any existing mineral closures in the area. The areas closed to mining described below are closed only to new exploration or development activities; any existing leases, prospecting permits, or claims will not be affected. (Mineral closing orders will be prepared for these areas in compliance with AS 38.05.185.)

- a. Areas closed both to mineral leasing and to locatable mineral entry by this plan**
The Little Susitna River Corridor Management Unit is closed to all mineral leasing and to locatable mineral entry.
- b. Areas closed only to locatable mineral entry by this plan
Under current department policy, areas sold by the state for residential or agricultural purposes -- including those identified by this plan -- are closed to all locatable mineral entry. (These sale areas may, on a case-by-case basis, be open to development of leasable minerals.)

* The state retains subsurface rights when it transfers land to local governments or private owners. Consequently all subsurface rights in the sub-basin, with two notable exceptions, are held by the State and are subject to the policies in this plan. The first exception is certain private lands that were homesteaded and passed directly from federal to private ownership. Private land of this type comprises a relatively small percentage of the sub-basin's area, less than 5 percent (mostly in the Willow and Wasilla areas). The second exception is lands granted to Native regional and village corporations. Under the terms of the Alaska Native Claims Settlement Act, Native Corporations received both surface and subsurface rights. These lands make up about 1 percent of the sub-basin's area.

** "Leasable" minerals include oil and gas, coal, and geothermal resources. Development rights are acquired either at a lease sale, (the method always used for oil and gas) or non-competitively (by applying for a prospecting permit). Minerals such as gold, silver, copper, iron, asbestos, and uranium, are "locatable;" rights to these minerals are acquired by staking a mining claim.

c. Areas Closed to Coal Prospecting

Certain areas with exceptionally high surface resource values are closed to the issuance of coal prospecting permits*; these areas are described below:

-Large blocks of class II and III soils: The Point MacKenzie project and potential agricultural areas in the Fish Creek and Susitna Corridor Management Units.

-River Corridors: Little Susitna River, Little Willow Creek, Willow Creek, and the Big Susitna River.

The Little Susitna River: all of the Little Susitna River Management Unit and a corridor 300 feet on either side of the river over the remainder of the river's course.

Little Willow Creek: the portion of Little Willow Creek Management Unit east of where the railroad crosses the river and a corridor 300 feet on either side of the river over the remainder of the river's course.

Willow Creek: Willow Creek Management Unit and a corridor 300 feet on either side of the river over the remainder of the river's course.

Big Susitna River: a corridor at least $\frac{1}{2}$ mile on either side of the river (note: only the eastern bank of the river forms the boundary to the study area).

-Recreation sites identified on the recreation map of this plan (Appendix 2). (These are primarily small sites -- less than 160 acres -- used for campgrounds, waysides, boat launches and access sites on water bodies and along trails.)

-A corridor 300 feet wide on either side of the Parks Highway right-of-way to protect visual quality.

-Nancy Lake State Recreation Area.

-The proposed state capital site at Willow.

-All past and planned (through 1987) state subdivisions and the portions of state remote parcel sales areas likely to be staked.

For additional policies and guidelines affecting subsurface resource development, see Chapter III, Goals, Policies, and Management Guide lines; subsurface resources.

* Under State law, once a coal prospecting permit is issued, the state is required to grant the permit holder a coal lease if coal is found in commercial quantities. Any coal mining that occurs after a lease is issued would be subject to state, federal and local mining regulations.

FISH AND WILDLIFE

This plan designates approximately 345,000 acres of state land and 26,000 acres of borough land for fish and wildlife use and habitat protection (see Map 4). In each case, fish and wildlife is one of two or more primary designated land uses. For example, forestry is an additional primary use in the Kashwitna and Susitna Floodplain Management Units; mining, recreation, and grazing are also primary uses in the Hatcher Pass Management Unit; watershed is a second primary use in the large wetland areas within the Pear Lake, Ronald Lake, and Susitna Corridor Management Units; and recreation is a use of equal importance in the Little Susitna River Corridor and other small stream and river buffers.

The practical effect of these land use designations is to set aside an amount and variety of land sufficient to provide opportunities for a continuing high level of fish and wildlife use. Shared uses of these lands will help protect or enhance habitat and assist the development of necessary access.

AGRICULTURE

Agricultural land use designations fall into three categories: commercial agriculture, grazing, and small farms (40-80 acres). Approximately 25,000 acres of state and 19,500 acres of borough lands are designated for commercial scale agricultural use (parcels larger than 80 acres). These figures include approximately 15,000 acres in the Pt. MacKenzie agricultural project. In addition, approximately 120,000 acres of state land and 3,000 acres of borough land are designated for grazing (this includes primary and secondary designations). Lands designated for small farm use are discussed under the settlement section of this chapter.

The Fish Creek Management Unit is the major commercial agricultural project proposed by this plan. As indicated on Map 4, the borough owns about 60% of the unit and the state 40% (except for small parcels in private ownership). The unit contains approximately 16,000 acres of prime agricultural land.

Areas available for grazing include the southern two-thirds of the Kashwitna Unit, the southern and western portions of the Hatcher Pass Unit, the Moose Range Unit, and the southern portion of the Susitna Corridor Unit. Grazing is controlled by the guidelines in Chapter III, Goals, Policies, and Management Guidelines; Agriculture. These guidelines are principally intended to minimize the impacts of grazing on wildlife habitat and water quality.

Approximately 4,000 acres of borough land in the northern portion of the Susitna Corridor Management Unit, west of Nancy Lake, are designated for agricultural use. State land in the Susitna Corridor Unit which has high agricultural potential (Agricultural Capability classes II and III)

is to remain in non-intensive uses: forestry, habitat, or recreation. Management of this unit will be designed to minimize negative impacts on potential agricultural development.

SETTLEMENT AND SMALL FARMS

Land designations for settlement refer primarily to residential lands. It is the policy of the Borough and State to sell suitable lands for private commercial and industrial use in order to facilitate economic development. Land disposal decisions for these uses will be made on a case-by-case basis consistent with this plan. Therefore no specific designations for these land uses have been made. Although small farms (40-80 acres) are a separate category on the land designation maps, they are appropriately discussed as a settlement category.

Vacant land suitable for settlement in the sub-basin is abundant. There are over 17,000 vacant subdivided private parcels in the sub-basin - a total of 35,000 acres. (The sub-basin's existing population of approximately 8,000 people occupies 3,850 parcels.) Much of this private land is located in the Wasilla, Willow, and Roger's Creek Management Units along the Parks Highway; the large majority is road-accessed. In light of this vast supply of private land for settlement, the borough and state set a low priority on selling important agricultural, timber, mineral, and recreation lands for residential use.

However, the borough and state recognize that public land should be made available for residential use when the private supply is limited. Therefore, the borough and state will jointly assess demand for residential land yearly and establish annual disposal schedules for public lands.

Settlement is a designated primary use on public lands in portions of the following management units: Pear Lake, Ronald Lake, and Iron Creek. In these units, the state has identified approximately 3,000 acres of land for which settlement is a primary designation (this includes two remote parcel selection areas - LeRoux View and Papoose Twins). Settlement is designated as a secondary use on approximately 7,000 acres of state and 10,000 acres of borough land in the Fish Creek Management Unit. That does not mean that most of this land will be used for settlement, but that settlement may occur as compatible with the designated primary uses (principally agriculture).

For most of the management units with road access, where private land-owners hold a majority of land, the plan lists settlement as a "recommended land use." This means that although there may be little public land in these units, it is both borough and state policy to encourage settlement in these accessed areas rather than on remote public lands.

Borough and state lands designated for use as small farms are in the Kashwitna, Ronald Lake, Pear Lake, Little Willow Creek Corridor, and Iron Creek Units. Agricultural land in the Fish Creek unit not suitable for large farms because of topography will be sold for small farms. Although specific tracts have not been identified, small farms are a

"recommended use" in the Knik Unit, where private landowners and the borough own considerable land suitable for that purpose. (There are several thousand acres of private land suitable for small farms in the Wasilla Management Unit.)

It is difficult to specify an acreage figure for small farms because the plan frequently designates small farms as one of several permitted uses within a management unit. Sites for small farms will be identified specifically through more detailed planning. However, the plan designates approximately 3,000 acres of state land and 2,500 acres of borough land for primary small farm use. Through this plan, the state and borough have also set small farm disposal targets of 3,000 acres and 4,000 acres respectively during the next 5 years.

RECREATION

Public lands designated for recreation use fall into 4 categories: major public recreation areas, recreation sites larger than 160 acres, recreation sites smaller than 160 acres, and trails. The major public recreation areas include the Hatcher Pass Unit, Little Willow Creek Corridor, Little Susitna Corridor, and the Iditarod Trail. Primary land use designations include 18 sites larger than 160 acres, over 100 sites smaller than 160 acres, and approximately 400 miles of trails. The recreation sites include lake and stream access, trail waysides, campgrounds, and historic sites. It is not possible to show all of these recreation areas at the scale of Map 4. (They are mapped in the recreation section of Appendix 2.)

Map 4 shows the primary designations in the major public recreation areas listed above. The Hatcher Pass Management Unit provides a wide range of summer and winter recreation activities including hiking, mountain climbing, snowmobiling, skiing, and wildlife photography. (Mining, recreation, fish and wildlife, and grazing all receive primary use designations in the Hatcher Pass Unit.) The Little Willow Creek and Little Susitna River Corridors are anadromous streams which provide important recreation opportunities to people from all over Alaska. The Iditarod Trail, between Knik and Nome, is the state's best known dog mushing route.

Map 4 also shows recreation as a secondary use in several units where dispersed hunting, fishing, hiking, and other recreation activities are important values that will be protected as other land uses occur.

WATERSHED (WETLANDS)

Watershed is a primary use designation on approximately 57,000 acres of state, and 7,500 acres of borough land. These designations apply to wetlands in the Iron Creek, Little Susitna Corridor, Pear Lake, Susitna Corridor, Fish Creek, and Ronald Lake Management Units. All primary watershed designations are also primary fish and wildlife designations.

The principal feature that most wetlands share is soil that is at least periodically saturated with or covered by water. Wetlands provide extremely important hydrologic functions. They serve to filter nutrients and sediment from upland runoff and therefore are one of the environment's natural safeguards for water quality. They also stabilize water supply by retaining excessive water during flooding and by recharging ground water during dry periods.

The wetlands identified for watershed management on Map 4 will be managed to protect important hydrologic functions, recreation opportunities, and habitat.

PROPOSED TRANSPORTATION CORRIDORS

For this plan's land use designations to be feasible, there are three areas which will require major road systems: Fish Creek (Agriculture), Susitna Corridor (Forestry), and Kashwitna (Forestry). Map 5 shows a possible road system to serve these areas. The routes shown on the map are not intended to represent precise locations. Nor are they funded for construction. However, approximations of these routes would eventually be necessary to make the land use designations in this plan meaningful. Aside from routes related to the land uses proposed by the plan, Map 5 shows two other routes which have been proposed by various public and private groups: the Houston right-of way, between Houston and Point MacKenzie; and a route between the proposed Fish Creek agricultural project and the town of Willow. All of these proposed transportation routes are discussed below. A more detailed discussion, including estimated costs, appears in Appendix 2.

Fish Creek - The Chuitna Right-of- Way and Winnebago Way

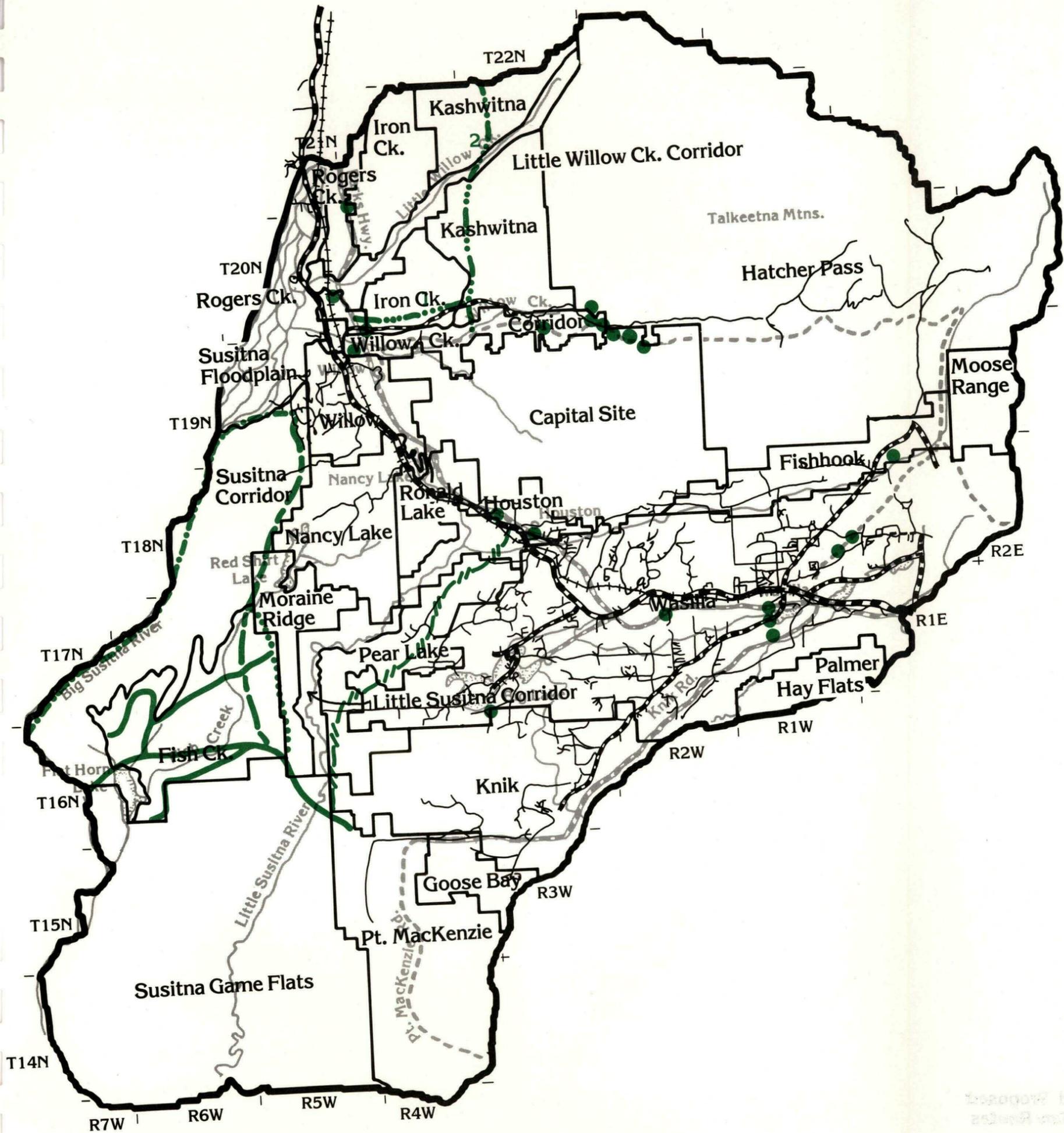
The Fish Creek Management Unit is intended to provide acreage for a major commercial agriculture project. Such a project would require a main road crossing the Little Susitna River and a system of spur routes to access individual farms. The Alaska Department of Transportation and Public Facilities (DOT/PF) has located an approximate alignment for a transportation corridor (road or railroad) to the Beluga Coal Fields, including alternate alignments to the Susitna River. That alignment, known as the Chuitna Right-of-Way, appears to adequately serve as the main road through the unit. A second alignment shown on Map 5 (Winnebago Way) would link the Fish Creek area to Willow. If the Knik Arm crossing were built, this road would shorten the distance from Anchorage to Willow by approximately 30 miles.

In addition, Map 5 shows approximate alignments for spur roads to all parcels of agricultural land 40 acres or greater. These routes may be significantly revised during DOT/PF alignment studies.

Susitna Corridor

The Susitna Corridor is intended to provide a large area to be managed for its forestry, habitat, and agricultural resources. Forestry opera-

Existing and Potential Transportation Routes



- Existing transportation:**
- ++++ railroads
 - primary roads
 - - - secondary roads
- Roads recommended by this plan:**
- Chuitna Right-of-Way and spurs
 - Moraine Ridge
 - - - Susitna Corridor
 - . - . - Kashwitna
 - - - - Winnebago Way
- Other potential transportation corridors:**
- / - / - Houston Right-of-Way
- Material sites**
- sand and gravel



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Willow Subbasin Area Plan

tions require a network of roads, but these roads do not need to be the same quality as the roads in the Fish Creek Management Unit. Wetlands can be crossed using winter roads, clearing need not extend beyond the road itself, and construction techniques need be much less intensive. In addition, only a main route is shown. The numerous forestry spurs would probably be built by the various logging companies. Map 5 shows a possible alignment reaching as far south as Susitna Station. It is likely that road development would occur in increments spread out over many years - as more areas are harvested, more roads would be needed.

Kashwitna

The Kashwitna Unit is intended to be a multiple use management area emphasizing fish and wildlife habitat, forestry, and allowing grazing and small farms.

The initial access would require one of three expensive options: a major bridge across Willow Creek just downstream from a canyon-like area of the creek, or a smaller bridge closer to the Parks Highway and a road along the north side of Willow Creek, or access from the Parks Highway north of the creek and a road along the north side of the creek. Access to the small farm area (just north of the creek) would have to be adequate for conventional vehicles. The remainder of the system could be forestry roads similar to those described for the Susitna Corridor Unit.

Houston Right-of Way

A north-south connection between Pt. MacKenzie and Houston has been proposed by various agencies. DOT/PF has a right-of-way application for this route. There are currently no construction plans. In fact, it is likely that a corridor through the area would be for railroad only and not include a conventional road.

RELATIONSHIP OF WILLOW SUB-BASIN LAND USE DESIGNATIONS TO
THE DEPARTMENT OF NATURAL RESOURCES' STATEWIDE PLAN

The Department of Natural Resources prepared a statewide land use plan in 1980 which is updated annually. The purpose of the statewide plan is to give guidance to planning on a regional and local scale and to serve as an aid to decisions that require a statewide perspective.

The statewide plan developed general land use designations for all state land in Alaska. In areas such as the Willow Sub-basin, which had already been the scene of extensive study, the statewide plan adopted the land uses that were identified and classified prior to the development of the statewide plan. The amount of land designated for various uses by the statewide plan in the Willow Sub-basin is, therefore, exactly the same as the pre-existing land use classifications in the area.

The figures in the following table show the amount of land designated for various uses in the statewide and Willow Sub-basin plans. In both cases the land use designations define the primary values the land will be managed for. It should be noted that the designation of a primary value does not in itself prohibit other uses. In the Willow Sub-basin plan detailed resource data and analysis resulted in the designation of more than one primary land use.

Land use designations on the statewide level are not intended as firm quotas which this or any other plan had to meet. This would be inappropriate considering the more detailed resource information, analysis, and public participation methods that are used in developing area plans. Using the acreage figures in the statewide plan as a general guide, however, it can be seen that the land designations in the Willow Sub-basin plan conform to the intent of the statewide plan. In each category, however, the Willow Sub-basin plan allocates more land than does the statewide plan. This is due to the dual allocations in the Willow plan and to the fact that not all state lands were allocated to specific resources in the statewide plan.

COMPARISON OF STATEWIDE TO WILLOW SUB-BASIN PLAN
LAND USE DESIGNATIONS (STATE-OWNED LAND)

Resource	1981 Statewide Plan Land Use Designations (In Acres)
Agriculture	19,500 ¹
Forestry	19,000
Recreation	195,000
Habitat	26,500
Settlement (includes small farms)	2,000

Resource	Willow Sub-basin Plan Land Use Designations (In Acres)
Agriculture - Cropland	25,000 ²
Agriculture - Grazing	130,000
Forestry/Fish & Wildlife	68,300
Recreation/Fish & Wildlife	267,500 ³
Fish & Wildlife/Watershed	76,300
Settlement (includes small farms)	5,500 ⁴
Mining	220,500

- 1 Includes the Pt. MacKenzie agricultural project.
- 2 Includes the Pt. MacKenzie agricultural project.
- 3 Includes 220,500 acres designated for recreation in Hatcher Pass Management Unit. Portions of this management unit are also designated for mining, grazing, and habitat.
- 4 Net acreage sold will be less than 5,500 due to varying soil and terrain conditions. The 5,500 acres do not include areas where settlement is a secondary use - specific parcels in such areas will be identified through more detailed planning.

MANAGEMENT PLANS

Implementation of land use designations discussed in this chapter will require a number of management plans. As explained in Chapter I, a management plan is the next level of planning by DNR for state lands. A management plan is a more detailed plan than this document, which is an "area plan." Area plans designate permitted land uses and management guidelines. Management plans are necessary for site planning: delineating and scheduling parcels for disposals, designating roads and other infrastructure, scheduling timber sales, rerouting trails to prevent use conflicts, and developing more detailed management guidelines. Implementation of the Willow Plan requires a number of management plans. They are listed in order of priority below:

The Fish Creek Management Plan

The Fish Creek Management Unit is intended to be the site of a joint borough/state agricultural project of approximately 18,000 acres (10,000 borough; 8,000 state). This area is located between the Little Susitna and Susitna Rivers, approximately ten miles northeast of the Point MacKenzie agricultural project. As an implementation of the Willow Plan, DL&WM and the Borough Planning Department have initiated a detailed management plan for Fish Creek. This management plan will lay out individual farms, fix the precise road alignments, and design buffers for important wetlands and anadromous fish streams.

The development of Fish Creek will require a main road from the Point MacKenzie area across the Little Susitna River and a system of spur roads to access individual farms. The Willow Sub-basin Area Plan has proposed a tentative road system adopting the existing Chuitna right-of-way corridor to the Beluga area as the main road and locating approximate spur alignments to all parcels of agricultural land 40 acres or greater.

The Hatcher Pass Management Plan

As indicated above the Willow Sub-basin Plan designates mining, grazing, recreation and habitat as primary uses in the 220,000 acres Hatcher Pass Management Unit. Potential conflicts between mining and recreation, and between grazing and habitat require site specific decisions about the location and management of these activities. Recent private requests to lease parcels for recreation development require action. Therefore DNR and the borough are currently developing a management plan for this unit.

This management plan will include a range management section which implements the grazing guidelines in Chapter III of the Willow Sub-basin Plan. These guidelines require the specification of maximum stocking densities and the protection of water quality, soil stability and habitat.

The Susitna Corridor Management Plan

The Willow Plan designates the Susitna Corridor Unit as a commercial forestry management area of approximately 14,000 acres along the east side of the Susitna River from near Willow to the Susitna Game Flats. Approximately 4,000 acres of borough land in this unit will be developed for agricultural use; some grazing will be allowed on state lands.

This currently remote area could provide a needed boost to the fourteen lumber mills operating in the borough. These mills are currently operating at 10% of capacity due to the lack of timber sales on public lands. The management unit could also provide an important recreation area accessible by vehicle from Anchorage.

Prior to timber harvest, a management plan will be necessary to design road systems, schedule sales, and implement the guidelines in the Willow Plan which limit timber harvests in certain environmentally sensitive areas.

The Kashwitna Management Plan

The Kashwitna Unit is a large area (60,000 acres) between Willow Creek and the Kashwitna River along the foothills of the Talkeetnas, north of the capital site. It is designated as a multiple use area for commercial forestry, grazing, small farms, and habitat management.

Access to the Kashwitna Unit would require one of three options: a major bridge across Willow Creek just downstream of Willow Creek Canyon; a smaller bridge closer to the Parks Highway with a road along the north side of the creek; access from the Parks Highway north of the creek and a road along the north side of the creek. All options would be expensive.

When it is determined that the timber, agricultural and recreation values in the Kashwitna Unit warrant the development of access, a management plan will be necessary to design roads, schedule timber and farm sales and develop detailed management guidelines to minimize conflicts among land users.

Chapter 3

GOALS, POLICIES, AND MANAGEMENT GUIDELINES

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GOALS, POLICIES AND MANAGEMENT GUIDELINES

INTRODUCTION

Chapter III contains goals, policies, and management guidelines for the major land management categories addressed in this plan: agriculture, recreation, forestry, fish and wildlife, settlement, subsurface resources, and transportation.* Policies and management guidelines are also presented for the following environmental conditions and land uses: wetlands, river and stream corridors, trails, and public access.

Goals, policies, and management guidelines form a hierarchy from the general (goals) to the particular (guidelines). Together they lay out a path from overall statements of intent to specific directives which can be applied on the ground as development occurs. As used in this chapter the following definitions apply:

Goal: a general statement of intent, usually not quantifiable nor having a specified date of completion. Goals identify desired long-range conditions.

Policy: a definite course of action to be followed by land managers. Policies set forth official borough and state positions on a wide range of land management issues such as wetlands management, and the protection of the agricultural potential of remote lands.

Management Guideline: specific management standards or procedures to be followed in carrying out goals and policies. Guidelines are intended to be sufficiently detailed to guide on-the-ground decisions, such as how far development must be set back from a stream. Guidelines are applied frequently in day-to-day management decisions.

* Background information concerning each of these resources is presented in Appendix 2.

GOALS, POLICIES AND MANAGEMENT GUIDELINES - AGRICULTURE

GOALS

1. Agricultural Development: the development of an agricultural industry which contributes to the state and local economy without long-term subsidy.
2. Agricultural Land Base: the development and maintenance of the area's agricultural land base:
 - a. to maintain agricultural lands in agricultural production
 - b. to protect and develop land capable of production for domestic and export markets
 - c. to provide, in addition to large scale farm units, a supply of land in 40-80 acre parcels suitable for a variety of small-scale crop and livestock production
 - d. to manage high capability agricultural lands not presently designated for agricultural disposal in a manner which will not preclude future agricultural development
 - e. to provide roads, railroads, ports, and other transportation facilities to serve agricultural lands
3. Environmental Quality: adequate regulation of agricultural practices in areas where those practices may result in increased erosion, sedimentation, siltation or pollution which pose significant threats to wildlife or human activities:
 - a. to provide adequate buffers between the agricultural areas and areas of high fish and wildlife and recreation values
 - b. to provide adequate buffers between agricultural areas and other land uses which would conflict with agriculture
 - c. to minimize effects on water quality

IMPLEMENTATION POLICIES

1. Disposal of Agricultural Lands

Agricultural development rights only will be sold on parcels of borough and state lands which are designated for agricultural use; other development rights shall be kept in public ownership.

2. Large-scale Commercial Agricultural Development

Large contiguous blocks (1,000 acres or larger) of lands designated for agricultural use shall be used primarily to support commercial scale farms (80 acres or larger).

The state and borough agree to designate the approximately 18,000 acres of high capability agricultural land in the Fish Creek Management Unit as the focus of a joint large scale agricultural development project to be initiated at a time mutually agreed. Due to topographic limitations, some of this acreage will not be suitable for large scale farming; however, it is the intention of the state and borough to dispose of commercial scale farms to the maximum extent feasible in this area.

3. Small Farms (40-80 acres)

The borough and state recognize the considerable demand for land for small farms and agree to provide additional land for that purpose.

State Lands: Most state agricultural lands in the sub-basin are in large contiguous blocks suitable for commercial scale agriculture. Small farms will be made available in portions of large scale agricultural projects where topography limits farm size, specifically within the Fish Creek Management Unit. To a lesser extent the state will dispose of small farms in the Kashwitna, Susitna Corridor, Ronald Lake, and Pear Lake Management Units.

Borough Lands: Most of the publically owned land suitable for small farms within the sub-basin is owned by the borough. This is land with good agricultural capability but in parcels too small or scattered for commercial scale agriculture.

Borough lands suitable for small farms are located in abundance in the Knik, Fish Creek and Iron Creek Management Units - and in smaller quantities in the Ronald Lake, and Pear Lake Management Units. The borough will accelerate agricultural disposals within those management units.

Targets for Small Farm Disposals

State: Within the management units specified above the state will attempt to meet a small farm disposal target of 3,000 acres during the next 5 years.

Borough: Within the management units specified above, the borough will attempt to meet a small farm disposal target of 4,000 acres within the next 5 years.

Disposals of land for small farms shall be contingent on proximate or planned road access. Therefore targets for small farm disposals are contingent on economic feasibility of providing access. In general, providing road access to small farms will be feasible only when a road serves other resource development or recreation purposes.

4. Protection of Agricultural Potential

Public lands of high agricultural potential which are not designated for agricultural use are to remain in public ownership to protect future agricultural potential. These lands will not be developed for residential, commercial or other uses which would preclude future agricultural use. Uses such as habitat enhancement and forestry management will be permitted on these lands.

5. Timber Salvage on Agricultural Lands

All timber having high value for commercial and personal use shall be salvaged on borough and state lands to be cleared for agricultural development.

Management plans which include agricultural development projects should address the following items:

- a. the implementation techniques used to assure salvage;
- b. the time required for the local timber industry to accomplish salvage between the times of access development and clearing completion; and
- c. effect of the sale on the development of the forest industry.

6. Grazing

The following policies apply only to state lands in the Willow Sub-basin where grazing is a designated land use.

- a. All grazing lands will be managed as multiple use lands to support a variety of public benefits in addition to livestock production, including the following:
 - 1) fish and wildlife maintenance
 - 2) water quality maintenance
 - 3) public recreation
 - 4) timber management
 - 5) soil conservation
- b. Grazing lands will be managed to insure sustainable forage for domestic stock and wildlife.
- c. Public access across and public use of grazing lands may not be unreasonably limited by persons holding grazing leases or permits.

MANAGEMENT GUIDELINES

Agriculture guidelines listed below address the following issues:

- 1. Protection of the Hydrologic System and Associated Habitat
- 2. Public Access
- 3. Protection of Trails with Important Recreational or Historic Value
- 4. Farm Conservation Plans
- 5. Timber Salvage on Agricultural Lands
- 6. Grazing
- 7. Miscellaneous

1. Protection of the Hydrologic System and Associated Habitat

- a. Stream buffers: See Policies and Management Guidelines; River and Stream Corridors, this chapter.
- b. Wetland buffers: See Policies and Management Guidelines; Wetlands, this chapter.
- c. Instream flows: See Policies and Management Guidelines; River and Stream Corridors, this chapter.
- d. Hydrologic monitoring: See Policies and Management Guidelines; River and Stream Corridors, this chapter.

2. Public Access

See Policies and Management Guidelines; Public Access, this chapter.

3. Trail Protection

See Policies and Management Guidelines; Recreation and Historic Trails, this chapter.

4. Farm Conservation Plans

Wherever possible, farm conservation plans should incorporate appropriate ecologically sound agricultural practices developed by the Soil Conservation Service and other agencies with relevant expertise. It is the responsibility of the Soil Conservation Subdistricts to act as liaisons between local farmers and agencies or institutions with agricultural expertise. State agencies with expertise potentially useful to Soil Conservation Subdistricts should make their resources known and available to Subdistrict officers.

5. Timber Salvage on Agricultural Lands

All timber having high value for commercial and personal use shall be salvaged on lands to be cleared for agricultural purposes. The following are examples of implementation techniques:

- a. salvage of forest products is specified at the time of disposal as part of the disposal contract
- b. the agricultural rights holder is allowed to select specified areas for non-salvage (windbreaks, headquarters site, etc.). The state or borough contracts the remainder and the agricultural rights holder is given the right of first refusal
- c. economic incentives are created for timber salvage. These incentives should, at a minimum, specify that the value of forest products on each parcel be added to the base land price with that amount not eligible for inclusion in the state loan program
- d. the useable forest products are sold and removed before sale of the agricultural rights.

Any method which insures product salvage may be implemented in a particular area. The choice will depend on the specific details of the sale. However, all of the techniques assume realistic scheduling of clearing and access development.

6. Grazing

The following management guidelines apply only to state lands in the Willow Sub-basin where grazing is a designated land use.

a. Grazing Permits and Leases

A grazing lease or permit issued by DNR is required for any person who releases livestock on state grazing lands. Grazing leases will be granted for a period not to exceed 25 years. Permits must be renewed annually. Permits, rather than leases, should be issued in areas especially susceptible to soil erosion, water quality degradation and other environmentally sensitive areas. These areas will be identified through DNR's range management plans (see e. below).

The requirements stated in these guidelines will be implemented through appropriate lease and permit stipulations.

Note: Provisions of existing grazing leases and permits in the Hatcher Pass area and in other portions of the Willow Sub-basin are not affected by these guidelines. In areas where grazing leases and permits have been issued previously new permits may be issued and existing leases may be renewed prior to the completion of range management plans. However permits or leases issued under this provision should adhere to applicable management guidelines.

b. Modification of Vegetation

No artificial modification of natural vegetation (e.g., clearing, crushing, seeding, fencing, burning, etc.) will be permitted without approval of DNR. Consultation with the Alaska Department of Fish and Game (ADF&G) will precede approval of range modification.

c. Stock-Predator Conflicts

When protection of stock necessitates destruction of predator species, e.g., bear, wolves, etc., a lessee or permittee must comply with ADF&G salvage regulations. Frequent (three or more occurrences annually) livestock-predator conflicts may be grounds for modification of a lessee's or permittee's operations plan (see f. below).

d. Seasonal Limitation

To minimize competition between domestic stock and moose for browse, seasonal limitations should be placed on grazing. DNR, with the consultation of ADF&G, may establish spring and fall dates for the release and removal of stock on grazing lands. The seasonal limitations are intended to minimize stock utilization of browse by restricting grazing to the period when there is adequate protein available in grasses and other

non-moose browse species. Locations for which seasonal limitations will be in effect will be specified in DNR's range management plans and will be stipulated in grazing leases or permits for those locations.

e. Range Management Plans

Prior to the issuance of grazing leases or permits for grazing areas designated by the plan, DNR will develop range management plans (RMP). Plans shall be developed for the Kashwitna, Hatcher Pass, Moose Range, and Susitna Corridor management units. Plans shall be developed by the Division of Land and Water Management (DL&WM) in consultation with the Division of Agriculture, ADF&G and SCS. The provisions of range management plans, as well as these guidelines, will be the basis of stipulations to be included in grazing leases and permits in the Willow Sub-basin. Range management plans shall address, at a minimum, the following items:

- 1) Maximum Stocking Densities: The state shall use standard United States Department of Agriculture range management procedures to identify the abundance, distribution, annual productivity and seasonal availability of range vegetation to be utilized by proposed grazing stock. Maximum allowable stocking densities will be computed on the basis of discounted moose browse species and sustainable range production and condition.
- 2) Water Quality Protection: Range management plans will state how anadromous fish streams, other waterways and lakes are to be protected from adverse impacts of grazing. Fencing may be required to protect portions of streams. Specific watering sites, feeding stations, headquarter sites, or other methods may be required to minimize the adverse impacts of grazing.
- 3) Annual Grazing Schedule: Range management plans will establish, if necessary, spring and fall dates for release and removal of stock on grazing lands. To determine these dates, the necessary scientific research will be conducted to determine seasonal levels of protein in available forage.
- 4) Physical Resources Map: Range management plans will include a map which shows the location, acreages, and configurations of proposed lease and permit areas; proposed feed lot sites, stock watering sites, and supplemental feeding stations; farm headquarter sites; fences and other improvements required to implement these guidelines.

- 5) Environmental Monitoring: Range management plans will establish procedures to monitor the impacts of grazing on vegetation and soil stability and establish conditions under which a lessee's or permittee's grazing operations plan may be modified to prevent environmental degradation.
- 6) Access: Proposed roads, bridges, etc., necessary for grazing operations will be identified.

f. Grazing Operations Plan

Persons holding grazing permits or leases must have an approved grazing operations plan (GOP) prior to placing any livestock on state lands. A grazing operations plan will be approved by DNR only when it is in compliance with these guidelines and applicable range management plans. DNR will assist a lessee or permittee in plan preparation with the consultation of ADF&G and SCS. Minimum requirements of a grazing operations plan are as follows:

- 1) Cooperative agreement between the lessee and the Alaska Soil Conservation District or appropriate subdistrict.
- 2) A physical resource map identifying: (1) location, acreage, and configuration of the proposed lease or permit areas(s); (2) proposed feedlot sites, stock watering sites, and supplemental feeding stations; (3) farm headquarter site, outbuildings, fences, and other proposed improvements.
- 3) A record of the lessee's proposed management activities, including (1) range management practices considered essential or desirable; (2) livestock species to be stocked; (3) annual grazing schedule and (4) forage balance sheet.
- 4) Proposed stocking densities: Maximum stocking density will be based on DNR's range management plan for the area concerned. A minimum stocking density with a schedule for achieving it will also be established as part of each grazing operations plan to insure efficient use of state grazing lands.

g. Modification of Grazing Operations Plan

Modifications to grazing operations plans may be required if grazing activities are determined to impair water quality or soil stability or if sustainable forage for stock and wildlife cannot be maintained under an existing grazing operations plan. Determination that modification of a grazing operations

plan is necessary will be made by DNR with the consultation of DEC, ADF&G, and SCS. Range management plans for each grazing area will establish specific conditions under which grazing operations plans may be modified.

7. Miscellaneous

Individual farms are encouraged to promote ecological diversity and wildlife abundance by retaining vegetation suitable for wildlife food and cover in woodlots, hedgerows between fields, and along roadsides wherever possible. Where possible, woodlots should be situated to increase the effective size of stream and wetland buffers.

Lessees are encouraged to consider regulated public hunting as a potential tool for reducing crop damage by wildlife. The Alaska Department of Fish and Game will provide technical assistance to any agricultural leaseholder who wishes to permit regulated public hunting on agricultural lands.

Two publications are highly recommended to both public and private land developers for practices which protect and enhance wildlife resources:

- a. A Synthesis and Evaluation of Fish and Wildlife Resources Information for the Willow and Talkeetna Sub-basins. ADF&G, 1980.
- b. Guidelines for Wildlife Design in Residential Developments. ADF&G Habitat Protection Section, 1979.

GOALS, POLICIES AND MANAGEMENT GUIDELINES - RECREATION

GOALS

1. A wide variety of high quality recreational, cultural and historical resources to satisfy the needs of residents of the borough, the Anchorage metropolitan area and other visitors.
 - a. Protection, enhancement and promotion of the most unique and significant natural, cultural, and recreational values:
 - 1) to maintain the natural character of certain large areas to preserve opportunities for a wilderness experience
 - 2) to protect important historic and recreation trails
 - 3) to protect and enhance the following important recreation opportunities: fishing, hunting (especially moose and waterfowl), hiking, skiing, snowmobiling, wildlife photography, dog sledding, climbing, boating and birdwatching
 - 4) to preserve in a natural state important streams suitable for rafting, kayaking, and other forms of boating.
 - 5) to protect important vistas and geologic features and fragile or unique ecosystems
 - 6) to preserve public waterfront land
 - 7) to protect important historic and cultural resources
 - 8) to promote public awareness of existing recreation opportunities
 - b. Provision of adequate recreation opportunities to satisfy anticipated needs:
 - 1) to provide a land base to address the following critical needs (needs for which demand greatly exceeds supply): developed camping units, boat launches, an alpine skiing area, stream fishing, access to moose and waterfowl hunting areas
 - 2) to provide a land base to address the following important needs (needs for which demand exceeds supply): picnicking, cross-country skiing, walking/running/cycling, canoeing, swimming and lake fishing

- 3) to provide a land base to address the following notable needs (needs for which demand is expected to exceed supply in the near future): dog mushing, hiking and snowmobiling
- c. Recreation activities which are accessible to Anchorage residents and communities within the sub-basin and which complement local planning efforts:
- 1) to establish a community recreation land trust for the benefit of local recreation program development. This land trust will include state lands to be transferred to local government for recreation management
 - 2) to provide for a wide variety of recreational opportunities within a weekend's drive of Anchorage and opportunities close to existing communities in the basin
 - 3) to protect and enhance fly-in recreation opportunities within an hour's flight of Anchorage
- d. Maximum use of recreation sites while maintaining high quality recreation experiences:
- 1) to provide support facilities at high use areas--in particular, road accessible salmon streams
 - 2) to upgrade and enhance existing campground facilities to accommodate needs
 - 3) to promote safety and environmental protection through proper land management and facility development
 - 4) to develop an integrated system of lake access areas for fishing, boating and related activities
- e. Incorporation of educational opportunities in recreation experiences:
- to establish areas with representative or unique ecosystems for scientific research, education, and enjoyment
2. Integration of recreational and non-recreational land uses where compatible.
 3. An improved and diversified economic condition for the area's residents and the state:
 - to provide a land base for commercial recreation operations and tourism

IMPLEMENTATION POLICIES

1. Trails

See Policies and Management Guidelines; Recreation and Historic Trails, this chapter.

2. Public Access

See Policies and Management Guidelines; Public Access, this chapter.

3. Region-wide and Community Recreation Facilities

- a. It is the state's proper role to retain and develop state-owned recreation areas or properties of region-wide or state-wide significance such as the Hatcher Pass Management Unit and the Little Susitna Corridor.
- b. It is the borough's proper role to take the lead in meeting the need for recreation facilities within and adjacent to existing communities designed to serve the needs of those communities.
- c. In recognition of the borough's role in meeting community recreation needs, the state should establish a community recreation land trust for eventual transfer of certain state recreation sites near existing communities to borough ownership. The selection of these sites shall be agreed to by the borough and the state and shall be contingent on the borough's commitment to develop and maintain the recreation values of the sites.

MANAGEMENT GUIDELINES

1. River and Stream Buffers

See Policies and Management Guidelines, River and Stream Corridors, this chapter.

2. Lakes

- a. Approximately 25% of state-owned waterfront to a landward distance of approximately 500 feet, all islands, and all inlets and outlets of lakes capable of sustaining year-round natural or stocked game fish species shall remain in public ownership for habitat protection and public recreation. Adequate public access to these lakes shall also remain in public ownership. The amount of public ownership may vary on a site specific basis, but at a minimum, some portion of these

lakes shall remain public. The size of the public reservation shall be appropriate to its expected long range recreational use.

On borough land, all lakes larger than 20 acres with the capability of sustaining year-round natural or stocked game fish species should have some amount of waterfront held in public ownership. The exact amount should be determined on a case by case basis and should be appropriate to the lake's expected long range recreational use.

- b. Wherever a lake-side recreation site has been identified, a minimum of 40 contiguous acres is desirable to be used for recreational facility development and related purposes.

Adjacent uses should be encouraged which do not detract from recreational enjoyment of the site.

3. Trails

See Policies and Management Guidelines, Recreation and Historic Trails, this chapter.

GOALS, POLICIES AND MANAGEMENT GUIDELINES - FORESTRY

GOALS

1. Development of forest products industry which contributes to the state and local economy without long term subsidy:
 - a. a continuous flow of commercial quality raw materials
 - b. a stable base of commercially productive forest lands
2. A supply of forest products from public lands for personal use commensurate with:
 - a. the local and Anchorage area demand through at least the year 2000
 - b. the characteristics of public lands
 - c. other sources of supply
3. Multiple use of forest lands.
4. Development of roads, railroads, ports and other transportation facilities to provide access to public forest lands for both commercial and personal use.

IMPLEMENTATION POLICIES

1. Timber Salvage on Agricultural Lands

All timber having high value for commercial and personal use shall be salvaged on borough and state lands to be cleared for agricultural development.

Management plans which include agricultural development projects should address the following items:

- a. the implementation techniques used to assure salvage;
- b. the time required for the local timber industry to accomplish salvage between the times of access development and clearing completion and;

- c. the effect of the sale on the development of the forest industry.

2. Development of the Forest Industry

The scheduling and provisions of timber contracts should be designed to aid the growth of a commercial forest industry in the area.

- a. Timber sales should be scheduled to provide a continuous flow of commercial quality raw materials taking into account: (1) the supply of timber available from public and private lands in other areas of southcentral Alaska, (2) the supply of timber available from timber salvage on agricultural lands, and (3) the ability of the local industry to process the timber.
- b. The schedule for timber sales on public lands should be developed jointly by the borough and the state in order to insure a continuous and predictable supply of wood products.
- c. Timber contracts on state lands should generally be let through commercial bid sales rather than negotiated sales.
- d. Whenever possible, timber contracts should be long term (three to five years) rather than for a single season.

3. Personal Use Forestry

Timber stands suitable for commercial sales should be used for that purpose. Personal use harvests should occur on non-commercial stands or as a silvicultural tool. Exceptions to this policy should occur only when the supply of personal use products cannot be met from other accessible forest lands in the sub-basin.

MANAGEMENT GUIDELINES

Forestry guidelines listed below address the following issues:

1. Forest Resources and Practices Act
2. Timber Salvage on Agricultural Lands
3. Protection of the Hydrologic System
4. Joint Habitat/Forestry Management Areas
5. Management Plans
6. Timber Harvest in Essential Habitat Areas
7. Timber Harvest near Alpine Tree Line
8. Trail Protection
9. Visual Resource Protection and Enhancement
10. Miscellaneous

1. Forest Resources and Practices Act

Guidelines of this plan should not be construed to replace guidelines in the implementation regulations of the Forest Resources and Practices Act or the field manual for Region II, Interior Spruce/Hardwood Region.

2. Timber Salvage on Agricultural Lands

All timber having high value for commercial and personal use forest products should be salvaged on lands to be cleared for agricultural purposes. The following are examples of implementation techniques:

- a. salvage of forest products is specified at the time of disposal as part of the disposal contract;
- b. the agricultural rights holder is allowed to select specified areas for non-salvage (windbreaks, headquarters site, etc.). The state or borough contracts the remainder and the agricultural rights holder is given the right of first refusal;
- c. economic incentives are created for timber salvage. These incentives should, at a minimum, specify that the value of forest products on each parcel be added to the base land price with that amount not eligible for inclusion in the state loan program;
- d. the useable forest products are sold and removed before sale of the agricultural rights.

Any method which insures product salvage may be implemented in a particular area. The choice would depend on the specific details the sale. However, all of the options assume realistic scheduling of clearing and access development.

3. Protection of the Hydrologic System

- a. Streams: Generally, the Forest Resources and Practices Act and implementing regulations will guide operations along streams. Operations with the potential of affecting anadromous fish streams require on-site review during preliminary sale planning (including and in addition to Title 16 requirements). In addition, forestry operations are subject to Policies and Management Guidelines; River and Stream Corridors, this chapter.
- b. Wetlands: Only selective timber harvest will generally be permitted within 100 feet of class I and II wetlands. This guideline may be changed for specific locations by DNR with the consultation of ADF&G. See Policies and Management Guidelines; Wetlands, this chapter, for the definition of class I and II wetlands.

- c. Lakes: Personal or commercial timber harvests around lakes with significant recreation value shall be designed to protect and enhance the recreational values of the lake and adjacent land. Selective cutting only should be done in areas viewed from the lake, the lakeshore and roads to the lake. Timber harvest plans with the potential of affecting lakes that have significant recreation value should be reviewed by the Division of Parks and ADF&G.

4. Joint Forestry/Habitat Management Areas

For management units with important forestry and wildlife values, forest operations will be geared toward the combined goals of forest management, habitat enhancement and recreational opportunity availability. Harvest operations will follow the following management guidelines in units where both forestry and habitat receive primary use designations in this plan.

- a. Hardwood management should be based on maximizing economic return on wood fiber rather than maximizing wood volume produced. This will result in decreasing the rotation age, with a goal of an average of 40% of the primary hardwood stands within each management unit in the under 25 year old age stands.
- b. In areas of overmature hardwood stands, clearcuts up to 15 acres are encouraged as long as adequate escape cover (vegetation) is available within 300 feet of any point within a clearcut.

5. Management Plans

For the Susitna Corridor, Susitna Floodplain, and Kashwitna Management Units, five-year management plans should be prepared. These plans will address actions under consideration in the next five years by DNR-Division of Land and Water Management, DNR-Division of Parks, DNR-Division of Forestry, Alaska Department of Fish and Game, the Matanaska-Susitna Borough, or any other agency with likely management interest in the area.

6. Timber Harvests in Essential Habitat Areas

In areas of essential habitat or in any habitat necessary to threatened or endangered species, no harvests are allowed which are likely to have negative impact on the habitat or the species. Determination of essential areas, and design and approval of harvest techniques in these areas shall be conducted jointly by DNR and ADF&G.

7. Timber Harvest Near Alpine Tree Line

No timber cuts may occur within 1/2 mile of alpine tree line except with approval and design consultation of ADF&G.

8. Trail Protection

Trail corridors designated in this plan are available for personal and selective commercial timber harvest only if such harvests protect or enhance the visual, sound, and other characteristics of the trail. Harvest practices, timing and transportation must be coordinated with the Alaska Division of Parks. Unless otherwise noted trail corridors extend 150 feet from trail centerline (300 feet, total width). See Policies and Management Guidelines; Trails, this chapter.

9. Visual Resource Protection and Enhancement

Forest operations should avoid negative impacts on views from the Parks Highway, residential areas, other roads, or areas with substantial human use.

10. Miscellaneous

- a. Two publications are highly recommended to both public and private land developers for practices which protect and enhance wildlife resources.
 - 1) A Synthesis and Evaluation of Fish and Wildlife Resources Information for the Willow and Talkeetna Sub-basins. ADF&G, 1980.
 - 2) Guidelines for Wildlife Design in Residential Developments. ADF&G Habitat Protection Section, 1979.
- b. The location of and development standards for roads on state forest lands will be coordinated with the Division of Parks, ADF&G, and DL&WM.

GOALS, POLICIES AND MANAGEMENT GUIDELINES - FISH AND WILDLIFE

GOALS

1. Maintenance and enhancement of the Willow Sub-basin as one of the state's most important areas for providing high quality, readily accessible fish and wildlife for the use of local residents, residents of the Anchorage metropolitan area, and other visitors.
2. A continuing contribution of King, Red, Silver, Pink and Chum Salmon to the Cook Inlet commercial fishery from Willow Sub-basin anadromous fish streams.

IMPLEMENTATION POLICIES

1. General

Fish and wildlife habitat values shall be an important consideration in the management of all public lands, regardless of the dominant land use. Development activities will be conducted in a manner that minimizes negative impacts on fish and wildlife habitat.

2. Management by Species Type

- a. The majority of existing human use of moose, bear, ptarmigan, spruce grouse and small fur bearing mammals occurs on private land. As private land in the sub-basin becomes more densely developed a larger percentage of these species' habitat needs and of their use by humans must occur on public lands.
- b. The quality of anadromous fish streams of the sub-basin and of the overall hydrologic system - lakes, tributaries, wetlands and groundwater - should be preserved at a level which: a) supports sportfishing at current (average over 1975-1980) or increased levels of human use; and b) provides a contribution of salmon to the Cook Inlet commercial salmon fishery equal to the average over the last 5 years.

3. Management by General Habitat Type

- a. The state and borough will strive to preserve and enhance the diversity of habitat types occurring in the sub-basin.

- 1) Particular attention will be given to protecting/enhancing habitats that support a wide variety of species or species of high value to human use, are of limited availability in the sub-basin, and are highly vulnerable to disruption. Habitat types in this category are tundra (especially shrub tundra), riparian areas, wetlands other than riparian, open forest with shrub understory, and shrublands.
 - 2) Representative amounts of other habitat types in the sub-basin will be preserved. These include closed spruce forests, closed mixed deciduous/coniferous forests and grasslands.
 - 3) Land management that significantly alters habitat will give special consideration to the protection of ecotones - areas at the juncture of two or more vegetative zones or physiographic regions. This will occur at the site design phase of any project and include involvement of ADF&G to assist in site selection, location of buffers, laying out open spaces in subdivisions, etc.
- b. Consideration must be given to the overall pattern of lands preserved for fish and wildlife production as well as the qualities of specific sites. Wherever possible, habitat lands shall be linked through migration corridors, river corridors, and buffers.

MANAGEMENT GUIDELINES

1. Public Access to Fish and Wildlife Resources

See Policies and Management Guidelines, Public Access, this chapter.

2. River and Stream Corridors

See Policies and Management Guidelines, River and Stream Corridors, this chapter.

3. Wetlands

See Policies and Management Guidelines, Wetlands, this chapter.

4. Forestry Practices

See Policies and Management Guidelines, Forestry, this chapter.

5. Grazing

See Policies and Management Guidelines, Agriculture, this chapter.

6. Subsurface Resources

See Policies and Management Guidelines, Sub-surface Resources, this chapter.

7. Recommended Development Practices

Two publications are highly recommended to both public and private land developers for practices which protect and enhance wildlife resources.

a. A Synthesis and Evaluation of Fish and Wildlife Resources Information for the Willow and Talkeetna Sub-basins. ADF&G, 1980.

b. Guidelines for Wildlife Design in Residential Developments. ADF&G Habitat Protection Section, 1979.

8. Life History of Species

Land management practices should be designed to minimize impacts on species during critical portions of their life histories (e.g., moose calving, fish overwintering areas). The borough and state should consult with the Department of Fish and Game to develop plans for mitigating impacts during these periods.

GOALS, POLICIES AND MANAGEMENT GUIDELINES - SETTLEMENT

GOALS

1. Provide a supply of public land for a variety of settlement purposes commensurate with:
 - a. current and projected demand
 - b. the supply of public lands suitable to meet demand
 - c. the supply of private lands suitable to meet demand
2. Encourage patterns of year-round settlement which minimize service costs, facilitate a stable economic base, and preserve the desired social environment.
3. Avoid settlement in hazardous areas and in areas where development could cause significant environmental degradation.

IMPLEMENTATION POLICIES

1. Supply of Public Lands for Settlement
 - a. General Policy: Vacant land suitable for residential use within the Willow Sub-basin is abundant. There are approximately 35,000 acres of vacant, subdivided private land in this sub-basin. In light of this vast supply of private land for residential purposes, the borough and state set a low priority on selling important agricultural, timber, mineral and recreation lands for residential use. These resource lands will provide the region's economic base for long term development. Economic development within the borough is threatened by selling important resource lands for residential use.
 - b. Demand Assessment: The borough and state agree that suitable public land should be made available for residential use when the private supply is limited. Therefore, the borough and state will jointly assess demand for residential land yearly and establish annual disposal schedules for public lands. During the next 5 years, disposal of settlement lands with

road access will be primarily a borough responsibility due to the lack of suitable state lands near existing roads.

- c. Commercial and Industrial Land: It is the policy of the borough and state to sell suitable lands for private commercial and industrial use in order to facilitate economic development. Land disposal decisions for these uses will be made on a case by case basis consistent with this plan.

2. Settlement Patterns

- a. Borough and state land disposals should guide year-round settlement to areas where public services, including transportation, exist or can be provided at reasonable cost, or where development of a viable economic base is probable.
- b. The borough and state recognize three general categories of public land that may be sold for settlement: land in or adjacent to community centers, rural land with road access, and remote lands with no road access. General policies for disposing of public lands in each of these categories are as follows:
 - 1) Community Centers: Public land inside or adjacent to existing or planned communities (Wasilla, Willow, Point MacKenzie, Houston, and Big Lake) should be used to facilitate the development of that community. Disposal of land for residential, commercial and industrial use shall be encouraged as far as consistent with local plans. Except for lands designated for public retention, state lands within community centers are high priority for disposal.
 - 2) Rural Areas with Road Access: In these areas settlement should be designed to maintain open space and encourage efficient, compact residential development. Land should be offered for disposal in these areas, consistent with demand.
 - 3) Areas without Road Access: Public lands in this category are lowest priority for settlement. This policy is aimed at minimizing service costs and protecting important resource lands. However, there is high demand for sites suitable for private recreational use in the borough. Therefore, waterfront sites and other sites with special attraction for residential use are high priority for disposal if fly-in or boat access is available. (Public access to lakes, streams and other recreation areas shall be maintained.)

3. Hazardous Areas and Areas Susceptible to Environmental Degradation

- a. The borough and state should avoid disposing of land for settlement where environmental hazards such as floodplains or steep slopes pose a significant threat to life and property and where human activity will cause serious environmental degradation such as pollution of the water table, wetlands, lakes, streams or other environmentally important areas.

MANAGEMENT GUIDELINES

1. Public Access

See Policies and Management Guidelines; Public Access, this chapter.

2. Stream Buffers

See Policies and Management Guidelines; River and Stream Corridors, this chapter.

3. Trails

See Policies and Management Guidelines; Recreation and Historic Trails, this chapter.

4. Wetlands

See Policies and Management Guidelines; Wetlands, this chapter.

5. Floodplains

Public lands within the 100-year floodplain should remain in public ownership except where a regulatory floodway and regulatory flood fringe have been identified through detailed hydrologic studies.* When such studies have been done, disposals of public lands within the flood fringe may occur. Disposals within the flood fringe should be for low density development, for example, private recreational residences or agriculture, rather than urban density subdivisions. In drainages where the 100-year floodplain has not been identified, the best available information will be used to determine a flood hazard zone to remain in public ownership.

* The floodway is the unobstructed portion of floodplain which can convey a 100-year flood and keep it within a specified height and velocity. The floodway carries the fast-moving and deep water of the flood. The flood fringe is that part of the 100-year floodplain outside the limits of the floodway. The flood fringe carries the more shallow and more slowly moving flood waters.

GOALS, POLICIES AND MANAGEMENT GUIDELINES - SUBSURFACE RESOURCES

GOALS

1. Resource Development: the development of subsurface mineral and energy resources to contribute to the local and state economies and to meet local, regional and national needs:
 - a. to develop the infrastructure - roads, rail, ports, processing facilities, etc. - needed to acquire, process and market subsurface resources
 - b. to insure that policies or guidelines affecting the development of subsurface resources are consistent, simple and predictable
2. Environmental Protection: minimum adverse impacts of subsurface resource development on surface resources and land uses
3. Socioeconomic Impacts: minimum adverse social, fiscal, and economic impacts on communities

IMPLEMENTATION POLICIES

1. The Effects of the Plan on Opportunities to Explore and Develop Subsurface Resources on State-owned Subsurface Land*

The large majority of state-owned subsurface areas in the Willow Sub-basin are currently open to exploration and development of subsurface resources and will remain open under this land use plan. However, an important effect of this plan is that it closes certain areas to specific types of subsurface resource exploration and development. The following section describes the areas closed by the plan. It is important to note that these mineral closures and other policies resulting from this plan do not alter or replace existing regulations, nor do they affect any existing mineral closures in the area. The areas closed to mining described below are closed only to new exploration or development activities; any existing leases, prospecting permits, or claims will not be affected. (Mineral closing orders will be prepared for those areas in compliance with AS 38.05.185.)

a. Areas closed both to mineral leasing and to locatable mineral entry by this plan**

The Little Susitna River Corridor Management Unit is closed to all mineral leasing and to locatable mineral entry.

b. Areas closed only to locatable mineral entry by this plan

Under current department policy, areas sold by the state for residential or agricultural purposes -- including those indentified by this plan -- are closed to all locatable mineral entry. (These sale areas may, on a case-by-case basis, be open to development of leasable minerals.)

* The State retains subsurface rights when it transfers land to local governments or private owners. Consequently all subsurface rights in the sub-basin, with two notable exceptions, are held by the State and are subject to the policies in this plan. The first exception is certain private lands that were homesteaded and passed directly from federal to private ownership. Private land of this type comprises a relatively small percentage of the sub-basin's area, less than 5 percent (mostly in the Willow and Wasilla areas). The second exception is lands granted to Native regional and village corporations. Under the terms of the Alaska Native Claims Settlement Act, Native Corporations received both surface and subsurface rights. These lands make up about 1 percent of the sub-basin's area.

** "Leasable" minerals include oil and gas, coal, and geothermal resources. Development rights are acquired either at a lease sale, (the method always used for oil and gas) or non-competitively (by applying for a prospecting permit). Mineral such as gold, silver, copper, iron, asbestos, and uranium, are "locatable;" rights to these minerals are acquired by staking a mining claim.

c. Areas Closed to Coal Prospecting

Certain areas with exceptionally high surface resource values are closed to the issuance of coal prospecting permits*; these areas are described below.

-Large blocks of class II and III soils: The Point MacKenzie project and potential agricultural areas in Fish Creek and Susitna Corridor Management Units.

-River Corridors: Little Susitna River, Little Willow Creek, Willow Creek, and the Big Susitna River.

The Little Susitna River: all of the Little Susitna River Management Unit and a corridor 300 feet on either side of the river over the remainder of the river's course.

Little Willow Creek: the portion of Little Willow Creek Management Unit east of where the railroad crosses the river and a corridor 300 feet on either side of the river over the remainder of the river's course.

Willow Creek: Willow Creek Management Unit and a corridor 300 feet on either side of the river over the remainder of the river's course.

Big Susitna River: a corridor at least $\frac{1}{4}$ mile on either side of the river (note: the eastern bank of the river forms the boundary to the study area).

-Recreation sites identified on the recreation map of this plan (Appendix 2). (These are primarily small sites -- less than 160 acres -- used for campgrounds, waysides, boat launches and access sites on water bodies and along trails.)

-A corridor 300 feet wide on either side of the Parks Highway right-of-way to protect visual quality.

-Nancy Lake State Recreation Area.

-The proposed state capital site at Willow.

-All past and planned (through 1987) state subdivisions and the portions of state remote parcel sales areas likely to be staked.

* Under State law, once a coal prospecting permit is issued, the state is required to grant the permit holder a coal lease if coal is found in commercial quantities. Any coal mining that occurs after a lease is issued would be subject to state, federal and local mining regulations.

2. Protection of Streams and Stream Corridors

Protection of fish and wildlife and recreation values is the primary management objective within the portions of Little Willow Creek, Willow Creek, and the Little Susitna River described below. These three areas will be open to leasehold location under AS 38.05.205. In "leasehold location" areas, a mining claim is staked in the usual fashion, but must be converted to a lease before it can be put into production. Lease stipulations will be used to protect fish and wildlife and recreational values. (A mineral leasing order will be prepared for these areas in compliance with AS 38.05.85.)

Little Willow Creek: the portion of Little Willow Creek Management Unit east to where the railroad crosses the river and a corridor 300 feet on either side of the river between the railroad and the Big Susitna River.

Willow Creek: Willow Creek Management Unit and a corridor 300 feet on either side of the river between the western edge of the management unit and the Big Susitna River.

Little Susitna River: a corridor 300 feet on either side of the river between the eastern edge of the Little Susitna Corridor Management Unit and the bridge on the road to Hatcher Pass.

3. Mining in Community Centers

Permits, leasehold stipulations, or other controls affecting subsurface development in Wasilla, Big Lake, Houston, Knik, and Willow shall be prepared with the consultation of borough and city governments and be consistent with local or borough land use plans. The boundaries within which this policy will apply are city limits or community planning areas defined by the Matanuska-Susitna Borough. The state shall consider local government recommendations when considering or issuing development leases or permits.

4. Coal Prospecting and Mining

Coal prospecting will occur in a manner that minimizes adverse impacts on the natural environment including effects on vegetation, water quality, fish, bird, and animal life, etc. (See guidelines sections.)

Prospecting for coal is allowed adjacent to anadromous fish streams (other than those protected in specific corridors); however, surface entry up to 500 feet from the stream may be restricted if a lease is eventually granted. This policy is limited to the anadromous fish streams depicted on the Fish and Wildlife map (Map 13) shown in Appendix 2. Decisions on surface entry adjacent to streams will be made with the consultation of Division of Parks and ADF&G.

5. Incorporating Area Plan Policies And Guidelines into Mining Permits and Leases

Permits and leases required for mining will continue to be issued on a case-by-case basis coordinated by the Division of Minerals and Energy Management (DMEM), with involvement by the Department of Fish and Game, Department of Environmental Conservation, the Division of Land and Water Management (DL&WM), the Division of Forestry (DOF), and the Division of Parks. Prior to issuing miscellaneous land use permits or leases, the DL&WM will review the management intent, land use designations, and specific management guidelines applying to the area affected by the proposed mining operation and see that these considerations are incorporated into the miscellaneous land use permit or lease. (See Management Guidelines Section for specific criteria).

6. Promotion of Subsurface Resources Development

- a. Infrastructure. This land use plan can principally affect necessary infrastructure development through identification of needed roads. Specific roads proposed by this plan are shown in the Transportation Section of Appendix 2.
- b. Conflicts Between Mining and Other Uses: A detailed management plan for the Hatcher Pass area is being prepared by DNR in 1983. This planning effort will develop guidelines to reduce conflicts between other uses occurring in the area (recreation, grazing, etc.) and mining.
- c. Coal Development: It is the state's policy to promote coal development through:
 - 1) developing a coal strip mining reclamation program based on Alaskan conditions;
 - 2) assisting in the development of the environmental and social data base required for permits; and
 - 3) encouraging the marketing of Alaskan coal.

7. Anadromous Fish Streams

Overall water and streambed quality necessary to support existing levels of use of anadromous fish within the sub-basin (sport, subsistence, and commercial) shall not be diminished as a result of mining activities.

8. Sand and Gravel

See Goals, Policies and Management Guidelines; Transportation, this chapter.

MANAGEMENT GUIDELINES

1. Standard Stipulations

Permits* and lease plans of operations will always address, at minimum, the following issues: timing and methods of access and related impacts, disposal of overburden and tailings, disposal of combustible and noncombustible waste, disposal of sewage and waste water, sediment control, and fuel and oil storage and spills. (These are currently applied to all Miscellaneous Land Use Permits (MLUP) issued by DMEM and are included here primarily to inform prospective miners of the types of requirements they will have to meet and to formalize existing procedure).

2. Erosion Control Adjacent to and Upland from Anadromous Fish Streams

Stipulations in mining permits or in plans of operations associated with leases will insure that anadromous fish streams are protected from siltation that may be caused by mining activities. On a case-by-case basis, with the consultation of the Department of Fish and Game, stipulations should be prepared to address:

- a. location of tailings and overburden
- b. alteration of natural vegetation and natural contours
- c. impacts on non-anadromous fish tributaries that affect water quality downstream
- d. revegetation of disturbed areas
- e. maintenance of a buffer of undisturbed vegetation adjacent to streams.

3. Reclamation

The Miscellaneous Land Use Permit or plan of operations associated with a lease will specify that land must be returned to a useful state. Determination of the specific type of reclamation will be done in consultation with the agency responsible for the primary land use value(s) in the affected area.

* Under the existing permit process a miner who has staked and intends to work a claim must submit a triagency permit application to the Department of Natural Resources. The application includes sufficient information to issue the permits required to develop the claim; water quality (ADEC), anadromous fish (Title 16-ADF&G) and miscellaneous land use (ADNR).

4. Control of Visual Impacts

Guidelines will be developed as necessary through the Miscellaneous Land Use Permit or leasing process to minimize the adverse visual impacts of mining in settled areas, recreation areas, and in areas viewed from roads. In such areas guidelines will address, at a minimum, the following items: control of solid wastes; removal of vegetation; siting of mining structures, tailings and overburden; roads; and rehabilitation of mining sites.

5. Access for Mineral Development

- a. Access to tundra, wetlands, and other environmentally sensitive areas should occur in a manner at a time that minimizes damage. (See Goals, Policies, and Management Guidelines; Transportation, this chapter.)
- b. Existing roads and trails should be used to provide access to mine sites wherever possible.

6. Public Access

See Policies and Management Guidelines: Public Access, this chapter.

GOALS, POLICIES AND MANAGEMENT GUIDELINES - TRANSPORTATION

GOALS

1. A transportation system which supports the goals and objectives of other plan elements.
2. A transportation system with the lowest possible long run costs including construction, operations, and maintenance.
3. A transportation system with minimal impact on the environment:
 - a. the aquatic environment
 - b. the terrestrial environment
 - c. aesthetic and cultural features
4. A transportation system which efficiently uses energy: a system which encourages compact, efficient development patterns

IMPLEMENTATION POLICIES

1. The provision of the requisite access should precede disposal or resource development. This plan provides general recommendations for transportation routes to meet the needs of the various resources. However, much more detailed route alignment and feasibility analysis will be required before the routes can be considered final.
2. The borough and state should avoid actions incompatible with the construction of potential routes until such time as final decision is made on the feasibility/appropriateness of the routes.
3. Alignment of transportation corridors should be coordinated with all public and private agencies with jurisdiction over the affected land and resources.
4. In order to minimize construction and maintenance costs, sand and gravel sites should be located on public land as near to transportation routes as is possible and appropriate.

5. Management of public lands adjacent to the Parks Highway should be consistent with the recommendations of the report "Scenic Resources Along the Parks Highway." The recommendations in that report which are relevant to the Willow Sub-Basin are in Appendix 1. The borough and state will encourage private land owners to follow recommendations in the report in order to protect the scenic values along the highway.

MANAGEMENT GUIDELINES

Transportation guidelines listed below address the following issues:

1. Rights-of-Way Size and Permitted Uses
2. Protection of the Hydrologic System
3. Road Pull-outs
4. Timber Salvage from the Right-of-Way
5. Material Sites
6. Section Line Easements
7. Miscellaneous

1. Rights-of-Way Size and Permitted Uses

The width of major road rights-of-way should be determined on a site specific basis. However, they should be sufficient to accommodate recreation trails within the rights-of-way but not directly adjacent to the road, future road expansion, and the addition of miscellaneous utilities. Minor road rights-of-way should be sufficient to accommodate recreational trails only when the road replaces an existing trail.

The vacant portions of rights-of-way should be used for selective timber harvest or leased for agricultural purposes if such uses do not create hazards or impair necessary visual screening.

2. Protection of the Hydrologic System

Transportation corridors should be located to avoid influencing the quality or quantity of water in adjacent streams or lakes, or detracting from recreational use of the waterway. Specific guidelines are contained below.

- a. Minimize stream crossings - especially anadromous fish streams.
- b. Wherever possible, avoid routing roads parallel to and within 100 feet of any waterway or parallel to and directly upslope from any waterway.
- c. Leave sufficient space on either side of road for buffers when routing near streams and wetlands. Buffers will vary with the degree of potential erosion hazard, but all buffers should be

at least 100 feet. Where existing buffers lack sufficient protective vegetation, more effective vegetation should be planted.

- d. When it is absolutely necessary to cross a water way, position the crossing as nearly as possible at a 90° angle, or perpendicular to the water channel.
- e. All water crossings (bridges and culverts) should be large enough and positioned to avoid: (1) changing direction and velocity of stream flow, (2) interference with migrating or spawning activities of fish and wildlife. In addition, all bridges and culverts should be large enough to accommodate the 25 year peak discharge without interfering with volume, velocity and sediment transport or substrate characteristics of the stream. Bridges and culverts should provide adequate clearance for boat, pedestrian, horseback and large game passage whenever these uses occur or are anticipated.
- f. Construction or construction activities should not encroach upon streams.
- g. Road drainage should not be discharged directly over the edges of the streambanks. Diverted flows from road gutters should be provided with adequate outlets.
- h. Vegetative cover along streambanks should be encouraged - as long as it does not restrict channel capacities.
- i. When routing through wetlands or peat, culverts should be installed to enable free movement of fluids, mineral salts, nutrients, etc.
- j. Construction should be confined, whenever possible, to level, well drained areas. In potential problem areas, excavation and soil disturbance should be minimized.
- k. Routing should be avoided in severe hazard erosion areas (i.e., steep slopes) - especially those directly above or adjacent to wetlands or water ways.
- l. When it is necessary to route through erosion hazard areas (primarily slopes greater than 12%), methods should be employed to decrease runoff, erosion, and sedimentation by vegetative coverings, surface roughening, diversion dikes, etc.
- m. Construction should be minimized in poorly drained areas - particularly lowlands and peat. Construction should be minimized in areas of sandy or gravely soils where the seasonal water table comes within a maximum of four feet of the surface and in areas of silty soils where the water table comes within a maximum of three feet from the surface.

3. Road Pull-outs

Where road corridors contact streams, habitat corridors or other areas of expected recreational useage, sufficient acreage should be retained in public ownership to accommodate public access, safety requirements, and expected recreational use. The size and location of pullouts should be determined in consultation with Division of Parks and Department of Fish and Game.

4. Timber Salvage from the Right-of-Way

All timber having high value for commercial and personal use will be salvaged on right-of-ways to be cleared for construction.

5. Material Sites

To minimize the construction and maintenance cost of transportation, material sites should be located as near to transportation routes as possible, while at the same time protecting the fish and wildlife and related recreational resources.

Given the current paucity of information in the undeveloped portions of the sub-basin, the State Division of Geologic and Geophysical Surveys and the Department of Transportation should inventory and analyze potential gravel sources near proposed transportation corridors. The results of the work should be used to locate the required material sites.

The location and extraction of road building material within streams, stream buffers, and habitat/recreation corridors should occur only after design consultation with ADF&G, DOT/PF and DNR's Divisions of Parks and Geologic and Geophysical Survey.

Material sites should be screened from the road, residential areas, recreational areas, and other areas of significant human use. Sufficient land should be allocated to the material site to allow for such screening.

6. Section Line Easements

See Policies & Management Guidelines, Public Access, this chapter.

7. Miscellaneous

a. Guidelines of this plan should not be construed to replace requirements of the Forest Resources and Practices Act, or other applicable State and Federal laws.

b. Two publications are highly recommended to both public and private land developers for practices which protect and enhance wildlife resources.

- 1) A Synthesis and Evaluation of Fish and Wildlife Resources Information for the Willow and Talkeetna Sub-basins,
ADF&G, 1980.

- 2) Guidelines for Wildlife Design in Residential Developments. ADF&G Habitat Protection Section, 1979.

POLICIES AND MANAGEMENT GUIDELINES - WETLANDS

POLICIES

1. Wetlands Management

It is the intent of the borough and state to provide for the protection of the hydrologic, habitat and recreation functions of public wetlands. Land management practices shall be directed at minimizing adverse impacts on the following important functions of wetlands:

- a. Water quality: Wetlands serve to filter nutrients and sediment from upland run-off.
- b. Water supply: Wetlands serve to stabilize water supply by retaining excessive water during flooding and by recharging groundwater during dry periods.
- c. Habitat/recreation: Wetlands provide important feeding, nesting, and breeding grounds for many species; related recreational use is also important.

2. Wetlands - A Definition

For the implementation of wetland policies and management guidelines, the following definition of wetlands shall apply: Wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. The single feature that most wetlands share is soil or substrate that is at least periodically saturated with or covered by water.* For purposes of this plan, land areas must fall into one of the following two categories to be identified and mapped as wetlands:

* Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. USFWS, Office of Biological Services, FWS/OBS-79/31. Washington D.C. 103 pp.

- 1) land areas which, at least periodically, support predominantly hydrophytes* and in which the substrate is predominantly very poorly drained or undrained hydric soil**; or
- 2) land areas which are located within an active floodplain+; regardless of vegetation or soil conditions.

In accordance with this definition, wetlands in the Willow Sub-basin have been identified and mapped by combining data on soil drainage obtained from the Soil Conservation Service, with data on wetland vegetation types provided by the U. S. Fish and Wildlife Service. The resulting maps are available at offices of the Soil Conservation Service and the Alaska Department of Natural Resources. These maps will be used to identify wetlands in the implementation of this plan.

MANAGEMENT GUIDELINES

For purposes of these management guidelines, wetlands are divided into three classes: Class I, wetlands larger than 100 acres and all wetlands with a locatable stream outlet (the stream shall be considered part of the wetland); Class II, wetlands between 40 and 100 acres with no outlet; and Class III, wetlands less than 40 acres with no outlet.

1. Agricultural Development Adjacent To Wetlands

- a. Class I wetlands and certain surrounding lands (buffers) should remain in public ownership whenever feasible. A Class I wetland buffer shall include all soils of Class IV or worse agricultural capability (e.g. Class V, VI, etc.) which lie adjacent to the wetland or a 100-foot strip adjacent to the wetland - whichever provides the greatest buffer width. However, maximum buffer width should be 300 feet. Restrictive use covenants and public access easements rather than public ownership may be used to protect Class I wetlands and associated buffers under conditions specified in 4 below.

* hydrophyte: any plant growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.

** hydric soil: soil that is wet long enough to periodically produce anaerobic conditions, thereby influencing the growth of plants.

+ active floodplain: the flood prone low lands and relatively flat areas adjoining inland and coastal waters including contiguous wetlands and floodplain areas of offshore islands; this will include, at a minimum, that area subject to a 1% or greater chance of flooding in any given year (100-year floodplain).

- b. Class II wetlands and certain surrounding lands (buffers) should remain in public ownership whenever feasible. A Class II wetland buffer shall include all soils of Class IV or worse agricultural capability which lie adjacent to the wetland, or a 60-foot strip adjacent to the wetland - whichever provides the greatest buffer width. However, maximum buffer width should be 300 feet.

Restrictive use covenants and public access easements rather than public ownership may be used to protect Class II wetlands and associated buffers under conditions specified in 4 below.

- c. Class III wetlands may be sold as part of the farmstead. Draining, clearing, or other modifications must conform to the applicable permit requirements (e.g. Army Corps of Engineers "Section 404" Permit).

2. Forestry Management Adjacent to Wetlands

- a. Winter access only should be used in or across wetlands whenever feasible.
- b. Selective timber harvest only will generally be permitted within 100 feet of Class I and II wetlands. This guideline may be changed for specific locations by DNR with the consultation of ADF&G.

3. Other Land Uses Adjacent to Wetlands

On all lands adjacent to public wetlands adequate buffers will be preserved in a natural state to protect the hydrologic, recreation and habitat functions of the wetlands. These buffers should be retained in public ownership whenever feasible. Restrictive use covenants and public access easements rather than public ownership may be used to protect wetland buffers under conditions specified in 4 below.

The following standards shall apply when publicly-owned wetlands or publicly-owned lands adjacent to wetlands are sold to private parties for non-agricultural use.

- a. Class I wetlands and land within 100 feet of Class I wetlands will remain in a natural state.
- b. Class II wetlands and land within 60 feet of Class II wetlands will remain in a natural state.
- c. Class III wetlands will be dealt with on a case-by-case basis through public land disposal processes or applicable public land management plans.

4. Restrictive Use Covenants and Public Access Easements

Class I and II wetlands (including outlet streams) and associated buffers should remain in public ownership whenever feasible. Restrictive use covenants and public access easements may be used rather than public ownership under the following conditions:

- a. Where the configuration of the wetland is such that survey along the meander of the wetland would be excessively expensive. In this case a aliquot part (rectangular) survey rather than a meander survey may be used along the edge of the wetland. This may result in portions of the wetland being conveyed to private ownership. Restrictive use covenants and public access easements shall be applied to ensure that those portions of the wetland and associated buffer conveyed to private ownership remain in a natural state and that public access and use are maintained.
- b. Where the wetland is entirely included with a parcel of land to be sold for private use. In this case the wetland and associated buffer may be conveyed to private ownership with restrictive use covenants which ensure that the wetland and associated buffer remain in a natural state. If there is a stream outlet from such a wetland, public access easements shall also be applied to both the outlet and the wetland.

POLICIES AND MANAGEMENT GUIDELINES - RIVER AND STREAM CORRIDORS

POLICY

It is the policy of the borough and state to protect and enhance the public recreation, habitat and water supply functions of rivers and streams in the Willow Sub-basin. Public access to and use of river and stream corridors will be encouraged.

MANAGEMENT GUIDELINES

1. River and Stream Buffers

Specific guidelines for use of public lands along the Fish Creek drainage, the Little Susitna River, and Little Willow Creek are listed under the appropriate management unit.

All rivers and streams with significant recreation value should have a publicly owned wildlife habitat/public recreation buffer surrounding the watercourse. The size of river and stream buffers will be determined on a site specific basis and will vary depending on the particular values of each stream. However, buffers should include a minimum of 50 feet each side of the ordinary high water mark. The buffers should be designed to minimize negative impacts on visual character, habitat value, water quality, noise screening ability, and public access. Therefore buffer design will require coordination and review with the Alaska Department of Fish and Game, the Department of Environmental Conservation, and the Division of Parks - Department of Natural Resources.

2. Forestry Practices

Personal use of timber or commercial harvest in river and stream buffers must be consistent with habitat/recreation values. Generally, the Forest Resources and Practices Act and implementing regulations will guide operations along streams. Operations on state lands with the potential of affecting anadromous fish streams require on-site review during preliminary sale planning (including and in addition to Title 16 requirements).

3. Instream Flows

To minimize conflict between water appropriations and fish and wildlife/recreation resources, it is recommended that hydrologic studies be done to provide data necessary to establish instream flow requirements for the following streams and their lateral drainages:

Priority 1

Little Willow Creek - Returning salmon runs exceed 20,000. Angler man-days - 5,000 to 10,000.

Willow Creek - Returning salmon runs exceed 100,000. Angler man-days - 25,000 to 30,000.

Deception Creek - Returning salmon runs exceed 5,000. Closed to salmon fishing to protect spawners.

Lilly Creek (inlet to Nancy Lake) and Lake Creek (outlet of Nancy Lake). Salmon migration for more than 5,000 adult red salmon and rearing area several hundred thousand silver molt. Major juvenile rearing areas for Little Susitna River coho salmon.

Little Susitna River and Tributaries - Returning salmon runs exceed 50,000. Angler man-days - 20,000 to 25,000. Major rearing areas occur in connecting drainages in the area from the Parks Highway crossing downstream to the Burma Road intersection. Notable drainages include Papoose Twin Lakes, Horseshoe Lakes Complex, Finger Lake, Butterfly lakes area and numerous unnamed lake drainages immediately adjacent to the river, most of which fall within the Little Susitna Corridor Management Unit.

Fish Creek (outlet of Big Lake) - Returning salmon runs exceed 40,000. A major expenditure of state funds is proposed for a hatchery further up in the drainage to rebuild the salmon runs.

Meadow Creek (inlet to Big Lake) - Salmon spawning and rearing area. Major salmon hatchery is located on this stream and is dependent on stream flows for its water supply.

Cottonwood Creek - Returning salmon runs exceed 10,000. Angler man-days - 8,000 to 10,000.

Wasilla Creek - Returning salmon runs exceed 5,000. Angler man-days - 5,000 to 7,000.

Spring Creek (tributary of Wasilla Creek) - The major rearing area for Wasilla Creek coho salmon.

Fish Creek (outlet of Red Shirt Lake and inlet to Flat Horn Lake) - 2,000 to 5,000 adult red salmon migrate to Red Shirt Lakes, producing several hundred thousand red salmon rearing smolt; more than 2,000 silver adults spawn throughout the system. This system has high recreational fishing potential when access is developed.

Priority 2

Threemile Creek (Big Lake drainage) - Salmon spawning and rearing area.

Priority 3

Noname Creek (inlet of Nancy Lake) - Salmon rearing area. Located on east side of Nancy Lake.

Lucille Creek (outlet of Lucille Lake) - Salmon rearing area.

Goose Creek (outlet of Stephan Lake) - Salmon spawning and rearing habitat.

4. Hydrologic Monitoring

It is recommended that baseline hydrologic monitoring be conducted (by DGGS or the USGS) in areas where major agricultural disposals are planned. Such areas currently include only the Fish Creek Unit, but may be extended to other areas as borough/ state small farm disposals are located. Monitoring of Fish Creek and its tributaries should begin as soon as possible.

5. Road Crossings

Where road corridors contact streams, appropriate areas should be retained in public ownership to accommodate the expected recreation use, including parking. The size of these areas will vary but should generally be 20-80 acres. Exceptions to this size may be made for sites anticipated to have very low or high use. These river access/recreation sites should be located to be readily accessible from the highway without being visible. Typically, this will require a short section of access road to a parking area screened from the highway by vegetation or topography.

POLICIES AND MANAGEMENT GUIDELINES - RECREATION AND HISTORIC TRAILS

POLICY

The state and the borough will reserve in public ownership (or otherwise insure public use of) important historic and recreational trails identified in this plan.

MANAGEMENT GUIDELINES

1. Trail Corridors

- a. The Iditarod Trail: Those portions of the Iditarod Trail in state and borough ownership will be protected by a public ownership corridor 1000 feet wide (500 feet either side of centerline). This width allows flexibility to reroute the trails within the corridor, combine motorized and non-motorized uses on separate trails within the corridor, and include a visual and sound buffer between the recreation corridor uses and adjacent uses. To minimize potential land use conflicts or the impact of the trail's existence on adjacent land uses, the corridor width may be expanded or reduced. These width adjustments, as well as rerouting of the trail corridor may be permitted in specific instances with the consultation and agreement of the Alaska Division of Parks. The Matanuska-Susitna Borough Trails Committee shall also be consulted if rerouting the trail corridor is proposed. Example: The trail corridor width could be reduced to 600 feet or less where the adjacent land use would not adversely impact the trail experience. Such adjacent uses might include farming, grazing, personal use or commercial timber harvesting, habitat manipulation, or similar low intensity uses. A corridor wider than 1000 feet may also be desirable in certain instances to incorporate high quality adjacent land features and scenery or where adjacent land uses such as high density residential, industrial, or commercial uses would adversely affect the trail.

No structures or equipment of a permanent nature should be placed within the trail corridor which could adversely affect the trail experience. Where necessary, trail crossings may be permitted to allow access to lands on both sides of the trail. Crossings should be limited to a few discrete areas rather than random crossings along the length of the trail.

- b. Other Recreation and Historic Trails: Other trails identified in this plan shall be retained in public ownership with a width of 300 feet (150 feet either side of centerline). This distance may be modified on a case by case basis with approval of the Division of Parks and the Matanuska-Susitna Borough Trails Committee. This width allows flexibility to re-route, separate motorized and non-motorized uses, and include a visual buffer. Re-routing of the trail corridor may be permitted to minimize land use conflicts with the provision that alternate routes provide opportunities similar to the original. Re-routing of trails on public land requires consultation with the Matanuska-Susitna Borough Trails Committee and the Alaska Division of Parks. The ADF&G shall also be consulted.

2. Land Management of Trail Corridors

- a. Where necessary for powerlines, pipelines or roads to cross trail corridors, crossings should be at 90° angles when feasible. An exception is when a trail corridor is deliberately combined with a public facility or transportation corridor. Land uses immediately adjacent to the trail corridor should not adversely affect the recreational enjoyment of the trail. Examples of negative effects are trees blown down within the corridor caused by removal of protective trees on adjacent land; pollution of streams that flow across or along the corridor caused by agricultural, industrial, resource extractive or residential development; and uncomfortable noise, light, dust, smoke or odor levels adjacent to trail corridor.
- b. Trail corridors are available for personal and selective commercial timber harvest only if such harvests protect or enhance the visual, sound, and other characteristics of the trail. Harvest practices, timing and transportation should be coordinated with the Alaska Division of Parks, ADF&G and the Matanuska-Susitna Borough Trails Committee.

POLICIES AND MANAGEMENT GUIDELINES - PUBLIC ACCESS

POLICY

In all public land disposals and land management the borough and state will strive to maintain access to important public resources, including areas for mineral exploration, timber harvest, trails, streams, hunting and fishing areas, and other important recreation lands.

MANAGEMENT GUIDELINES

1. Land Disposals

Access to important public resources should be maintained or improved during land disposals. Section line easements will not be vacated unless appropriate substitute access can be located.

However, the location of realistic substitute access is encouraged. The substitution can be in the form of trail easement but in cases where heavy use is expected, access should be through publicly owned corridors. Determination of the adequacy of substitute access should involve consultation with the Division of Parks and Department of Fish and Game.

2. Stream Crossings

See Policies and Management Guidelines; River and Stream Corridors, this chapter.

3. Sub-surface Development

Trail and road access to recreation, fish and wildlife, and other public resources should be maintained or improved during sub-surface development. Access should be designed to minimize the potential for trespass, vandalism, or other public nuisance in mining areas.

4. Forestry Management

Public access within forest lands may be curtailed during periods of active timber harvest.

Chapter 4
**LAND USE
DESIGNATIONS BY
MANAGEMENT UNIT**

Units of Predominant State and Borough
Ownership 123
Units of Predominant State Ownership 207
Units of Predominant Private and
Borough Ownership 223
Units for Which the Legislature Has Designated
Specific Uses 281

LAND USE DESIGNATIONS BY MANAGEMENT UNIT

INTRODUCTION

This chapter applies the land use designations presented in Chapter II and the policies and management guidelines presented in Chapter III to each of 25 "management units" in the Willow Sub-basin. A management unit is an area that is generally homogeneous with respect to resources, topography, and land ownership. These management units are shown on Map 6.

For the organization of this chapter, the management units have been divided into four categories:

a. Units of Predominant State and Borough Ownership

In these management units land use designations have been made on both state and borough lands. All specific designations made on borough lands are in this section.

b. Units of Predominant State Ownership

In these management units land use designations have been made on state lands only.

c. Units of Predominant Private and Borough Ownership

In these management units, in most cases, general recommendations rather than specific land use designations have been made. A few parcels of state land have been designated for specific uses in these management units.

d. Units for Which the Legislature has Designated Specific Uses

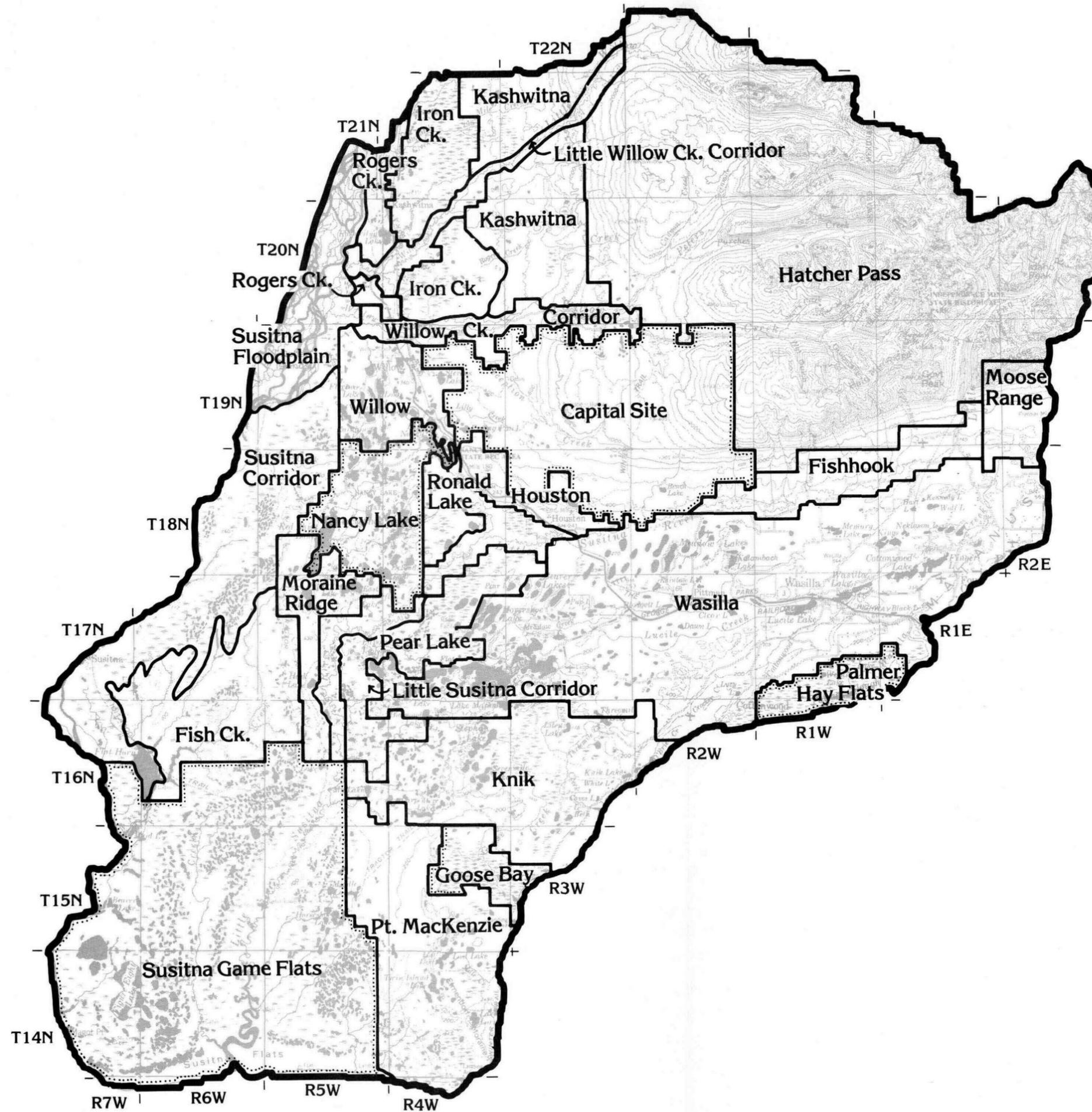
These management units consist of state-owned land. They include the capital site, the Nancy Lake State Recreation Area, and three state game refuges.

The format of this chapter varies among the categories listed above. For management units in categories a) and b) the following are presented: a statement of management intent, a list of designated land uses, and a set of management guidelines. For units in category c) there are a statement of management intent and a list of recommended land uses. The designated and recommended land uses of categories a), b), and c) are shown at the scale of 1 inch to 1 mile. Land ownership is also shown at that scale. The plan does not address lands in category d).

The land use designations shown on maps in this chapter are not inflexible. Uses not shown may be permitted on a case-by-case basis if the Alaska Department of Natural Resources and the Matanuska-Susitna Borough determine they are consistent with the statement of management intent for the management unit in question and consistent with applicable policies and management guidelines. Specific boundaries of land use designations shown on the following maps may be modified through on-the-ground implementation (site planning, disposal, etc.) as long as modifications adhere to the intent of the plan. For example, field surveys may be necessary to delineate precisely the wetland boundaries shown on management unit maps. In addition, through implementation of the plan, additional areas may be identified which meet the established resource objectives for a particular management unit. This plan should not be construed to preclude site decisions which are clearly in compliance with the management intent, policies and guidelines herein.

MAP 6

Management Unit Index



scale 1:332,000
June 1, 1982

Management Units of Predominant State and Borough Ownership

In the following management units land use designations have been made on both state and borough lands. All specific designations made on borough lands are in this section.

Fish Creek	125
Susitna Corridor	135
Kashwitna	147
Iron Creek	155
Little Willow Creek Corridor	163
Susitna Floodplain	171
Ronald Lake	179
Little Susitna Corridor	181
Pear Lake	199

MANAGEMENT UNIT: FISH CREEK

MANAGEMENT INTENT

The Fish Creek Unit is to be the setting for a major commercial agricultural project planned and developed jointly by the borough and state. This project will add to the size and stability of the local agricultural industry, provide additional employment, increase the local tax base, and diversify the statewide economic base. Agricultural development should be designed to protect other resource values in the unit: fish and game habitat (stream and wetland buffers); recreation (the Iditarod Trail, other trails and streamside recreation including access sites); forestry (timber salvage on agricultural lands); settlement (land of marginal agricultural potential); and small farm agriculture (where configuration of the land makes large farms infeasible). Interim management of the unit will be for forestry, fish and wildlife, recreation and other uses which do not diminish the agricultural value of the unit.

Land use designations and management guidelines are presented below for three sub-units within Fish Creek: the agricultural areas, the hydrologic system, and the Iditarod Trail.

SUBUNIT A: THE AGRICULTURAL AREA

Primary Land Use

- Commercial Agriculture

Secondary Land Uses

- Forestry (salvage)
- Settlement (land of marginal agricultural capability)
- Small Farm Agriculture (where topography makes large farms infeasible)
- Recreation (access sites and trails)

MANAGEMENT GUIDELINES

Agriculture

To the extent feasible, class II and III soils in this unit should be sold for agricultural use. Small farm agricultural development should

be encouraged where parcel configuration or topography render large farms infeasible.

Forestry

All timber having high value for commercial and personal use shall be salvaged on lands to be cleared for agricultural purposes. See Chapter III, Goals, Policies, and Management Guidelines; Forestry, for implementation techniques.

The management plan for the Fish Creek Unit will address: (a) the implementation techniques used to assure salvage; (b) the time required for the local timber industry to accomplish salvage between the times of access development and clearing completion; and (c) the effect of the sale on the development of the forest industry.

Agricultural land disposals should be designed to provide adequate personal wood supplies for individual farmsteads.

Trail corridors identified in the Fish Creek Unit are available for personal and selected timber harvest under guidelines for Trails, Chapter III.

Settlement

Land of marginal agricultural capability, because of topography or soil limitations, may be used for settlement. In addition, residential and commercial settlement necessary to support the agricultural project or commercial recreational needs oriented to the Fish Creek drainage may be planned as necessary. Settlement should be concentrated in as few locations as possible in order to minimize both the cost of services and the impact on the agricultural land base.

Transportation

For management guidelines affecting the development of roads and other transportation facilities see Chapter III, Transportation.

Recreation

In addition to the Iditarod Trail (which is discussed in Sub-unit C), two trails are identified in the Fish Creek Unit. Each of these should be retained in public ownership with a width of 300 feet (150 feet either side of centerline). This width allows flexibility to reroute, separate motorized and non-motorized uses, and include a visual buffer. Rerouting of the trail corridor will be permitted to minimize impact on agricultural land with the provision that alternate routes provide opportunities similar to the original. In order to minimize impacts on agricultural land and to reduce management costs, rerouting to combine the trail corridor with streams, wetlands, or other recreation corridors is encouraged.

Where road corridors contact streams, appropriate areas should be retained in state ownership to accommodate the expected recreation use,

including parking. The size of these areas will vary but should generally be 20 - 80 acres. Exceptions to this size may be made for sites anticipated to have very low or high use.

Trail access to the Fish Creek system should be maintained and improved during agricultural development. Section line easements shall not be vacated unless an appropriate substitute access is provided. Provision of realistic substitute access is encouraged.

SUBUNIT B: THE HYDROLOGIC SYSTEM

Streams/Stream Buffers

Primary Land Uses

- Fish and Wildlife
- Recreation

Secondary Land Use

- Forestry

Wetlands/Wetland Buffers

Primary Land Uses

- Fish and Wildlife
- Watershed

Secondary Land Use

- Forestry

MANAGEMENT GUIDELINES

Location of Stream Buffers

Along Fish Creek and tributaries, wildlife/ public recreation buffers will be retained in public ownership. Each stream buffer will include all adjacent non-class II - III soils (e.g. Moose River (Mr) and Bernice (Ber) soil types) adjacent to the stream, or the buffer will be 200 feet back on either bank from the high water mark - whichever is the greater distance.

Location of Wetland/Wetland Buffers

For management guidelines governing the disposal of agricultural lands adjacent to wetlands see Chapter III, Wetlands.

Forestry

Personal use or commercial harvest in the stream or wetland buffer must be compatible with the habitat/recreation characteristics of the buffer. Negative impacts on visual character, habitat value, water quality, noise screening ability, or adverse changes in access should be avoided.

Operations inside the buffers will require coordination and on-site review with ADF&G and the Division of Parks during sale planning (including and in addition to Title 16 requirements). If significant adverse impacts cannot be avoided no sale shall occur. These guidelines should not be construed to replace the Forest Resources and Practices Act and implementing regulations which also guide operations along streams. See also Chapter III, Wetlands; Forestry Management Adjacent to Wetlands.

Transportation

For management guidelines affecting the development of roads and other transportation facilities see Chapter III, Transportation.

Other Guidelines

Baseline hydrologic monitoring should be initiated as soon as possible on the mainstream and tributaries of the Fish Creek system. Knowledge of the impacts of the agricultural project on the quantity and quality of the stream waters will be useful in planning future projects.

SUBUNIT C: THE IDITAROD TRAIL

Primary Land Use

- Recreation

Secondary Land Use

- Forestry

MANAGEMENT GUIDELINES

Location of the Iditarod Trail

Because of the compatible nature of the Iditarod Trail uses and agricultural practices planned for this unit, a 600 foot wide (300 feet either side of centerline) public ownership corridor will be established. This width may be further reduced, and some rerouting permitted, after consultation and agreement with the Division of Parks. The Matanuska-Susitna Borough Trails Committee shall also be consulted if rerouting the trail corridor is proposed. Any reduction of corridor width will be contingent on the maintenance or enhancement of the quality of the trail experience.

No structures or equipment of a permanent nature should be placed within the trail corridor which could adversely affect the trail experience.

Trail Crossings

Where necessary, trail crossings may be permitted to allow access to lands on both sides of the trail. Crossings should be limited to a few discreet areas rather than random crossings along the length of the trail.

Forestry

Forestry guidelines for the Iditarod Trail are presented in Chapter III, Goals, Policies, and Management Guidelines; Forestry.

AREA-WIDE POLICIES AND MANAGEMENT GUIDELINES

Chapter III presents additional policies and land management guidelines which may be relevant to particular decisions in this management unit. Categories of these policies and guidelines are listed below for ease of reference:

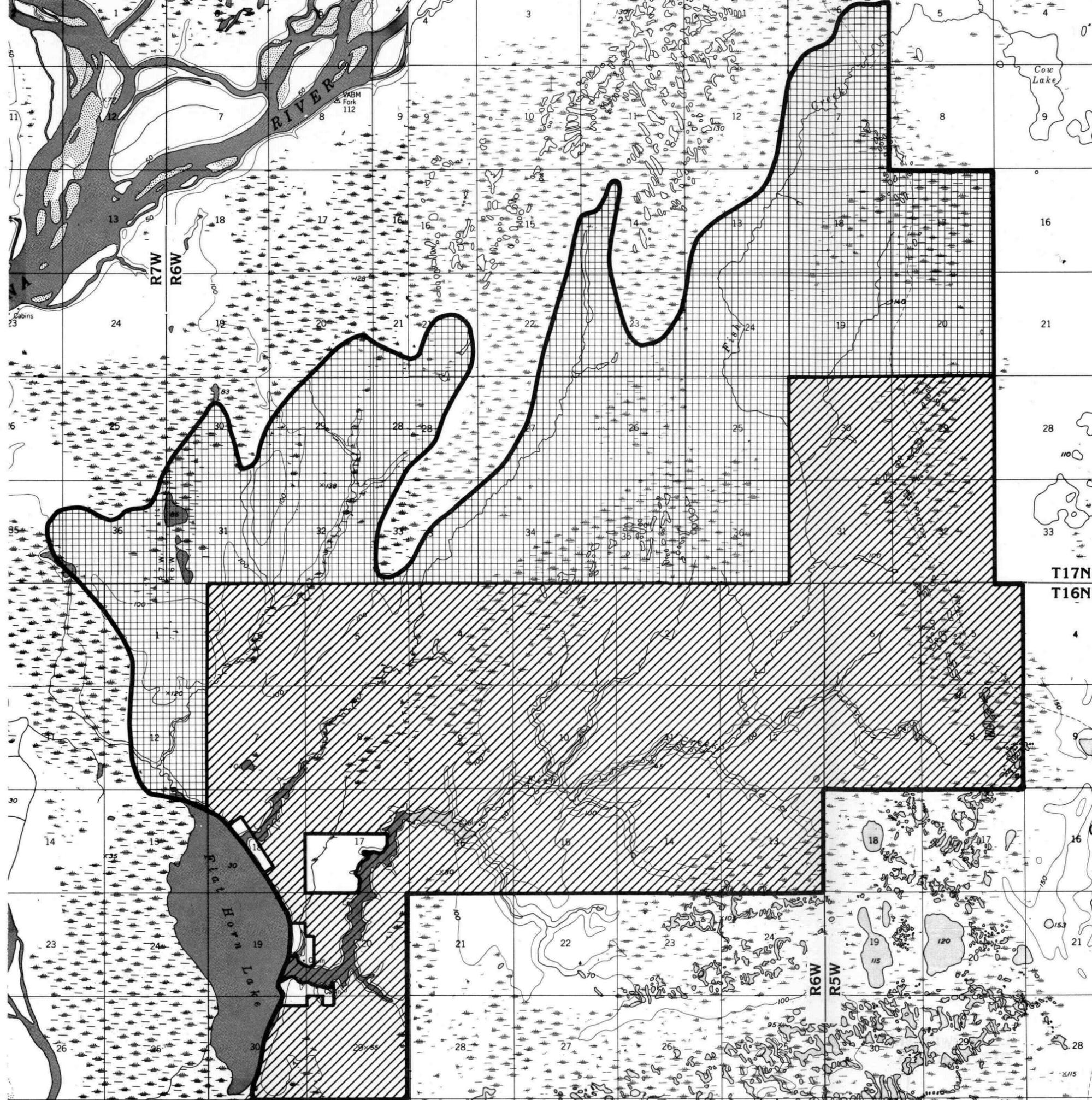
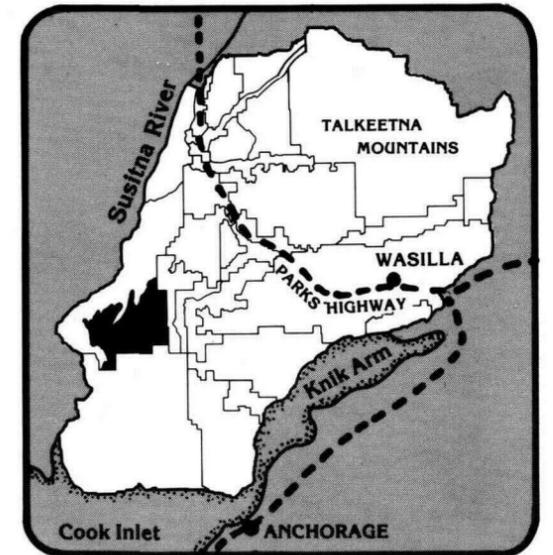
	<u>Pages</u>
AGRICULTURE	41
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SETTLEMENT	73
SUBSURFACE RESOURCES	79
TRANSPORTATION	89
WETLANDS	97
RIVER & STREAM CORRIDORS	103
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PUBLIC ACCESS	113

FISH CREEK

Land Ownership

mgt. unit size = 32,100 ac.

LOCATION of MGT. UNIT



-  State
-  Borough
-  Private/Federal
-  University

scale 1" = 1 mile

topo. maps:
Tyonek B1, B2,
C1, C2



June 1, 1982
Willow Subbasin Area Plan

FISH CREEK

Land Use Designations

mgt. unit size = 32,100 ac.

SUBUNIT A

Primary Use:

- Agriculture

Secondary Uses:

- Forestry
- Settlement
- Small Farms
- Recreation

SUBUNIT B. (The Hydrologic System)

STREAMS/BUFFERS (not shown)

Primary Uses:

- Recreation
- Fish & Wildlife

Secondary Use:

- Forestry

WETLANDS, BUFFERS

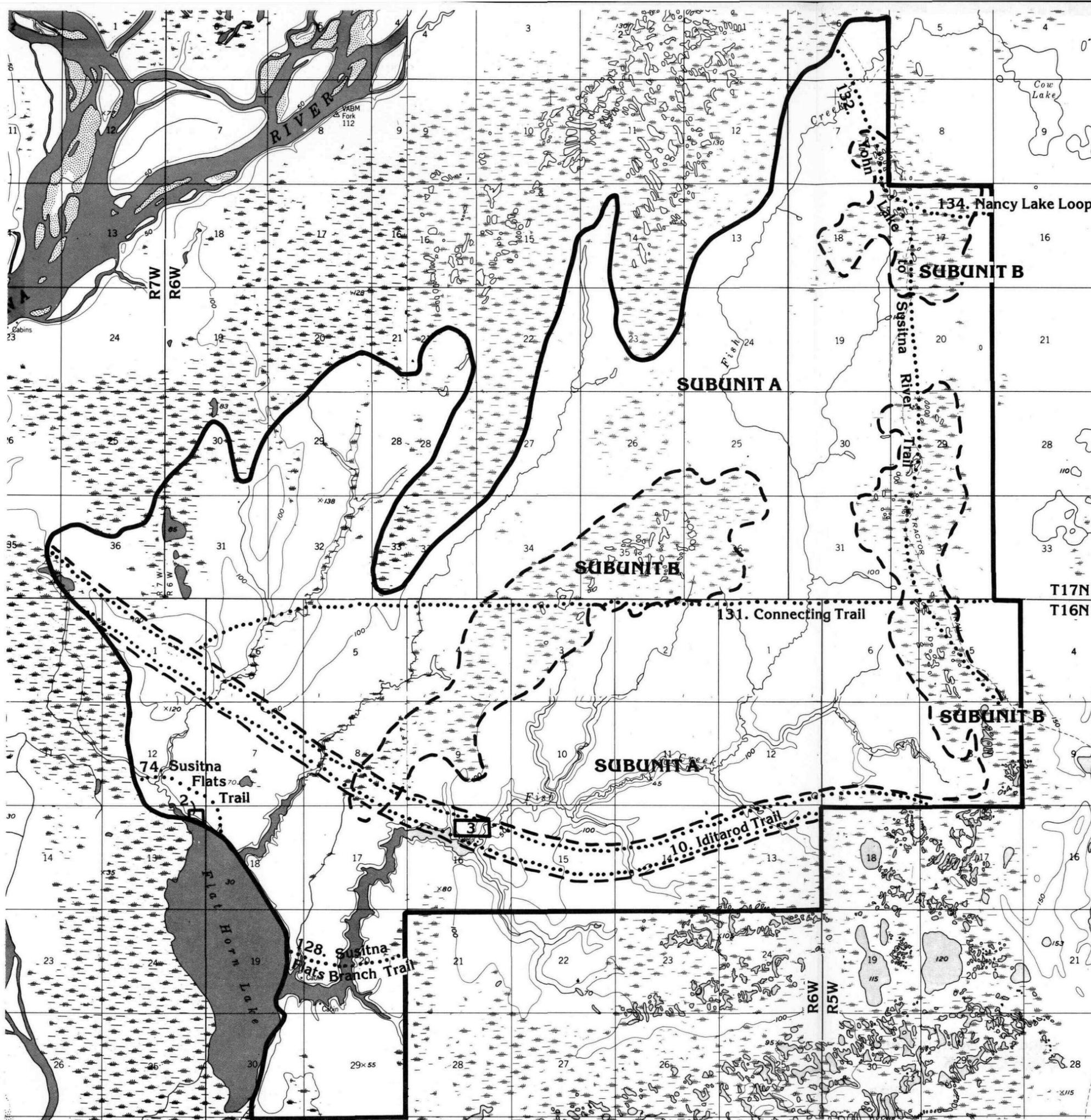
Primary Uses:

- Fish & Wildlife
- Watershed

Secondary Use:

- Forestry

- RECREATION SITES
- 2- Flathorn Lake
- 3- Fish Creek



scale 1" = 1 mile
June 1, 1982

Willow Subbasin Area Plan

MANAGEMENT UNIT: SUSITNA CORRIDOR

MANAGEMENT INTENT

The Susitna Corridor is to be managed for its forestry, fish and wildlife, and agricultural values. Management of state lands within the unit for forestry will help provide a stable flow of commercial quality raw materials to the area's developing forest industry and help meet the growing demand for personal use products. At the same time forestry management can improve habitat - principally for moose.

The potential recreational opportunities within this management unit should be developed. The principal near term recreational use will be hunting. As access to the unit improves trails, access sites and campgrounds should be provided adjacent to the Susitna River. The watershed/habitat values of the wetlands in the eastern portion of the unit should be preserved.

This plan also recognizes the high agricultural value in portions of the unit: forestry and habitat management will not adversely affect the potential for future agricultural development. An area of approximately 920 acres in the northeast corner of the unit is scheduled for agricultural disposal by the state in fiscal year '82. An additional approximately 4,000 acres of borough land in the northern part of the unit are designated for agricultural use.

Grazing is permitted as a secondary use in subunit D, south of Susitna Station. This portion of the management unit has limited forestry value. Much of it is in the active floodplain of the Susitna River. Because of the dominance of alder, willow and other shrub and brush-type vegetation, this subunit is very important moose winter habitat. Grazing can be compatible with the protection of this habitat if appropriate guidelines are followed.

To show the land use designations, the unit is broken into four subunits: the forestry/habitat lands, the wetlands, the agricultural land, and the grazing area.

SUBUNIT A: FISH AND WILDLIFE/FORESTRY AREA

Primary Land Uses

- Fish and Wildlife
- Forestry

Secondary Land Use

- Recreation (hunting; access sites, trails, and campgrounds along the Susitna River)

MANAGEMENT GUIDELINES

Forestry

Forestry guidelines for this area are presented in Chapter III, Goals, Policies, and Management Guidelines; Forestry, - Joint Forestry/Habitat Management in Upland Areas.

Agriculture

The potential agricultural value of this area should be protected. Transportation routing and forestry/habitat enhancement should minimize negative impacts on potential agricultural development.

Subsurface Resources

See Chapter III, Goals, Policies, and Management Guidelines; Subsurface Resources.

SUBUNIT B: THE AGRICULTURAL LAND

Primary Land Use

-Agriculture

Secondary Land Use

-Forestry
-Fish & Wildlife
-Watershed

MANAGEMENT GUIDELINES

Agriculture

To the extent feasible, Class II and III soils in this subunit should be sold for agricultural use. Small farm agricultural development should be encouraged where parcel configuration or topography renders large farms infeasible.

Wetlands/Wetland Buffers

For management guidelines governing the disposal of agricultural lands adjacent to wetlands, see Chapter III, Goals, Policies, and Management Guidelines; wetlands.

Stream Buffers

Rolly Creek and tributaries with significant recreation value should have a publicly owned buffer designed to protect water quality, riparian habitat, public access and use, and to provide protection from erosion. The buffer should be designed prior to sale of agricultural lands in the subunit. See Chapter III, River and Stream Corridors for more specific guidelines concerning retention of publicly-owned buffers along streams with significant recreation value.

Forestry

All timber having high value for commercial and personal use shall be salvaged on lands to be cleared for agricultural use. See Chapter III, Goals, Policies, and Management Guidelines; Forestry, for implementation techniques.

SUBUNIT C: THE WETLANDS

- Fish and Wildlife
- Watershed

MANAGEMENT GUIDELINES

Wetlands/Wetland Buffers

See Chapter III, Policies and Management Guidelines; Wetlands.

SUBUNIT D: THE GRAZING AREA

Primary Land Use

- Fish and Wildlife

Secondary Land Use

- Grazing

MANAGEMENT GUIDELINES

See Chapter III, Goals, Policies, and Management Guidelines; Agriculture, Grazing Guidelines.

AREA-WIDE POLICIES AND MANAGEMENT GUIDELINES

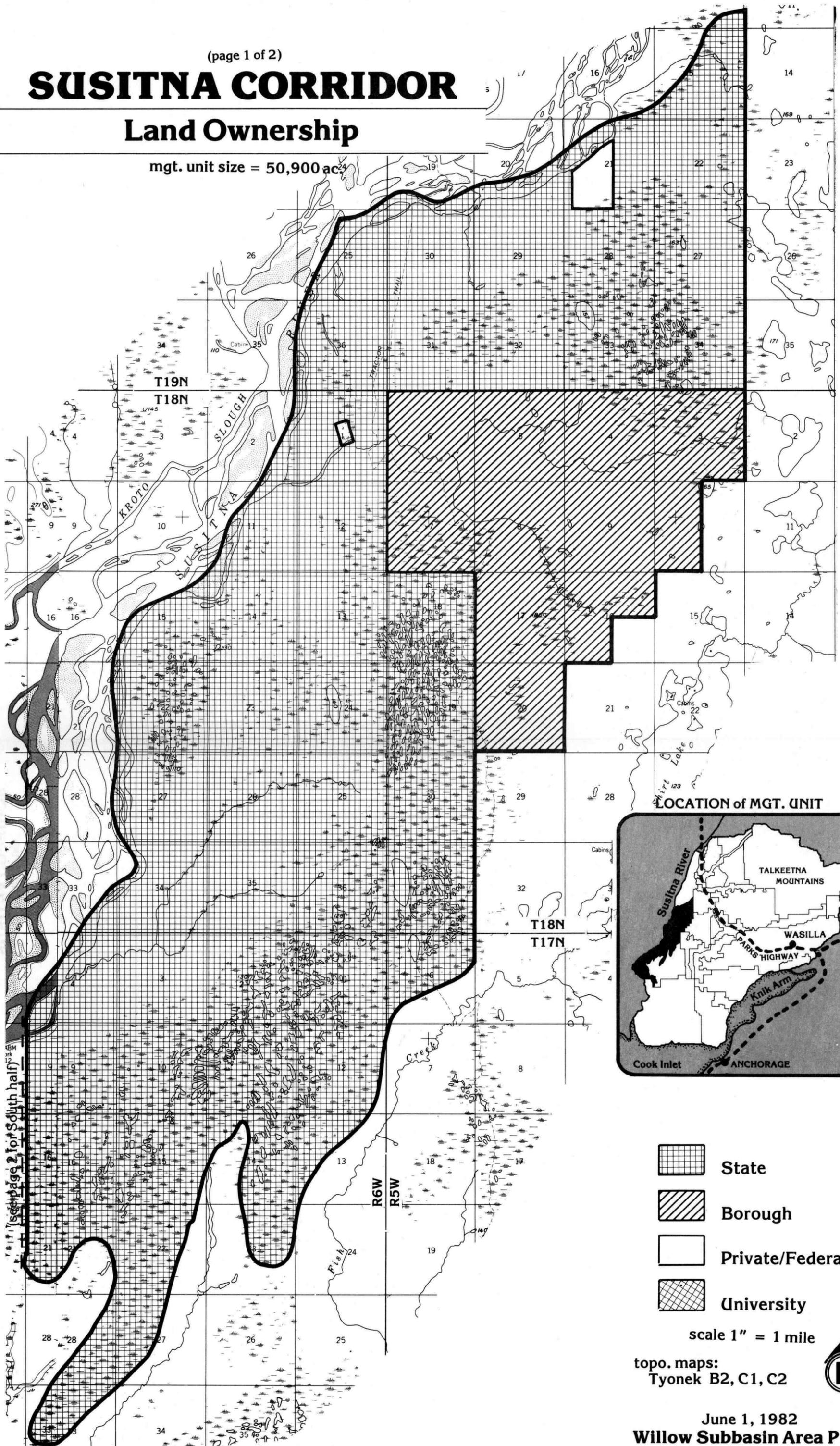
Chapter III presents additional policies and land management guidelines which may be relevant to particular decisions in this management unit. Categories of these policies and guidelines are listed below for ease of reference:

	<u>Pages</u>
AGRICULTURE	41
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SUSITNA CORRIDOR

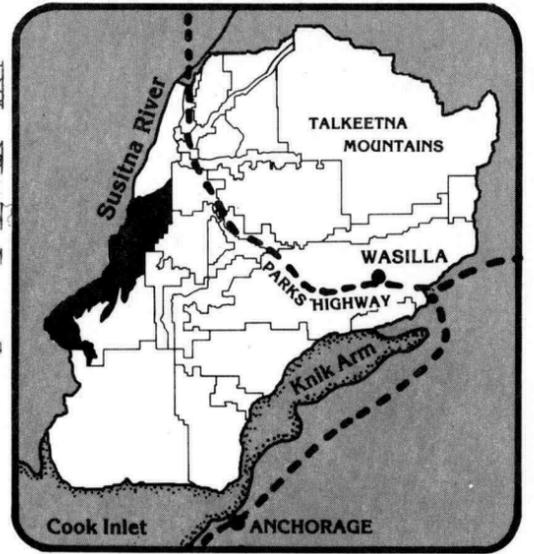
Land Ownership

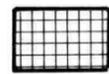
mgt. unit size = 50,900 ac²



(see page 2 for South half)

LOCATION of MGT. UNIT



-  State
-  Borough
-  Private/Federal
-  University

scale 1" = 1 mile

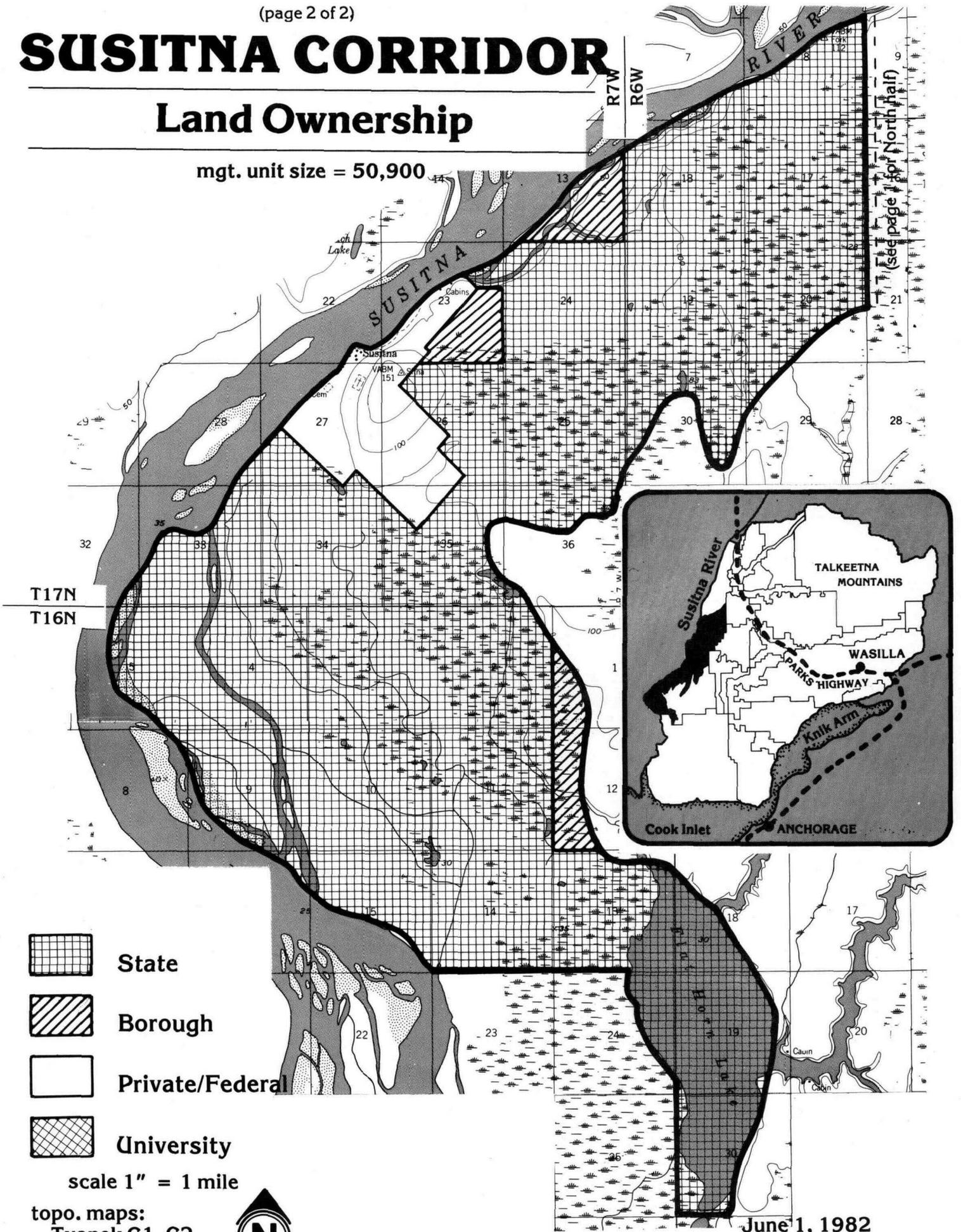
topo. maps:
Tyonek B2, C1, C2



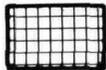
SUSITNA CORRIDOR

Land Ownership

mgt. unit size = 50,900



(see page 1 for North half)

-  State
-  Borough
-  Private/Federal
-  University

scale 1" = 1 mile

topo. maps:
Tyonek C1, C2,
B2



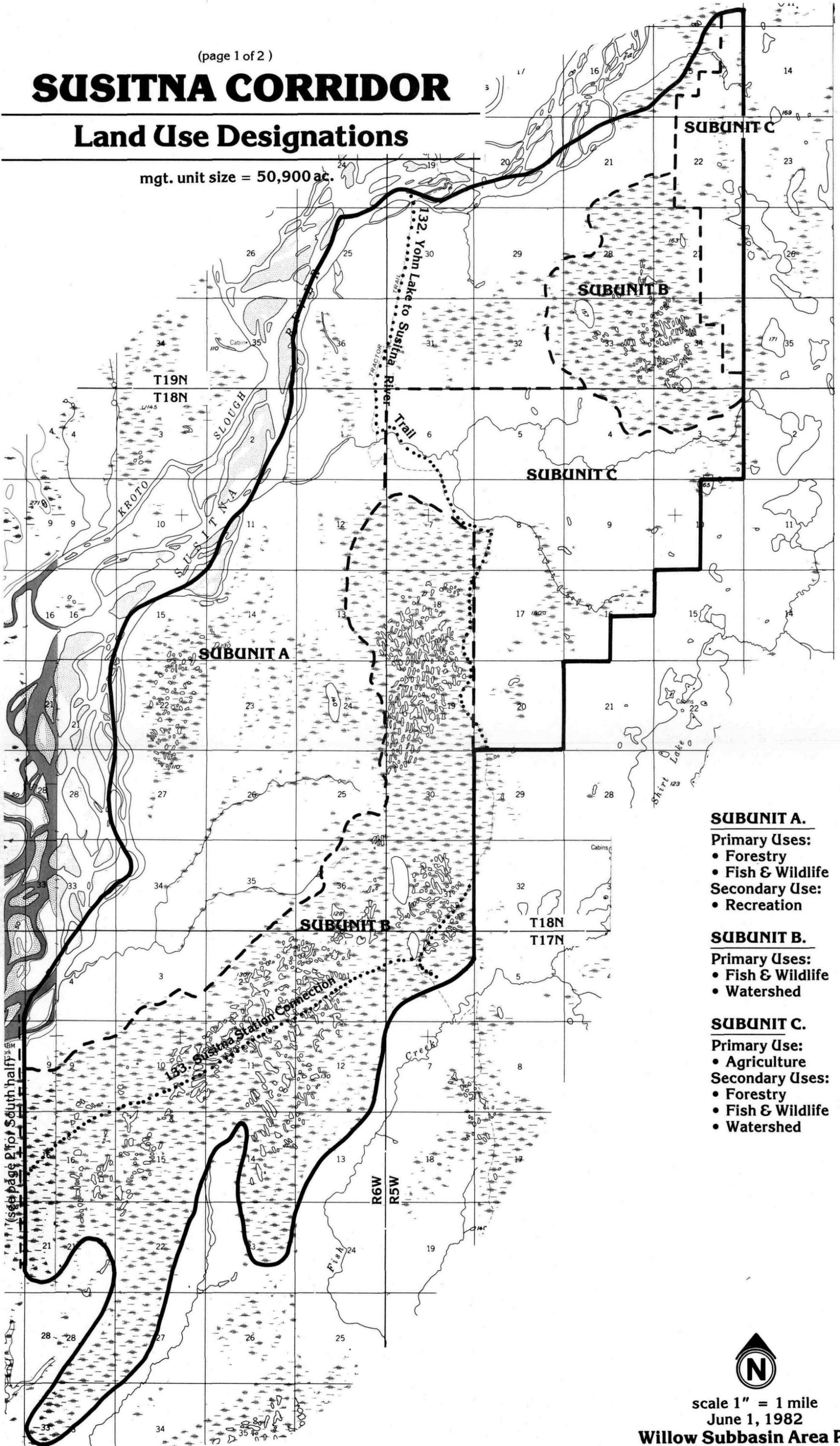
June 1, 1982

Willow Subbasin Area Plan

SUSITNA CORRIDOR

Land Use Designations

mgt. unit size = 50,900 ac.



SUBUNIT A.

Primary Uses:

- Forestry
 - Fish & Wildlife
- #### Secondary Use:
- Recreation

SUBUNIT B.

Primary Uses:

- Fish & Wildlife
- Watershed

SUBUNIT C.

Primary Use:

- Agriculture
- #### Secondary Uses:
- Forestry
 - Fish & Wildlife
 - Watershed



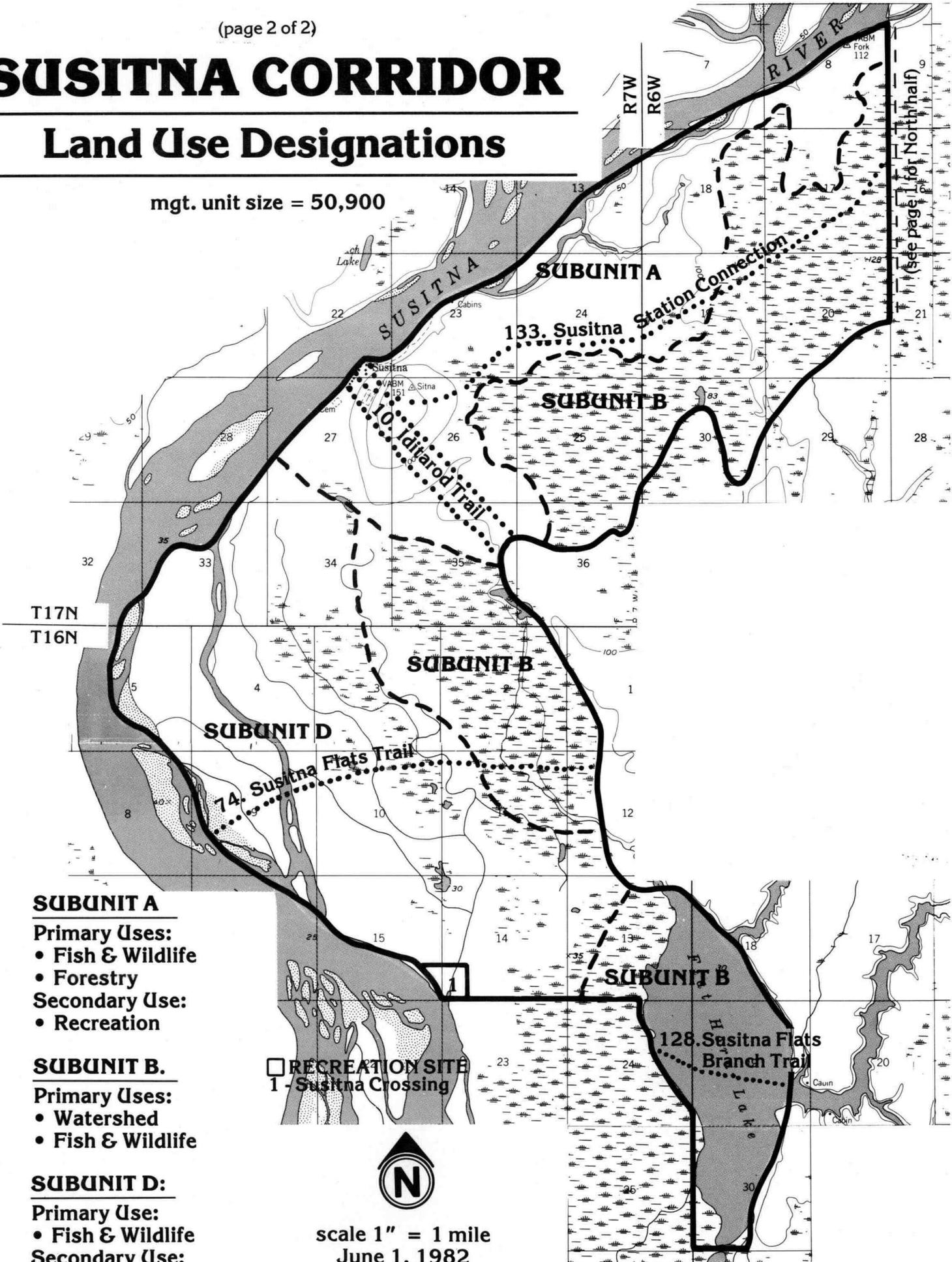
scale 1" = 1 mile
June 1, 1982

Willow Subbasin Area Plan

SUSITNA CORRIDOR

Land Use Designations

mgt. unit size = 50,900



SUBUNIT A

Primary Uses:

- Fish & Wildlife
- Forestry

Secondary Use:

- Recreation

SUBUNIT B.

Primary Uses:

- Watershed
- Fish & Wildlife

SUBUNIT D:

Primary Use:

- Fish & Wildlife
- Secondary Use:**
- Grazing

☐ RECREATION SITE
1 - Susitna Crossing



scale 1" = 1 mile
June 1, 1982

MANAGEMENT UNIT: KASHWITNA

MANAGEMENT INTENT

The Kashwitna Unit is intended for multiple use management emphasizing fish and wildlife habitat and forestry, and allowing grazing and small farms. Hiking, snowmobiling, skiing, and other forms of recreation (including hunting and fishing) will also be encouraged. The unit is currently a heavily used hunting area as it is excellent spring and fall moose habitat and serves as a moose migration corridor between Hatcher Pass and the lowlands. The moose habitat value could be improved by forestry management since the timber stands are over-mature and need thinning. The Peters-Purchases Creek Trail in the southeast corner of this unit is important for hunting access and other recreation use. Grazing is an important secondary use in the area. It could possibly serve to increase the habitat value by opening up the understory. (Potential conflicts between domestic stock and moose will be minimized through the grazing guidelines in Chapter III). To make grazing feasible, it is necessary to supply small farm sites in the southwest corner of the unit, which is predominately borough owned. The grazing, agriculture and forestry uses are dependent on the provision of access and would only occur after access is provided. Access would require a borough/state monetary commitment.

To illustrate land use designations, the area is divided into three subunits: north of Little Willow Creek; south of Little Willow Creek; and the southwest corner.

SUBUNIT A: NORTH OF LITTLE WILLOW CREEK

Primary Land Uses

- Forestry
- Fish and Wildlife

Secondary Land Use

- Recreation

MANAGEMENT GUIDELINES

Forestry

Management guidelines for forestry are specified in Chapter III, Forestry.

SUBUNIT B: SOUTH OF LITTLE WILLOW CREEK

Primary Land Uses

- Forestry
- Fish and Wildlife

Secondary Land Uses

- Grazing
- Recreation

MANAGEMENT GUIDELINES

Grazing

A Range Management Plan will be prepared by DNR prior to issuance of grazing permits or leases for this area. For an explanation of the Range Management Plan and other grazing policies and guidelines, see Chapter III, Goals, Policies, and Management Guidelines; Agriculture.

The Peters-Purches Creek Trail

See Chapter III, Policies and Management Guidelines; Trails.

SUBUNIT C: THE SOUTHWEST CORNER - AGRICULTURE

Primary Land Use

- Small Farm Agriculture

Secondary Land Uses

- Forestry
- Fish and Wildlife
- Grazing

MANAGEMENT GUIDELINES

Small Farm Agriculture and Secondary Uses

To the extent feasible class II and III soils in this subunit should be used for small farms. Forestry, grazing and public use of fish and wildlife resources should be encouraged to the extent compatible with agricultural use.

There will be no disposal of farmsteads prior to provision of adequate physical access into the management unit..

See also Chapter III, Goals, Policies, and Management Guidelines; Agriculture.

AREA-WIDE POLICIES AND MANAGEMENT GUIDELINES

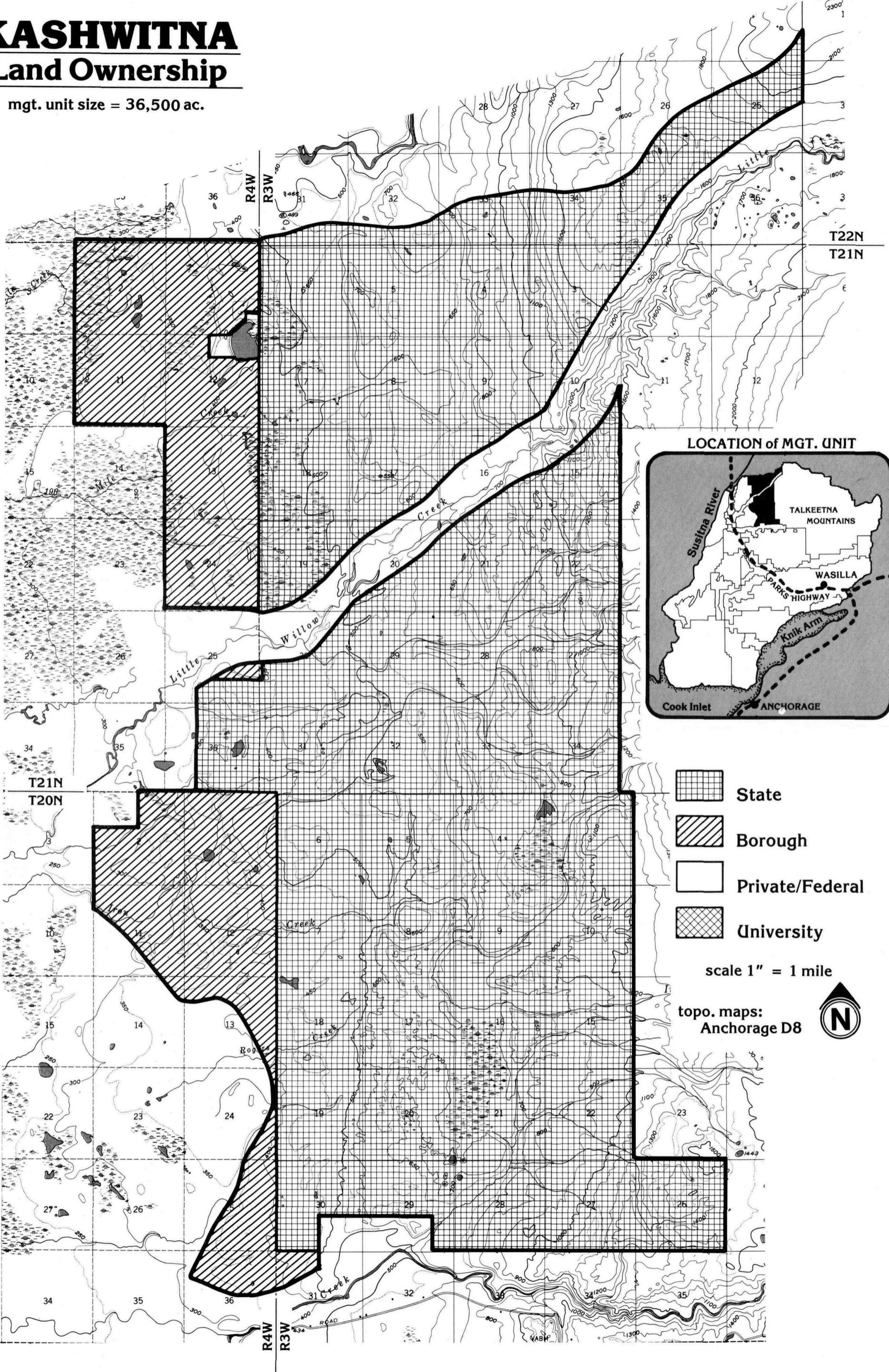
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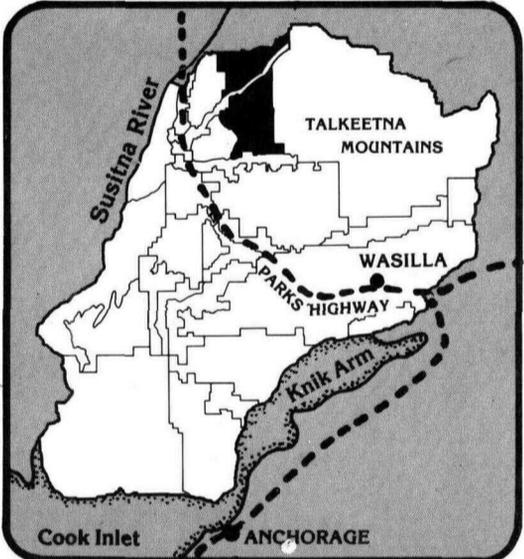
KASHWITNA

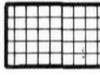
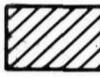
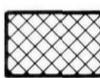
Land Ownership

mgt. unit size = 36,500 ac.



LOCATION of MGT. UNIT



-  State
-  Borough
-  Private/Federal
-  University

scale 1" = 1 mile

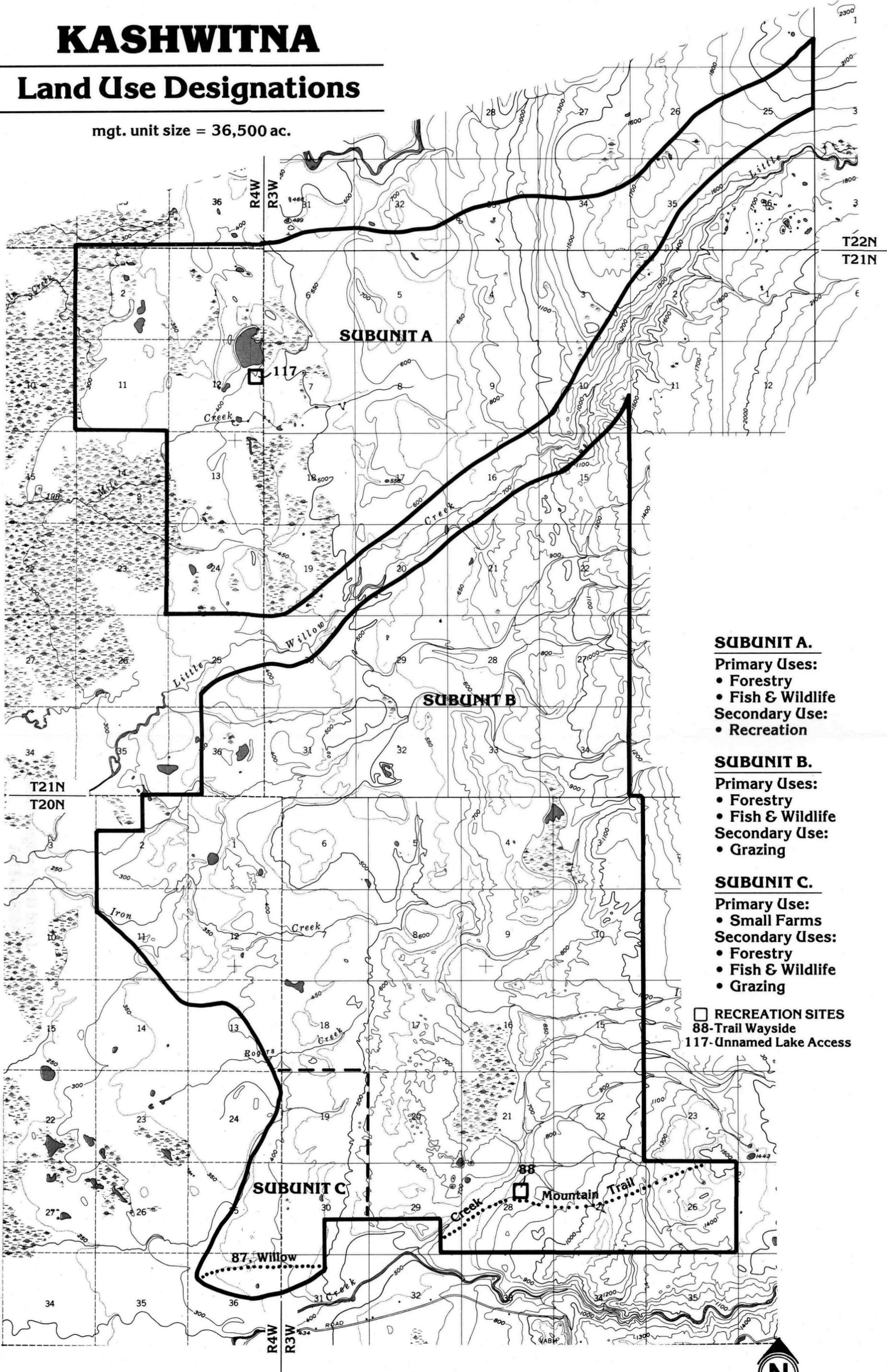
topo. maps:
Anchorage D8



KASHWITNA

Land Use Designations

mgt. unit size = 36,500 ac.



SUBUNIT A.

Primary Uses:

- Forestry
- Fish & Wildlife

Secondary Use:

- Recreation

SUBUNIT B.

Primary Uses:

- Forestry
- Fish & Wildlife

Secondary Use:

- Grazing

SUBUNIT C.

Primary Use:

- Small Farms

Secondary Uses:

- Forestry
- Fish & Wildlife
- Grazing

- RECREATION SITES
- 88-Trail Wayside
- 117-Unnamed Lake Access



scale 1" = 1 mile
June 1, 1982

Willow Subbasin Area Plan

MANAGEMENT UNIT: IRON CREEK

MANAGEMENT INTENT

The Iron Creek Unit will be managed to provide small farms on the few areas of good agricultural soil, and to provide habitat and a game migration corridor for moose and other species. This area is an important corridor for moose that move seasonally between uplands in the Kashwitna and Hatcher Pass Units and lowlands along the Susitna River. The Iron Creek Unit has many of the same values as the Kashwitna Unit but less potential for habitat enhancement through forest management. The southeast corner of the unit is adjacent to the potential small farm area of the Kashwitna Unit. Small farms in the area should be encouraged because they could serve as headquarter sites for the grazing stock which will use the Kashwitna Unit. The good agricultural soils are mostly borough owned.

Forestry (salvage, personal use) will be encouraged in this unit where feasible and consistent with other management objectives.

To illustrate land use designations and guidelines, the area is divided into three subunits: the agricultural area, the poorly drained land throughout, and the isolated small farm area in the northwest.

SUBUNIT A: THE AGRICULTURAL AREA - SOUTHEAST

Primary Land Use

- Small Farm Agriculture

Secondary Land Uses

- Fish and Wildlife
- Forestry (salvage, personal use)
- Grazing

MANAGEMENT GUIDELINES

Relevant guidelines are presented in Chapter III, Goals, Policies, and Management Guidelines; Agriculture, and Forestry.

SUBUNIT B: THE WETLANDS

Primary Land Uses

- Fish and Wildlife
- Watershed

MANAGEMENT GUIDELINES

See Chapter III, Policies and Management Guidelines; Wetlands.

SUBUNIT C: THE SMALL FARM AREA

Primary Land Use

- Small Farm Agriculture

Secondary Land Uses

- Fish and Wildlife
- Forestry (salvage, personal use)

MANAGEMENT GUIDELINES

Small Farm Agriculture

This subunit contains approximately 110 acres of potential agricultural land near an unnamed lake. A road to the parcel would provide access to waterfowl and moose hunting in the upper portion of the Iron Creek Unit. A condition of disposal, therefore, should be that public access to the lake and hunting areas is guaranteed. For guidelines regulating agricultural development adjacent to wetlands, see Chapter III, Policies and Management Guidelines; Wetlands.

AREA-WIDE POLICIES AND MANAGEMENT GUIDELINES

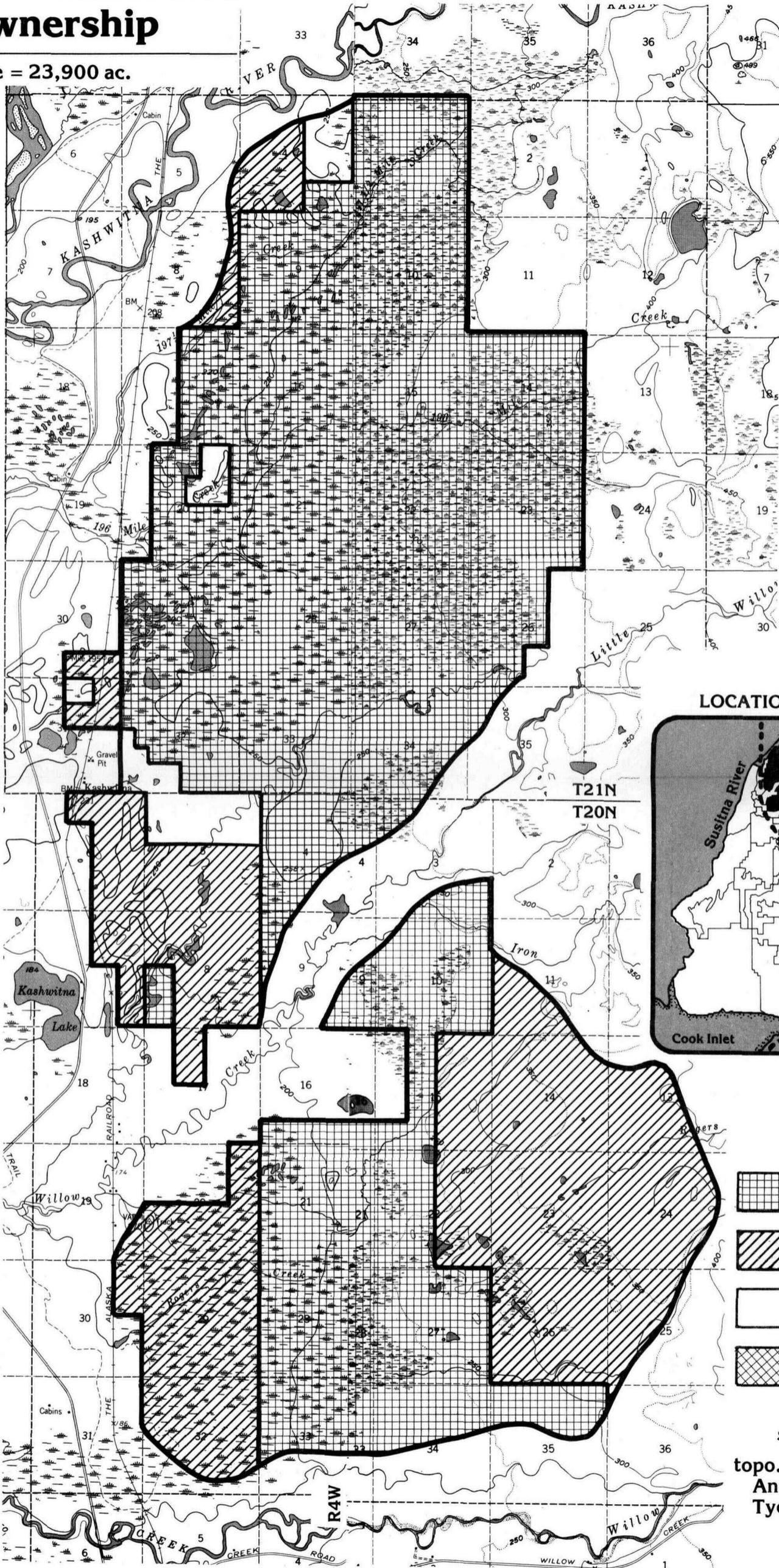
Chapter III presents additional policies and land management guidelines which may be relevant to particular decisions in this management unit. Categories of these policies and guidelines are listed below for ease of reference:

	<u>Pages</u>
AGRICULTURE	41
RECREATION	53
FORESTRY	59
FISH & WILDLIFE	67
SETTLEMENT	73
SUBSURFACE RESOURCES	79
TRANSPORTATION	89
WETLANDS	97
RIVER & STREAM CORRIDORS	103
TRAILS	109
PUBLIC ACCESS	113

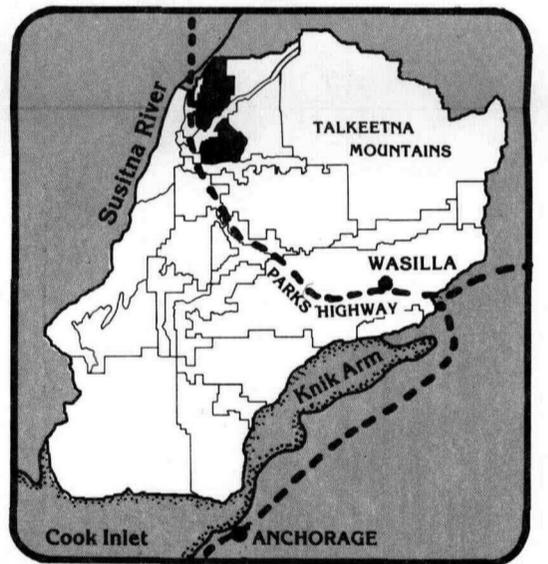
IRON CK.

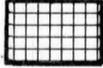
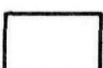
Land Ownership

mgt. unit size = 23,900 ac.



LOCATION of MGT. UNIT



-  State
-  Borough
-  Private/Federal
-  University

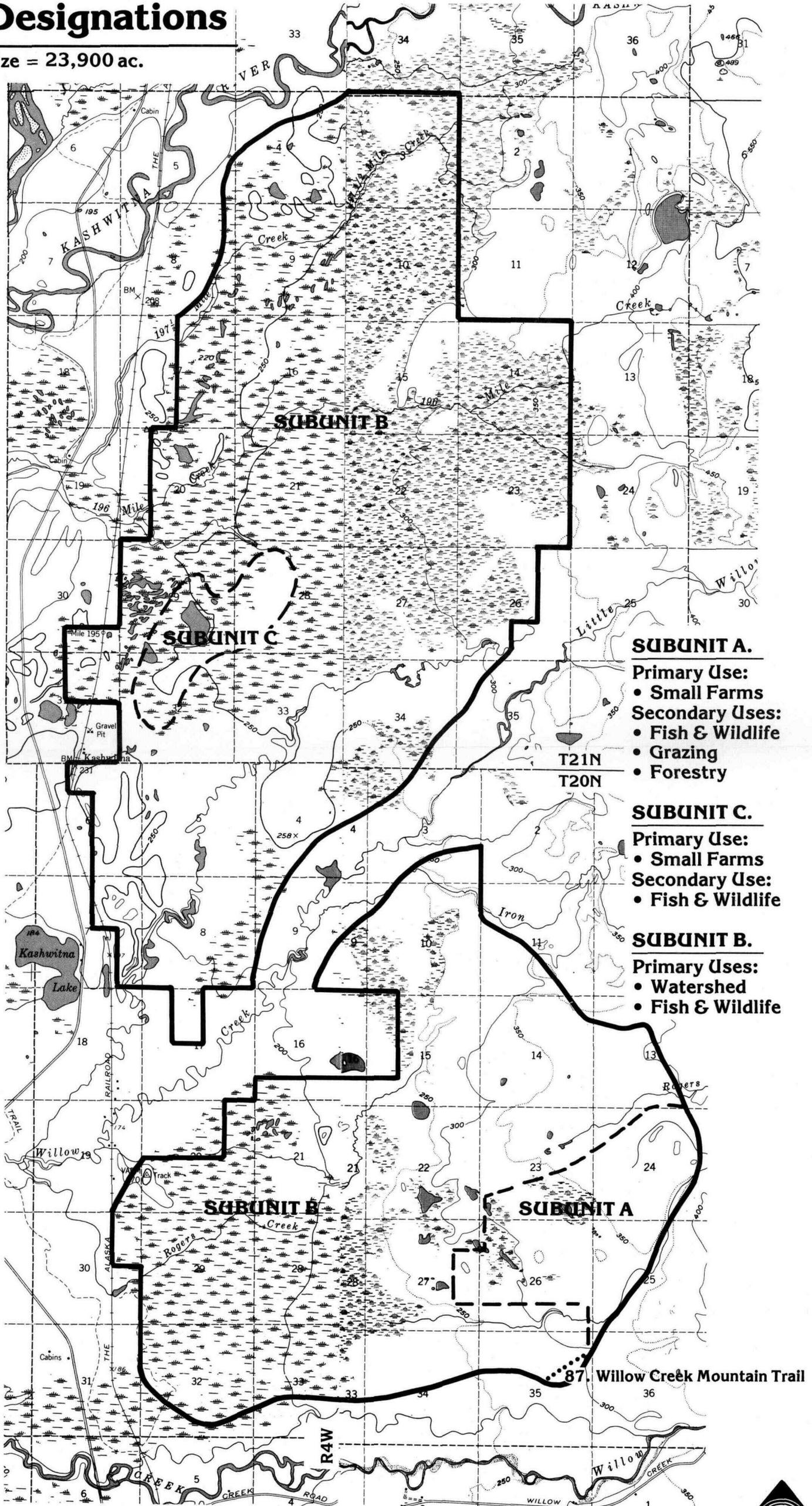
scale 1" = 1 mile
 topo. maps:
 Anchorage D8
 Tyonek D1



IRON CK.

Land Use Designations

mgt. unit size = 23,900 ac.



scale 1" = 1 mile
 June 1, 1982
Willow Subbasin Area Plan

MANAGEMENT UNIT: LITTLE WILLOW CREEK CORRIDOR

MANAGEMENT INTENT

This presently remote area is intended to serve primarily as a habitat and recreational area between the potentially more intensive uses north and south of the management unit. It is also intended to provide locations for small farms in four specific areas. A publicly-owned buffer along Little Willow Creek shall be retained within the management unit (except where private land holdings now occur) to insure high quality recreational opportunities, water quality maintenance, and habitat protection. Forestry operations will be encouraged within the unit when appropriate for enhancement of recreational or habitat values or when negligible adverse impacts on these resources would occur.

In the upper, remote reaches of the stream, road access should be encouraged. In the lower, accessible reaches, trail access should be maintained and road access confined to as few locations as possible.

Land use designations and management guidelines are presented below for sub-units: The river corridor and the agricultural areas.

SUBUNIT A: THE RIVER CORRIDOR

Primary Land Use

-Fish and Wildlife
-Recreation

Secondary Land Use

-Forestry

MANAGEMENT GUIDELINES

Location of Publicly-Owned Buffer

A publicly-owned buffer will be retained adjacent to the river (except where private land holdings now occur). Buffer width may vary with topography and vegetation within this subunit but should include sufficient land to provide for water quality maintenance, habitat protection, and recreational use on and along the river. In this subunit the buffer shall include, at a minimum, land $\frac{1}{4}$ mile beyond the ordinary high water mark of the extreme channel meander or the 100-year floodplain, whichever provides the buffer of greatest width. (This guideline does not apply to Subunit B, the agricultural areas, where the buffer shall include land 300 feet from the extreme channel meander.)

Forestry

For guidelines related to forestry management within publicly-owned river buffers, see Chapter III, Policies and Management Guidelines, River and Stream Corridors.

Subsurface Resources

See Chapter III, Goals, Policies, and Management Guidelines; Subsurface Resources.

SUBUNIT B: THE AGRICULTURAL AREAS

Primary Land Use

-Small Farms

Secondary Land Uses

-Forestry
-Recreation
-Fish and Wildlife

MANAGEMENT GUIDELINES

Agriculture

Class II and III soils on public lands within this subunit should be used for small farms (40-80) whenever feasible. These farms should be designed in a manner which improves rather than limits public access to the river.

Location of Publicly-owned Buffer

A publicly-owned buffer will be retained adjacent to the river (except where private land holdings now occur). Buffer width may vary with topography and terrain within this subunit but shall include, at a minimum, land 300 feet from the ordinary high water mark of the extreme channel meander.

Forestry

For guidelines related to forestry management within publicly-owned river buffers, see Chapter III, Policies and Management Guidelines, River and Stream Corridors.

Parks Highway

Management of public lands adjacent to the Parks Highway should be consistent with the recommendations of the report "Scenic Resources Along the Parks Highway." The recommendations in that report which are relevant to the Willow Sub-basin are in Appendix 1. The borough and state will encourage private land owners to follow recommendations in the report in order to protect the scenic values along the highway.

AREA-WIDE POLICIES AND MANAGEMENT GUIDELINES

Chapter III presents additional policies and land management guidelines which may be relevant to particular decisions in this management unit. Categories of these policies and guidelines are listed below for ease of reference:

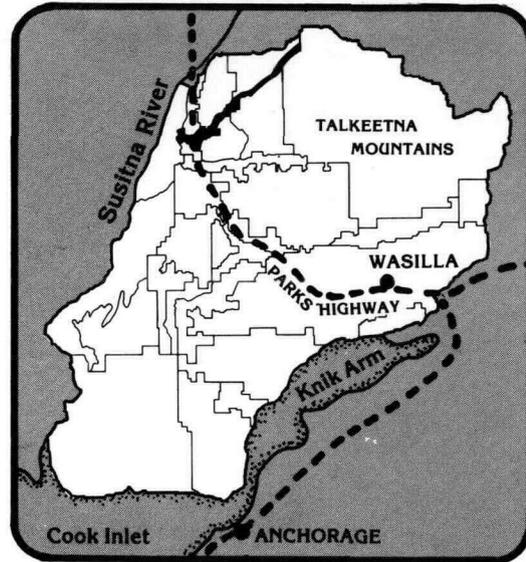
	<u>Pages</u>
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FORESTRY	59
FISH & WILDLIFE	67
SETTLEMENT	73
SUBSURFACE RESOURCES	79
TRANSPORTATION	89
WETLANDS	97
RIVER & STREAM CORRIDORS	103
TRAILS	109
PUBLIC ACCESS	113

LITTLE WILLOW CK. CORRIDOR

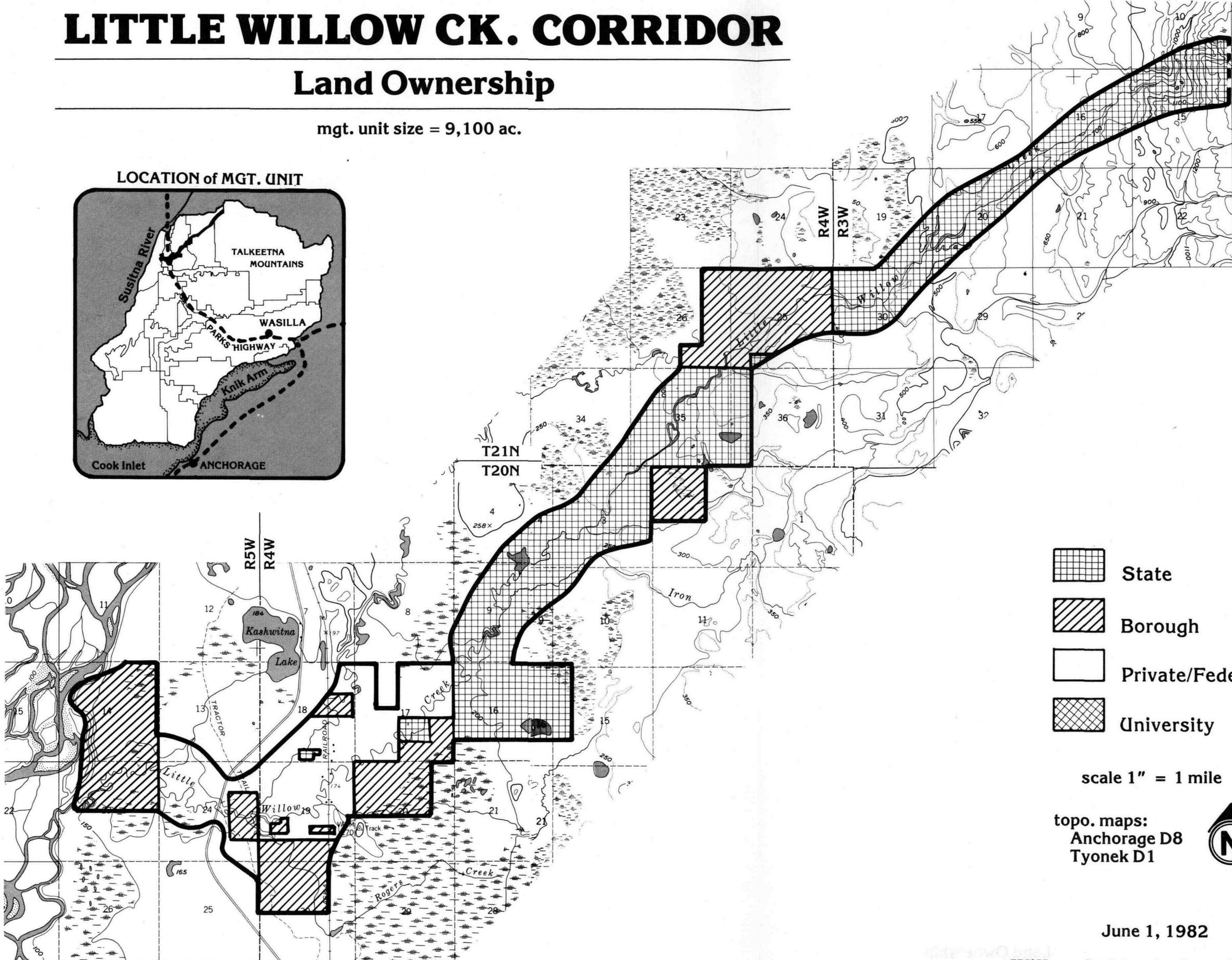
Land Ownership

mgt. unit size = 9,100 ac.

LOCATION of MGT. UNIT



NOTE: The upper 4 miles of the Little Willow Ck. Management Unit are not shown on this map. The upper river segment is similar to the portion shown on this page: it is a state owned corridor roughly 1/4 mile either side of the river. (See Map 4 for exact location).



-  State
-  Borough
-  Private/Federal
-  University

scale 1" = 1 mile

topo. maps:
Anchorage D8
Tyonek D1



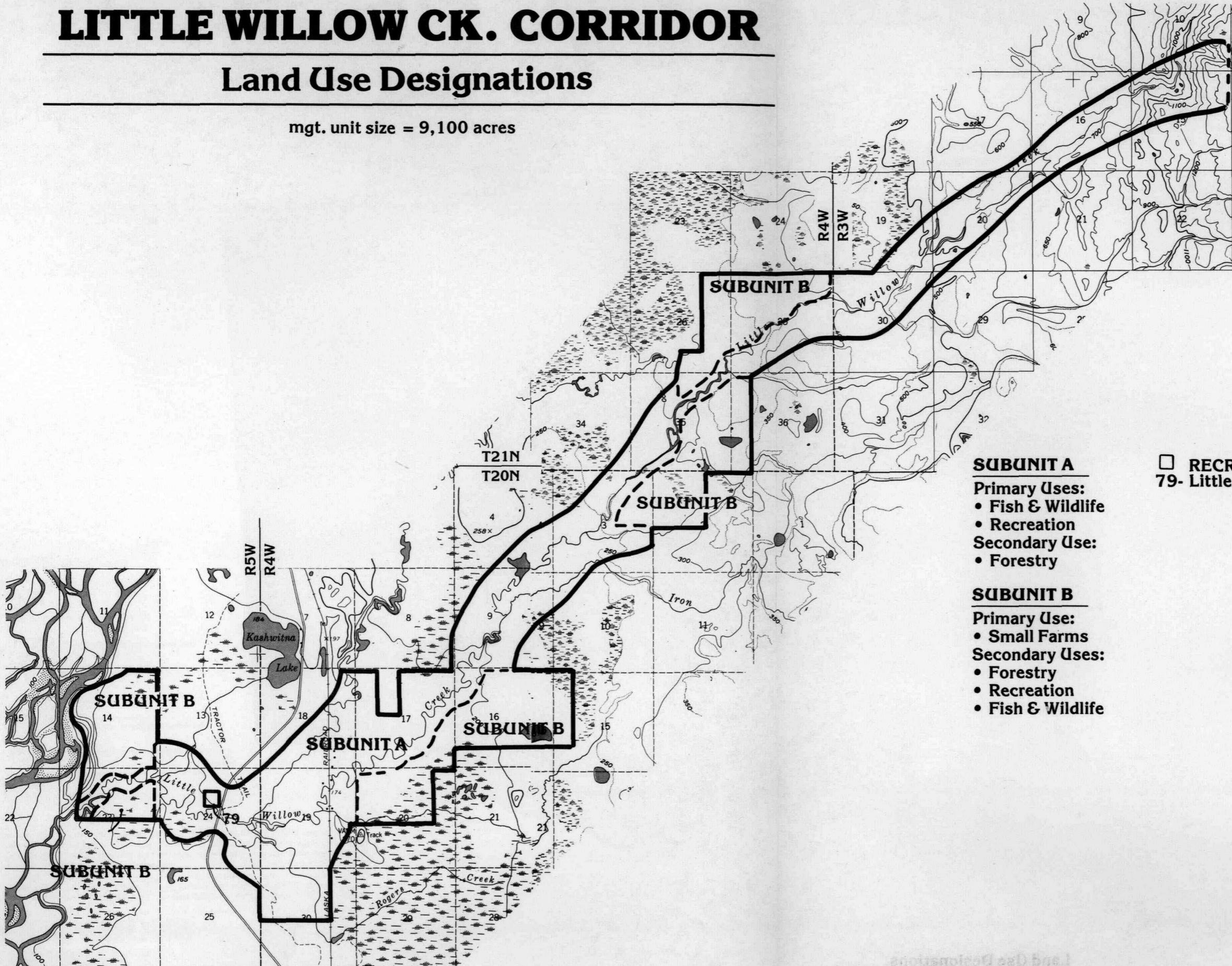
June 1, 1982

LITTLE WILLOW CK. CORRIDOR

Land Use Designations

mgt. unit size = 9,100 acres

NOTE: The upper 4 miles of the Little Willow Ck. Management Unit are not shown on this map. The upper river segment is similar to the portion shown on this page: it is a state owned corridor roughly 1/4 mile either side of the river. (See Map 4 for exact location).



SUBUNIT A

Primary Uses:

- Fish & Wildlife
- Recreation

Secondary Use:

- Forestry

SUBUNIT B

Primary Use:

- Small Farms

Secondary Uses:

- Forestry
- Recreation
- Fish & Wildlife

□ RECREATION SITE

79- Little Willow Creek Access



scale 1" = 1 mile

June 1, 1982

Willow Subbasin Area Plan

MANAGEMENT UNIT: SUSITNA FLOODPLAIN

MANAGEMENT INTENT

This unit is to be managed both to preserve and enhance the existing fish and wildlife habitat and to maximize the long term commercial harvest potential of the timber stock. The unit contains important potential public recreation sites on the Susitna River which will be identified through detailed planning.

The public lands along Willow Creek below the Parks Highway bridge are being studied cooperatively by the borough and state for possible recreation development and inclusion in the State Park System.

Primary Land Uses

- Forestry
- Fish and Wildlife

Secondary Land Use

- Recreation

MANAGEMENT GUIDELINES

Forestry

Forestry guidelines are designed to protect views of the area from the river and the shore, prevent erosion, and provide vegetative cover for wildlife.

Visual Protection: Clearcuts are prohibited where the cuts would affect frequently viewed areas. This prohibition extends 200 feet from the river shore of both the mainland and islands which can be viewed from the main channel of the river. This distance may be modified based on site specific visual analysis. This clear-cut buffer also applies adjacent to heavily used boating routes in smaller channels of the river and on islands easily viewed from shore.

Wildlife Cover: The preceding guideline is sufficient to provide vegetative screens for wildlife on all islands and riverbanks.

Coordination: All timber sales should be planned in coordination with the ADF&G. Visual analysis should be coordinated with the Division of Parks.

Miscellaneous: For other guidelines, see Chapter III, Forestry.

Recreation

The management plan for the area should identify potential public recreation access sites on the Susitna River, and access routes necessary to reach them. Forestry activities on or adjacent to these sites should not affect future recreation potential. Restrictions on forestry might include outright prohibition or a restriction on clearcutting. Forestry access routes should follow potential recreation access routes when feasible.

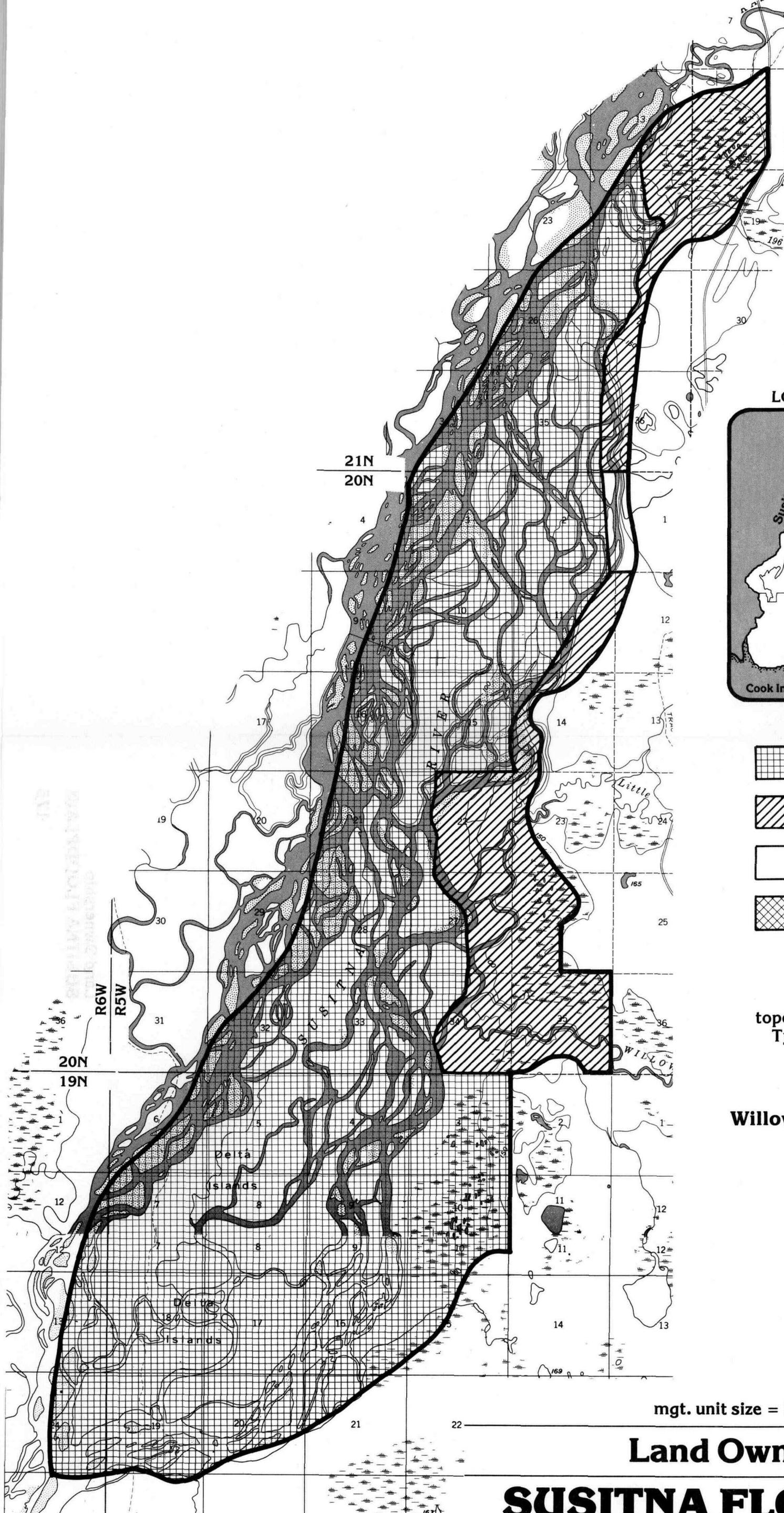
Subsurface Resources

See Chapter III, Goals, Policies, and Management Guidelines; Subsurface Resources.

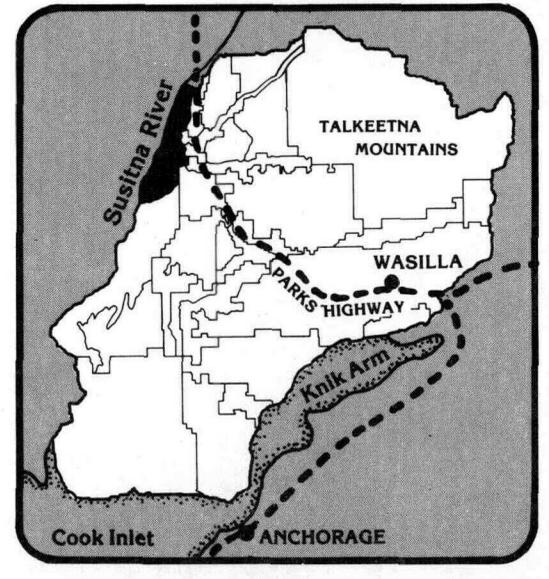
AREA-WIDE POLICIES AND MANAGEMENT GUIDELINES

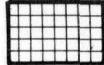
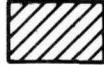
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PUBLIC ACCESS	113



LOCATION of MGT. UNIT



-  State
-  Borough
-  Private/Federal
-  University

scale 1" = 1 mile

topo. maps:
Tyonek C1, D1



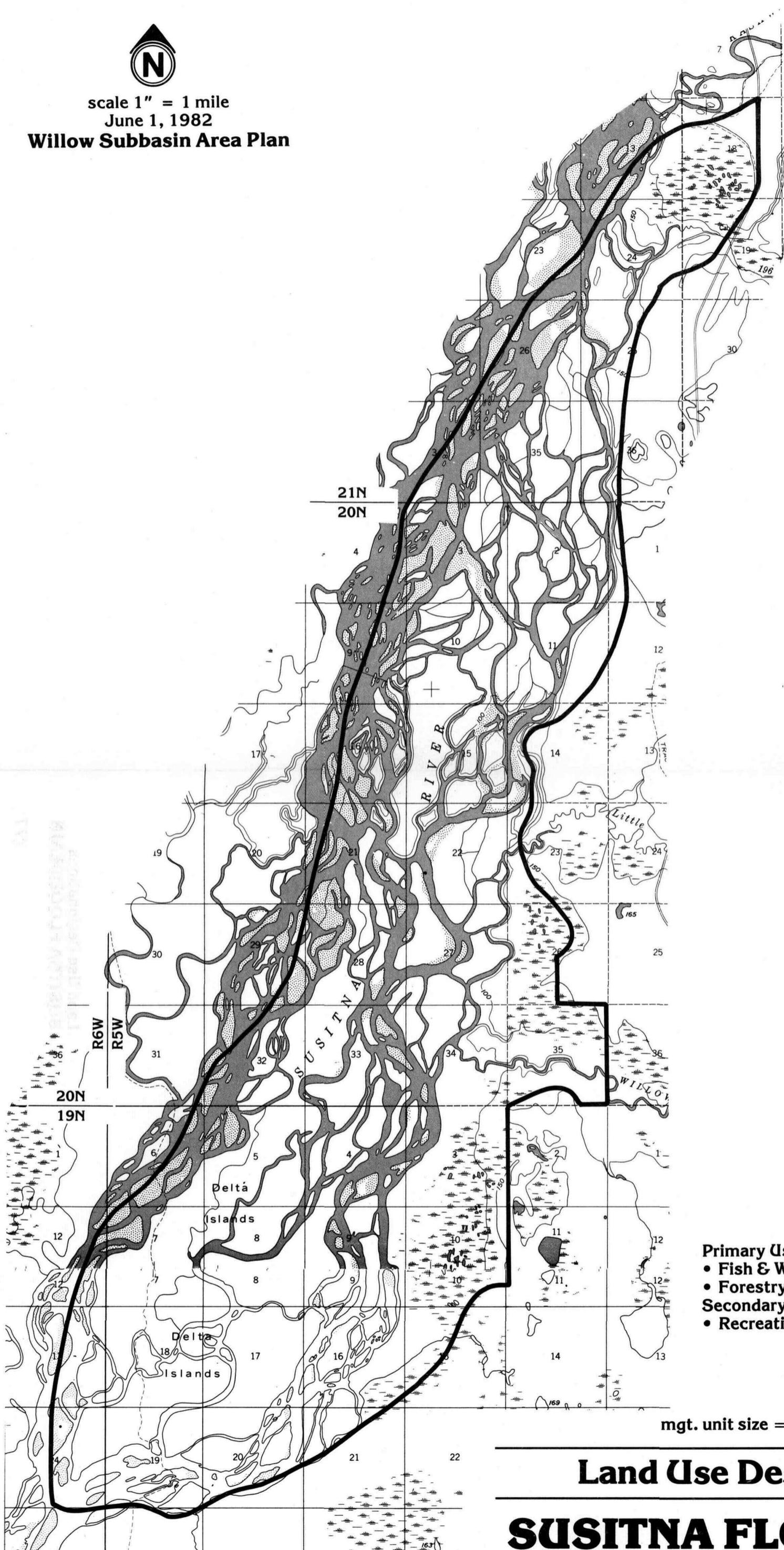
June 1, 1982
Willow Subbasin Area Plan

mgt. unit size = 20,900 ac.

Land Ownership
SUSITNA FLOODPLAIN



scale 1" = 1 mile
June 1, 1982
Willow Subbasin Area Plan



- Primary Uses:**
- Fish & Wildlife
 - Forestry
- Secondary Use:**
- Recreation

mgt. unit size = 20,900 ac.

Land Use Designations

SUSITNA FLOODPLAIN

MANAGEMENT UNIT: RONALD LAKE

MANAGEMENT INTENT

This unit is to be managed to support scattered residences and small farms on a limited amount of developable land interspersed with poorly drained areas. Development should proceed with care to avoid damaging the water quality of various streams and wetlands. Road access will not be provided through this unit to the Nancy Lake Recreation Area or the Little Susitna River. Wetlands in the unit will be managed for watershed and habitat uses.

SUBUNIT A: SETTLEMENT/SMALL FARMS

Primary Land Uses

- Settlement (dispersed)
- Small Farm Agriculture

Secondary Land Uses

- Fish and Wildlife
- Forestry

Note: The areas shown on the following map as settlement or small farm sites are tentative; more detailed study of existing data and field work are necessary to identify areas that can support these uses and avoid damaging surrounding water quality.

MANAGEMENT GUIDELINES

Small Farm Agriculture

On good agricultural soils, priority should be given to small farm agriculture rather than settlement.

Settlement

Residential disposals are encouraged at a density commensurate with land capability and with appropriate wetland and stream buffers as specified in Chapter III, Policies and Management Guidelines; Rivers and Streams; and Chapter III; and Wetlands.

Forestry

See Chapter III, Policies and Management Guidelines; Forestry.

SUBUNIT B: WETLANDS

Primary Land Uses

- Fish and Wildlife
- Watershed

MANAGEMENT GUIDELINES

See Chapter III, Policies and Management Guidelines; Wetlands.

AREA-WIDE POLICIES AND MANAGEMENT GUIDELINES

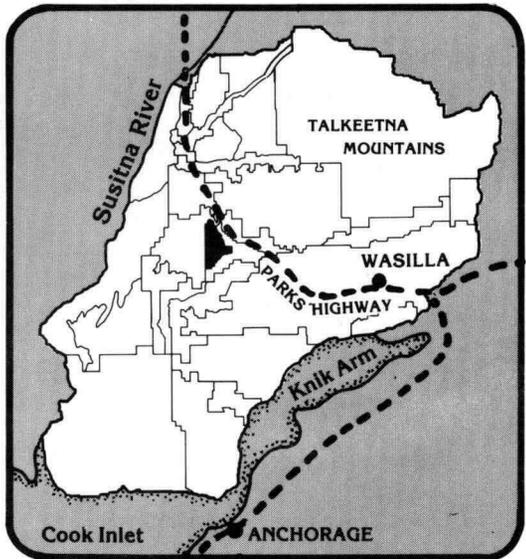
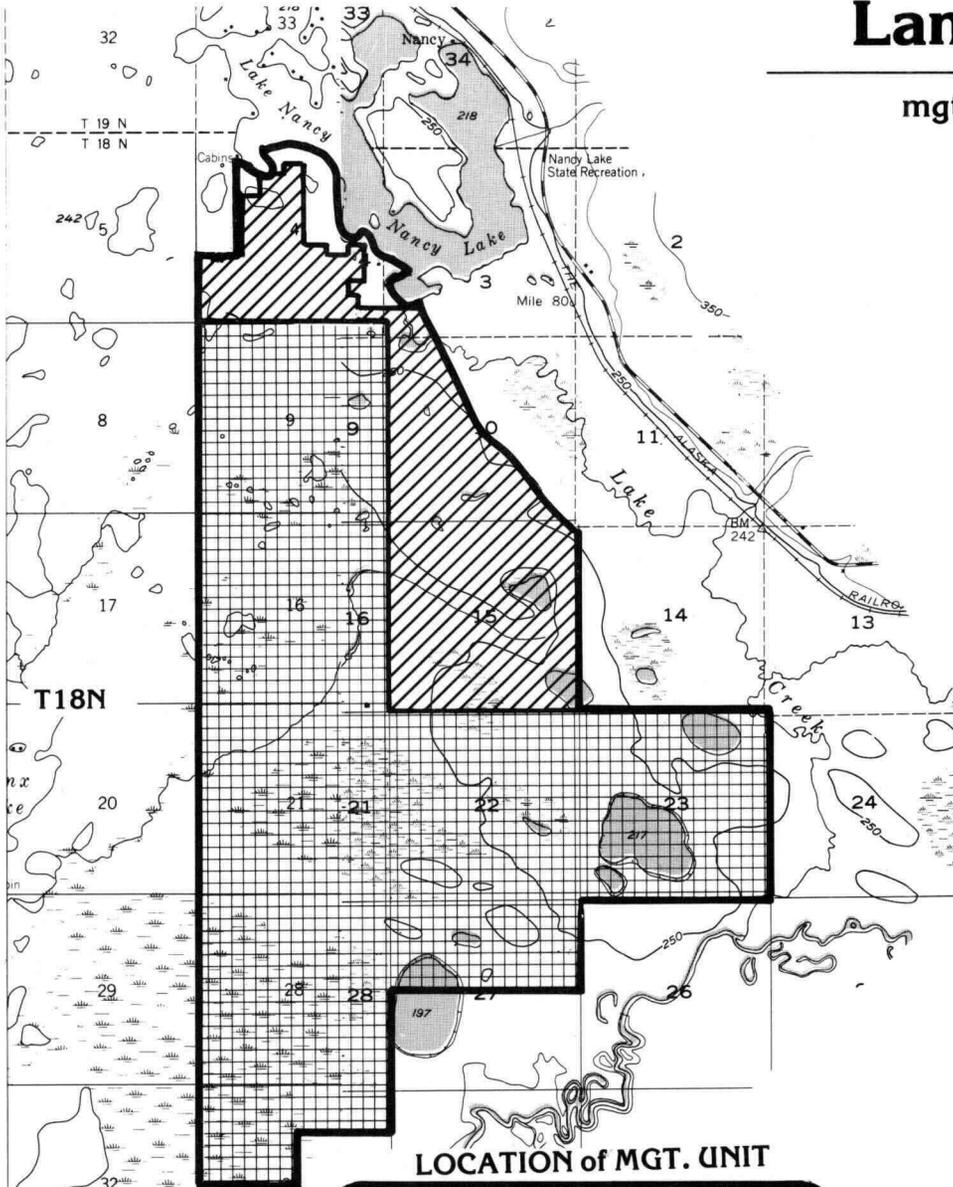
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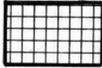
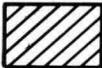
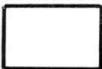
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RONALD LAKE

Land Ownership

mgt. unit size = 5,100 ac.



-  State
-  Borough
-  Private/Federal
-  University

scale 1" = 1 mile

topo. maps:
Tyonek C1
Anchorage C8

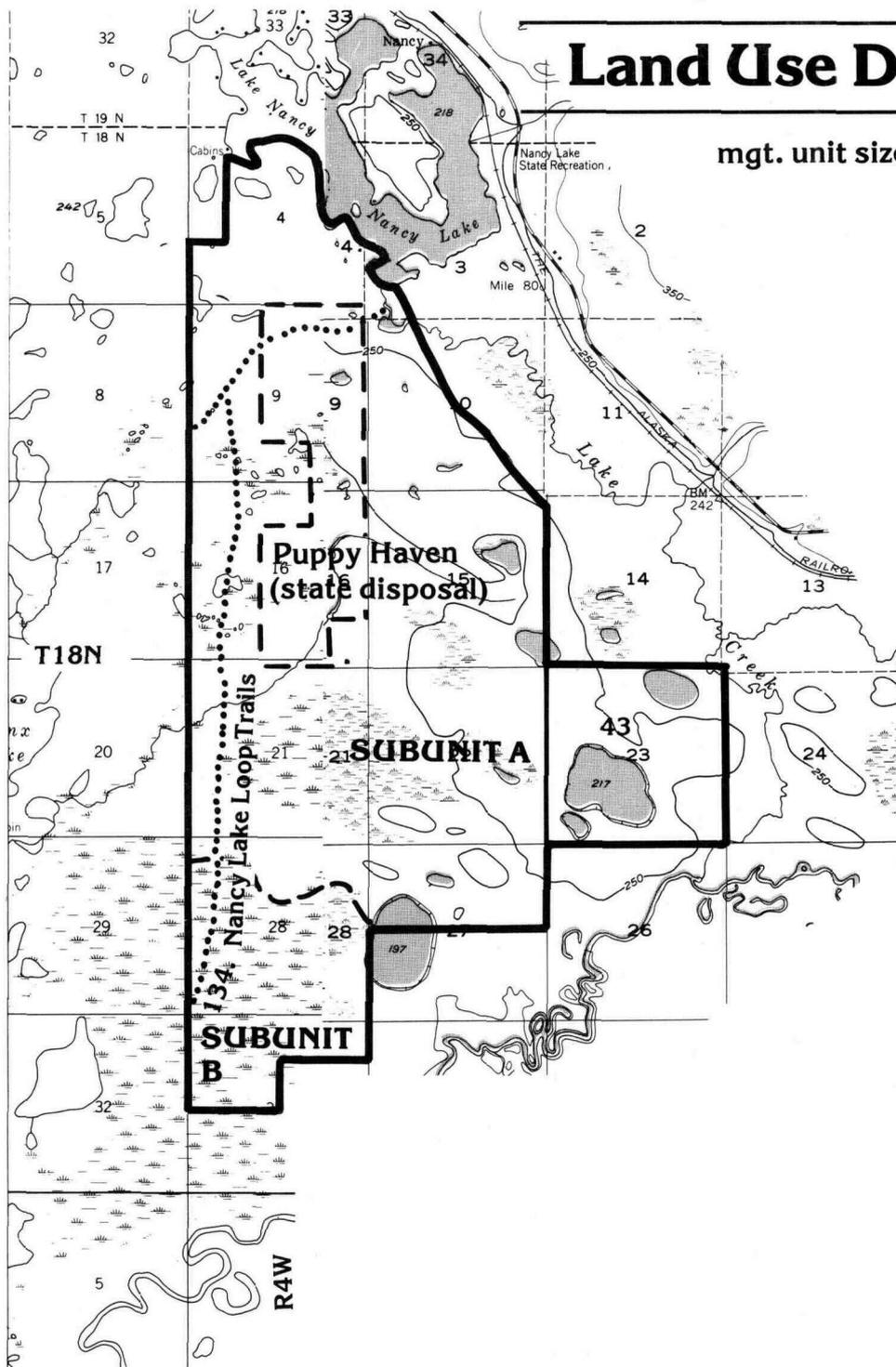


June 1, 1982
Willow Subbasin Area Plan

RONALD LAKE

Land Use Designations

mgt. unit size = 5,100 ac.



SUBUNIT A.

Primary Uses:

- Small Farms
- Settlement

Secondary Uses:

- Fish & Wildlife
- Forestry

SUBUNIT B.

Primary Uses:

- Watershed
- Fish & Wildlife

- RECREATION SITE
- 43- Houston Lakes



scale 1" = 1 mile
June 1, 1982

Willow Subbasin Area Plan

MANAGEMENT UNIT: LITTLE SUSITNA CORRIDOR

MANAGEMENT INTENT

This area is to be managed to maintain and enhance the recreation/habitat resources along the Little Susitna River.

Where public land now abuts the river, this unit will be managed to provide a continuous scenic recreation experience. Fish and wildlife habitat will be protected, with special emphasis placed on the anadromous fish stream and adjacent riparian areas. This undeveloped corridor will be increasingly important for species (notably moose) migrating between uplands to the northeast and the game refuges and other lowlands to the south and west.

Principal recreational uses will be on and adjacent to the river. To protect these recreation values the unit should be managed to provide both a visual and sound buffer from uses outside the corridor and to protect water quality. Non-road accessible public recreation cabins should be developed with a coordinated river and trail access system. The Division of Parks may recommend that the legislature designate this corridor as a state recreation area. Road access to or across the corridor will be minimized.

Where private land now abuts the river, the state will consider purchase of land for public access. The state will not use the power of eminent domain in such cases but will purchase land from willing sellers to enhance public enjoyment of the river corridor, should funds be appropriated by the legislature for this purpose.

The northern portion of this unit includes a portion of the City of Houston. Management of the public lands inside that boundary should contribute to the city's development plans. Any irreversible management decision (e.g., disposal) must be consistent with the Comprehensive Plan for the City of Houston. In addition, the state and borough will not pursue actions which obstruct any of the Department of Transportation's proposed transportation routes into the city.

To illustrate land use designations, the Little Susitna Corridor unit is divided into two subunits: the Houston wetlands, and the river corridor. Management guidelines presented below apply to both subunits.

SUBUNIT A: HOUSTON WETLAND

Primary Land Uses

- Fish and Wildlife
- Watershed

MANAGEMENT GUIDELINES

Management guidelines for Subunits A and B are presented below.

SUBUNIT B: THE LITTLE SUSITNA RIVER

Primary Land Uses

- Recreation
- Fish and Wildlife

Secondary Land Use

- Forestry

MANAGEMENT GUIDELINES: SUBUNITS A and B

The following guidelines apply throughout the Little Susitna Corridor Management Unit.

Forestry

Timber harvests shall be permitted only where appropriate for enhancement of the recreation and habitat values of the corridor.

Transportation

Road Access to or across the corridor will be minimized, and shall be prohibited between Houston and Burma Road. See also Chapter III, Policies and Management Guidelines; Transportation.

Sub-surface Development

A mineral closing order will be issued for this management unit closing it to all mining.

Water Quality

Water entering the Little Susitna River should remain undiminished in quality and quantity.

Wetlands

Uses on lands adjacent to wetlands will be managed in accordance with Chapter III, Policies and Management Guidelines; Wetlands.

Siting of Public Cabins

Public cabins should be sited by the Alaska Division of Parks in consultation with the Department of Fish and Game and the Matanuska-Susitna Borough.

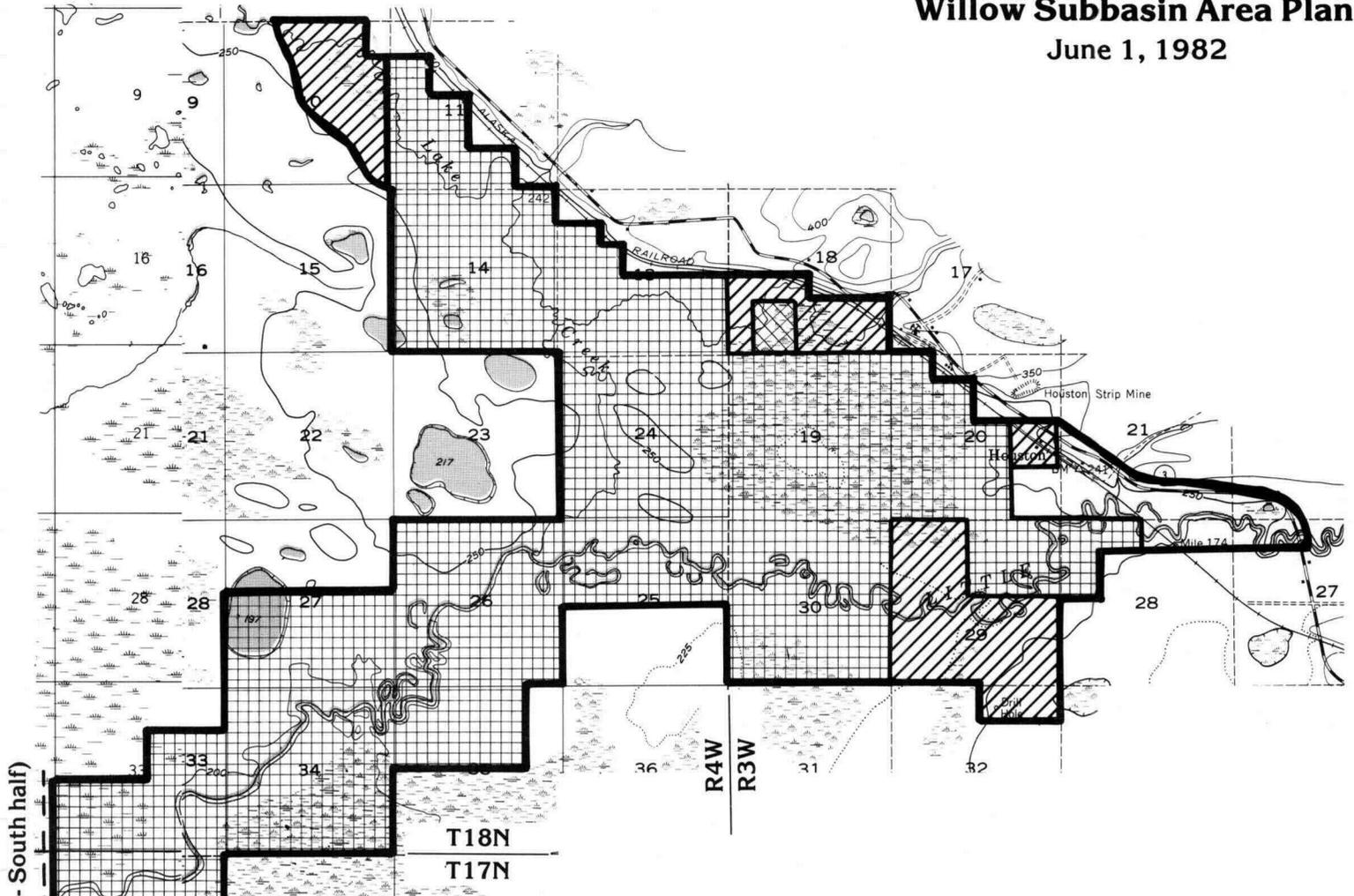
AREA-WIDE POLICIES AND MANAGEMENT GUIDELINES

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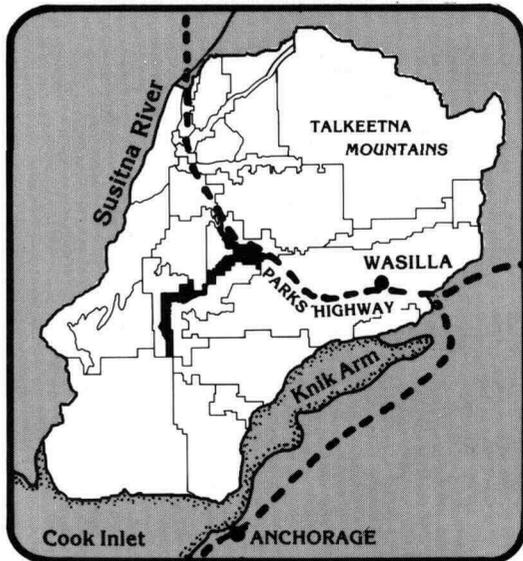
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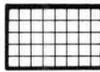
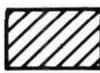
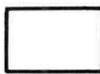
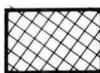
Willow Subbasin Area Plan

June 1, 1982



LOCATION of MGT. UNIT



-  State
-  Borough
-  Private/Federal
-  University

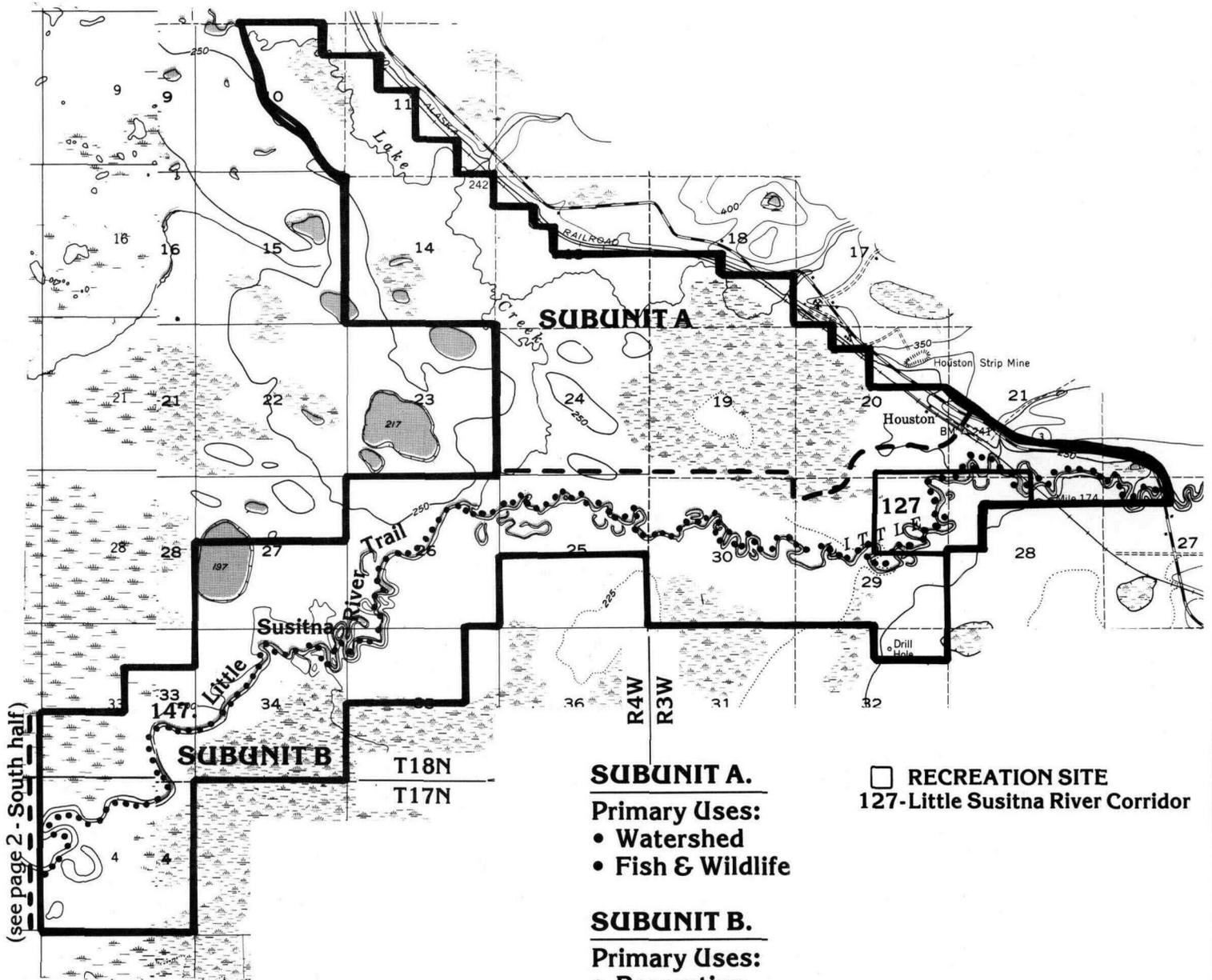
scale 1" = 1 mile
 topo. maps:
 Anchorage C8
 Tyonek B1, C1



mgt. unit size = 15,300 ac.

Land Ownership

LITTLE SUSITNA CORRIDOR



(see page 2 - South half)

SUBUNIT A.

Primary Uses:

- Watershed
- Fish & Wildlife

RECREATION SITE
127-Little Susitna River Corridor

SUBUNIT B.

Primary Uses:

- Recreation
- Fish & Wildlife

Secondary Use:

- Forestry



scale 1" = 1 mile

June 1, 1982

Willow Subbasin Area Plan

mgt. unit size = 15,300 ac.

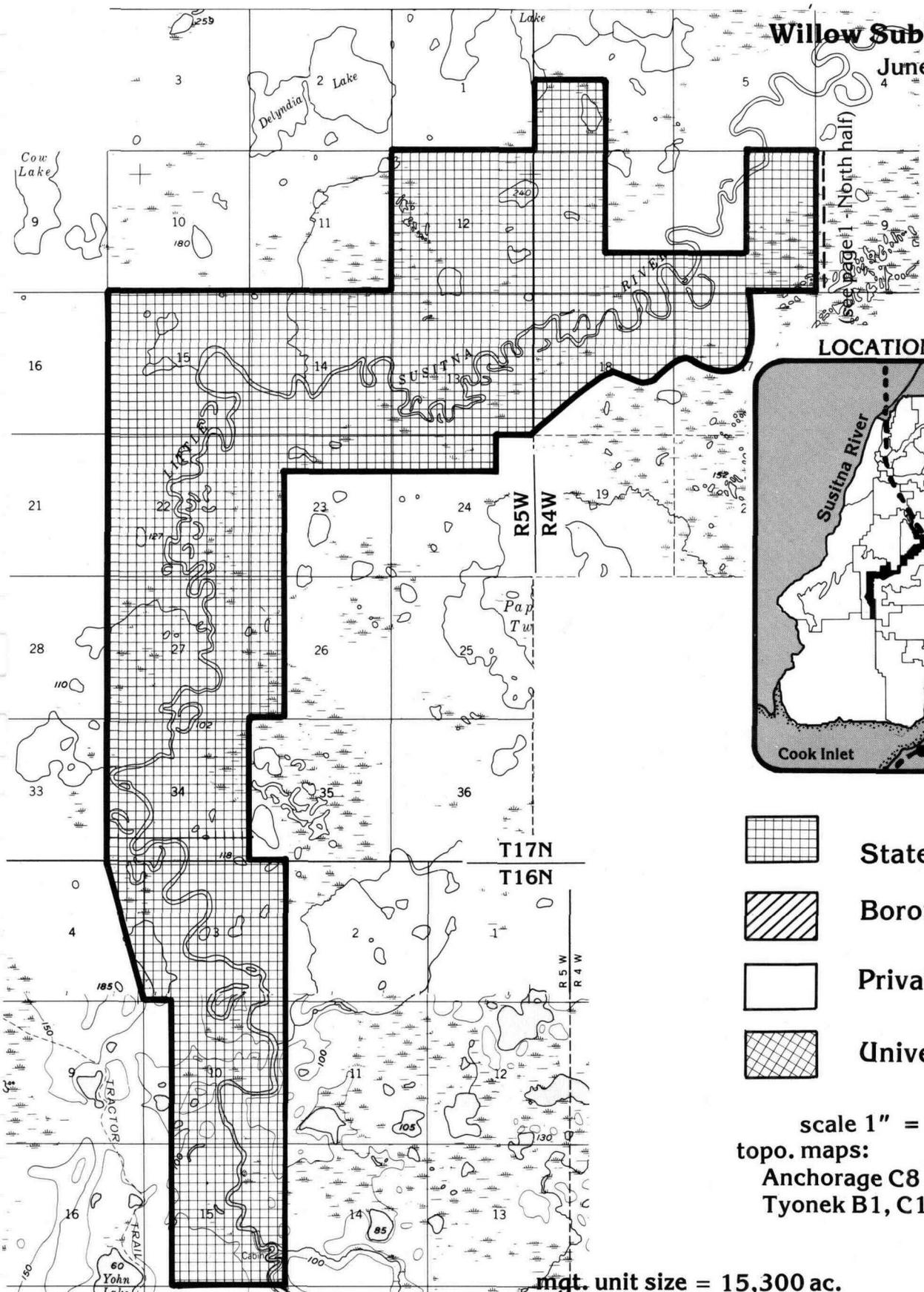
Land Use Designations

LITTLE SUSITNA CORRIDOR

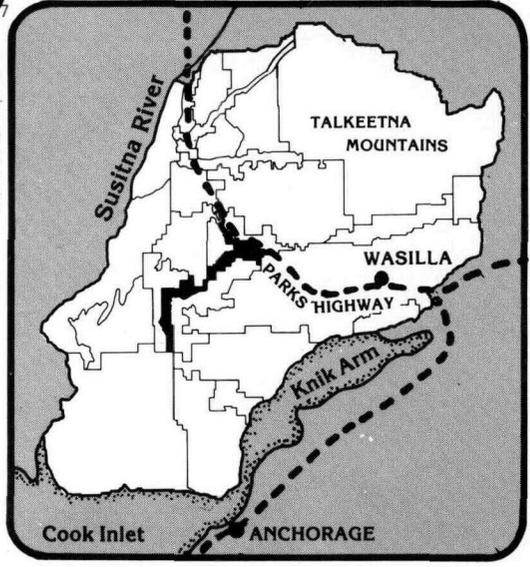
(page 1 of 2)

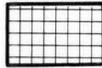
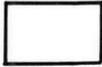
Willow Subbasin Area Plan

June 1, 1982



LOCATION of MGT. UNIT



-  State
-  Borough
-  Private/Federal
-  University

scale 1" = 1 mile
 topo. maps:
 Anchorage C8
 Tyonek B1, C1



mgt. unit size = 15,300 ac.

Land Ownership

LITTLE SUSITNA CORRIDOR

MANAGEMENT UNIT: PEAR LAKE

MANAGEMENT INTENT

The Pear Lake Unit is to be managed for a wide spectrum of uses. Portions of the unit with limited development potential will function primarily as a buffer between the scenic Little Susitna Corridor and the more developed uses in the adjacent Wasilla Management Unit.

MANAGEMENT GUIDELINE: SUBUNITS A-D

Much of the Pear Lake Unit is adjacent to the Little Susitna Corridor. Land management and disposals within those portions of the Pear Lake Unit adjacent to the Little Susitna Corridor Management Unit shall be consistent with the recreation objectives of the Corridor. No clearing or use of land for residential, commercial or industrial use shall occur in areas viewed from the river. Roads shall be prohibited within 1/4 mile of the river except as approved by the Division of Parks. Efforts shall be made to protect water quality and to prohibit noise impacts on the corridor. The unit has been divided into 4 sub-units for presenting land use designations and additional guidelines.

SUBUNIT A: PEAR LAKE WETLAND

Primary Land Uses

- Fish and Wildlife
- Watershed

MANAGEMENT GUIDELINES

Wetlands

See Chapter III, Policies, and Management Guidelines; Wetlands.

Transportation

The Alaska Department of Transportation and Public Facilities has located a transportation corridor through this subunit. The corridor connects the Pt. MacKenzie area to Houston and the Capital Site. Currently there are no construction plans, but management of this unit

should prevent disposal of the route or any other action which would foreclose a future option to build.

SUBUNIT B: PEAR LAKE MULTIPLE USE AREA

Primary Land Uses

- Settlement
- Small Farm Agriculture

Secondary Land Use

- Forestry

MANAGEMENT GUIDELINES

Settlement and Small Farms

See MANAGEMENT GUIDELINES, SUBUNITS A-D, Page 199. Any state land disposals in this unit which could affect views from the Little Susitna River should be designed with the participation of the Division of Parks. In areas of good agricultural soils, priority will be given to small farms rather than residential use.

Transportation

See MANAGEMENT GUIDELINES, SUBUNITS A-D, Page 199. Road alignments shall be located as far from the Little Susitna Corridor as is feasible.

SUBUNIT C: SETTLEMENT NEAR UNNAMED LAKE

Primary Land Use

- Settlement

Secondary Land Use

- Recreation

MANAGEMENT GUIDELINES

Settlement

See MANAGEMENT GUIDELINES, SUBUNITS A-D, page 199; and Chapter III, Goals, Policies, and Management Guidelines; Recreation, Management Guideline 2.

SUBUNIT D: PEAR LAKE "L"

Primary Land Uses

- Fish and Wildlife
- Forestry

MANAGEMENT GUIDELINES

Forestry

See Chapter III, Goals, Policies, and Management Guidelines; Forestry.

AREA-WIDE POLICIES AND MANAGEMENT GUIDELINES

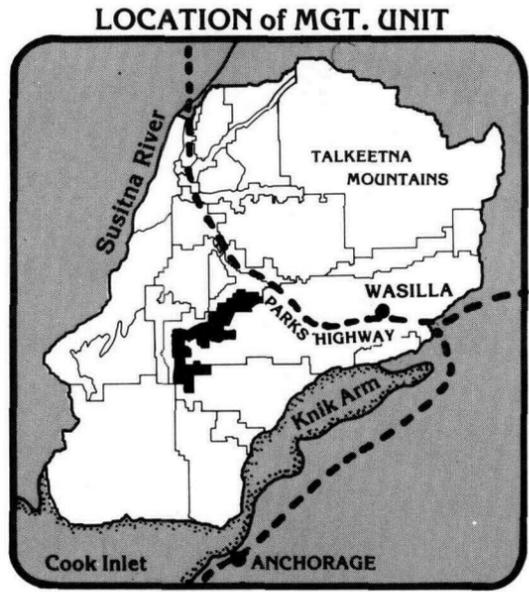
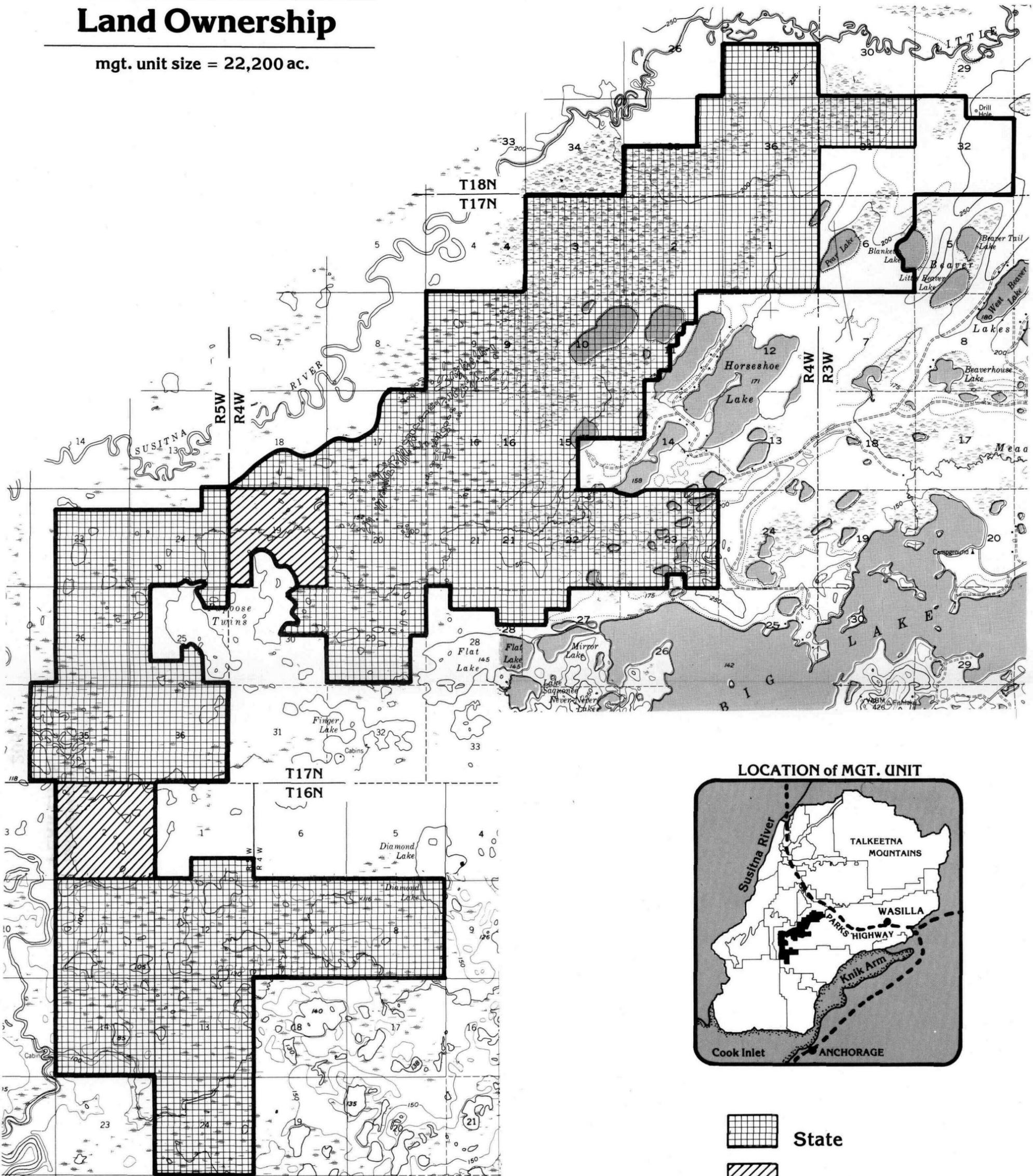
Chapter III presents additional policies and land management guidelines which may be relevant to particular decisions in this management unit. Categories of these policies and guidelines are listed below for ease of reference:

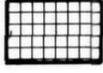
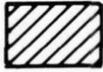
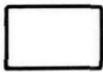
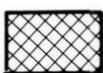
	<u>Pages</u>
AGRICULTURE	41
RECREATION	53
FORESTRY	59
FISH & WILDLIFE	67
SETTLEMENT	73
SUBSURFACE RESOURCES	79
TRANSPORTATION	89
WETLANDS	97
RIVER & STREAM CORRIDORS	103
TRAILS	109
PUBLIC ACCESS	113

PEAR LAKE

Land Ownership

mgt. unit size = 22,200 ac.



-  State
-  Borough
-  Private/Federal
-  University

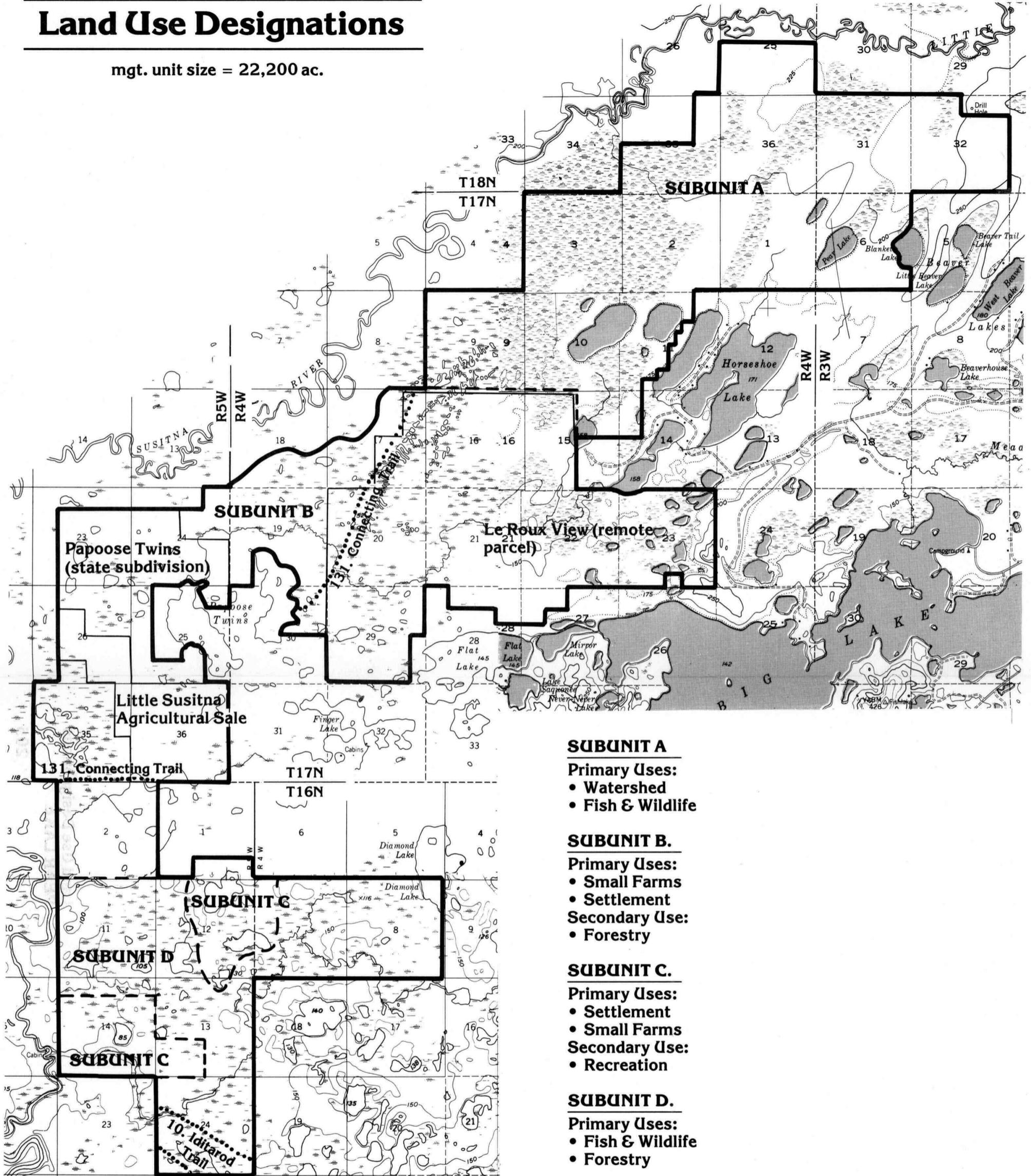
scale 1" = 1 mile
 topo. maps:
 Anchorage C8
 Tyonek B1, C1



PEAR LAKE

Land Use Designations

mgt. unit size = 22,200 ac.



SUBUNIT A

- Primary Uses:
- Watershed
 - Fish & Wildlife

SUBUNIT B.

- Primary Uses:
- Small Farms
 - Settlement
- Secondary Use:
- Forestry

SUBUNIT C.

- Primary Uses:
- Settlement
 - Small Farms
- Secondary Use:
- Recreation

SUBUNIT D.

- Primary Uses:
- Fish & Wildlife
 - Forestry



scale 1" = 1 mile
June 1, 1982

Willow Subbasin Area Plan

Management Units of Predominant State Ownership

In the following management units land use designations have been made on state lands only.

Hatcher Pass	209
Moose Range	217

MANAGEMENT UNIT: HATCHER PASS

MANAGEMENT INTENT

Hatcher Pass is to be managed as a multiple use area, emphasizing the uses that are most important in the area now: mining (Independence and other mine operations); recreation (full range of winter and summer activities, including hiking, skiing, snowmobiling, etc.); fish and wildlife related uses (moose and ptarmigan hunting, and providing important habitat to these and other species); and grazing. In many cases, the areas where these uses occur directly overlap. As a result, effective management of the area calls for careful control of the way the uses occur, their timing, and exact locations.

A detailed management plan for this unit is scheduled for completion in 1983. This planning effort will establish guidelines which prevent conflicts among primary uses. It will also designate appropriate secondary uses in the area. The organization and anticipated products of this plan are outlined below.

Primary Land Uses

- Mining
- Recreation
- Fish and Wildlife habitat
- Grazing

MEMBERS OF THE PLANNING TEAM

1. Division of Land and Water Management - lead agency.
2. Division of Parks
3. Division of Research and Development
4. Division of Minerals and Energy Development
5. Division of Agriculture
6. Division of Forestry
7. Alaska Department of Fish & Game
8. Matanuska-Susitna Borough
9. Department of Transportation and Public Facilities

PUBLIC PARTICIPATION

Public meetings to discuss land management in the Hatcher Pass area will be held in the Matanuska-Susitna Borough and in Anchorage during 1982. Meetings will also be held with groups such as the Alaska Miners Association and the Alaska Visitors Association to solicit opinions on land management issues.

PRODUCTS OF THE HATCHER PASS MANAGEMENT PLAN

The management plan will further specify designated uses of state land within the the four watersheds identified on the following map. It will also present guidelines which control how these uses occur. Issues to be addressed by the plan include the following:

1. Road improvements and maintenance.
2. Methods of enforcing regulations affecting uses in the area.
3. Siting of commercial recreation facilities on public land.
4. Borough zoning.
5. Methods of preventing conflicts between designated land uses.

AREA-WIDE POLICIES AND MANAGEMENT GUIDELINES

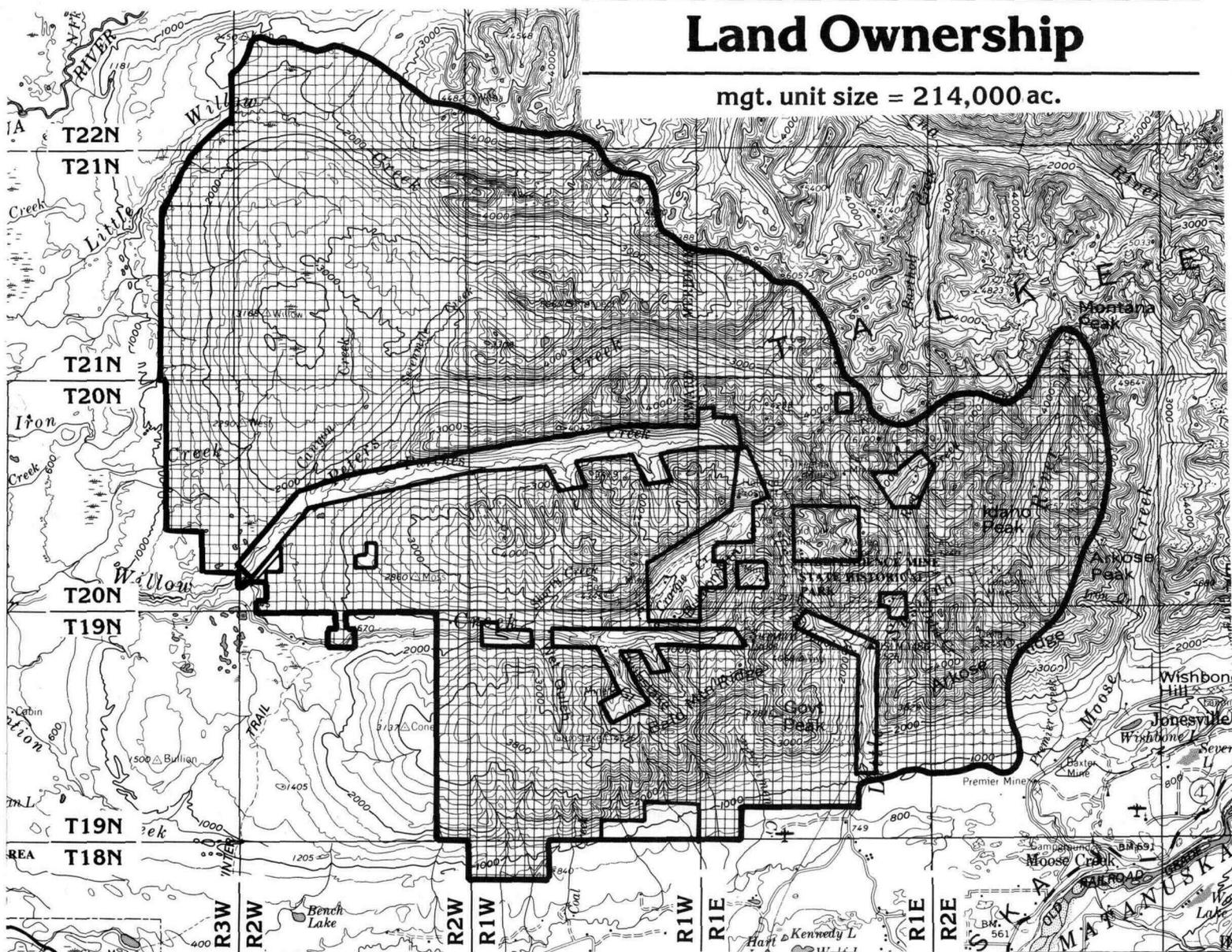
Chapter III presents additional policies and land management guidelines which may be relevant to particular decisions in this management unit. Categories of these policies and guidelines are listed below for ease of reference:

	<u>Pages</u>
AGRICULTURE	41
RECREATION	53
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WETLANDS	97
RIVER & STREAM CORRIDORS	103
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PUBLIC ACCESS	113

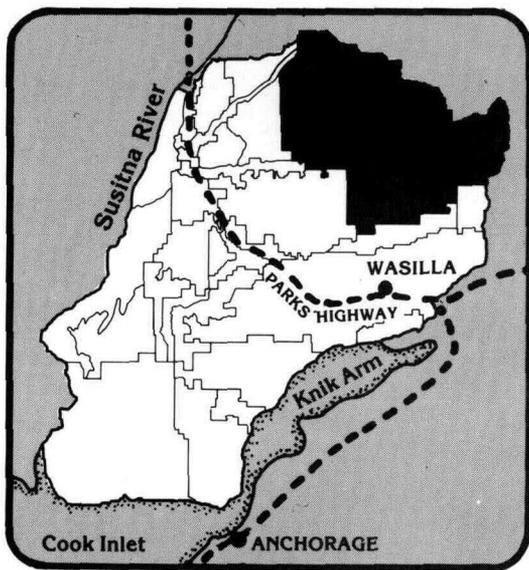
HATCHER PASS

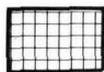
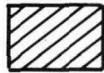
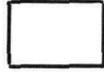
Land Ownership

mgt. unit size = 214,000 ac.



LOCATION of MGT. UNIT



-  State
-  Borough
-  Private/Federal
-  University

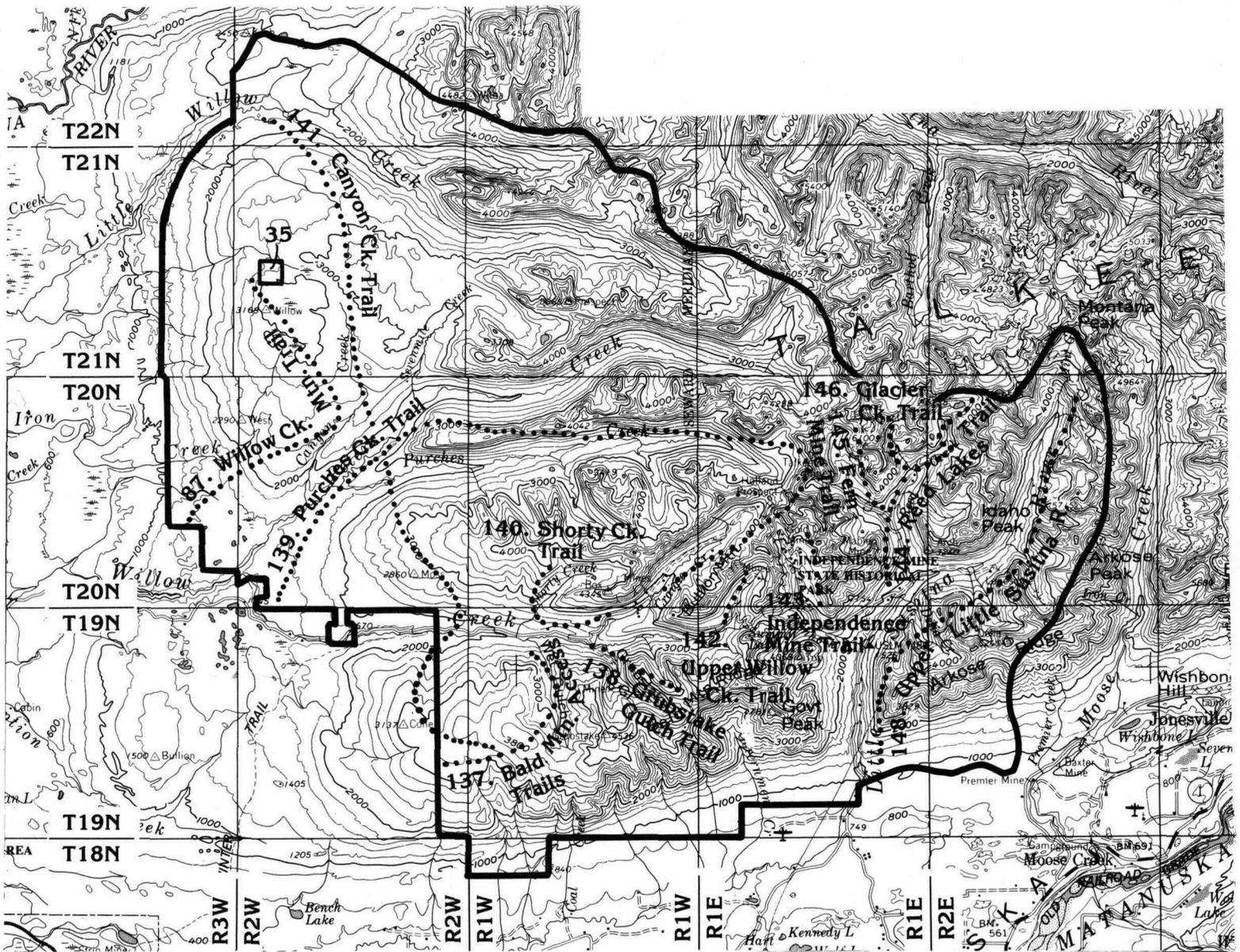
scale 1:250,000
topo. maps:

Anchorage C6,
C7, D6, D7, D8



June 1, 1982

Willow Subbasin Area Plan



□ RECREATION SITE
35- Three Mile Lake

Primary Uses:

- Grazing
- Mining
- Fish & Wildlife
- Recreation

mgt. unit = 214,000 ac.

Land Use Designations

HATCHER PASS



scale 1" = 1:250,000

June 1, 1982

Willow Subbasin Area Plan

MANAGEMENT UNIT: MOOSE RANGE

MANAGEMENT INTENT

The management intent for this area is expressed in the borough's Moose Creek Reserve Ordinance. Under this ordinance, the area will be intensively managed for production of moose, principally through controlled timber harvest. Grazing will be permitted as compatible with the primary habitat enhancement objective of the unit.

Primary Land Use

- Fish and Wildlife

Secondary Land Uses

- Forestry
- Grazing

MANAGEMENT GUIDELINES

See Borough Moose Creek Reserve ordinance. See also Chapter III, Goals, Policies and Management Guidelines - Agriculture, Grazing.

AREA-WIDE POLICIES AND MANAGEMENT GUIDELINES

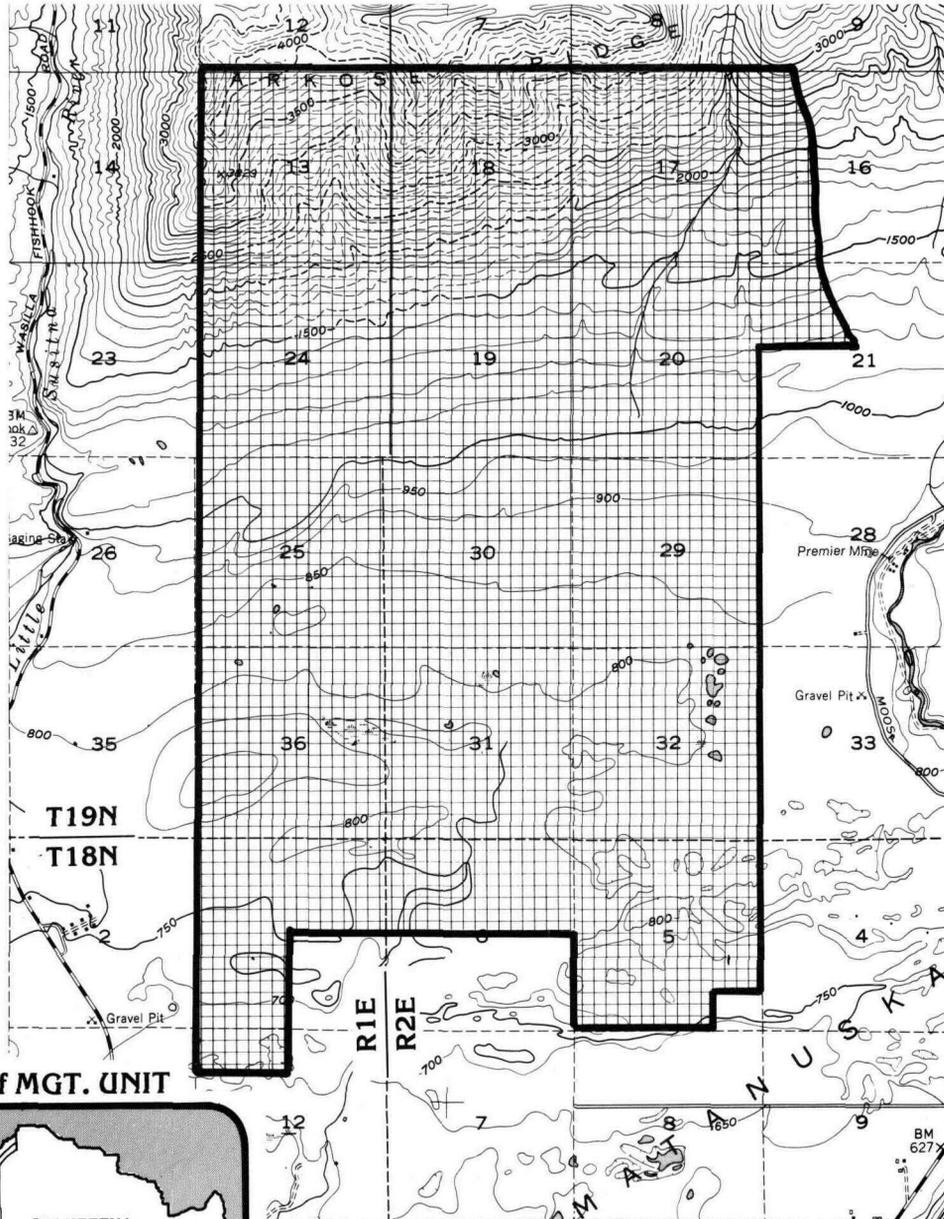
Chapter III presents additional policies and land management guidelines which may be relevant to particular decisions in this management unit. Categories of these policies and guidelines are listed below for ease of reference:

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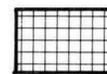
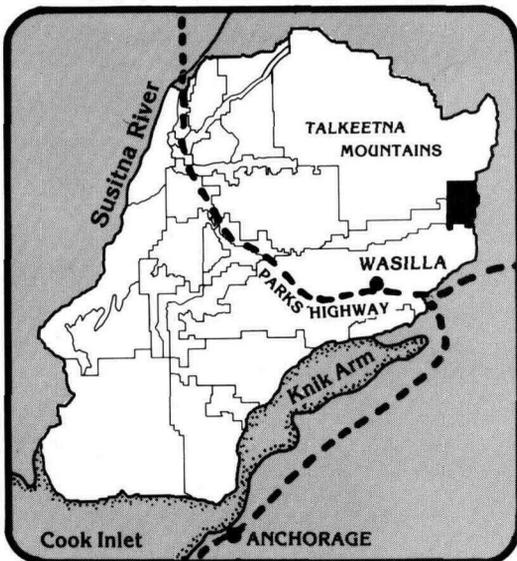
MOOSE RANGE

Land Ownership

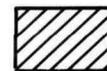
mgt. unit size = 5,000 acres



LOCATION of MGT. UNIT



State



Borough



Private/Federal



University

topo. maps:
Anchorage C6

scale 1" = 1 mile



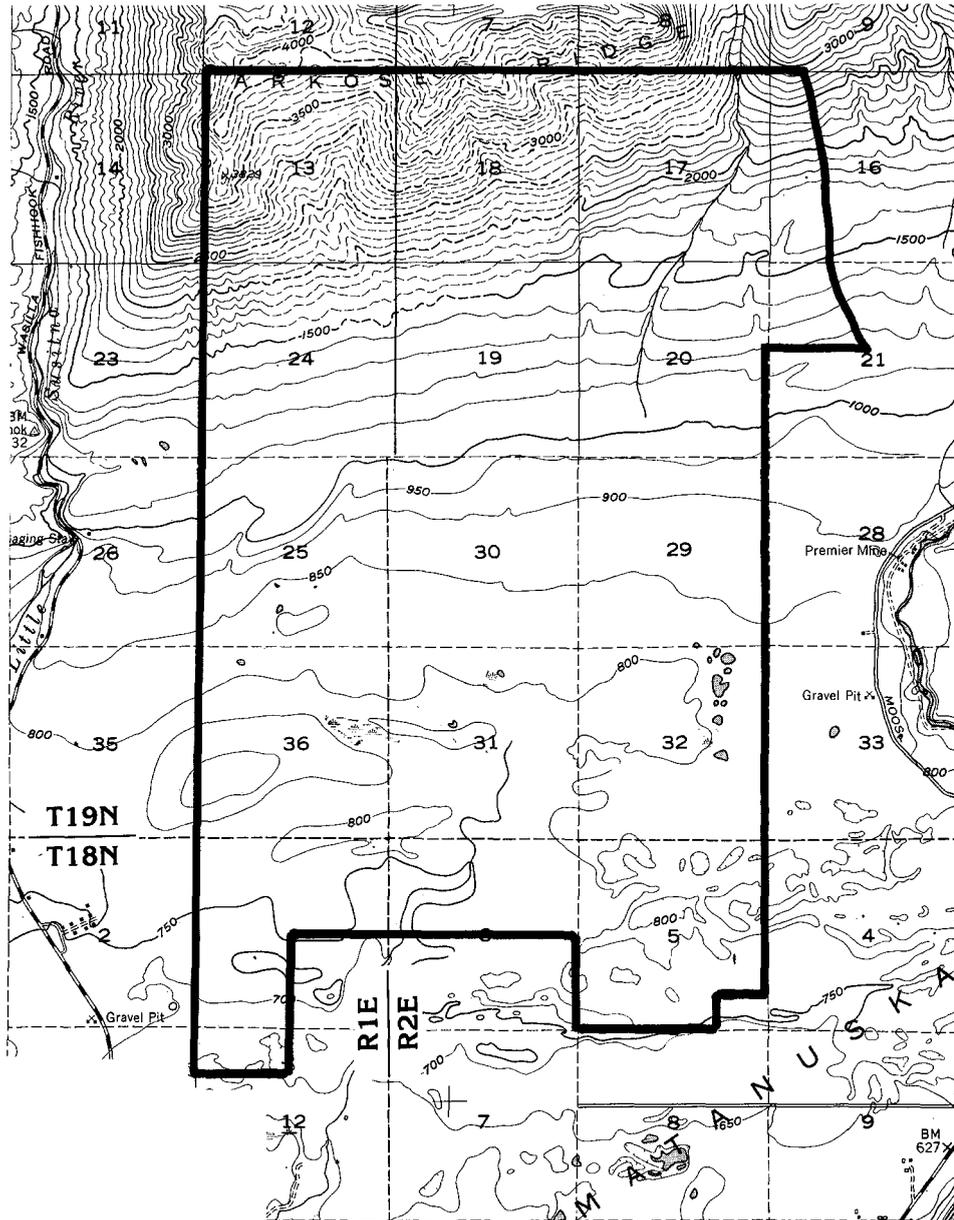
June 1, 1982

Willow Subbasin Area Plan

MOOSE RANGE

Land Use Designations

mgt. unit size = 5,000 acres



- Primary Use:**
- Fish & Wildlife
- Secondary Use:**
- Forestry
 - Recreation



scale 1" = 1 mile
June 1, 1982

Willow Subbasin Area Plan

Management Units of Predominant Private and Borough Ownership

In the following management units, in most cases, general recommendations rather than specific land use designations have been made. (A few parcels of state land have been designated for specific uses in these units.) Although the plan does not regulate private land, the recommended uses indicate development patterns the borough and state wish to encourage. Management of public lands will be consistent with these recommended land uses.

Houston	225
Fishhook	231
Wasilla	237
Knik	245
Point MacKenzie	251
Rogers Creek	257
Willow Creek Corridor	263
Willow	269
Moraine Ridge	275

MANAGEMENT UNIT: HOUSTON

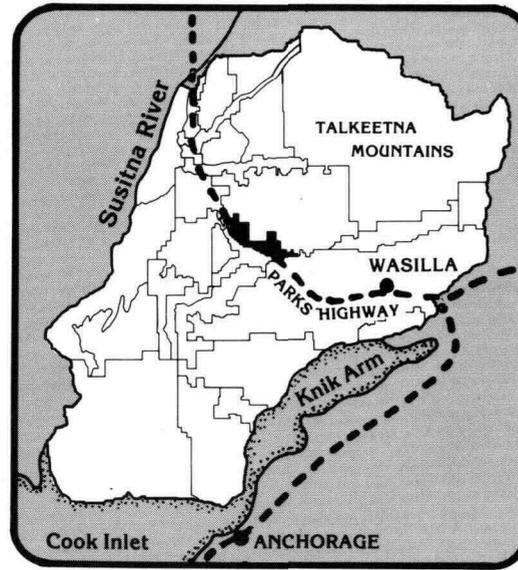
MANAGEMENT INTENT

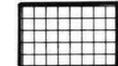
- Management of the limited public land in this unit is to be consistent with the comprehensive plan for the City of Houston.
- Land disposals shall be consistent with the flood plain regulations in Chapter III, Goals, Policies, and Management Guidelines; Settlement.
- Management of public lands adjacent to the Parks Highway should be consistent with the recommendations of the report "Scenic Resources Along the Parks Highway." The recommendations in that report which are relevant to the Willow Sub-basin are in Appendix 1. The borough and state will encourage private land owners to follow recommendations in the report in order to protect the scenic values along the highway.

Recommended Land Uses

- Community Land Needs for the City of Houston
- Parks Highway Scenic Areas

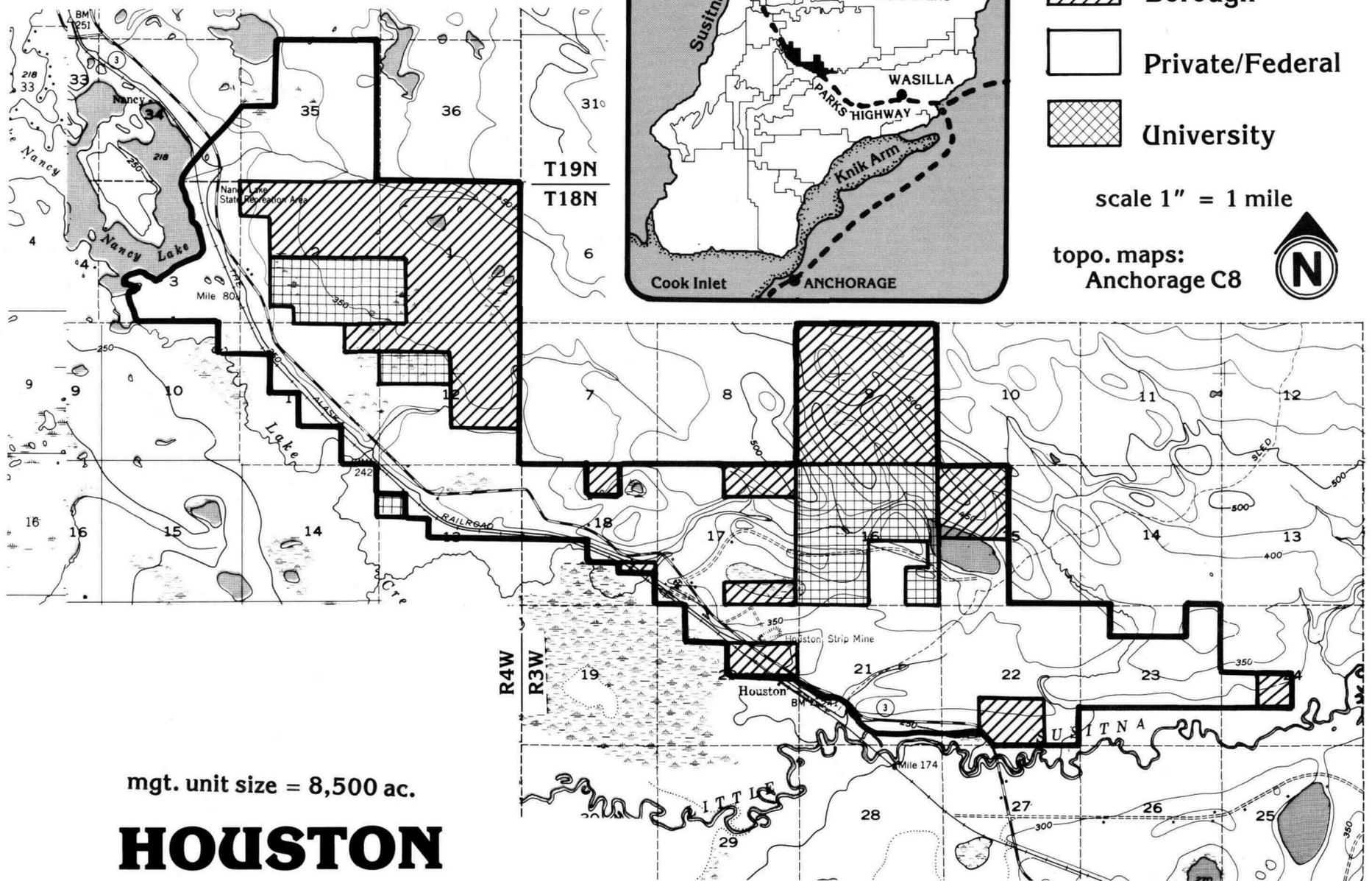
LOCATION of MGT. UNIT



-  State
-  Borough
-  Private/Federal
-  University

scale 1" = 1 mile

topo. maps:
Anchorage C8



mgt. unit size = 8,500 ac.

HOUSTON

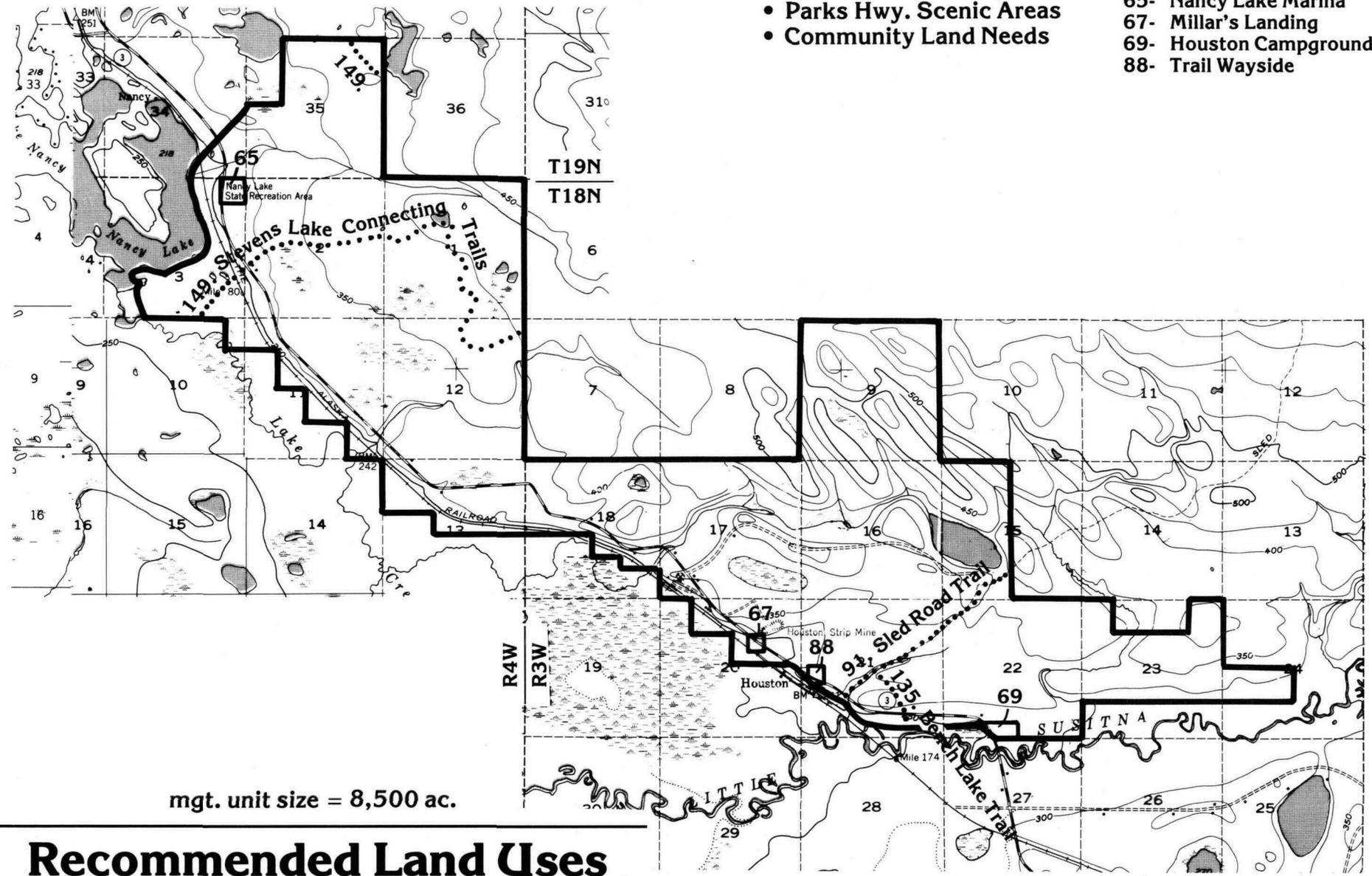
Land Ownership

June 1, 1982
Willow Subbasin Area Plan

RECOMMENDED USES:

- Parks Hwy. Scenic Areas
- Community Land Needs

- RECREATION SITES
- 65- Nancy Lake Marina
 - 67- Millar's Landing
 - 69- Houston Campground
 - 88- Trail Wayside



mgt. unit size = 8,500 ac.

Recommended Land Uses

HOUSTON



scale 1" = 1 mile
June 1, 1982

Willow Subbasin Area Plan

MANAGEMENT UNIT: FISHHOOK

MANAGEMENT INTENT

- Where private land abuts the river the state will consider purchase of land for public access. The state will not use power of eminent domain in such cases, but will purchase land from willing sellers to enhance public enjoyment of the river corridor, should the legislature appropriate funds for that purpose.
- Where public land abuts the river, a publicly-owned buffer shall be retained. The width of the buffer will be determined on a site specific basis. The buffer shall be designed to protect water quality, riparian habitat, public access and use, and to minimize erosion. The buffer should be a minimum of 50 feet on each side of the river.
- A high priority shall be placed on protection of the watershed value of this area, in particular the flow of water to the Little Susitna River.
- This unit is one of the better moose habitat/hunting areas in the borough. Attempts should be made to provide adequate open space for moose migration from Hatcher Pass south to the Little Susitna River. In addition, brush/shrub areas at timberline and along streams should be protected.
- Public land managers should encourage small farm and residential densities sufficiently low to protect extremely important watershed and habitat values in this unit.
- Grazing should be allowed in areas of high forage potential under restrictions to minimize adverse impacts on habitat and water quality.

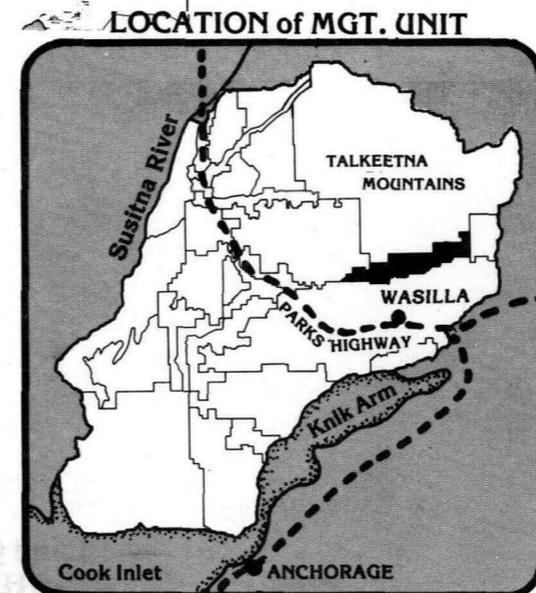
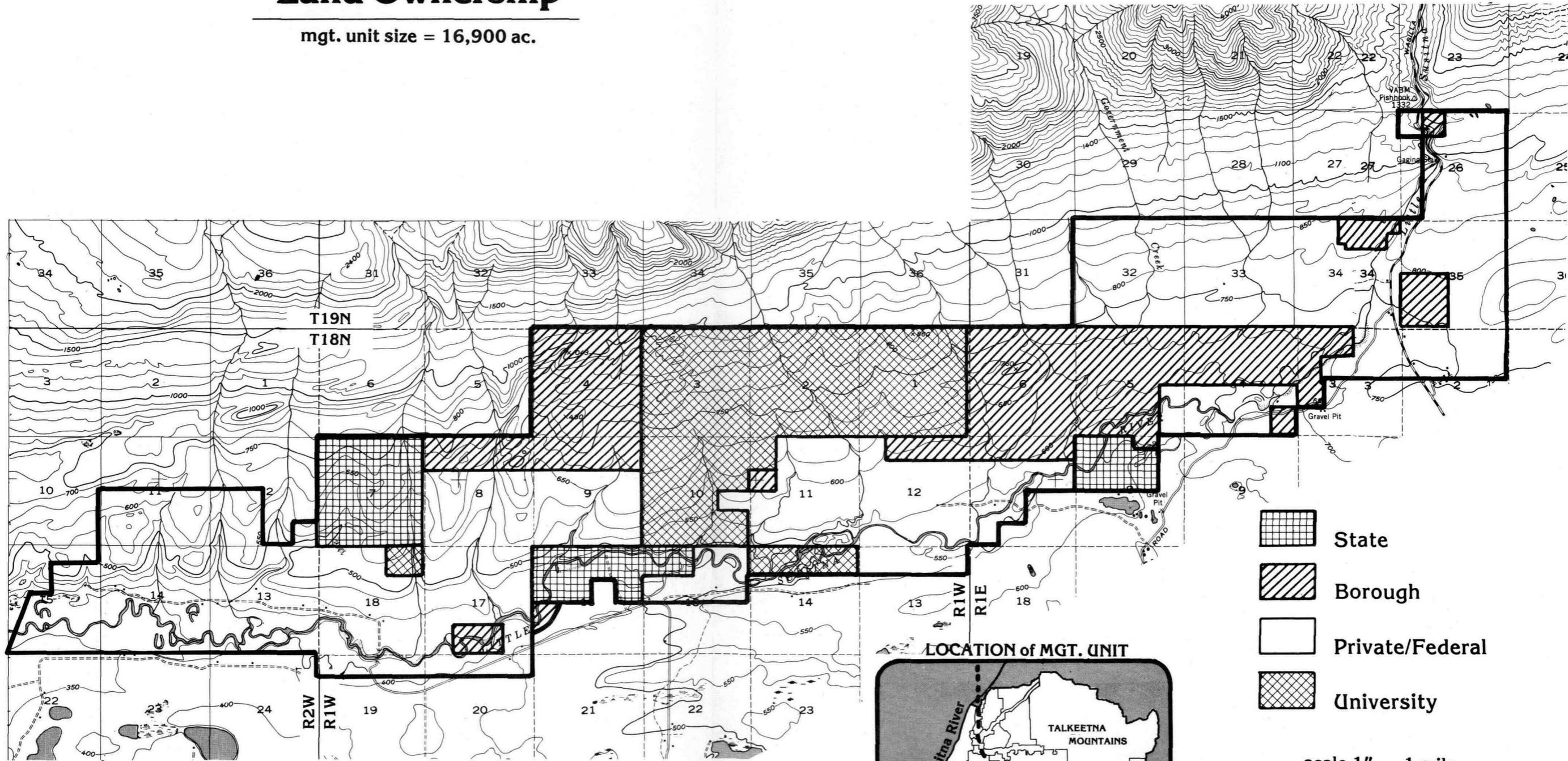
Recommended Land Uses

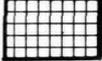
- Settlement - (low densities or scattered areas of relatively high densities - Planned Unit Developments)
- Watershed
- Fish and Wildlife (moose habitat)
- Recreation
- Forestry - (principally personal use)
- Grazing

FISHHOOK

Land Ownership

mgt. unit size = 16,900 ac.



-  State
-  Borough
-  Private/Federal
-  University

scale 1" = 1 mile

topo. maps:
Anchorage C6, C7

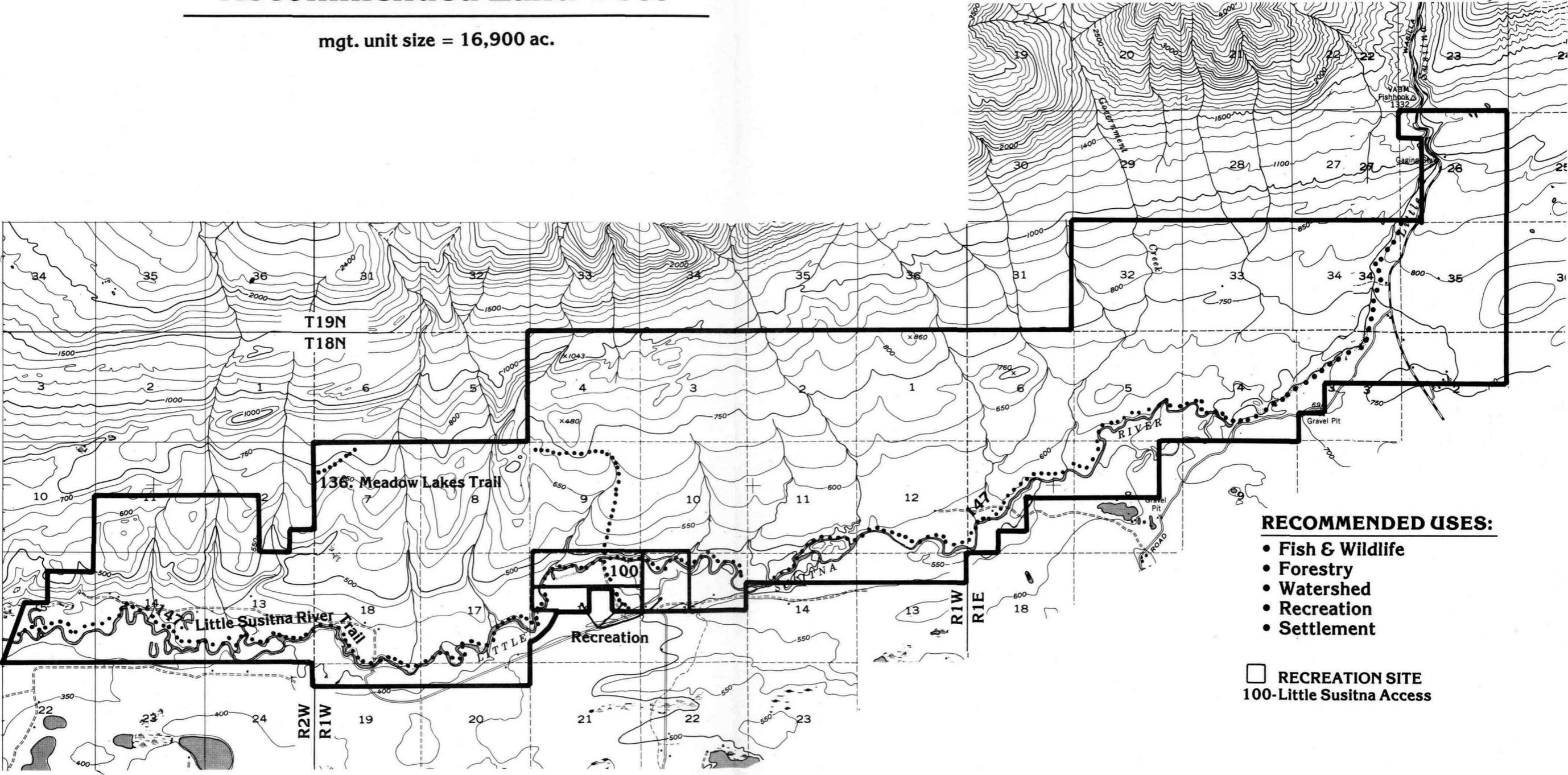


June 1, 1982
Willow Subbasin Area Plan

FISHHOOK

Recommended Land Uses

mgmt. unit size = 16,900 ac.



RECOMMENDED USES:

- Fish & Wildlife
- Forestry
- Watershed
- Recreation
- Settlement

□ RECREATION SITE
100-Little Susitna Access



scale 1" = 1 mile
June 1, 1982

Willow Subbasin Area Plan

MANAGEMENT UNIT: WASILLA

MANAGEMENT INTENT

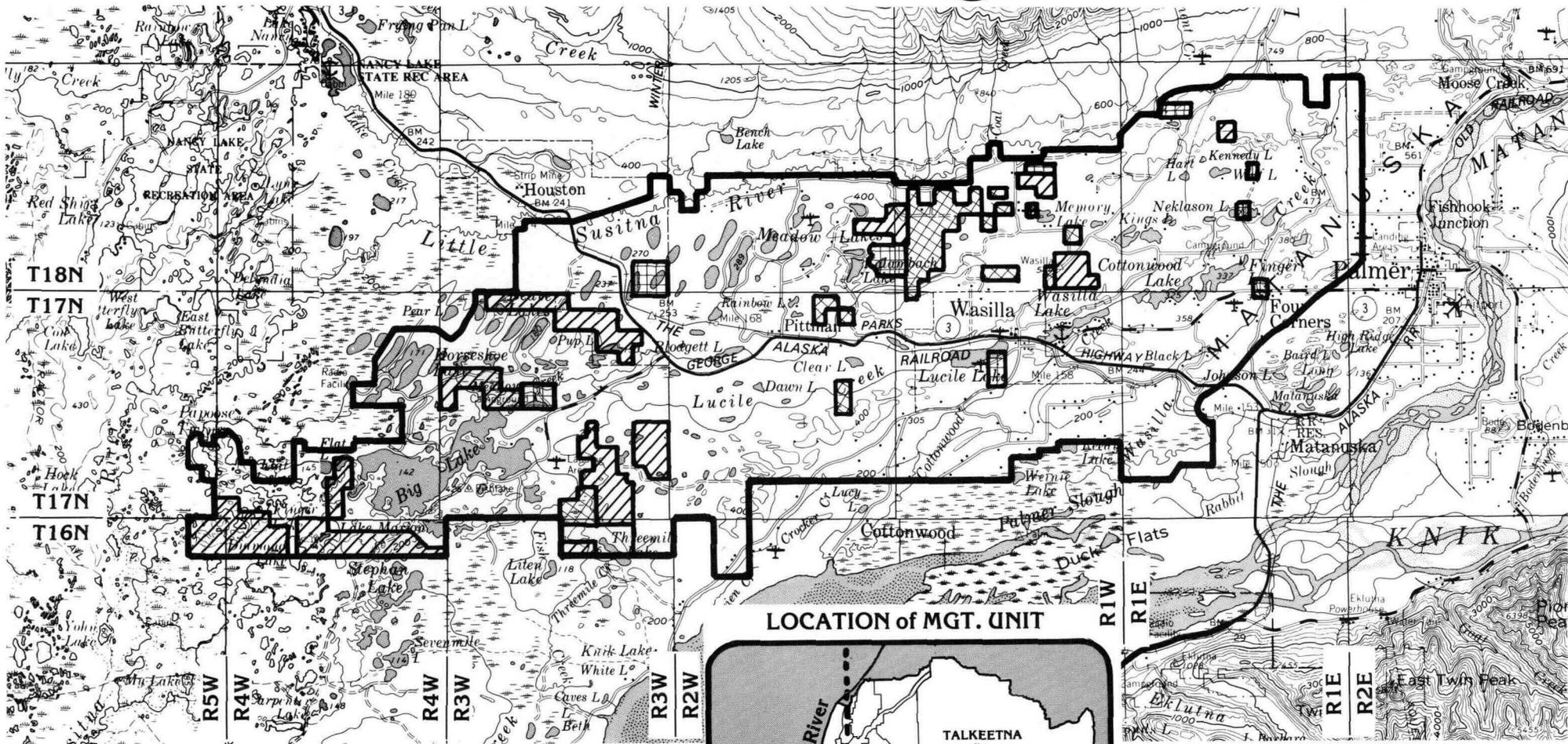
Management of public lands should be designed to include the following:

- ° encourage settlement, consistent with the settlement policies outlined in Chapter III and the comprehensive plan for the City of Wasilla;
- ° encourage continued use of the unit as a moose harvest area (especially that part of the unit known as the "Golden Triangle" where much of the Sub-basin's moose harvest now occurs);
- ° maintain the water quality and quantity of the anadromous fish streams;
- ° maintain in public ownership all publicly-owned recreation sites and trails shown on the following map;
- ° where private land abuts the Little Susitna River the state will consider purchase of land for public access. The state will not use the power of eminent domain in such cases, but will purchase land from willing sellers to enhance public enjoyment of the river corridor, should the legislature appropriate funds for that purpose.
- ° where public land abuts the Little Susitna River, a publicly-owned buffer shall be retained. The width of the buffer will be determined on a site specific basis. The buffer shall be designed to protect water quality, riparian habitat, public access and use, and to minimize erosion. The buffer should be a minimum of 50 feet on each side of the river.
- ° encourage agricultural development on the good agricultural land in the area; encourage existing farms to remain in agricultural uses. The possibility of an agricultural commodity processing site in this unit should be explored and encouraged if feasible;
- ° Management of public lands adjacent to the Parks Highway should be consistent with the recommendations of the report "Scenic Resources Along the Parks Highway." The recommendations in that report which are relevant to the Willow Sub-basin are in Appendix 1. The borough and state will encourage private land owners to follow recommendations in the report in order to protect the scenic values along the highway.

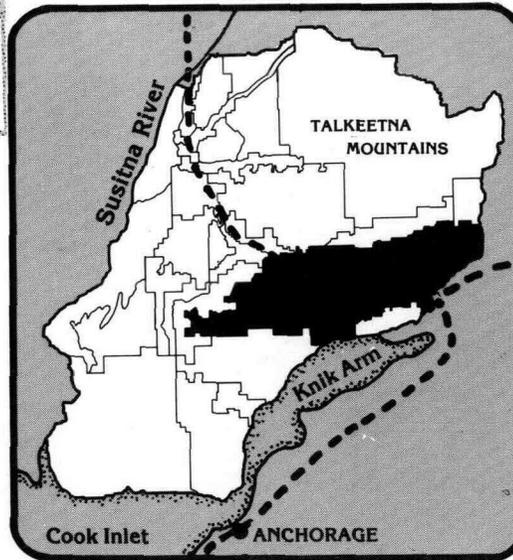
Recommended Land Uses

- Settlement
- Small Farm Agriculture
- Commercial Agriculture
- Recreation (fishing, local and regional parks)
- Forestry (personal use)
- Parks Highway Scenic Areas

scale 1" = 1 mile
 June 1, 1982
Willow Subbasin Area Plan



LOCATION of MGT. UNIT



topo. maps:

Anchorage B7, B8, C6, C7, C8
 Tyonek B1, C1

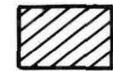
mgt. unit size = 139,900 acres

Land Ownership

WASILLA



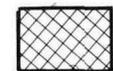
State



Borough



Private/Federal



University

scale 1:250,000

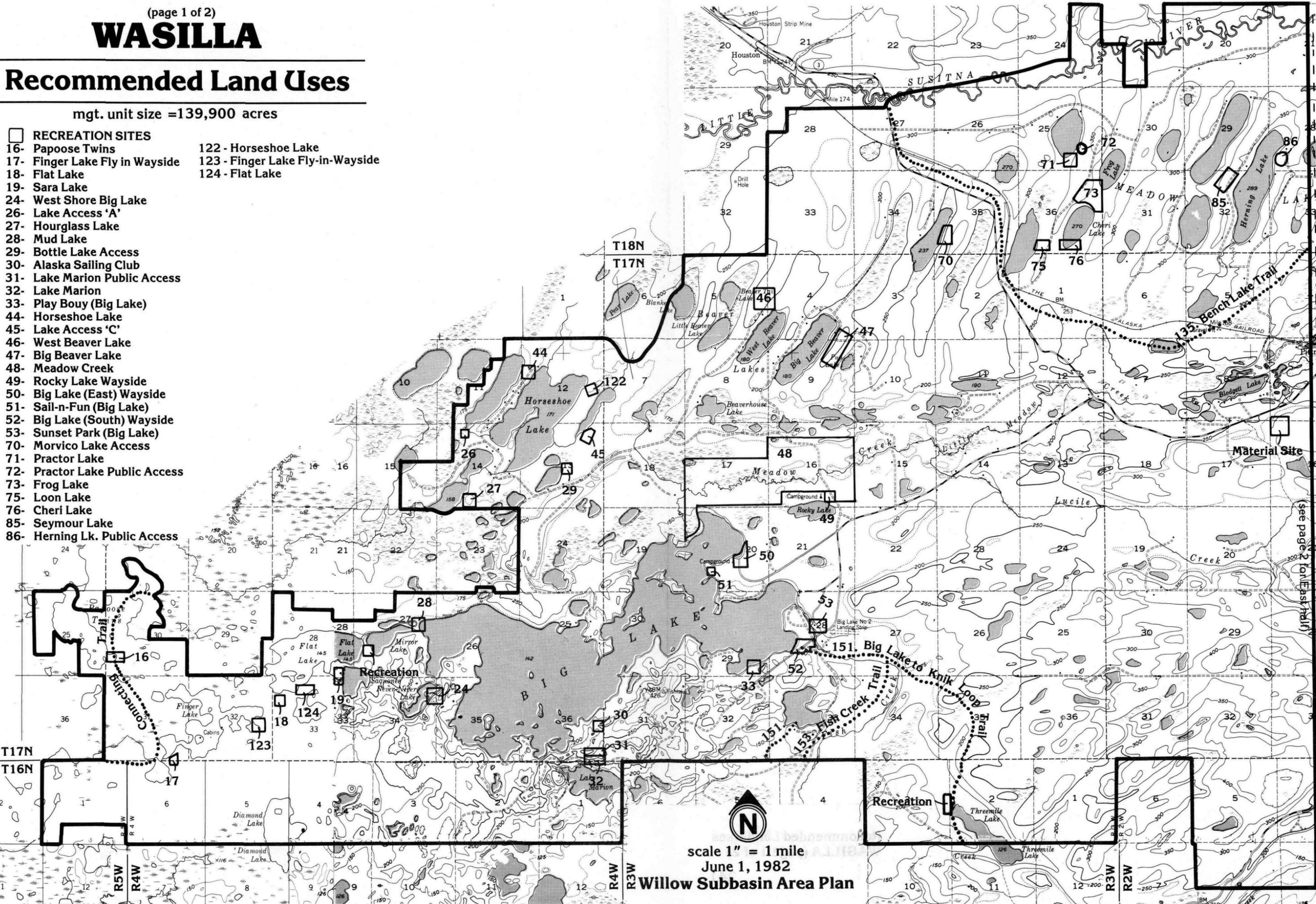
WASILLA

Recommended Land Uses

mgt. unit size =139,900 acres

☐ RECREATION SITES

- 16- Papoose Twins
- 17- Finger Lake Fly in Wayside
- 18- Flat Lake
- 19- Sara Lake
- 24- West Shore Big Lake
- 26- Lake Access 'A'
- 27- Hourglass Lake
- 28- Mud Lake
- 29- Bottle Lake Access
- 30- Alaska Sailing Club
- 31- Lake Marion Public Access
- 32- Lake Marion
- 33- Play Bouy (Big Lake)
- 44- Horseshoe Lake
- 45- Lake Access 'C'
- 46- West Beaver Lake
- 47- Big Beaver Lake
- 48- Meadow Creek
- 49- Rocky Lake Wayside
- 50- Big Lake (East) Wayside
- 51- Sail-n-Fun (Big Lake)
- 52- Big Lake (South) Wayside
- 53- Sunset Park (Big Lake)
- 70- Morvico Lake Access
- 71- Practor Lake
- 72- Practor Lake Public Access
- 73- Frog Lake
- 75- Loon Lake
- 76- Cheri Lake
- 85- Seymour Lake
- 86- Herning Lk. Public Access
- 122 - Horseshoe Lake
- 123 - Finger Lake Fly-in-Wayside
- 124 - Flat Lake



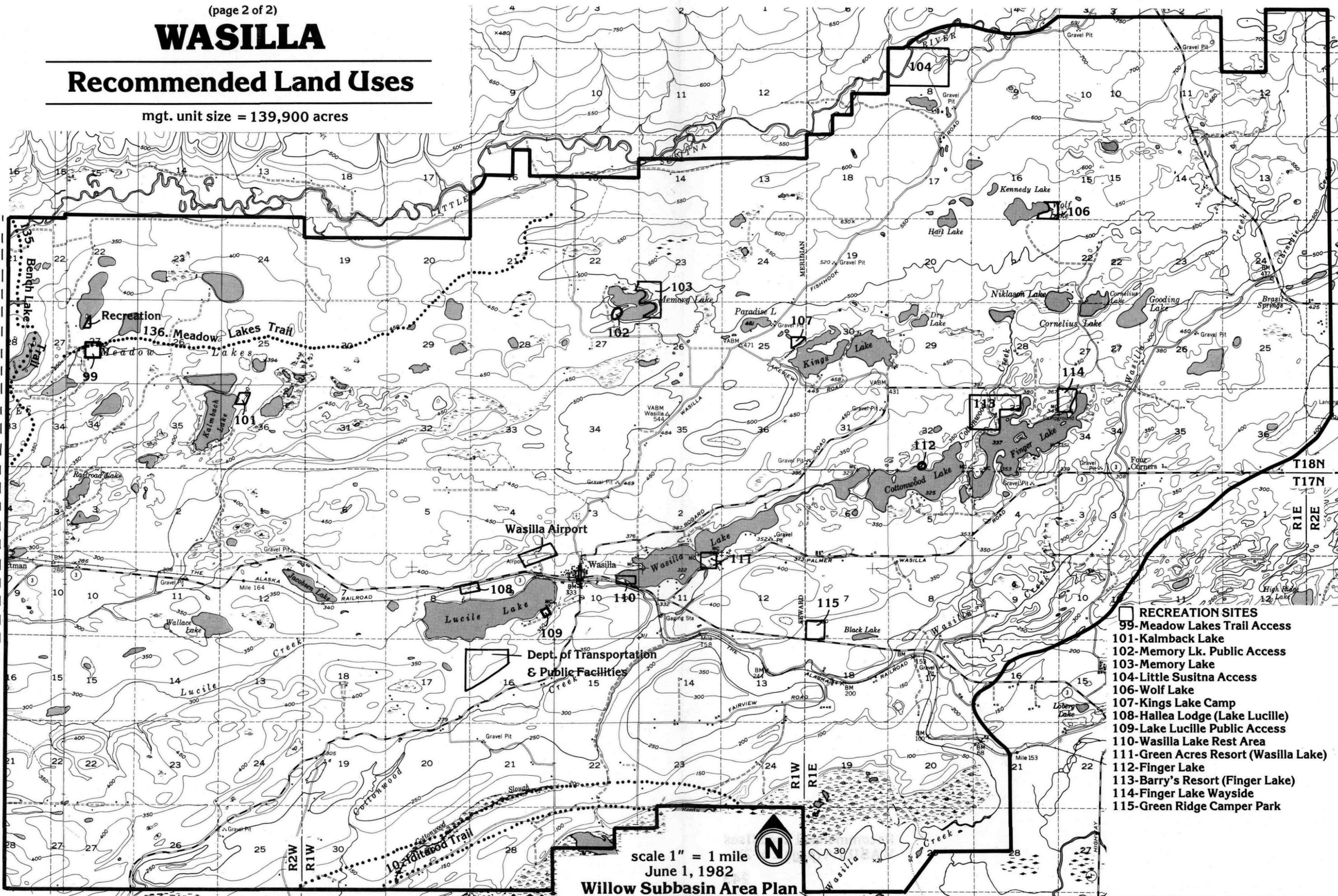
scale 1" = 1 mile
 June 1, 1982
Willow Subbasin Area Plan

see page 2 for East half

WASILLA

Recommended Land Uses

mgt. unit size = 139,900 acres



- RECREATION SITES**
- 99-Meadow Lakes Trail Access
 - 101-Kalmback Lake
 - 102-Memory Lk. Public Access
 - 103-Memory Lake
 - 104-Little Susitna Access
 - 106-Wolf Lake
 - 107-Kings Lake Camp
 - 108-Hallea Lodge (Lake Lucille)
 - 109-Lake Lucille Public Access
 - 110-Wasilla Lake Rest Area
 - 111-Green Acres Resort (Wasilla Lake)
 - 112-Finger Lake
 - 113-Barry's Resort (Finger Lake)
 - 114-Finger Lake Wayside
 - 115-Green Ridge Camper Park

scale 1" = 1 mile
 June 1, 1982
Willow Subbasin Area Plan



(see page 1 for West half)

MANAGEMENT UNIT: KNIK

MANAGEMENT INTENT

- Land in the Knik Unit should be managed to maintain the existing low density residential settlement pattern. This unit has the sub-basin's greatest concentration of publicly owned land suitable for small farms but not feasible for commercial farms. Small farms would be compatible with low density residential settlement. For these reasons, small farms should be encouraged on the good agricultural land in this unit (except areas noted below). Most of this land is in borough ownership.
- Public land in the unit between Goose Creek and Fish Creek (both anadromous fish streams) should be managed to provide a long term low density buffer separating the projected higher intensity uses in Wasilla and Point MacKenzie. To achieve this goal the seven state parcels near these streams (see the following map) will be retained in public ownership and managed for habitat, recreation, and watershed values. These parcels contain limited amounts of potential agricultural land, approximately 160 acres, that would be lost to small farm use as a result of this policy.
- The hydrologic integrity of Fish Creek, Goose Creek, and related wetland system should be maintained by public land buffers around the streams and important wetlands. See Chapter III, Policies and Management Guidelines; Wetlands, and River and Stream Buffers.
- Developable land unsuited for farms and outside the undeveloped Goose/Fish Creek buffer should be made available for low density residential use.
- The integrity of the Iditarod Trail should be maintained. For guidelines regarding the management of publicly owned portions of the Iditarod Trail, see Chapter III, Policies and Management Guidelines; Trails.
- Existing mushing trails should be maintained in public ownership.

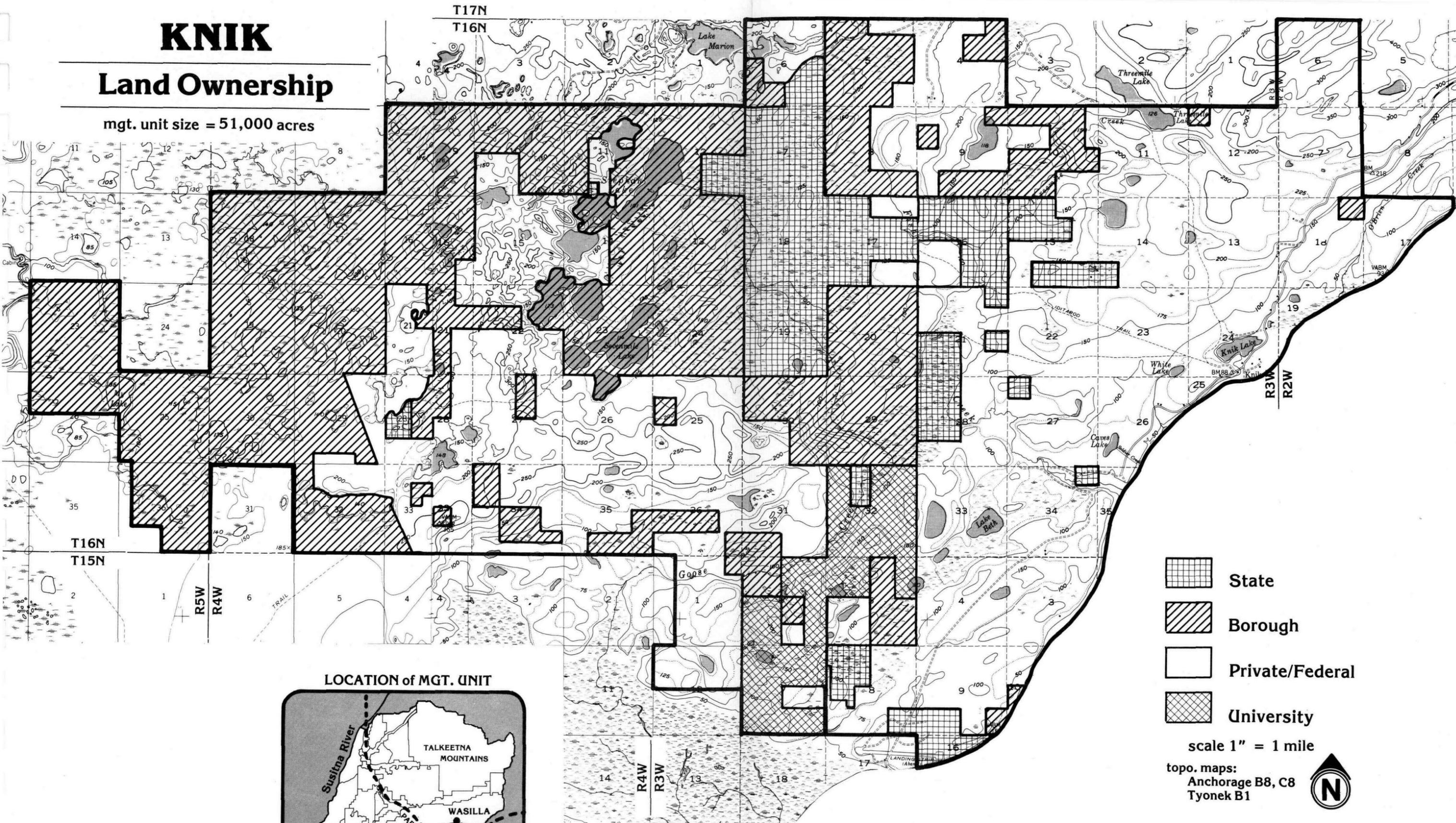
Recommended Land Uses

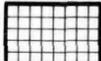
- | | |
|---|--------------------------------------|
| - Settlement | - Small Farms |
| - Recreation (Recreation sites, the Iditarod Trail, and other mushing trails) | - Fish and Wildlife (Stream buffers) |
| | - Forestry (personal use areas) |

KNIK

Land Ownership

mgt. unit size = 51,000 acres



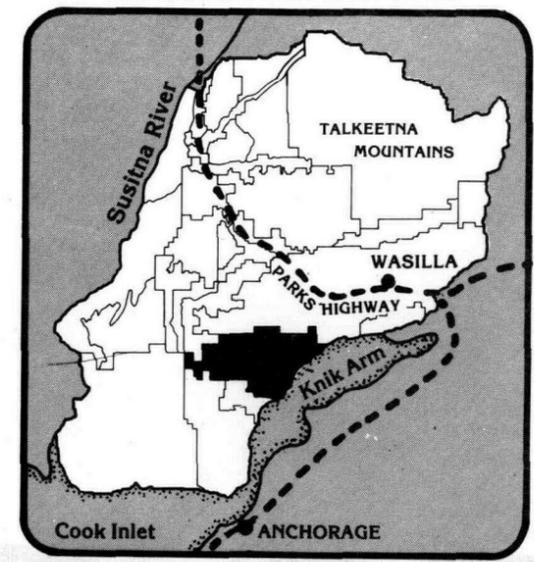
-  State
-  Borough
-  Private/Federal
-  University

scale 1" = 1 mile

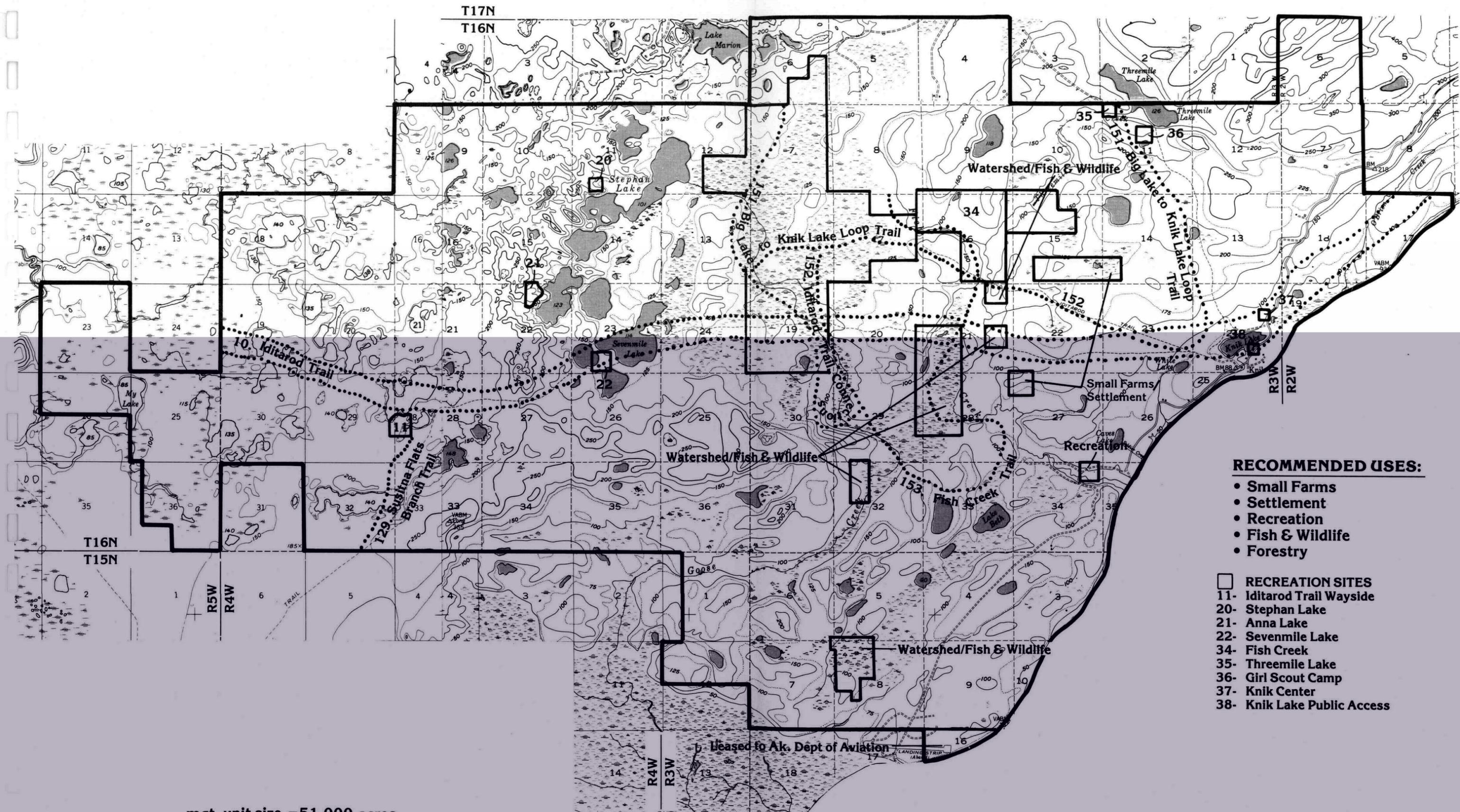
topo. maps:
Anchorage B8, C8
Tyonek B1



LOCATION of MGT. UNIT



June 1, 1982
Willow Subbasin Area Plan



RECOMMENDED USES:

- Small Farms
- Settlement
- Recreation
- Fish & Wildlife
- Forestry

- RECREATION SITES
- 11- Iditarod Trail Wayside
 - 20- Stephan Lake
 - 21- Anna Lake
 - 22- Sevenmile Lake
 - 34- Fish Creek
 - 35- Threemile Lake
 - 36- Girl Scout Camp
 - 37- Knik Center
 - 38- Knik Lake Public Access

mgt. unit size = 51,000 acres

Recommended Land Uses

KNIK



scale 1" = 1 mile
 June 1, 1982
Willow Subbasin Area Plan

MANAGEMENT UNIT: POINT MACKENZIE

MANAGEMENT INTENT

- ° Land in this unit should be managed to contribute to development of the Point MacKenzie industrial area and supporting land uses. Land disposals and management decisions should be consistent with borough development plans.

Recommended Land Uses

- Development of the Point MacKenzie port facility, industrial area, and community
- Management of public land adjacent to Lost and Twin Island Lakes to ensure continued public access to these areas as well as continued recreational use of the lakes
- Point MacKenzie agricultural project

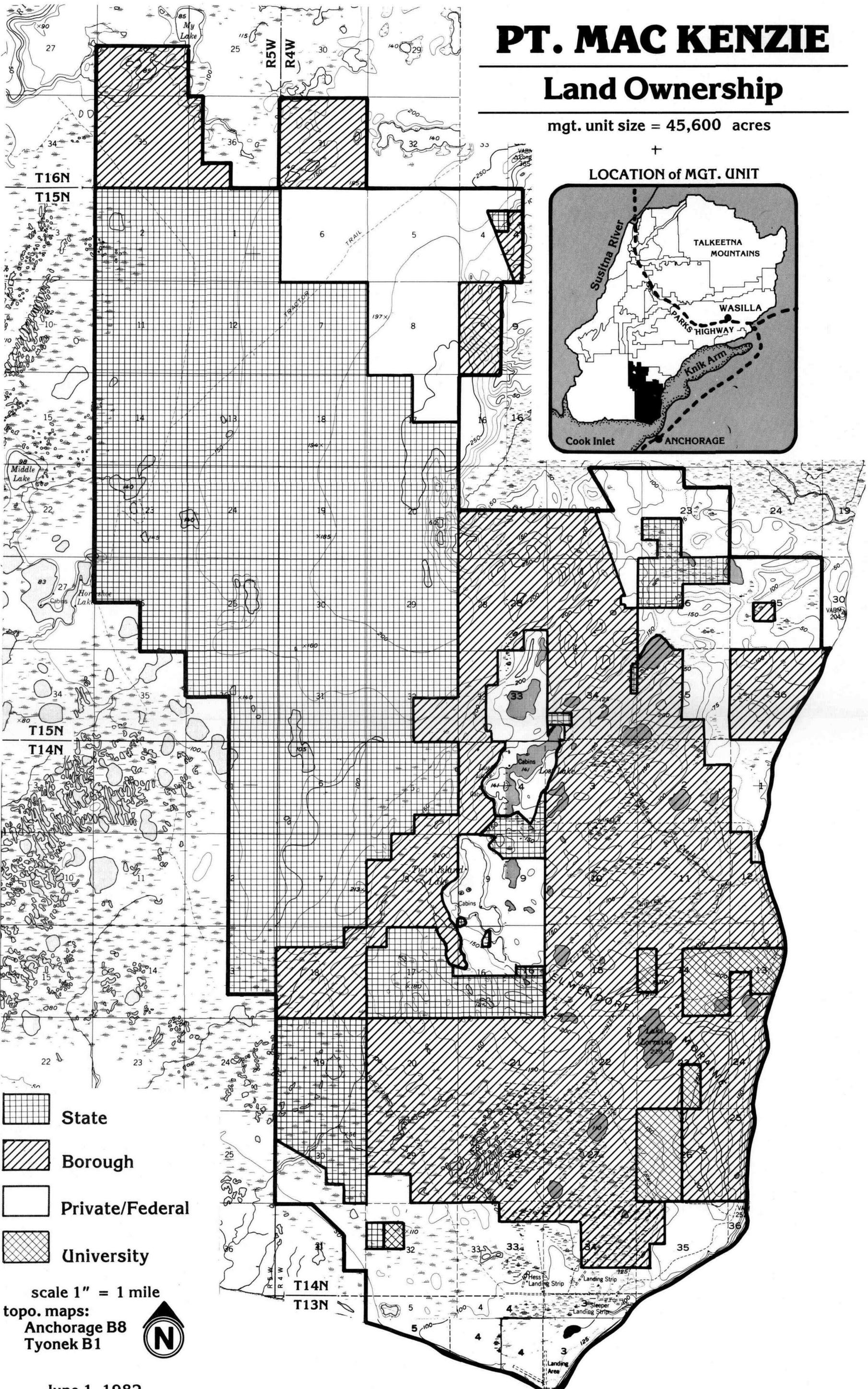
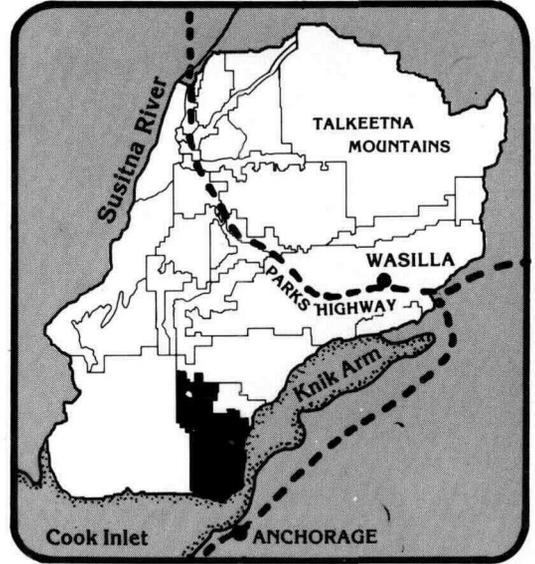
PT. MAC KENZIE

Land Ownership

mgt. unit size = 45,600 acres

+

LOCATION of MGT. UNIT



-  State
-  Borough
-  Private/Federal
-  University

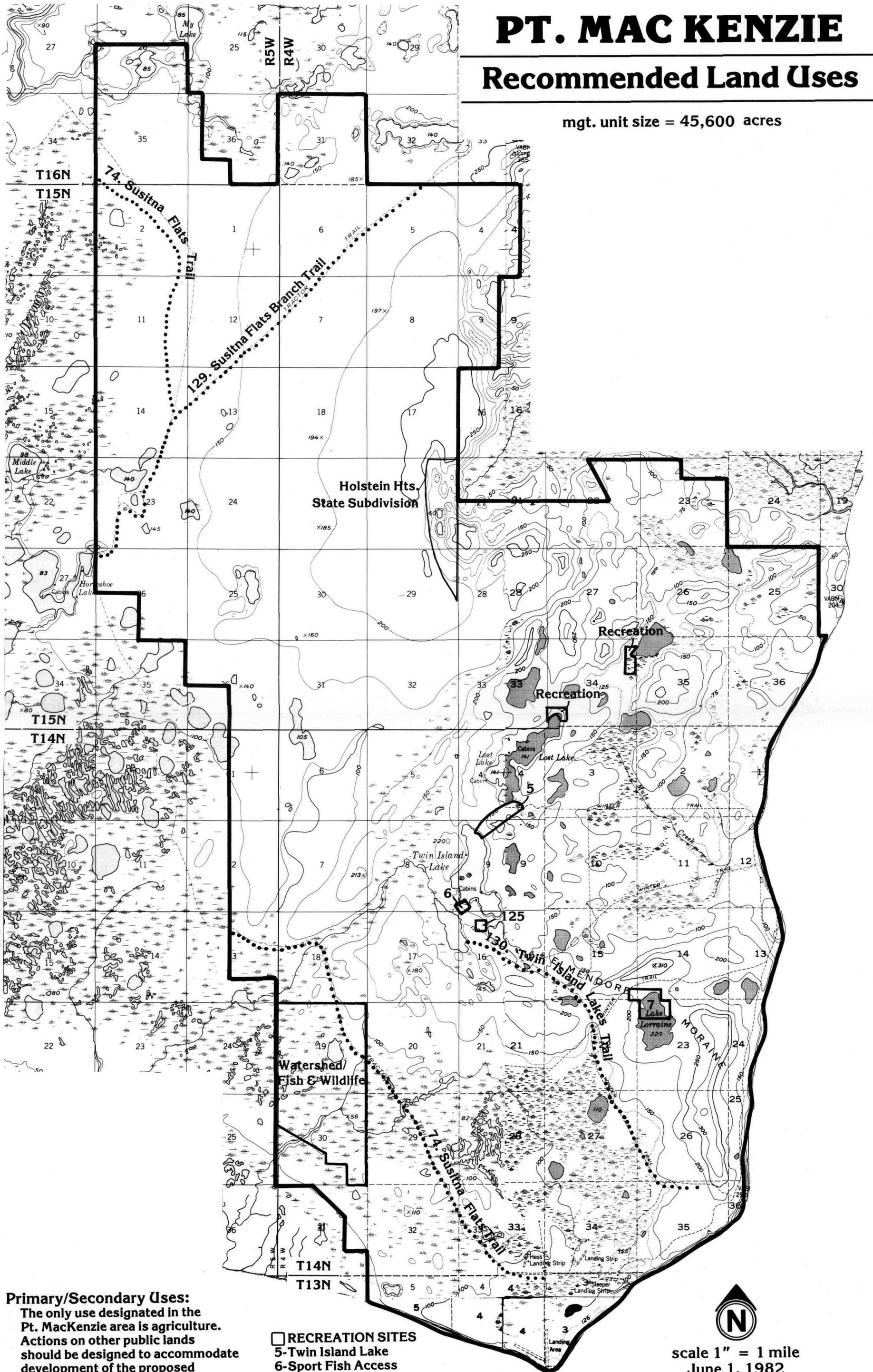
scale 1" = 1 mile
topo. maps:
Anchorage B8
Tyonek B1



PT. MAC KENZIE

Recommended Land Uses

mgt. unit size = 45,600 acres



Primary/Secondary Uses:
 The only use designated in the Pt. MacKenzie area is agriculture. Actions on other public lands should be designed to accommodate development of the proposed Pt. MacKenzie Port Facility, industrial area and community.

- ☐ RECREATION SITES
- 5-Twin Island Lake
- 6-Sport Fish Access
- 7-Lake Lorraine
- 125-Twin Island Lake



scale 1" = 1 mile
 June 1, 1982

Willow Subbasin Area Plan

MANAGEMENT UNIT: ROGER'S CREEK

MANAGEMENT INTENT

- ° Settlement in this area should be designed to preserve adequate open space for the big game migration corridor between the Hatcher Pass Management Unit and the Susitna River. The Roger's Creek Unit is an important big game harvest area.
- ° Management of public lands adjacent to the Parks Highway should be consistent with the recommendations of the report "Scenic Resources Along the Parks Highway." The recommendations in that report which are relevant to the Willow Sub-basin are in Appendix 1. The borough and state will encourage private land owners to follow recommendations in the report in order to protect the scenic values along the highway.

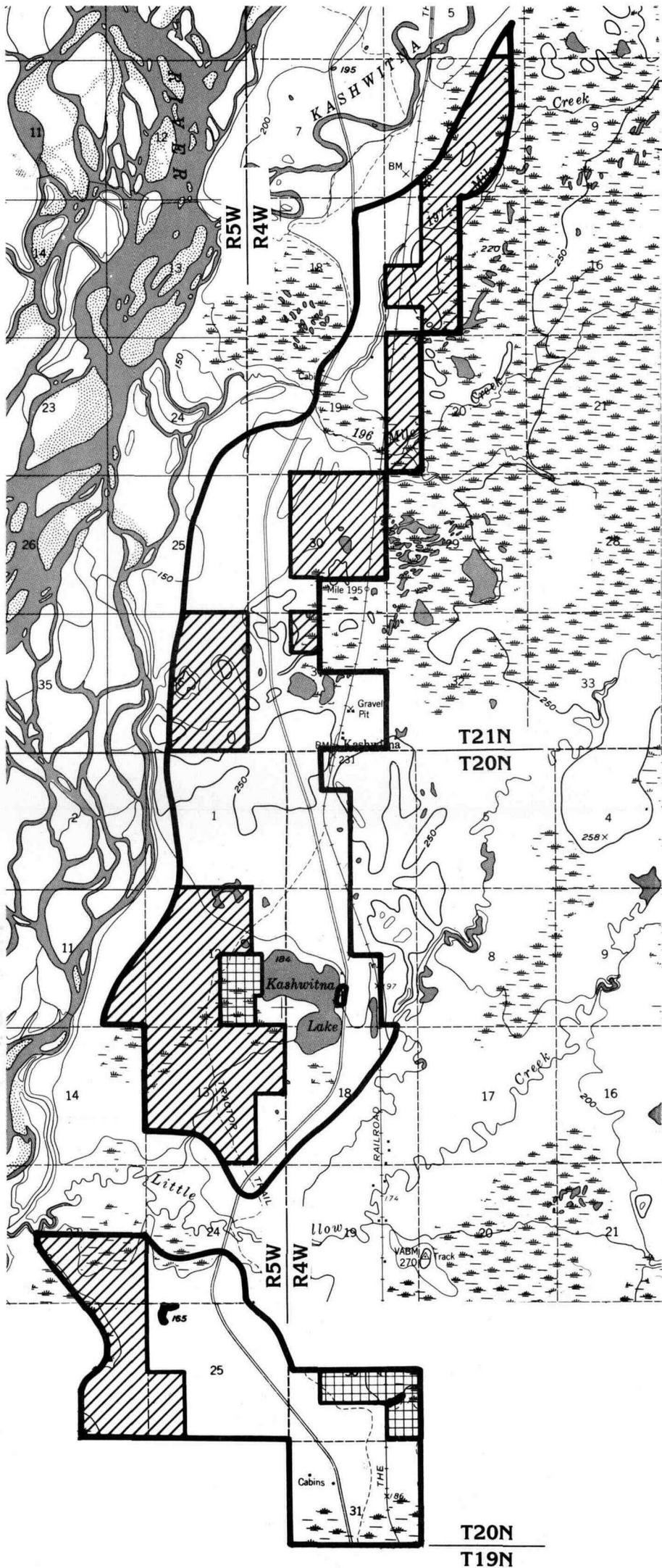
Recommended Land Uses

- Settlement (avoid continuous development along highway which could impede animal movement)
- Fish and Wildlife (habitat, big game movement, and harvest)
- Parks Highway Scenic Areas
- Forestry

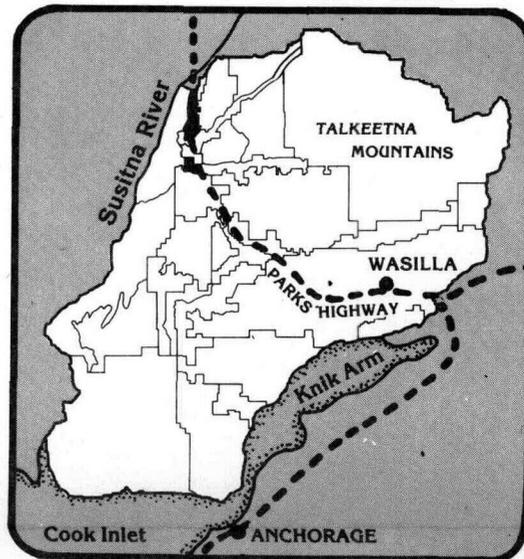
ROGERS CK.

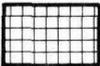
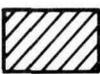
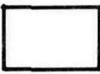
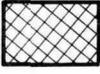
Land Ownership

mgt. unit size = 7,900 ac.



LOCATION of MGT. UNIT



-  State
-  Borough
-  Private/Federal
-  University

scale 1" = 1 mile

topo. maps:
Tyonek D1



June 1, 1982
Willow Subbasin Area Plan

ROGERS CK.

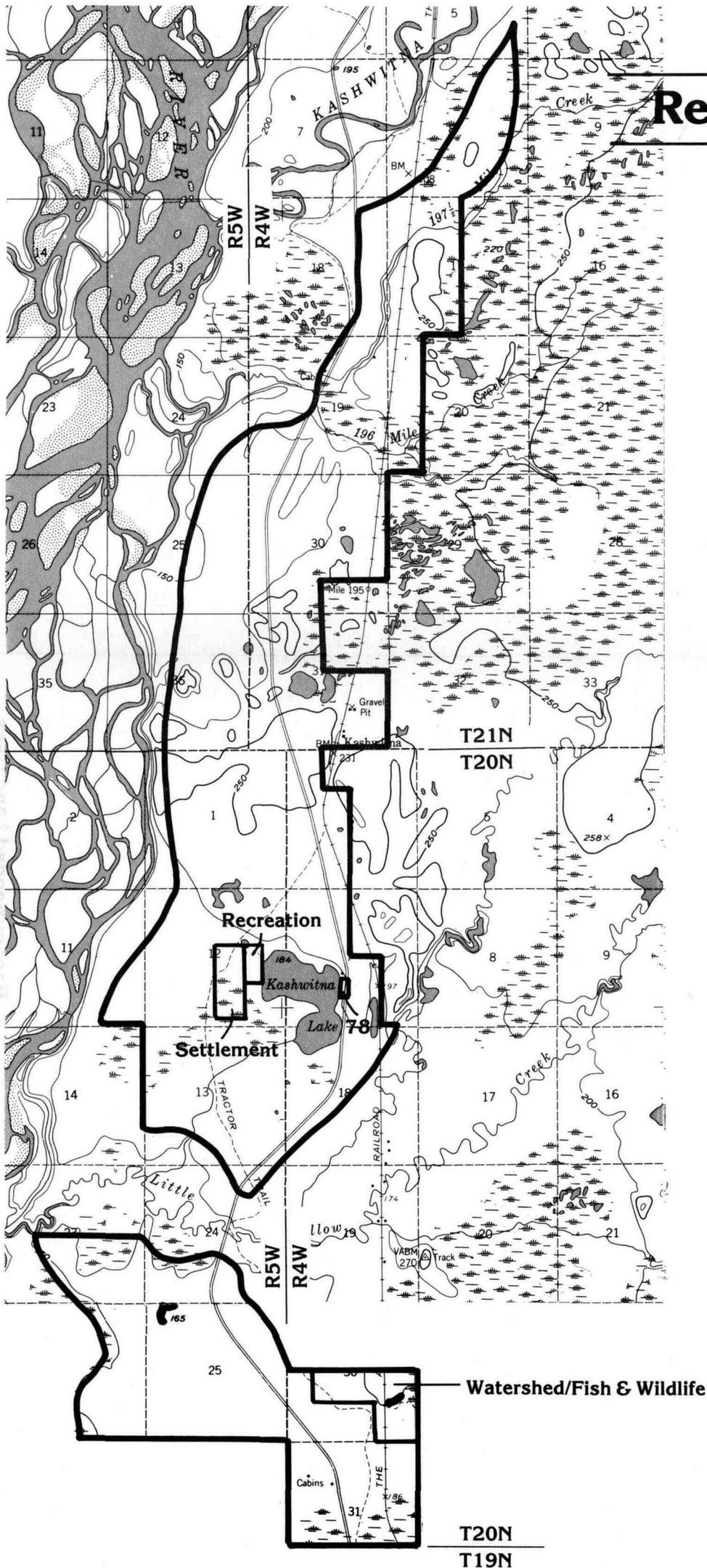
Recommended Land Uses

mgt. unit size = 7,900 ac.

RECOMMENDED USES:

- Settlement
- Fish & Wildlife
- Forestry
- Parks Hwy. Scenic Areas

☐ RECREATION SITE
78- Kashwitna Lake



Watershed/Fish & Wildlife



scale 1" = 1 mile
June 1, 1982

Willow Subbasin Area Plan

MANAGEMENT UNIT: WILLOW CREEK CORRIDOR

MANAGEMENT INTENT

- This area, adjacent to the capital site, currently supports much recreation along the Willow Creek-Hatcher Pass road. Public land should be managed to respect and contribute to the recreational value of the area (access to the river, views from the road, and water oriented use of the river) and to provide land for settlement and small farms.
- Where public land exists adjacent to the river, a publicly owned river buffer should be established and maintained according to guidelines in Chapter III, River and Stream Corridors. The width of this buffer should be determined through field examination and review of existing soils, vegetation, and flood plain data.
- Settlement within this unit should be designed to minimize negative impacts on the recreational and habitat values of the river corridor. This can be achieved through low density settlement (maximum 1 unit per 5 acres) or isolated planned developments of higher density screened from the river by topography or vegetation.
- Public lands along Willow Creek below the Parks Highway bridge are being studied cooperatively by the borough and the Alaska Division of Parks for possible recreation development and inclusion in the State Park system.
- Management of public lands adjacent to the Parks Highway should be consistent with the recommendations of the report "Scenic Resources Along the Parks Highway." The recommendations in that report which are relevant to the Willow Sub-basin are in Appendix 1. The borough and state will encourage private land owners to follow recommendations in the report in order to protect the scenic values along the highway.
- This management unit will be closed to coal prospecting and development. See Chapter III, Goals, Policies, Management Guidelines; Subsurface Resources.

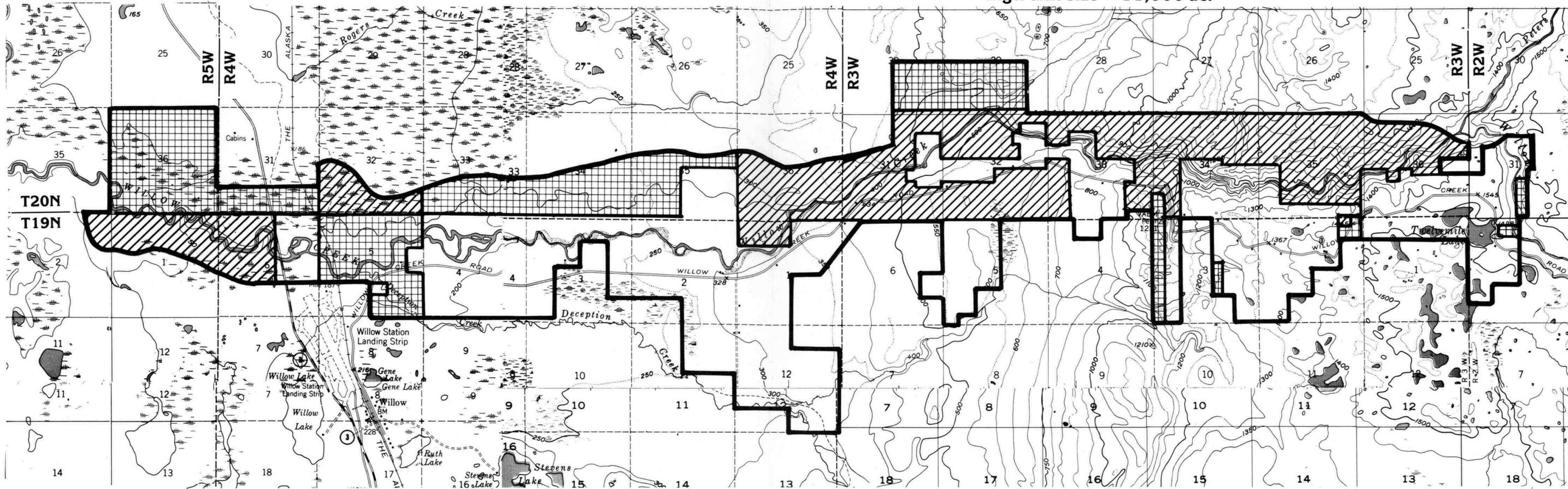
Recommended Land Uses

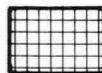
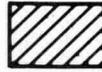
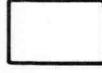
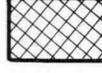
- Fish and Wildlife
- Small Farms
- Settlement
- Recreation
- Parks Highway Scenic Areas

WILLOW CK. CORRIDOR

Land Ownership

mgt. unit size = 11,000 ac.

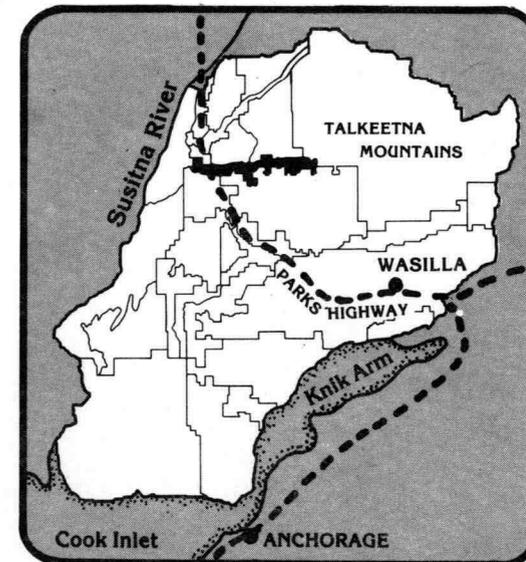


-  State
-  Borough
-  Private/Federal
-  University

scale 1" = 1 mile
 topo. maps:
 Anchorage D8
 Tyonek D1



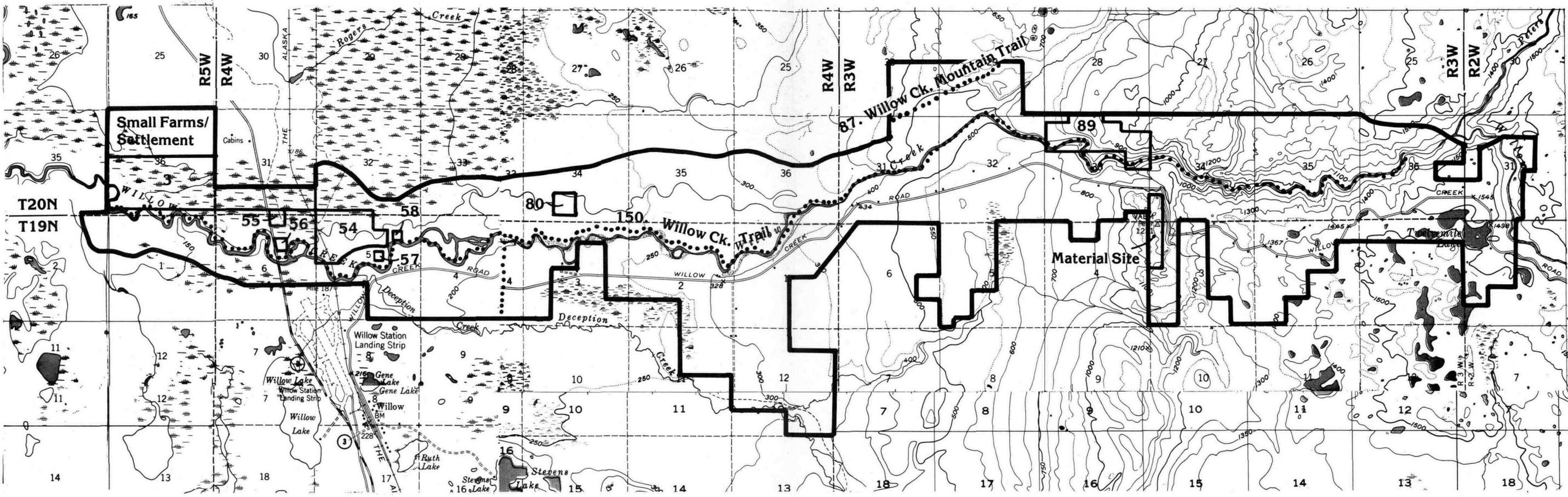
LOCATION of MGT. UNIT



WILLOW CK. CORRIDOR

Recommended Land Uses

mgt. unit size = 11,000 ac.



RECOMMENDED USES:

- Fish & Wildlife
- Small Farms
- Settlement
- Recreation

- RECREATION SITES
- 3- Willow Ck. Scenic Area
- 54- Willow Ck. Scenic Area
- 55- Willow Island
- 56- Pioneer Lodge (Willow Ck.)
- 57- Willow Ck. Wayside
- 58- Willow Creek Access
- 80- Trail Wayside
- 89- Willow Ck. Canyon Scenic Area



scale 1" = 1 mile
June 1, 1982

Willow Subbasin Area Plan

MANAGEMENT UNIT: WILLOW

MANAGEMENT INTENTS

- ° Public land in this unit should be managed to support the community land needs of the town of Willow and the capital site.
- ° Management of public lands adjacent to the Parks Highway should be consistent with the recommendations of the report "Scenic Resources Along the Parks Highway." The recommendations in that report which are relevant to the Willow Sub-Basin are in Appendix 1. The borough and state will encourage private landowners to follow recommendations in the report in order to protect the scenic values along the highway.
- ° Borough lands should be considered for possible agricultural use (small farms) and forestry (personal use).

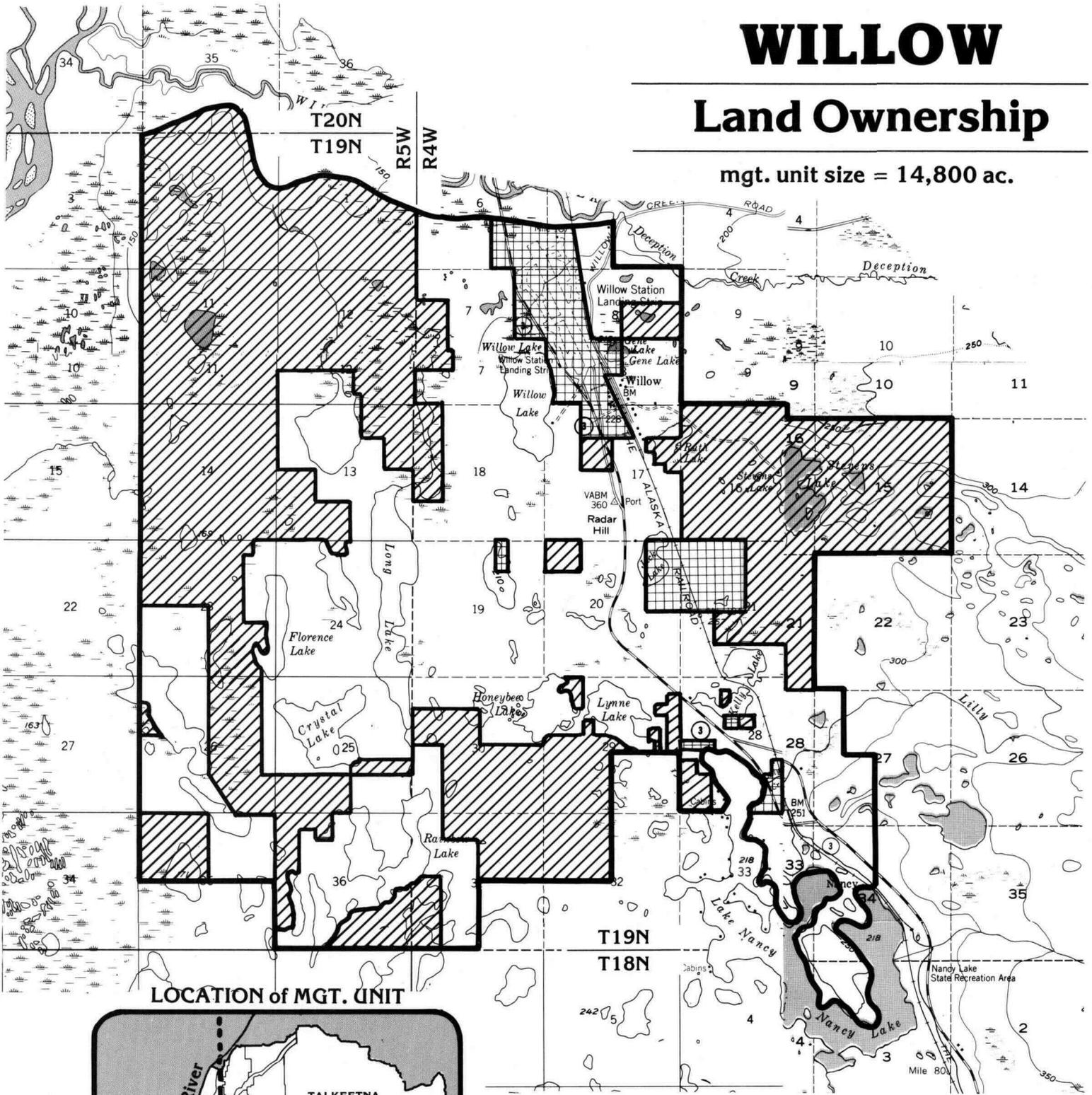
Recommended Land Uses

- Community Land Needs for the City of Willow
- Parks Highway Scenic Area

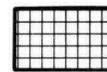
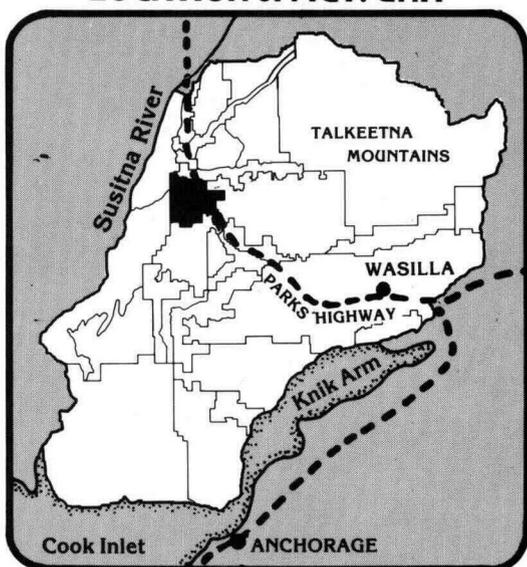
WILLOW

Land Ownership

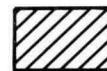
mgt. unit size = 14,800 ac.



LOCATION of MGT. UNIT



State



Borough



Private/Federal



University



scale 1" = 1 mile

topo. maps:

Anchorage C8

Tyonek C1, D1

June 1, 1982

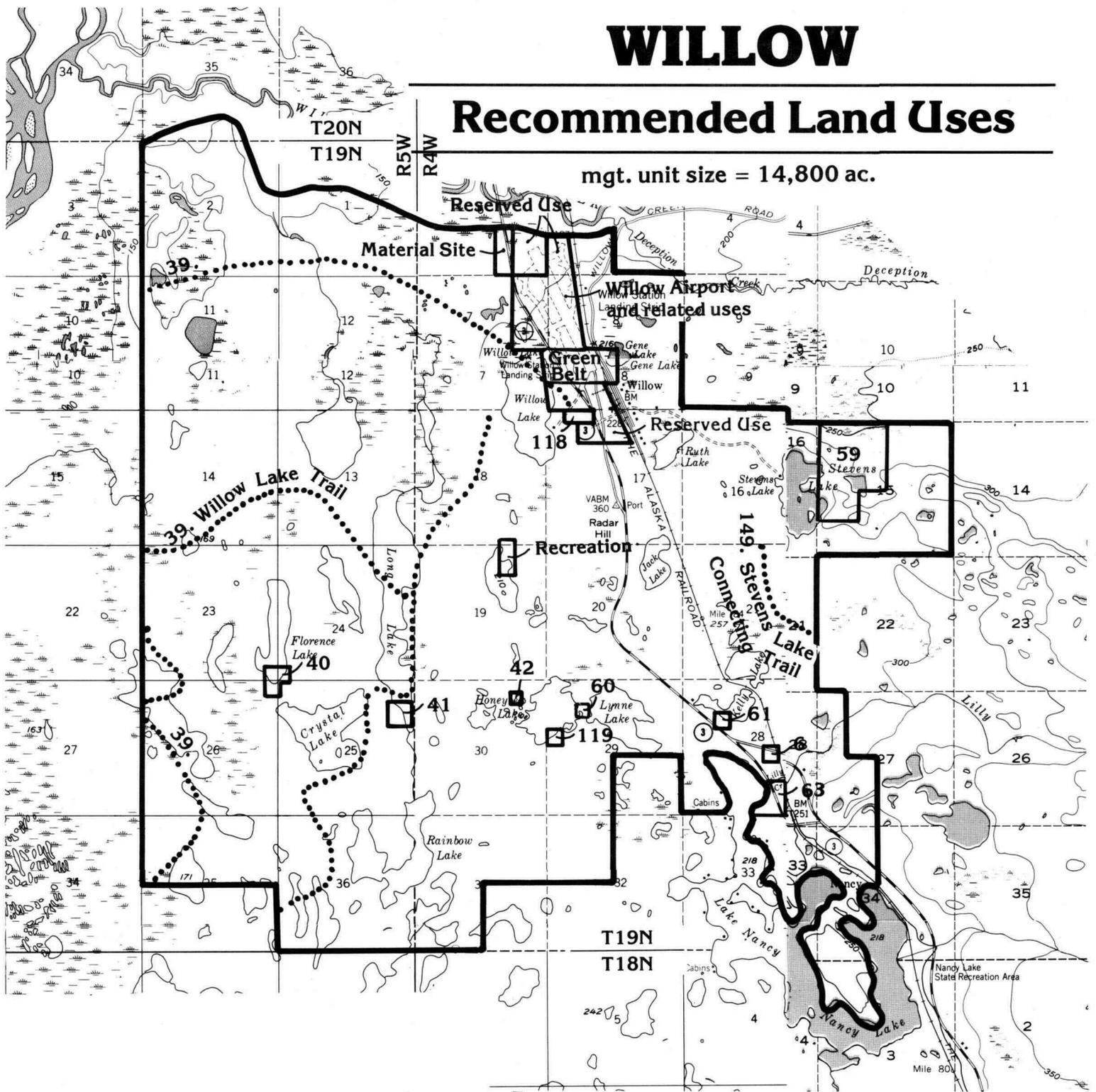
271

Willow Subbasin Area Plan

WILLOW

Recommended Land Uses

mgt. unit size = 14,800 ac.



RECOMMENDED USES:

- Community Land Needs
- Parks Hwy. Scenic Areas

- RECREATION SITES
- 6- Sport Fish Access
- 40- Florence Lake
- 41- Long Lake
- 42- Honeybee Lake
- 59- Stevens Lake
- 60- Lynne Lake Access
- 61- Kelly Lake
- 63- Nancy Lake Wayside
- 118- Willow Lake Access Community Park
- 119- Honeybee Lake



scale 1" = 1 mile
June 1, 1982

Willow Subbasin Area Plan

MANAGEMENT UNIT: MORaine RIDGE

MANAGEMENT INTENT

- Moraine Ridge is well suited for settlement due to its well drained soils and varied terrain offering lakes and excellent views. The unit lies encircled by other management units where limited settlement is anticipated: the Nancy Lakes Recreation Area and Little Susitna Recreation Corridor, the Susitna Game Flats, and the agricultural and forestry lands of the Fish Creek and Susitna Corridor management units. Therefore, as access is developed, Moraine Ridge will be the focus of demand for settlement land in the general area and will be able to provide many excellent homesites.
- This unit has high forestry values and could provide areas for both personal use and commercial sustained yield management.
- Moraine Ridge is presently valuable for moose, bear and other species. It could support additional recreation on lakes and trails coordinated with recreation activities in the adjacent Little Susitna Corridor Management Unit and in Nancy Lakes State Recreation area.

More detailed planning is necessary to define areas where the above uses should occur. Areas of settlement and commercial forestry should be separated, possibly using personal use woodlots as buffers. Prior to road access, settlement can be located along edges of fly-in lakes. Forestry should occur in a manner that enhances habitat wherever possible.

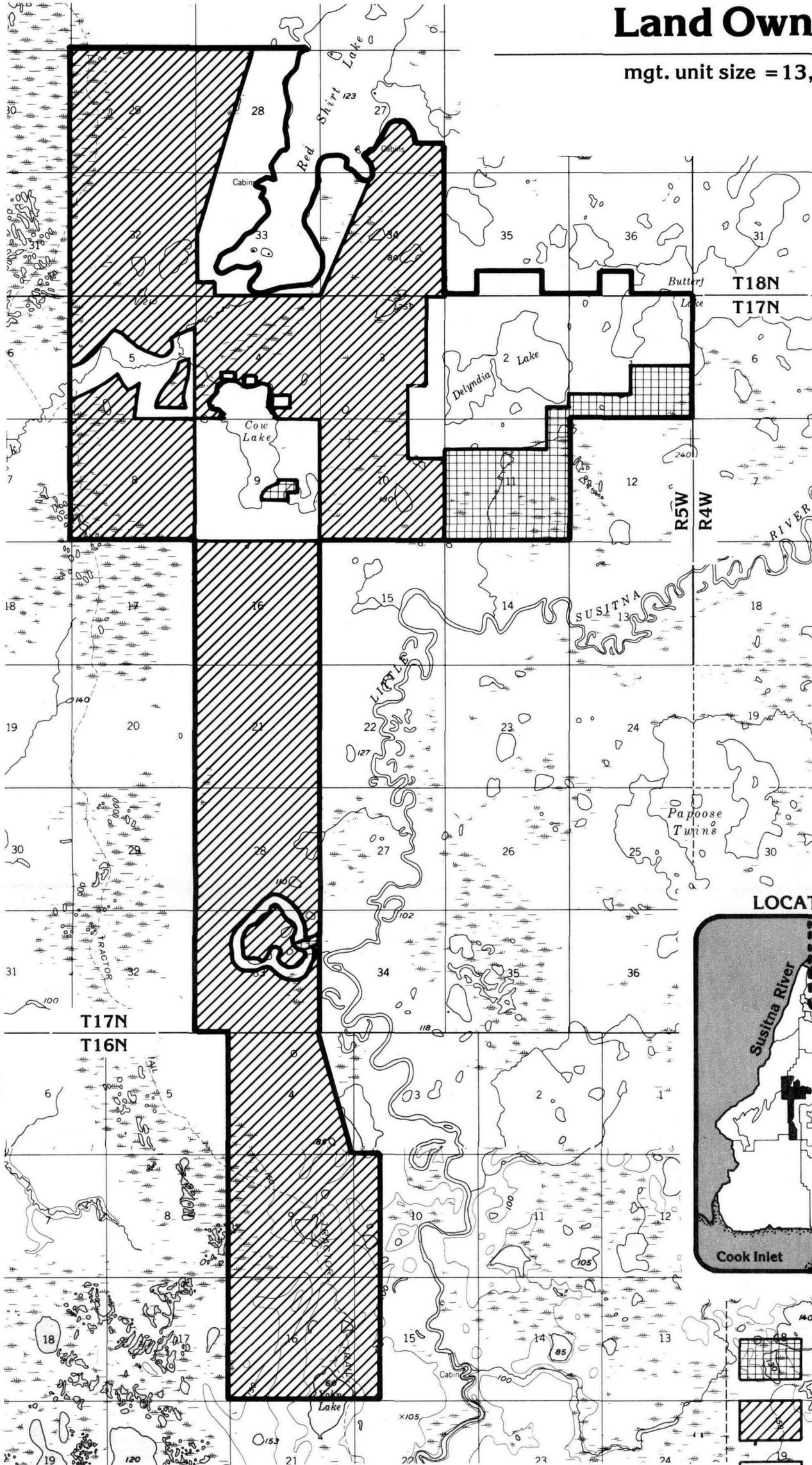
Recommended Land Uses

- Settlement
- Forestry
- Fish and Wildlife
- Recreation

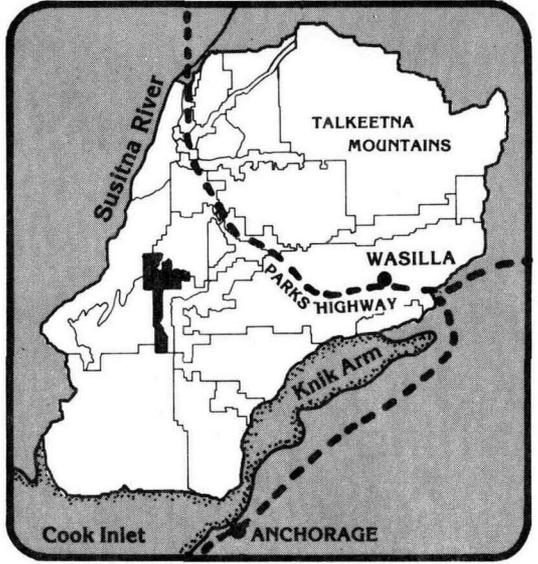
MORaine RIDGE

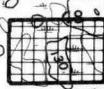
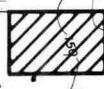
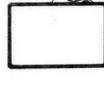
Land Ownership

mgt. unit size = 13,300 acres



LOCATION of MGT. UNIT



-  State
-  Borough
-  Private/Federal
-  University

scale 1" = 1 mile

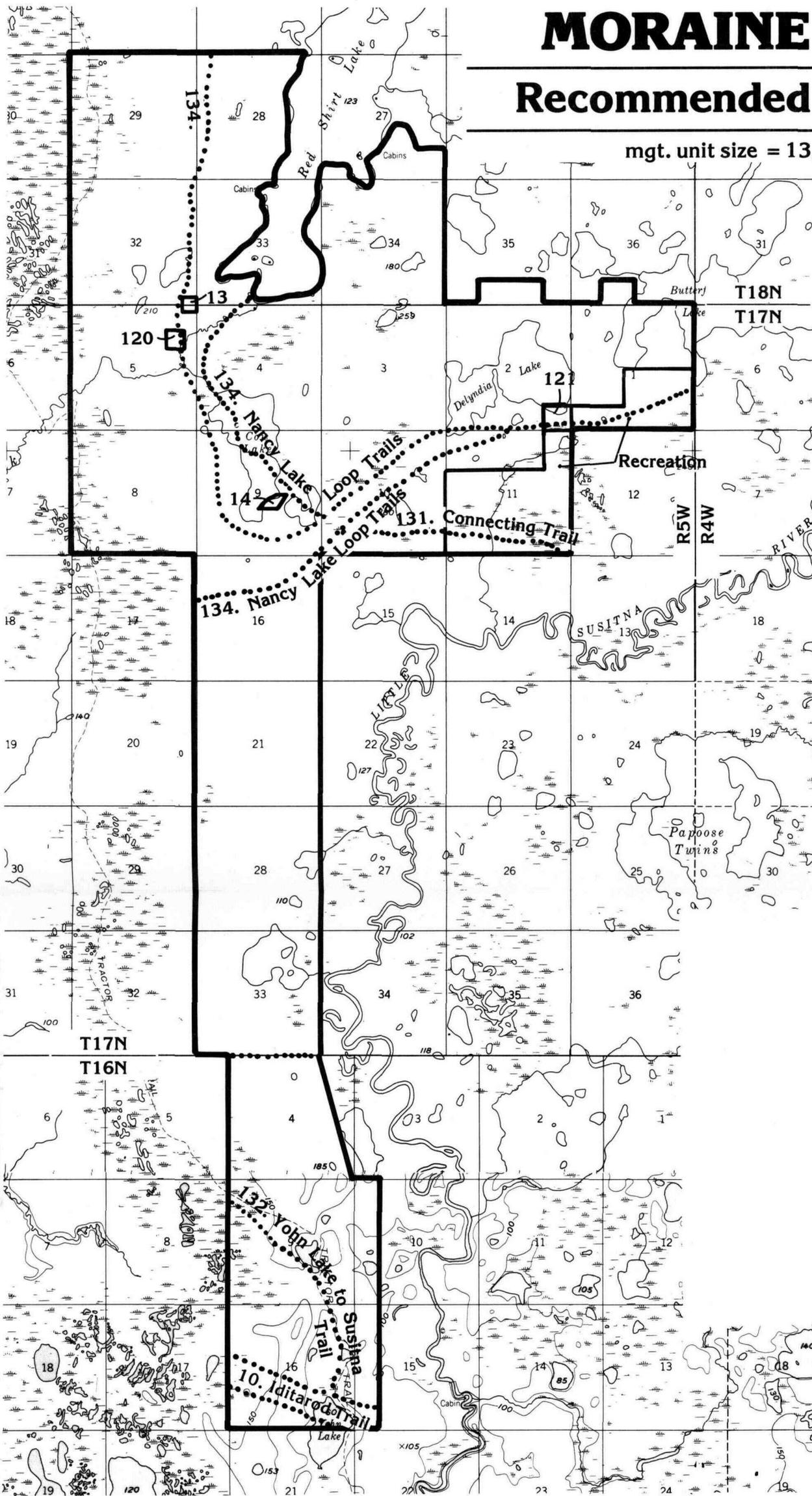
topo. maps:
Tyonek B1, C1



MORaine RIDGE

Recommended Land Uses

mgt. unit size = 13,300 acres



RECOMMENDED USES:

- Forestry
- Fish & Wildlife
- Recreation
- Settlement

- RECREATION SITES
- 13-Fish Ck. Archaeological Site
- 14-Cow Lake
- 120-Fish Ck. Historic Site
- 121-Delyndia Lake



scale 1" = 1 mile
June 1, 1982

Willow Subbasin Area Plan

LEGISLATIVELY DESIGNATED MANAGEMENT UNITS

There are five management units within the study area which the state legislature has designated for specific uses. These units include the capital site, Nancy Lake State Recreation Area, and three game refuges. This plan does not make land use designations or establish land management guidelines for these management units, which are discussed briefly below. (See the following map for the location of legislatively designated management units.)

The Capital Site

The capital site near Willow has been classified reserved use to maintain the land in a condition that will allow it to be planned and developed as a unit should the capital be moved. The reserved use classification will prevent title conflicts and preclude a pattern of land use incompatible with future development of the area as a capital site. Until the voters decide whether to move the capital no permits will be issued or land sold within the unit that might adversely affect use of the area for the capital site. The site has been closed to additional subsurface exploration and development by the Commissioner of DNR.

Nancy Lake State Recreation Area

The Nancy Lake State Recreation Area (NLSRA) was established by the legislature to protect the high quality recreation values of state-owned land and waters within its boundaries. (The boundaries of the Nancy Lake Management Unit and NLSRA are the same). The unit has been classified public recreation.

The State Division of Parks is now updating a master plan for NLSRA. This plan will designate zones which permit varying levels of development and intensity of use. It will also designate specific areas for trail and facility development. The master plan is scheduled for completion in 1982.

State Game Refuges: Susitna Game Flats, Palmer Hay Flats, Goose Bay

These game refuges were established by the legislature to preserve the natural habitat and fish and game populations within their boundaries. Uses permitted within game refuges will be only those which are compatible with this purpose. The refuges are classified resource management.

Appendix 1.

**MANAGEMENT
RECOMMENDATIONS
FOR LANDS
ADJACENT TO THE
GEORGE PARKS
HIGHWAY**

APPENDIX 1

MANAGEMENT RECOMMENDATIONS FOR LANDS ADJACENT TO THE PARKS HIGHWAY

INTRODUCTION

In 1978 the Alaska Department of Natural Resources conducted an inventory of scenic values along the Parks Highway. This information was compiled in a report entitled "Scenic Resources Along the George Parks Highway." The report contains a set of management recommendations designed to protect views from the highway. Recommendations from the report relevant to the Willow Sub-basin are presented in this appendix. Management of public lands adjacent to the Parks Highway should be consistent with these recommendations. The borough and state will encourage private landowners to follow these recommendations in order to protect the scenic values along the highway.

The scenic resources of the George Parks Highway are of considerable value to Alaskans living along it as well as the thousands who travel it for business and pleasure. As with any valuable resource, some type of management strategy or planning is deemed necessary to preserve areas with high scenic resource values, to improve those areas where man-made diversity can enhance the driving experience, and to restore areas where the scenic quality has been severely eroded by landscape alteration. This set of recommendations points out places and types of actions required to protect the unique scenic values found along the George Parks Highway while at the same time allowing other land and resource uses as deemed necessary by public demand and planning study.

WASILLA MANAGEMENT UNIT

GENERAL

This section of the Parks Highway is characterized by generally low scenic resource values and intensive roadside land use. Management recommendations are directed at specific areas where measures should be taken to prevent further deterioration of scenic resources, use the natural visual absorption capability when possible, and restore the foreground visual quality where it has been severely encroached upon by development and intensive land use. Land ownership is the primary limitation to the management of scenic resources within this area because roadside lands are almost exclusively under private ownership.

PRIMARY MANAGEMENT RECOMMENDATIONS

- ° Utilize the existing high visual absorption capability of this landscape.
- ° Screen the numerous intensive industrial land uses immediately adjacent to the highway and begin land reclamation efforts on those areas which are no longer used.
- ° Restore foreground visual quality in those areas where intensive roadside commercial development has almost completely removed the natural vegetative cover and where the intensity of roadside land uses severely affects the visual environment. Restoration measures include:
 1. Encourage the natural revegetation process where possible. This process usually begins with a shrub stage (cottonwood, willows, and alders) followed by birch and spruce stands.
 2. Encourage landscaping around existing parking areas, particularly between the highway right-of-way and parking lots.
 3. Reduce the number of possible highway turnoff areas by building frontage roads along areas with intensive commercial development which would significantly reduce the safety hazards associated with strip development. When properly landscaped, a frontage road could also reduce the visual impact of strip development.
 4. The highway through Wasilla should be studied by landscape architects to develop recommendations for camouflaging the extended commercial strip.

Many portions of the Parks Highway in this unit have high visual absorption capabilities. These areas are identified within heavy black lines on the attached maps. The stretch of highway shown in Figures 1a and 1b is characterized by mixed residential and commercial development, gravel pits, clearings, and numerous intersections. This strip is in the early stages of development, and roadside activity could take place without severely affecting the existing visual quality by taking measures to protect the natural landcover.

A minimum of 25% of the natural landcover and topography should be left undisturbed on those lots immediately adjacent to the highway. Those areas not circled in black have lower visual absorption capability and need additional on-site evaluations to determine how the land might be developed with minimal impact on scenic resources.

The following notes refer to Figure 1a.

1. This area is the beginning of intensive roadside commercial development. More vegetation and landscaping along the highway is needed, particularly along the north side of the road.
2. The crossroads of downtown Wasilla is a particularly important area from a visual standpoint. Definition of a downtown area could reduce the feeling of extensive strip developments on either end of downtown. While this is an urban design problem, a number of things could be accomplished in the near future to improve the "Wasilla Strip".
 - a. The planting of street trees and the construction of sidewalks in the downtown-crossroads area could help create a sense of place.
 - b. Taller buildings should be encouraged in the downtown area to provide a visual accent and focus to make it look and feel different from the commercial areas away from downtown. The railroad station and a few old historical buildings near the crossroads should be preserved to give Wasilla a sense of historical heritage.
3. Intensive strip development and land clearing occur here. This area, as well as the area described in Note 1, should be considered focal points in a visual analysis study of Wasilla.
4. The railroad, which parallels the highway, provides an effective southern edge to the community. Vegetated areas between the highway and railroad would provide added visual interest.

WASILLA MANAGEMENT UNIT

Figure 1a.

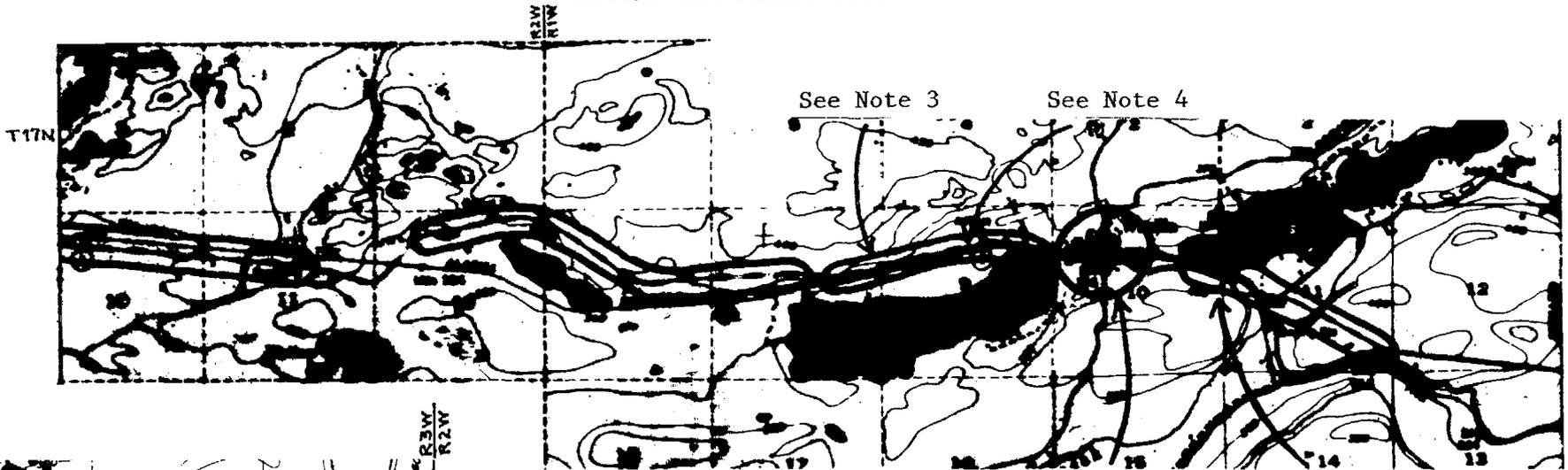
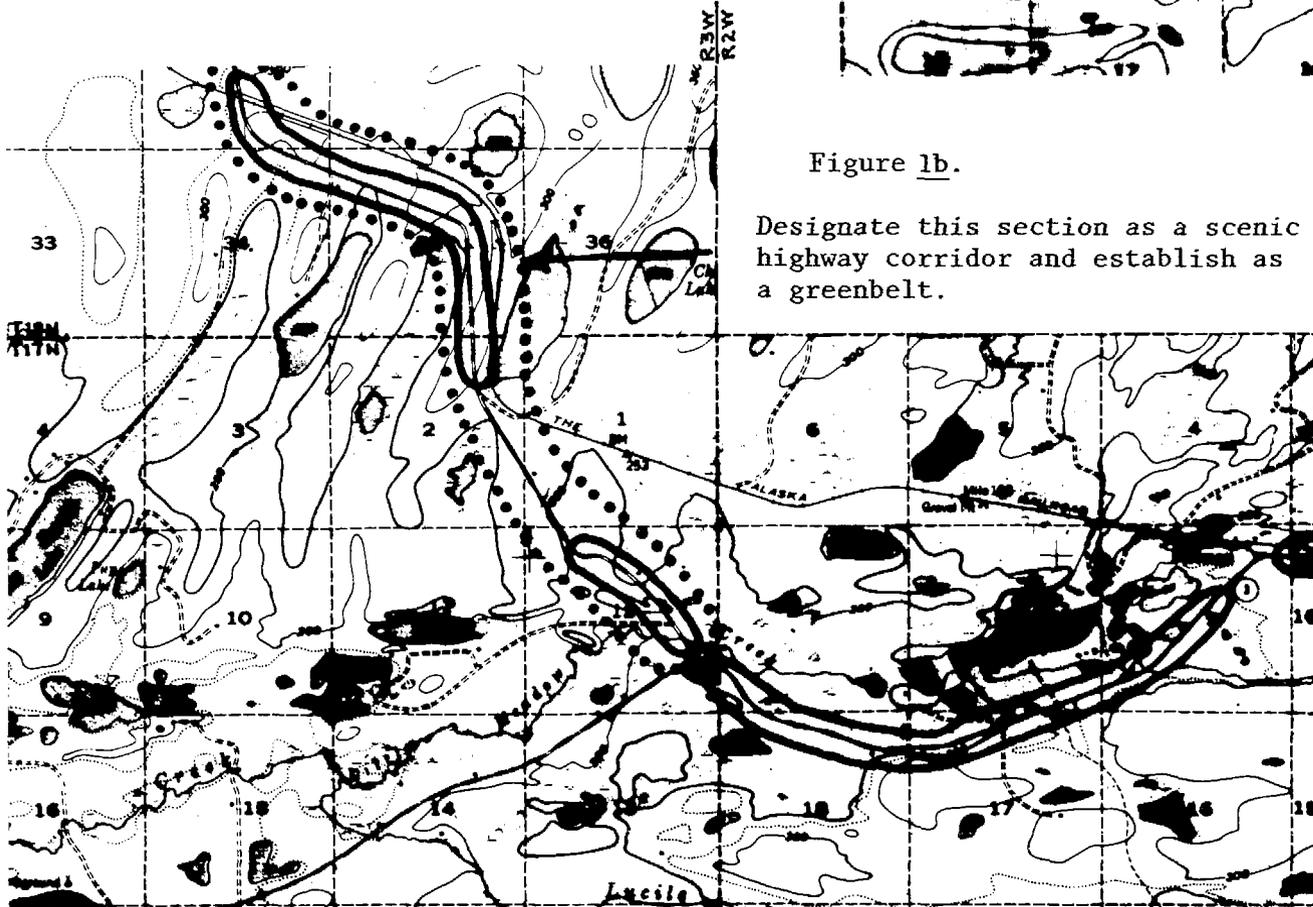


Figure 1b.

Designate this section as a scenic highway corridor and establish as a greenbelt.



See Note 2
(p. 1-5)

See Note 1
(p. 1-5)

○ Areas circled in heavy black lines have high visual absorption capability. Roadside development should be located within these areas if possible.

HOUSTON MANAGEMENT UNIT

GENERAL

Some of the most scenic portions of the Parks Highway are included within the Houston Management Unit (Figure 2).

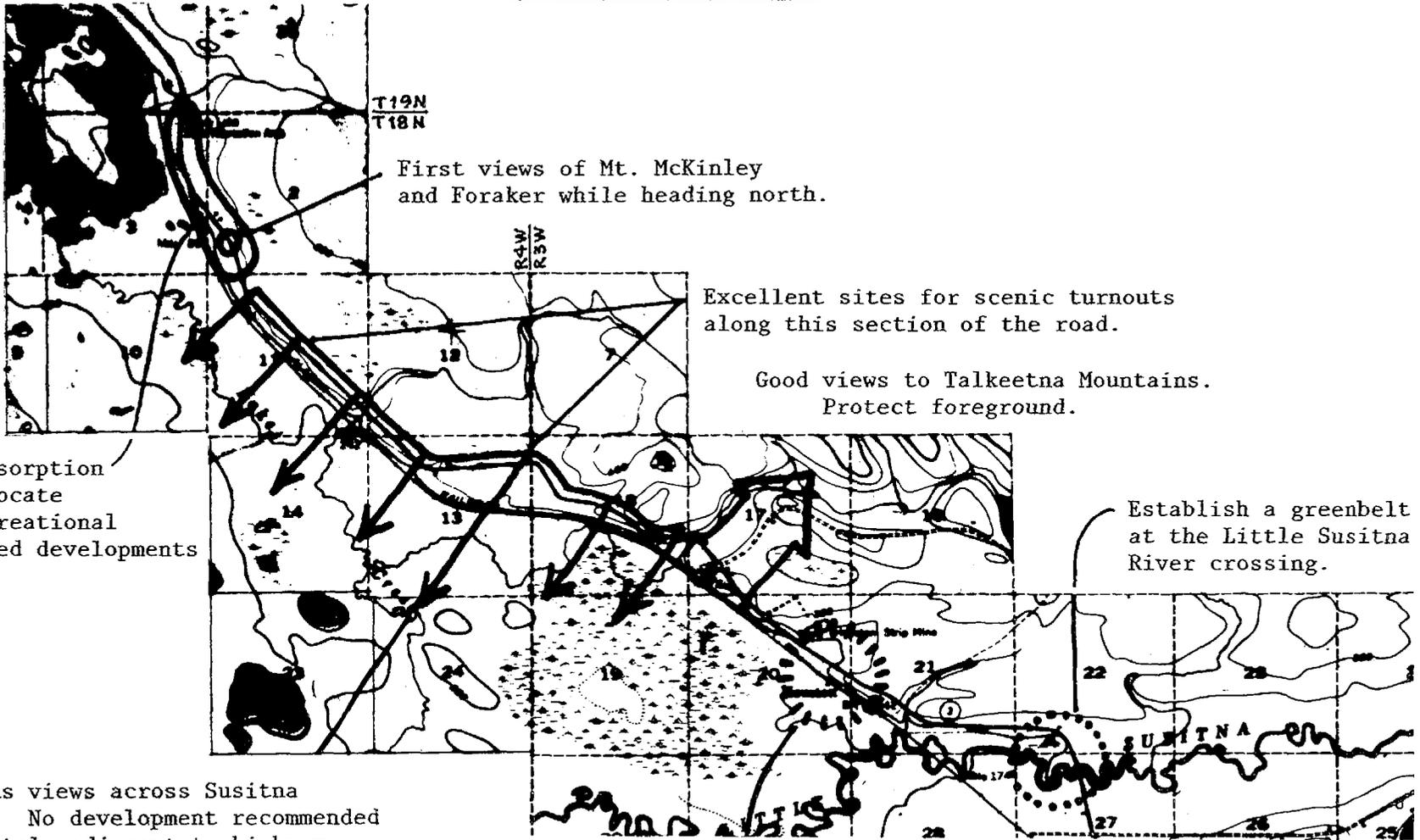
This high scenic resource value is the result of a diverse landscape with numerous views to distant mountains and constantly changing panoramas as the road climbs over and winds around the gently rolling low hills. It also contains the only extended views from the highway across the broad lower Susitna Valley. Due to the proximity of this area to Anchorage and the numerous recreation attractions nearby (Nancy Lake, Willow Creek, etc.) this portion of the highway is subject to intensive use, especially during the summer. The Little Susitna River receives a great deal of recreational use during the summer salmon runs.

PRIMARY MANAGEMENT RECOMMENDATIONS

- Designate this section of the Parks Highway as a scenic highway corridor.
- Encourage roadside commercial development around the existing community of Houston and Nancy Lake while encouraging residential, agricultural and other non-commercial land uses along the remaining stretches of road if they need to occur near the roadway.
- Use the natural visual absorption capability of the land to reduce the visual impact of intensive land uses adjacent to the highway (mining, gravel pits, logging, subdivisions). Figure 2 shows areas with high visual absorption capability.
- Establish a greenbelt along the highway within this unit. This would be a 100 feet minimum width beyond the right-of-way along stretches of road with high visual absorption capability. Areas with lower visual absorption capability would require a wider greenbelt, the actual width to be determined through field checks.
- Within the Little Susitna River Corridor, establish a greenbelt. Auto/camper access should be established away from the bridge and outside of the greenbelt boundaries. Visual impacts of intensive recreation use adjacent to the bridge should be reduced.

Figure 2

HOUSTON MANAGEMENT UNIT



First views of Mt. McKinley and Foraker while heading north.

Excellent sites for scenic turnouts along this section of the road.

Good views to Talkeetna Mountains. Protect foreground.

Establish a greenbelt at the Little Susitna River crossing.

High visual absorption capability. Locate Nancy Lake Recreational roadside related developments here.

Numerous views across Susitna Valley. No development recommended immediately adjacent to highway along this section of road. Selective cutting of trees could increase duration of some views. Locate land uses beyond 200' from the edge of the roadway.

Foreground restoration of landscape is needed around the community of Houston to screen gravel pits and reduce visual impacts of roadside commercial development.

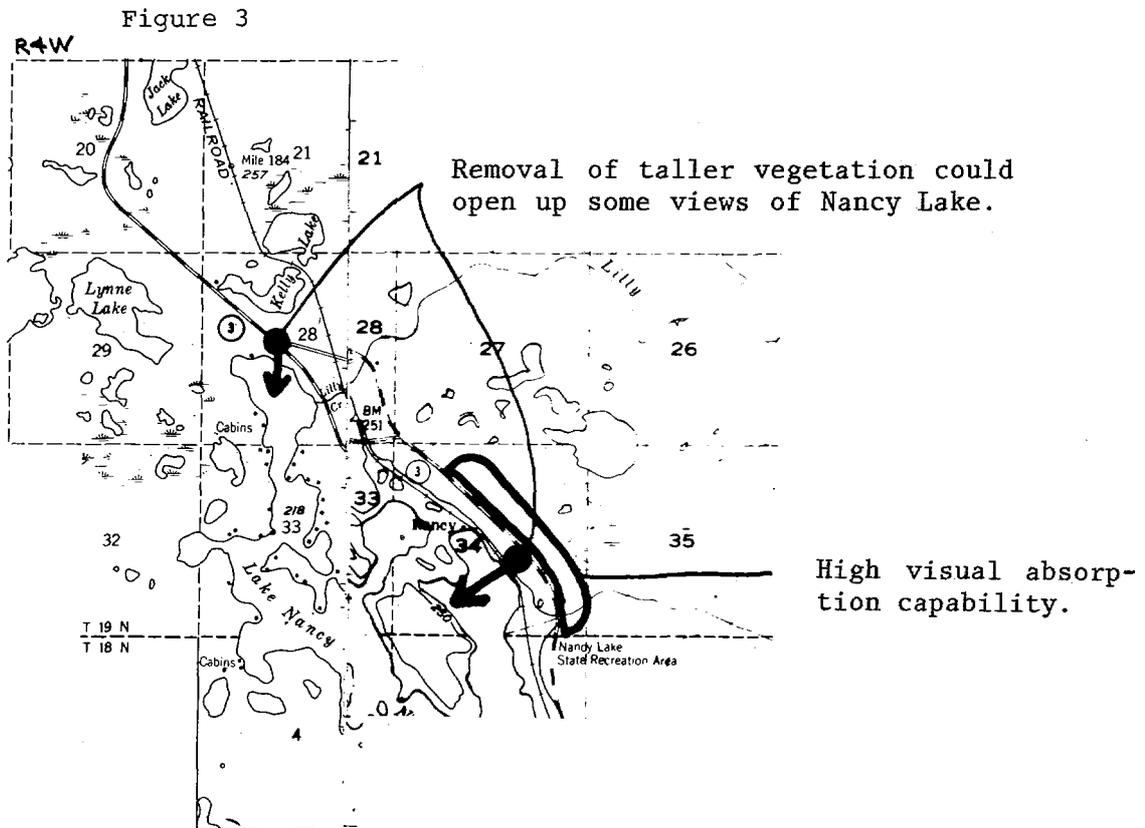
NANCY LAKE MANAGEMENT UNIT

GENERAL

The Nancy Lake Management Unit contains a short but very scenic portion of the Parks Highway. The area is subject to intensive recreation use.

PRIMARY MANAGEMENT RECOMMENDATIONS

- Designate this section of the Parks Highway as a scenic Highway corridor.
- Encourage necessary roadside commercial development in this unit to occur along the stretch of highway with high visual absorption capability.



WILLOW MANAGEMENT UNIT

GENERAL

The Parks Highway within the Willow Management Unit contains moderate scenic values (Figure 4). Willow is still in the early stages of development, and while some signs of strip development are visible, it is not as extensive as areas further south.

PRIMARY MANAGEMENT RECOMMENDATIONS

- Include the portion south of Milepost 67 in the scenic highway and greenbelt designations recommended for the management units to the south.
- Encourage necessary highway related commercial development within this area rather than areas immediately to the north or south.
- Use the natural visual absorption capability of the landscape to reduce the visual impacts of land developments in the foreground distance zone ($\frac{1}{4}$ to $\frac{1}{2}$ mile either side of the highway). This can be accomplished by leaving some of the forest vegetation between the highway and the development, and on those lots bordering the highway right-of-way. Retain at least 25% of the land in natural vegetation.
- Reduce the number of intersections with the highway by building a frontage road. Vegetation left standing between the highway and the frontage road will help maintain existing scenic quality and soften the visual impacts of development.
- Encourage landscaping around parking areas, particularly where they are immediately adjacent to the highway. Native birch, spruce trees, and mounds of earth can be quite effective.
- Encourage the growth of native trees and shrubs within the highway right-of-way. Presently the right-of-way is neatly clipped back to the forest in a straight line, parallel to the roadway. Some areas, specifically where the land beyond the right-of-way is publicly owned, could have the natural vegetation extend into the right-of-way. This would create visual interest and diversity and soften the impact of the road on the landscape.

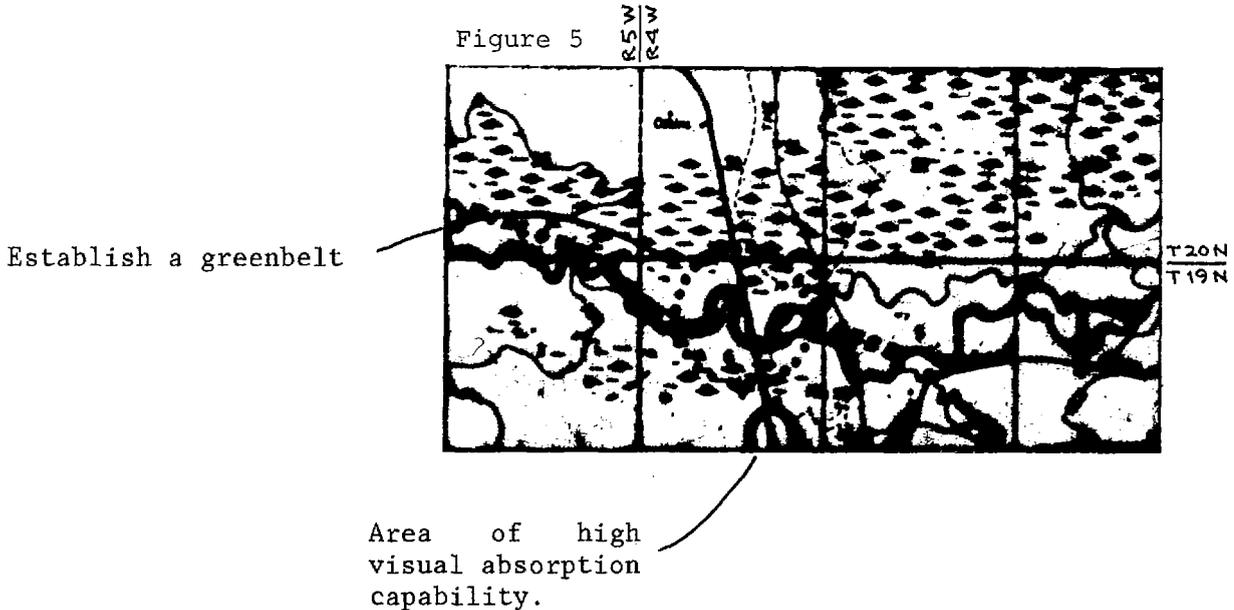
WILLOW CREEK CORRIDOR MANAGEMENT UNIT

GENERAL

Willow Creek is an intensively used recreation area. Removal of vegetation and vehicular use of the land adjacent to the highway has resulted in some erosion, litter, and trespassing problems in this area.

PRIMARY MANAGEMENT RECOMMENDATIONS

- Establish a greenbelt along the river a minimum of ¼ mile either direction from the bridge, and at least 150' either side of the water's edge. Within this area only pedestrian movement would be allowed and no removal of vegetation would be permitted.
- Establish auto/camper access and camping/parking facilities outside the greenbelt and away from the bridge. Easier access to other portions of Willow Creek, especially via paved roadway would help disperse intensive salmon fishing activities presently concentrated around the bridge.



ROGER'S CREEK MANAGEMENT UNIT (SOUTH OF LITTLE WILLOW CREEK)

GENERAL

This section of the Parks Highway is characterized by very high scenic resource values.

PRIMARY MANAGEMENT RECOMMENDATIONS

- ° Designate this section of the Parks Highway as a scenic highway corridor.
- ° Establish a greenbelt to protect sensitive foreground scenic resource values. The greenbelt should be a minimum width of 100' beyond the highway right-of-way in the area of high visual absorption capability, and wider in the other areas. Actual width should be determined in the field. At least 75% of the land within the designated area should be left in a natural state.

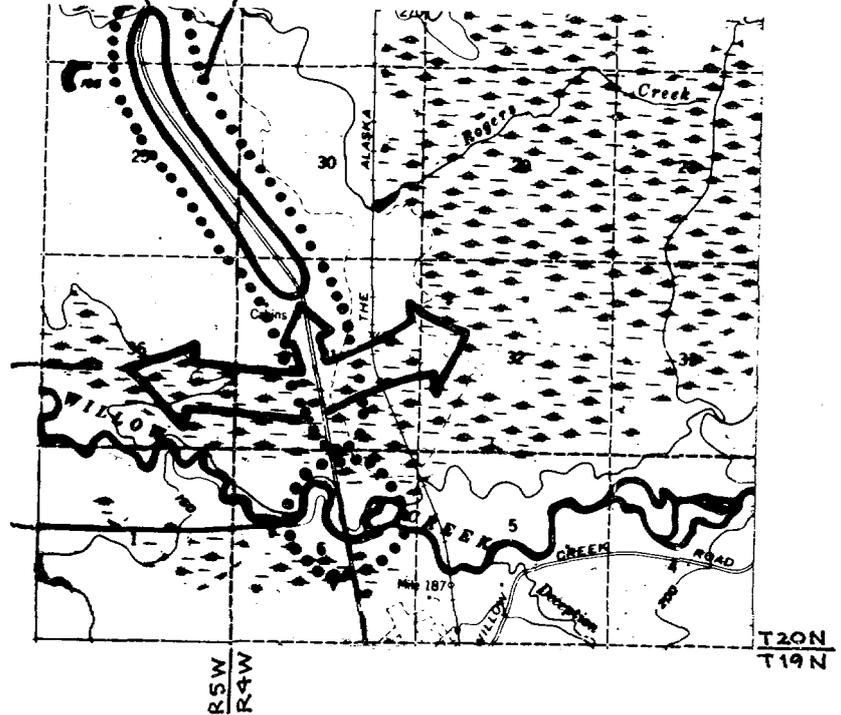
○ Areas of high visual absorption capability where a 100' greenbelt would be sufficient. These are also the places where roadside development might occur with minimum impact on high scenic resource values.

Excellent views across open muskeg to Mt. McKinley, Alaska Range, and Talkeetnas.

Establish a greenbelt around Willow Creek.

Designate this section as a scenic highway corridor.

Figure 6



LITTLE WILLOW CREEK CORRIDOR MANAGEMENT UNIT

GENERAL

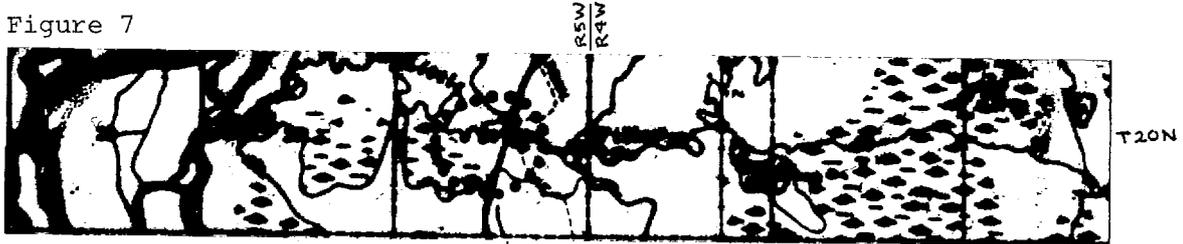
The Little Willow Creek Corridor receives high recreation use, particularly during summer salmon runs.

PRIMARY MANAGEMENT RECOMMENDATIONS

Little Willow Creek is an intensive recreation area. Removal of vegetation and vehicular use of land immediately adjacent to the highway has resulted in some erosion and litter problems in this area. To remedy this the following recommendations are made.

- Extend highway greenbelt $\frac{1}{4}$ mile up and down the creek (100' minimum beyond waters edge). Permit only pedestrian use in this area.
- Establish auto/camper access and camping/parking facilities outside this greenbelt and away from the bridge.
- Include this section of the Parks Highway in scenic highway designation and greenbelt establishment.

Figure 7



Establish a greenbelt and designate this section as a scenic highway corridor.

ROGER'S CREEK MANAGEMENT UNIT (NORTH OF LITTLE WILLOW CREEK)

GENERAL

Parts of the highway in the Roger's Creek Management Unit are very high in visual resource values, and other sections are fairly low (Figure 8).

PRIMARY MANAGEMENT RECOMMENDATIONS

- ° Designate the section below milepost 78 (in Section 31) as a scenic highway corridor.
- ° Establish a greenbelt below milepost 78 to protect the sensitive foreground scenic resource values. At least 75% of the land within the designated area should be left in a natural state. The greenbelt should be a minimum width of 100' beyond the highway right-of-way in areas of high visual absorption capability and wider in other areas. Actual width should be determined in the field .
- ° Necessary intensive roadside land uses (e.g., gravel pits, commercial developments, industries) should be encouraged, when possible, to locate along stretches of road which have high visual absorption capability.

ROGER'S CREEK MANAGEMENT UNIT

Establish a greenbelt

Figure 8

○ Areas of high visual absorption capability. Intensive roadside land uses can be located with minimal impact in these areas.

This stretch of road has very high scenic resource values and excellent views of Mt. McKinley and other distant mountains. Retain existing vegetation whenever possible.

Designate this section of the road as a scenic highway corridor.

Important view across Kashwitna Lake when driving south. Restrict roadside development and removal of vegetation.

Excellent scenic turnout site. Presently it is a large gravel area with a few trash barrels by the lake. A much nicer area could be created by relocating the trash barrels away from the lakeside and encouraging some trees along the highway.



Appendix 2.
**BACKGROUND
RESOURCE
INFORMATION**

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APPENDIX 2

BACKGROUND RESOURCE INFORMATION

Appendix 2 presents basic information about the land and resources in the Willow Sub-basin. The appendix is organized by resource, or major land use. Lands with high value for agriculture, settlement, recreation, mining, and other important resources are mapped and described. Public lands allocated to each of these resources are also mapped, and potential transportation routes are analyzed in greater detail than in Chapter II.

AGRICULTURE

INTRODUCTION

In 1980 agriculture occupied approximately 2,000 acres in the Willow sub-basin. These acres produce mainly hay and grass with a few acres in potatoes, barley, and rape seed. Crop production has never developed substantially in the sub-basin due to limited amounts of productive soils, inadequate markets, poor access, high clearing costs, and the lack of a regional agricultural infrastructure - including processing plants, storage and transportation facilities, and cooperative financing arrangements.

Farming has recently declined in the sub-basin. The estimated 2,000 acres in production in 1980 is a quarter of the land previously devoted to crops. The remainder has grown to brush or sprouted houses. The decline of agriculture in the Willow Sub-basin mirrors conditions in the entire Matanuska-Susitna Borough where agricultural production peaked in the mid-1960's. Since then, the decline in the numbers of farmers and production has been dramatic. By 1977, the number of full-time farmers dropped from 70 to 30-40, the number of dairy farms dropped from 47 to 12, and the number of vegetable farms declined from 22 to 17. By 1980 only 10 dairy farms remained in production.

In the Willow Sub-basin, as in most of the borough (and much of the U.S.), agricultural land provides more income to the owner when sold for residential development than when farmed. Between 1975 and 1978, 27 farms were subdivided within the borough. Land in the area which sold for \$70 per acre in the mid 1960's sold for \$7,500 per acre in the mid 1970's. A Soil Conservation Service economist has calculated that to compete with such land prices, a crop would have to net \$1,350 per acre per year. That is possible only for very high value production such as truck crops and livestock farming.

It is clear that agricultural development in the Willow Sub-basin faces a number of problems, from a limited land base to limited markets. However, the proposed commitment of 15,000 acres of public land in the Point MacKenzie area to farming, and the policies and land use commitments presented in this plan should help provide the basis for a stable agricultural industry in the borough. Through this plan, 41,000 acres of state and borough land are designated for large scale commercial agriculture; 40,000 acres are designated for grazing; and small farm disposal targets of 4,000 acres for the borough and 3,000 acres for the state are established for the period 1981-1986.

The remainder of this section of the plan is divided into three parts: 1) a summary of issues; 2) a description of sub-basin's agricultural

potential; and 3) a discussion of public lands designated for agricultural development.

SUMMARY OF ISSUES

A number of issues and problems have been identified which must be addressed through this plan, and through other government policies, in order to strengthen the agricultural industry in the Willow Sub-basin. These issues are as follows:

- a. the need for a stable and adequate land base.
- b. the need for access to potential farm lands.
- c. limited export markets for Alaskan products.
- d. shortage of low-cost farming inputs, such as fertilizers, lime, power, equipment, etc.
- e. the need for a developed agricultural infrastructure, such as processing facilities, storage, ports, etc.
- f. the need to achieve economies of scale necessary to take advantage of current technology.
- g. high public demand for small farm units (less than 80 acres in size).
- h. the importance of salvaging timber with high commercial and personal use value when lands are cleared for agriculture.
- i. potential conflicts between agricultural activities and other land uses.

Some of these issues can be addressed through land use planning for public lands, principally those which concern land availability and infrastructure. This plan addresses these issues in two ways: first, by establishing goals, policies, and land management guidelines (Chapter III, Agriculture) which commit the borough and state to supporting agricultural development; and second, by designating public lands which will be made available for private agricultural use.

POTENTIAL FOR AGRICULTURAL DEVELOPMENT
LAND CAPABILITY

The Willow Sub-basin is generally characterized by acidic soils which require extensive applications of lime (initially 3-5 tons of high grade lime per acre) for most crops. The growing season is short and precipitation irregular. The longer and warmer growing season in the Matanuska Valley makes it better suited for agricultural development than is the Willow Sub-basin. However, certain soils in the basin are capable of producing crops - principally grains, hay, and potatoes. In addition, a number of soil types in the area are suited to truck farming. Uplands between the Little Susitna River and the Talkeetna Mountains, and between Willow Creek and the Kashwitna River have good grazing potential.

Map 7 shows the location of soils with high agricultural potential in the sub-basin and shows the ownership of these areas. Soil capability classes range from I-VIII; the higher the number, the greater the limitations for agricultural use. Class II and III soils are the Willow Sub-basin's (and the state's) best potential agricultural soils.

As Map 7 shows, there are five areas within the sub-basin containing significant concentrations of class II and III soils in public ownership.

1. Point MacKenzie Management Unit

The approximately 15,000 acres of state-owned class III soils in this area and 600 acres of borough land have been committed to agricultural use.

2. Fish Creek Management Unit

East of Flathorn Lake the state and borough own approximately 20,000 acres of class II and III soils. Though remote, these lands have high agricultural potential.

3. Susitna Corridor Management Unit

Just east of the Susitna River along most of the western border of the sub-basin there are approximately 26,000 acres of state and borough-owned class II and III agricultural soils. Much of this area is hilly, divided by numerous drainages and interspersed by wetlands. It does not have road access.

4. Kashwitna and Iron Creek Management Units

Within these two units between Willow Creek and the Kashwitna River, there are approximately 22,073 acres of state and borough class II and III soils. Most of this land is rugged upland currently much more suited to grazing than crop production.

5. Susitna Game Flats

Along the banks of the Little Susitna River east of the Point MacKenzie agricultural project are a few thousand acres of class II and III soils. This area is a state wildlife refuge and is not presently being considered for agricultural development.

Private Land

In the Wasilla Management Unit between and around the towns of Palmer and Wasilla there are approximately 49,556 acres of prime agricultural soils in private ownership. However, much of this land has been subdivided and land prices generally preclude economical farming.

Grazing Lands

Aside from the potential agricultural areas discussed above, the Hatcher Pass Management Unit contains important grazing lands in river valleys and on the lower slopes of the Talkeetna Mountains. Important potential grazing areas are also located between the Willow Creek and Kashwitna River drainages (Kashwitna Management Unit) and adjacent to the Susitna River northeast of Flathorn Lake. These areas, which total approximately 120,640 acres, are shown on Map 8.

ECONOMIC FEASIBILITY

The United States Department of Agriculture has evaluated the implications of current market conditions for agriculture in the Willow Sub-basin as follows:

Future agricultural development in the sub-basin will be a function of economic feasibility which in turn depends largely on demand for both agricultural products and other competing land uses, e.g., urban, recreation, etc. Feasibility is a function of demand for agricultural products because prices are partially established by that demand. In Alaska, prices received by farmers tend to approximate the Seattle, Washington price plus transportation to Alaska markets. This price remains in effect up to the point when the local demand has been largely saturated; beyond this point the prices received by farmers would tend to drop sharply towards the Seattle, Washington price less transportation to Alaska markets. For the products analyzed, i.e., barley, oats, potatoes, and brome, feasibility does not exist at the latter price for yields which can reasonably be expected in the Susitna Basin. In many cases, however, feasibility does exist at the former price; farming can survive in the basin, but production in excess of the quantity that will be readily used locally will cause economic failure.

It should be noted that the preceding discussion assumes the existence of only two markets - Alaska and the lower forty-eight states. There has been much recent discussion of a third market, the Orient, which now counts the contiguous U.S. west coast as one of its major suppliers of grains. Alaska can compete on the world market if it can produce and ship grain to the Orient at a cost equal to or less than production and shipping costs from the west coast. Labor, equipment, and building costs per unit of output are usually higher in Alaska, but the distance from Seattle to the Orient exceeds the distance from Alaska to the Orient. Whether or not Alaska's mileage advantage can offset its higher production costs will be known soon from the Delta Barley project.

Regardless of the world market situation, a good deal of agricultural potential exists at the local level yet Alaska continues to import every product which economically could be grown and processed locally. (Susitna River Basin Study, 1981, United States Department of Agriculture, Soil Conservation Service.)

In sum, although there are economic constraints, the potential exists for an expanded agricultural industry in the Willow Sub-basin.

PUBLIC LANDS DESIGNATED FOR AGRICULTURE

Public lands designated by this plan for agricultural use fall into three categories: commercial agriculture, grazing, and small farms (40-80 acres). These descriptions are shown on Map 8. Approximately 25,000 acres of state and 19,500 acres of borough lands are designated for commercial scale agricultural use (parcels larger than 80 acres). These figures include approximately 15,000 acres in the Point MacKenzie agricultural project. In addition, approximately 120,000 acres of state land and 3,000 acres of borough land are designated for grazing. Lands designated for small farm use are discussed under the settlement section of this appendix.

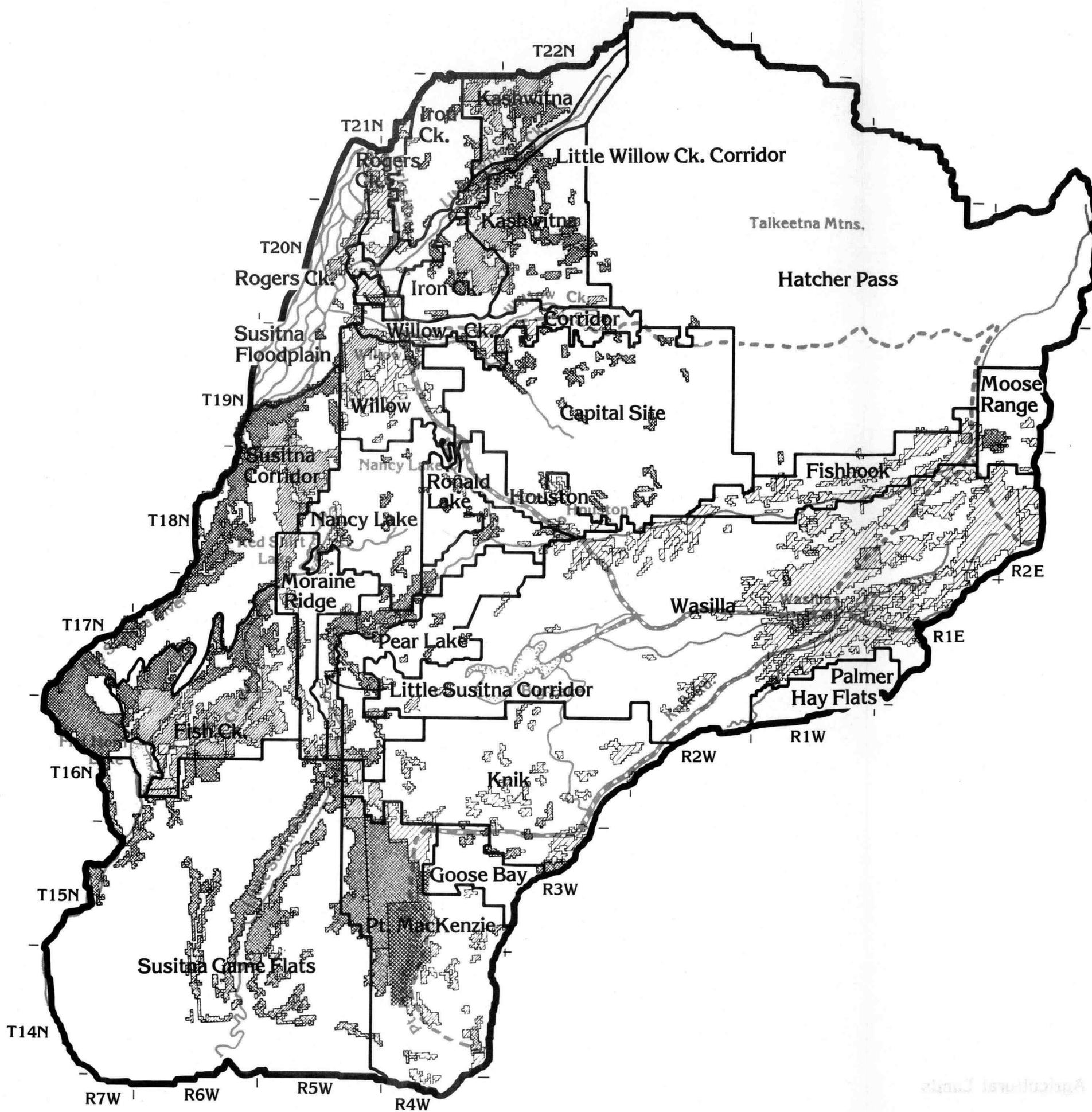
The Fish Creek Management Unit is the major commercial agricultural project proposed by this plan. The borough owns about 60% of the unit and the state 40% (except for several small parcels in private ownership). The unit contains approximately 16,000 acres of prime agricultural land.

Areas opened for grazing include the southern two-thirds of the Kashwitna Unit, the southern and western portions of Hatcher Pass Unit, the Moose Range, and the southern portion of the Susitna Corridor Unit. Grazing is controlled by guidelines in Chapter III, Agriculture. These guidelines are principally intended to minimize the impacts of grazing on wildlife habitat and water quality.

Important Agricultural Lands

-  Class II & III soils on state lands
-  Class II & III soils on borough lands
-  Class II & III soils on private lands
-  Other lands

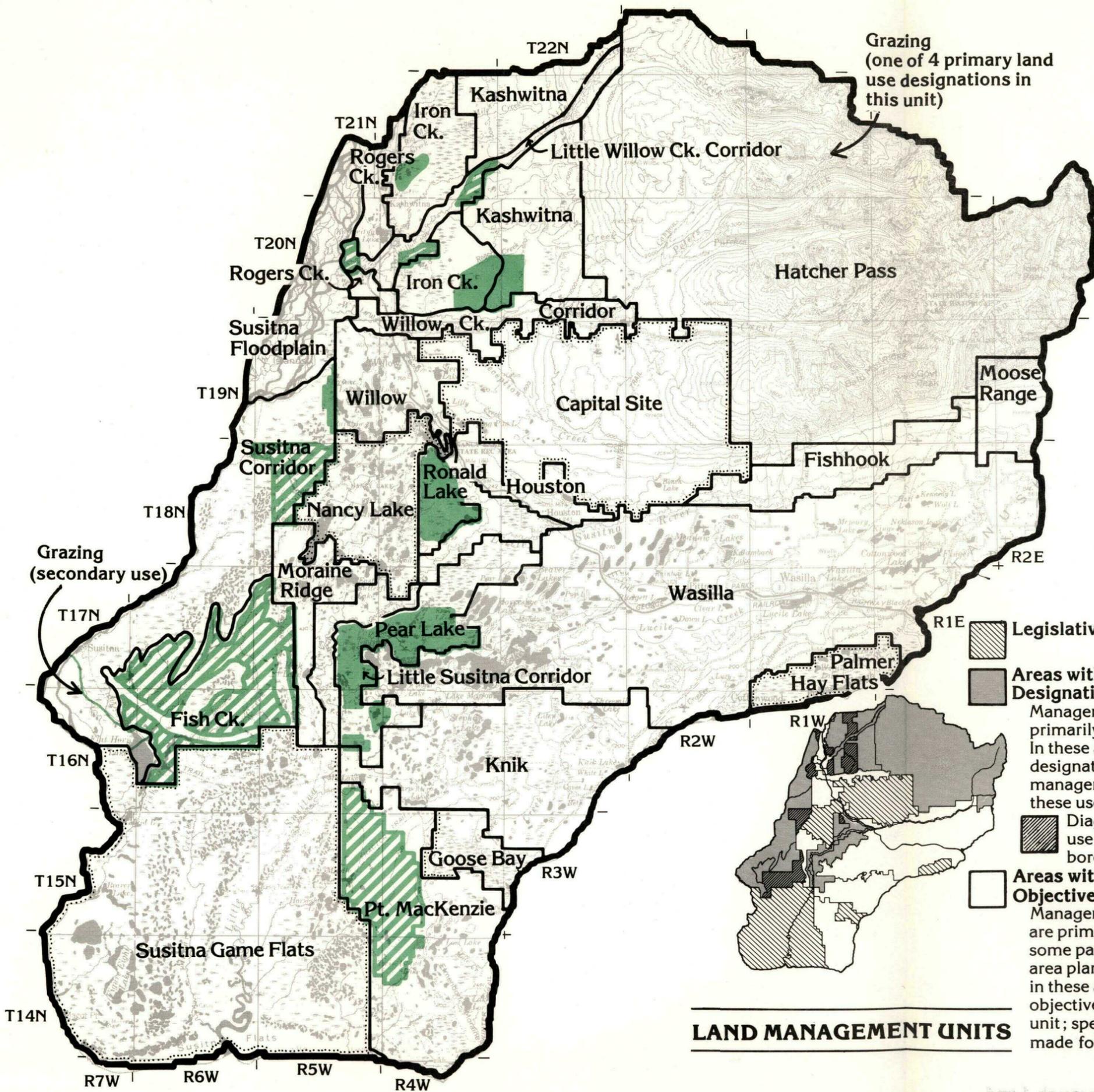
No parcels of class II and III soils below 40 acres are shown.



scale 1: 332,000
June 1, 1982

Willow Subbasin Area Plan

State and Borough Land Designated For Agriculture



-  **Commercial agriculture** (parcels larger than 80 acres).
-  **Grazing**
-  **Small farm** (parcels smaller than 80 acres, used for small scale and non-commercial farming).

Small farms is considered a settlement category; areas designated for small farms are also shown on the settlement map. Only areas with primary designations for small farms are shown on this map.

-  **Legislatively Designated Areas**
-  **Areas with specific Land Use Designations**
Management units shown in gray are primarily owned by the state and borough. In these areas detailed land use designations are prepared as well as management guidelines to control how these uses occur.
-  Diagonal lines indicate where land use designations are made on borough lands.
-  **Areas with General Land Use Objectives**
Management units shown in white are primarily privately owned but contain some parcels of state/borough lands. The area plan addresses appropriate land uses in these areas through general land use objectives prepared for each management unit; specific land use designations are made for state land in some cases.

The state and borough will also dispose of small farms, as compatible with other major land uses, in the following management units:

- FIS11HOOK
- WASILLA
- KNIK
- PT. MACKENZIE
- FISH CREEK - In this unit small farms will be identified and sold at the time commercial agricultural development occurs. Small Farms will be located in areas of Class II and III soils that are too small for commercial agriculture.

LAND MANAGEMENT UNITS



scale 1:332,000
June 1, 1982

Borough and state lands designated for use as small farms are in the Kashwitna, Ronald Lake, Pear Lake, Little Willow Creek Corridor and Iron Creek Units. Agricultural land in the Fish Creek unit not suitable for large farms because of topography will be sold for small farms. Although specific tracts have not been identified, small farms are a "recommended use" in the Knik Unit, where private landowners and the borough own considerable land suitable for that purpose. (There are also several thousand acres of private land suitable for small farms in the Wasilla Management Unit.)

It is difficult to specify an acreage figure for small farms because the plan frequently designates small farms as one of several permitted uses within a management unit. Sites for small farms will be identified specifically through more detailed planning. However, the plan designates approximately 3,000 acres of state land and 2,500 acres of borough land for primary small farm use. Through this plan, the state and borough have also set small farm disposal targets of 3,000 acres and 4,000 acres respectively during the next 5 years.

Approximately 4,000 acres of borough land in the northern portion of the Susitna Corridor Management Unit, west of Nancy Lake, are designated for agricultural use. State land in the Susitna Corridor Management Unit which has high agricultural potential (agricultural capability classes II and III) is to remain in non-intensive uses: forestry, habitat, or recreation. Management of this unit will be designed to minimize negative impacts on potential agricultural development.

RECREATION

INTRODUCTION

The Susitna River Basin is exceptionally well endowed with recreational resources. Its landscapes and ecosystems are as diverse as those found anywhere in the state, ranging from rugged mountains to coastal wetlands. Recreation opportunities in the basin are considerable, enhanced by vast acreages of undisturbed public lands. The basin's proximity to Anchorage results in substantial recreation demands, which, coupled with abundant recreational resources, suggests that the basin will host much of southcentral Alaska's outdoor recreation activity in years to come.

The Willow Sub-basin in particular is the focus of much of the recreation activity of Anchorage and borough residents. It is the most densely populated area of the entire Susitna River basin. The communities of Wasilla and Willow have experienced significant growth in recent years due largely to an ample supply of buildable private lands within convenient travel distance of Anchorage coupled with the area's outstanding recreational potential.

Abundant surface water is the single most important element of the area's recreation potential. Fishing is a major recreation pursuit throughout the sub-basin and is particularly important on the Little Susitna River and Willow Creek. The Nancy Lake System is a year-round recreation area offering fishing, canoeing, cross-country skiing, snowmobiling, and camping.

Waterfront waysides or resorts featuring picnicking, fishing, and water skiing are especially popular in settled areas like Wasilla. The Talkeetna Mountains are host to a full range of mountain based uses, including climbing, hiking, skiing, snow-machining, and wildlife photography. South and west of the Parks Highway are the Pt. MacKenzie, Palmer Hay Flats, and Susitna lowlands areas. Duck and moose hunting are the most extensive recreational activities occurring in these areas.

RECREATION ISSUES

The three most basic recreation issues are the same in the sub-basin as they are in other areas, that is, providing a land base that can support recreational activities and providing the facilities and access that allow people to use these recreational areas. Specific recreation issues within these general categories are listed below.

1. Recreational Land Base

The Willow Sub-basin is likely to experience significant population growth and resource development in the near future. This will result in pressure to use existing and potential recreation land for other uses. Two specific problem areas are discussed below.

- a. Hatcher Pass: conflicts between mining and recreational uses have to be resolved in this primarily state owned area.
- b. River Corridors and Lake Fronts: settlement values in these areas are very high. Use of buffers, public retention and other methods will be required to maintain opportunities for public recreational use of these areas.

2. Access

The combination of heavy use and limited facilities creates congestion, reduces user satisfaction, and causes management problems. This is a special problem during salmon fishing season where few road accessed areas exist to accommodate many users. It is also a year-round problem where a large number of outdoor recreationists congregate in the Hatcher Pass area of the Talkeetna Mountains, but find inadequate parking, staging, and restroom facilities.

A second important access related issue involves ownership. Many recreational activities in the sub-basin, especially hunting and fishing, occur on or across private lands. Increased development on private lands as well as pressure to dispose of public lands can reduce public recreational opportunities and create trespass problems.

3. Coordination to Meet Varied User Needs

The Willow Sub-basin is now and will continue to be an important recreation area for people from Anchorage and other visitors from outside the sub-basin. Additionally, there will be an increasing need for community parks and other recreation facilities for local residents. It is essential to identify the nature of these varied recreational demands and determine the best means to meet them, including the most appropriate and efficient role for state and local agencies and private recreational providers.

A specific example of this issue is campgrounds. Presently the Willow Sub-basin does not have sufficient camping facilities, especially in fishing areas, to meet regional and local needs. Meeting this need will require coordination between the state and borough and knowledge of existing and planned private campgrounds.

Based on the existing availability of recreation land and facilities and an assessment of likely future recreation demands in the Willow Sub-basin, the Alaska Division of Parks has ranked the importance of the following recreation needs:

Critical Needs (needs for which current demand greatly exceeds supply)

Developed camping units
Boat launches
Alpine skiing area
Stream fishing areas

Important Needs (needs for which demand exceeds supply)

Picnicking units
Cross-country ski trails
Walking, running, cycling trails
Stream and lake areas for canoeing, rafting, kayaking
Swimming areas
Lake fishing sites

Notable Needs (needs for which demand is expected to exceed supply in the near future)

Dog mushing trails
Hiking areas
Snow-machine trails

These rankings are not meant to suggest that one activity is more important or desirable than another, but rather to indicate which activities most lack an adequate land base to meet expected public demand.

Recreation issues and needs identified above are addressed by this plan in two ways. First, the borough and state have developed goals, policies, and management guidelines (Chapter III) which will direct the use of important public recreation lands. Second, the plan designates specific lands to be managed for their public recreation values. These land use designations are presented below.

EXISTING AND POTENTIAL RECREATION AREAS

As part of this plan, many of the most important existing and potential recreation sites within the sub-basin have been identified. These are shown on Map 9. These recreation areas have been divided into four categories and are described below.

1. Major Public Recreation Areas

The major public recreation areas in the sub-basin are the Hatcher Pass/Talkeetna Mountains area (Hatcher Pass Management Unit), the Nancy Lake State Recreation Area, the Little Willow Creek Corridor, the Little Susitna Corridor, and the Iditarod Trail.

The Hatcher Pass Management Unit provides a wide range of summer and winter recreation activities including hiking, mountain climbing, snow-mobiling, skiing, and wildlife photography. (Mining, recreation, fish and wildlife, and grazing all receive primary use designations in the Hatcher Pass Unit.) The Nancy Lake State Recreation Area is a major boating, camping, fishing and winter sports area for southcentral Alaska. The plan does not affect this area or other legislatively designated areas. The Little Willow Creek and Little Susitna River Corridors are anadromous streams which provide important recreation opportunities to people from all over the state. The Iditarod Trail, between Knik and Nome, is the state's best known dog mushing route. (The Susitna Flats and Palmer Hay Flats state game refuges also provide important dispersed hunting and fishing. These areas are discussed in the Fish and Wildlife section of this appendix.)

2. Recreation Areas Larger Than 160 Acres

Map 9 identifies eighteen publicly and privately owned outdoor recreation areas larger than 160 acres within the Willow Sub-basin. These 18 areas and the many sites smaller than 160 acres discussed below encompass approximately 23,000 acres and provide 474 camping units (many double as picnic units), 146 picnic units, and 13 boat launches. Existing facilities serve picnicking, camping, boating, canoeing, and fishing activities. The sites larger than 160 acres are listed below.

Recreation Sites Larger Than 160 Acres

<u>Site Number</u>	<u>Site Name</u>
3	Willow Creek Scenic Area (one)
14	Cow Lake
34	Fish Creek
43	Houston Lakes
48	Meadow Creek
54	Willow Creek Scenic Area (two)
59	Steven's Lake
64	Fry Pan Lake
66	Four Lakes
89	Willow Creek Canyon Scenic Area
90	Bullion Mountain Scenic Area
92	Twelve Mile Lake
93	Willow Creek Island
98	Susitna Scenic Area
104	Little Susitna (Access Site)
113	Barry's Resort (Finger Lake)
116	Lucy Lake/Cottonwood Creek
127	Little Susitna River Corridor

3. Recreation Areas Smaller Than 160 Acres

This category includes over 100 publicly and privately owned trail waysides, campgrounds, historic sites, and lake and stream access points. These sites are indicated through appropriate symbols on Map 9.

4. Recreation and Historic Trails

Work by the Alaska Division of Parks and the Matanuska Susitna Trails Commission identified approximately 400 miles of important trails in the Willow Sub-basin. These trails, some of which have been in use since gold rush days and even earlier, serve hikers, snowmobilers, dogsledders, and cross-country skiers and provide recreational access and other uses throughout the sub-basin. Trails are indicated by dotted line and by number on Map 9.

Recreation and Historic Trails

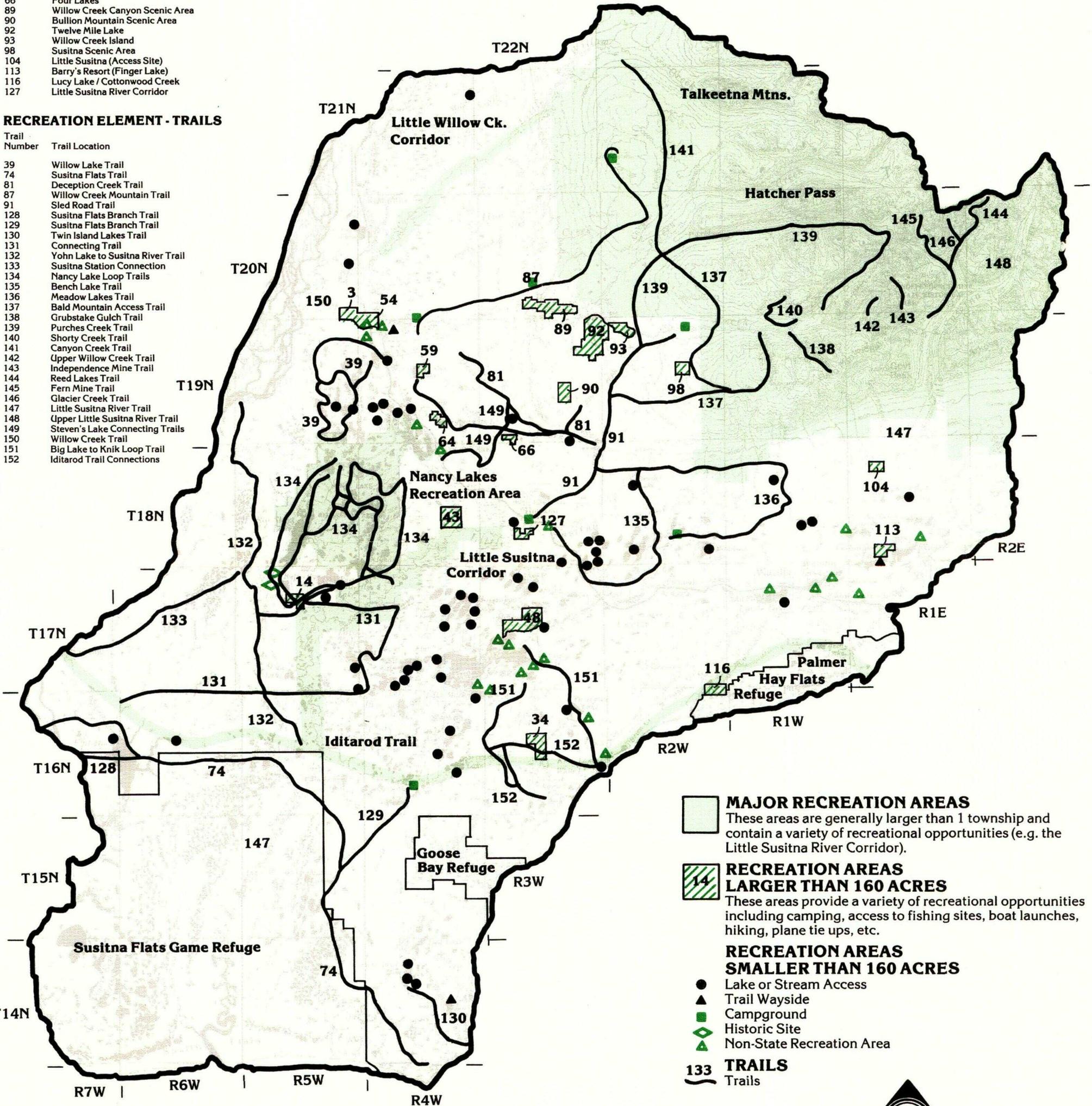
<u>Trail Number</u>	<u>Trail Name</u>
39	Willow Lake Trail
74	Susitna Flats Trail
81	Deception Creek Trail
87	Willow Creek Mountain Trail
91	Sled Road Trail
128	Susitna Flats Branch Trail
129	Susitna Flats Branch Trail
130	Twin Island Lakes Trail
131	Connecting Trail
132	Yohn Lake to Susitna River Trail
133	Susitna Station Connection
134	Nancy Lake Loop Trails
135	Bench Lake Trail
136	Meadow Lakes Trail
137	Bald Mountain Access Trails
138	Grubstake Gulch Trail
139	Purches Creek Trail
140	Shorty Creek Trail
141	Canyon Creek Trail
142	Upper Willow Creek Trail
143	Independence Mine Trail
144	Reed Lakes Trail
145	Fern Mine
146	Glacier Creek Trail
147	Little Susitna River Trail
148	Upper Little Susitna River Trail
149	Stevens Lake Connecting Trails
150	Willow Creek Trail
151	Big Lake to Knik Loop Trail
152	Iditarod Trail Connections

Important Recreation Areas

Site Number	Site Location
3	Willow Creek Scenic Area (one)
14	Cow Lake
34	Fish Creek
43	Houston Lakes
48	Meadow Creek
54	Willow Creek Scenic Area (two)
59	Steven's Lake
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66	Four Lakes
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90	Bullion Mountain Scenic Area
92	Twelve Mile Lake
93	Willow Creek Island
98	Susitna Scenic Area
104	Little Susitna (Access Site)
113	Barry's Resort (Finger Lake)
116	Lucy Lake / Cottonwood Creek
127	Little Susitna River Corridor

RECREATION ELEMENT - TRAILS

Trail Number	Trail Location
39	Willow Lake Trail
74	Susitna Flats Trail
81	Deception Creek Trail
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142	Upper Willow Creek Trail
143	Independence Mine Trail
144	Reed Lakes Trail
145	Fern Mine Trail
146	Glacier Creek Trail
147	Little Susitna River Trail
148	Upper Little Susitna River Trail
149	Steven's Lake Connecting Trails
150	Willow Creek Trail
151	Big Lake to Knik Loop Trail
152	Iditarod Trail Connections



All recreation areas shown on this map are designated for recreational use by the Willow Subbasin Area plan except portions of trails not on public land and the non-state recreation areas. See maps of each management unit for names and detailed locations of trails and recreation areas under 160 acres.

scale 1:250,000
June 1, 1982

In addition to the 4 categories of recreation areas identified above, considerable recreation occurs on public lands which are not specifically designated or managed for recreation. The areas include many of the Willow Sub-basin's lakes, rivers, streams, and mountains. Nearly a thousand miles of undesignated and unprotected trails are used for hunting and fishing access, dogsledding, hiking, snow-machining, and cross-country skiing.

LAND USE DESIGNATIONS

An important part of the implementation of the recreation goals, policies, and guidelines presented in Chapter III is the designation of a land base which will be managed to provide recreation opportunities. All major recreation areas, recreation sites, and trails as shown on Map 9 will be managed for public use. Securing these recreation opportunities will help meet the needs identified above by establishing areas for developed recreation activities such as campgrounds and boat launches and by protecting public access to trails, streams, and wilderness areas. The Hatcher Pass Recreation Area provides a possible site for alpine skiing, one of the "critical needs" cited above.

Important recreation opportunities also exist on public lands which are not designated for recreation as a primary use. Map 4 in Chapter II shows recreation as a secondary use in several units where dispersed hunting, fishing, hiking, and other recreation activities are important values that will be protected as other land uses occur.

FORESTRY

One of the most notable features of the Willow Sub-basin is its timber. Thousands of acres of spruce, birch, and cottonwood are visible from the highways. Yet, the area imports almost all of its lumber, and the state is not able to keep up with the local or Anchorage-based demand for firewood and houselogs. Long range planning for the use of public forestry resources is an important goal.

This section is divided into three parts. First is a brief discussion of important forestry management issues in the study area. Second is a summary of forestry resources in the area, including analyses of existing and potential activity and of the resource base. Third is an identification of public lands designated for forestry management by this plan. (Goals, policies, and management guidelines which will guide forestry operations on public lands are presented in Chapter III, Forestry.)

ISSUES

The following issues related to forestry in the Willow Sub-basin have emerged from public meetings and staff analysis. These issues have been addressed through the formulation of goals, policies, management guidelines and land use designations presented in this plan.

1. Lack of a Committed Land Base

Currently, there is not a continuous supply of commercial quality raw materials from a committed resource base with which to develop or support the local timber industry. It is not likely that loggers and mill operators will risk capital on the current tenuous and intermittent supply of timber. In addition, one of the major reasons why the industry has been unable to develop a market for processed products (finished lumber, veneer, etc.) is that they have been unable to guarantee an continuous supply of the products.

2. Short Term Contracts

Short term contracts offered in the past have inhibited loggers' acquisition of loan financing. Longer contracts (at least 3 to 5 years) are needed to alleviate this problem and to help offset the limited time available for logging in good weather conditions.

3. Timber Salvage on Cleared Lands

Forested land that must be cleared prior to road construction or agriculture offers substantial opportunities for salvage of timber products. Procedures need to be developed, however, that coordinate the timing of timber salvage with the schedules for road construction and agricultural production.

4. Firewood Demand

Demand for firewood cutting on public land is expected to increase in the near future as the borough population grows and private land currently used for cutting is developed.

5. Access

Lack of access is the factor which most limits the ability of the state and borough to sell timber. However, the costs of providing access are often prohibitive unless roads serve other uses.

FORESTRY RESOURCES

Existing and Potential Activity

° Commercial

Existing mills produce only a small amount of lumber and employ few people. Fourteen mills are located inside the sub-basin; eleven of these operate seasonally; and three, full time. Even though these mills are all small, "mom and pop" varieties, 1979 annual production was less than 9% of capacity, or 1.1 MBF. Reasons for this under-production were a restricted market and limited timber sales. The inability of Susitna mills to find local timber for sale have forced them to import from the Kenai Peninsula and Canada. The timber cut from within the sub-basin has been taken mostly from clearing projects on private land.

Just over half of the commercial harvest in the sub-basin is cottonwood used for rough dimensional lumber. Most of the remaining volume is cut from white spruce for manufactured houselogs. In addition some birch is cut for commercial firewood producers, and a very small amount is used for finished products (cabinets, veneer, etc.). No local timber is chipped for pulp.

Even if long term timber contracts begin to become available on a routine or continuous basis, it is not possible to predict to what extent the industry will develop. The quality of the timber is not good enough to be able to predict with assurance that an advanced industry can develop. In addition, sustained yield forestry in

Willow Sub-basin alone will not allow enough harvesting to keep more than a few mills operating full time. However, there are indications that low intensity operators which exist in the valley are beginning to grow. The Overall Economic Development Plan of the Matanuska-Susitna Borough, recommends a fully integrated timber facility to be established in the borough to operate off public forest and timber salvage lands. This facility would provide sawlog quality spruce to a mill near Moose Creek, would manufacture hardwood sawlogs and cants from high quality materials, use lower quality materials for firewood and use the tops, limbs, etc., for chips. Such a facility could be a harbinger of future operations. In addition, the existence of agricultural salvage, providing large amounts of inexpensive timber, could provide a tremendous opportunity for more industrialized facilities to develop.

- o Personal Use

Personal use is defined as a harvest of less than 12 MBF. A personal use contract or firewood permit specifies that wood may not be sold; rather it must be used by the logger. Personal use areas (woodlots) are logged almost exclusively for houselogs and firewood. Personal use contracts are currently not issued by either the borough or Native landowners, although the borough is looking into the possibility of establishing firewood cutting sites.

The exact amount of personal use activity is unknown because of the availability of private land where no records are kept. In the six months preceding April 1980, the state issued 266 firewood permits in the Willow Sub-basin for a total of 915 cords or 0.46 million board feet (MMBF).

Residents expect to be able to cut firewood in the land near their homes. Presently, firewood is taken from state and private lands (though the amount taken from private lands is unrecorded). As the populations of Anchorage and the sub-basin grow and the area becomes more urban the amount of private land available for firewood harvest will surely decrease. More and more, residents will be forced to get their firewood from government land set aside for that purpose.

Projection of demand for personal use products is a difficult process. Making assumptions of per capita firewood usage, population, and forest productivity, one can calculate an average requirement of 12,000-50,000 acres to satisfy the year 2000 demand of the Willow Sub-basin population. Many times that acreage would be required to satisfy Anchorage. It seems clear that it is not possible to find this amount of state land in the Willow Sub-basin to dedicate to personal use firewood harvest.

- o Multiple Use of Forest Lands

Most of the time people spend on forestry lands is spent for reasons other than logging - recreation and hunting, for example. Most of the management effort spent on the land is spent managing

the multitude of non-forestry values which are likely to be present there.

Forestry lands are important for maintenance of opportunities for dispersed recreation, hunting and habitat protection. Logging operations, managed correctly, can markedly improve the habitat for moose. The Matanuska-Susitna Borough, DNR and ADF&G have agreed to cooperatively manage the Moose Reserve for the production of moose. A crucial component of the agreement is clearcut harvests which create openings for the growth of moose browse.

In addition to moose habitat, forestry roads open up previously un-accessible areas to hunting and recreation. A well-managed forestry operation benefits most passive uses of the land.

The Resource Base

The forest types in the Willow Sub-basin can be divided into four different categories: white spruce, black spruce, cottonwood, and mixed forest. Each of these types has a different value for different forestry uses.

◦ White Spruce

Extensive, accessible closed stands of tall white spruce are highly valuable for sawtimber and houselogs. It is the most useable timber type in the area. Unfortunately, it occurs on only 730 acres in the sub-basin: 60 acres in the capital site, 110 acres near Flat Horn Lake, 40-60 acres on state land north of the Little Susitna River, and approximately 350 acres on University land north of the Little Susitna. This meager amount cannot support significant forestry activities. There are many acres of open white spruce stands in the basin (1,200 acres of tall, 29,900 acres short). Open stands are generally less desirable for commercial activities than closed stands because they have much less volume of merchantable wood per acre. Useable houselogs can be found in the open stands. If some of these acres fall on good woodland soils, it is possible that they can be managed to become closed stands.

◦ Black Spruce

The stands of tall black spruce in the Willow Sub-basin contain a high proportion of white spruce and birch. Good black spruce is the second choice for house logs after white spruce; it is heavier and usually has more taper than white spruce. There are 6,070 acres of this type scattered over the sub-basin. Individual sites, if extensive and on good soil, would possibly be capable of supporting some personal use activity, and with time and good management would have the potential of emphasizing the white spruce. In areas of poor soils, the many years required to grow these tall trees precludes profitable sustained yield management.

Short black spruce stands are not considered valuable for conventional commercial or personal uses. This type is very extensive in the sub-basin - 123,530 closed and 830 open acres.

- Cottonwood

All of the Willow Sub-basin cottonwood lies inside the Little Susitna River floodplain on borough and private land in the approximately 25 miles between the Parks Highway bridge and Hatcher Pass and in the Susitna Floodplain Management Unit. The cottonwood is sought after for use as lumber, and the stands are capable of supporting commercial cutting on a sustained basis.

- Mixed Forest

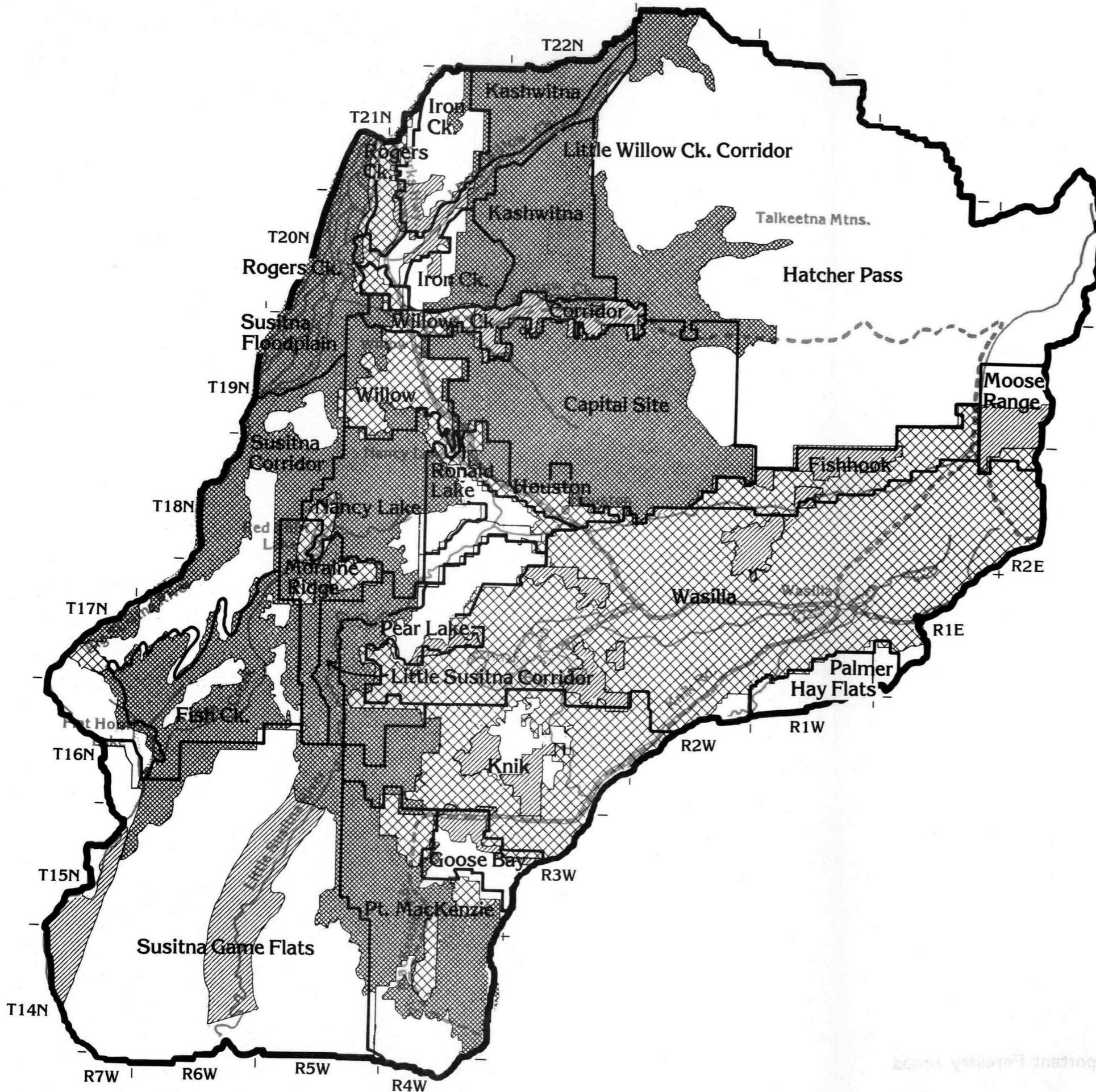
This forest type is by far the most extensive in the sub-basin, covering 276,000 acres, over a quarter of the sub-basin. As it is predominantly birch, it is excellent firewood. Except for the better stands and trees, birch is not generally used for house logs or sawtimber. It is sometimes used for veneer or furniture cants, and the stands do have the highest fiber content of any local type and so would be the most useable for chipping. Trees of birch stands in the study area are small because of overstocking, but with time and appropriate management they could grow to sawlog size. Except for the best stands, their present use would be for chipping, veneer, and firewood. However, with extensive thinning or regrowing these sites could sometimes produce good lumber stock.

Mixed forest stands are divided into young (less than 40 years old) medium (40-100 years), and old (greater than 100 years). The succession typically begins with the young, almost pure stand of thin birch trees, but as the stand ages, the trees fill out and holes begin to form in the canopy. White spruce fills in these holes and becomes a significant but secondary species in the stand. The medium age category is a better category for cutting than either the young or old.

- Important Forestry Areas

Map 10, Forestry Areas in the Willow Sub-basin, shows the suitability of the Willow Sub-basin for commercial and personal use forestry. (Public lands actually designated for forestry management are shown on Map 11.) Long term commercial forestry requires large blocks of public land with high growth potential. These areas would also, of course, be excellent personal use areas. Public land in smaller blocks or of only moderate growth potential are suitable for personal limited commercial harvests. Size and productivity make these areas unable to support intensive commercial activity. In addition, forestry management of these areas would be more difficult and more expensive than their "high suitability" counterparts. Areas of small lot private ownership would be very difficult to manage for sustained yield forestry. The cost and difficulty of putting together enough private owners to sustain any sizeable commercial cuts is very unlikely and would probably

Forestry Areas



- 
High forest management potential
 - suitable for personal use and large scale commercial harvest
 - high capability forest lands
 - public ownership
- 
Moderate forest management potential
 - suitable for personal use and small scale commercial harvest
 - high or moderate capability forest
 - mixed public/private ownership
- 
Limited forest management potential
 - suitable for limited personal use harvest
 - various capability forest lands
 - existing small lot private ownership
- 
Non-forested lands



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Willow Subbasin Area Plan

give an extremely low rate of return to the various owners. These areas are suitable for personal use activities only.

Forestry Land Use Designations

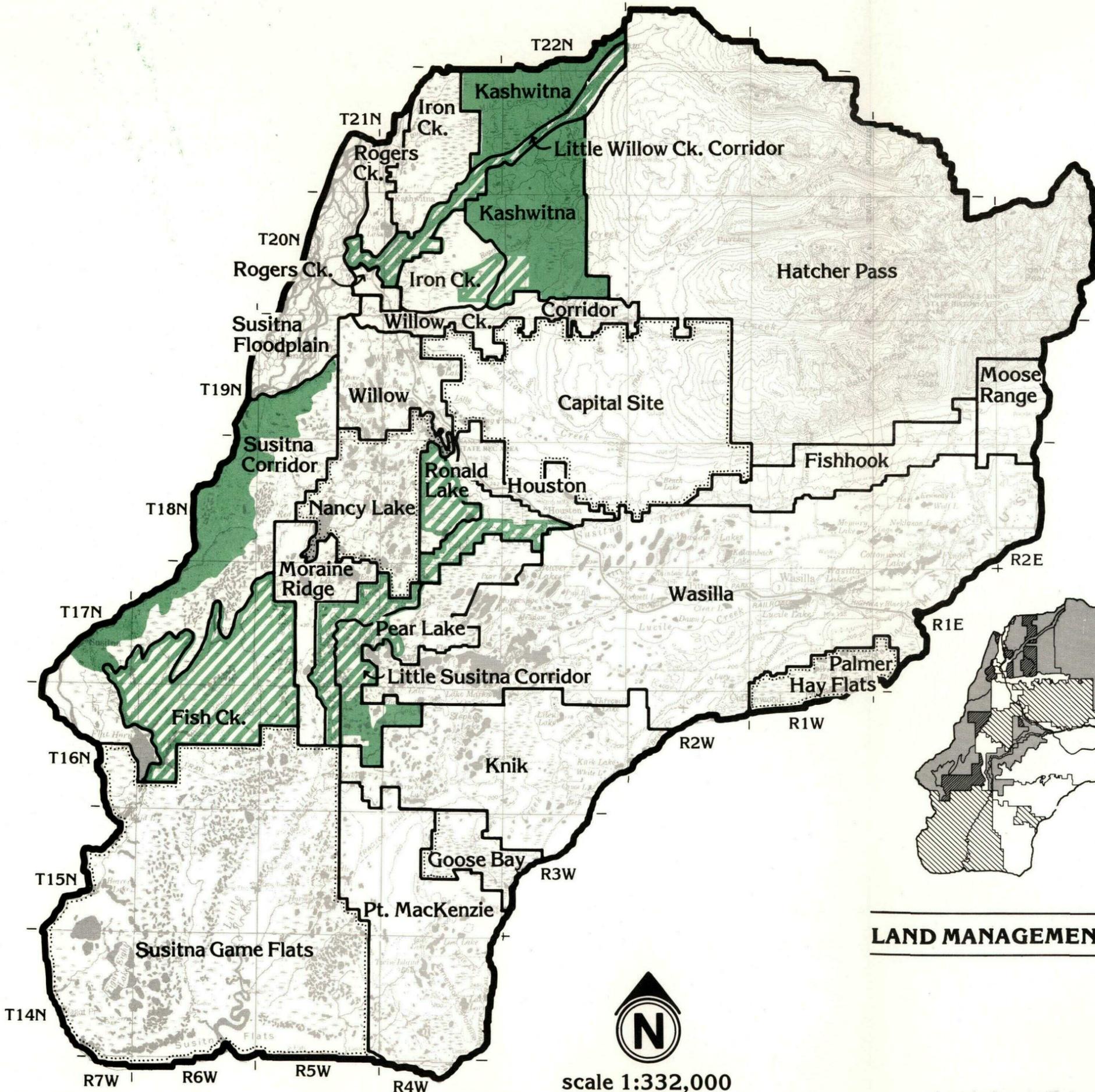
The important forestry areas designated in the plan include the primary designations in the Kashwitna and the Susitna Corridor units, and a secondary designation in Fish Creek for agricultural timber salvage. These areas are shown on Map 11. In addition, there are a number of other areas under passive management which are available for limited harvest. None of these other areas is large enough to make a major contribution to either commercial or personal timber demand. However, they are important for local personal use and limited commercial harvests.

The Kashwitna area includes many areas of older forests where extensive management will be necessary to bring the amount and volume of the standing timber up to commercial quality. The area will require much initial cutting to create better growth conditions, but it will be one or two decades before the area's potential can be realized. In addition, much of the higher area in the unit is open forest which is not likely to support extensive harvest activity. However, the area is very important for moose habitat and hunting. Therefore, a joint forestry/habitat land use designation was made for the area. Access to the Kashwitna unit is very difficult, and is not likely to occur for at least a few years.

Susitna Corridor contains much currently harvestable timber. Access exists to the north edge of the unit. For the next few years this will be the only area in the sub-basin where long-term forestry management can begin. In addition, the unit is valuable for long term habitat enhancement which can replace the quality moose habitat currently being lost to development in the central portion of the sub-basin. The fact that the Susitna River runs adjacent to this unit makes it particularly valuable for recreation and habitat.

Timber salvage from agricultural lands presents a unique opportunity for the local forest industry. It can provide a large but short-term supply of timber to help a developing industry. For this reason secondary designation of Fish Creek (for timber salvage purposes) is particularly important.

State and Borough Land Designated For Forestry



Primary land use



Secondary land use



Legislatively Designated Areas



Areas with specific Land Use Designations

Management units shown in gray are primarily owned by the state and borough. In these areas detailed land use designations are prepared as well as management guidelines to control how these uses occur.



Diagonal lines indicate where land use designations are made on borough lands.



Areas with General Land Use Objectives

Management units shown in white are primarily privately owned but contain some parcels of state/borough lands. The area plan addresses appropriate land uses in these areas through general land use objectives prepared for each management unit; specific land use designations are made for state land in some cases.

LAND MANAGEMENT UNITS



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FISH AND WILDLIFE

The Willow Sub-basin, like much of Alaska, faces "rapidly growing demands for fish and wildlife use which are in sharp contrast to the shrinking area available to support this use."* The following pages summarize management issues, the fish and wildlife resources of the area, and related land use designations made by this plan.

FISH AND WILDLIFE MANAGEMENT ISSUES

The Willow Sub-basin is situated on the edge of the most populous, developed area in Alaska. Pressures to use sub-basin habitat lands for settlement, agriculture, mining, and other resource uses are substantial and certain to increase. Demands for the use of fish and wildlife are also large. This situation - a growing demand for fish and wildlife use with a simultaneous decrease in the land base available to support this use - is the fundamental fish and wildlife issue in the sub-basin. The challenge to land managers is to blend these potentially conflicting demands in a manner that can maintain the sub-basin's unique status as an area that provides both high quality and readily accessible opportunities for fish and wildlife use. Four specific issues are outlined below.

1. Role of Public Lands

A large percentage of existing fish and wildlife habitat is in private and borough ownership. These areas are likely to be developed in the relatively near future. Supporting existing population levels will require state lands to take up a larger percentage of this function.

2. Access

Much of the existing use of fish and wildlife occurs on or across private land. As this land is developed, publically owned access corridors, hunting areas, etc., must be provided to insure future opportunity to use fish and wildlife.

* Alaska Department of Fish and Game, Alaska Wildlife Management Plans - Southcentral Alaska, 1978.

3. Environmental Quality

Many activities such as mining, grazing, agriculture, and forestry potentially impact habitat quality. Aquatic habitats are especially vulnerable.

4. Habitat Manipulation

Blocks of land need to be available where various habitat manipulation practices can be used to provide new habitat for species such as moose.

FISH AND WILDLIFE RESOURCES

Sustaining fish and wildlife populations requires certain types, amounts, and spatial arrangements of habitat. These requirements vary from species to species. For example, food requirements of moose are met almost entirely by willow, dwarf birch, and a few other shrubs which grow primarily in wet areas, near timberline and in recently cleared areas. In addition, moose, like all species, have specific habitat requirements for cover and reproduction.

The Willow Sub-basin, due to its particular combinations and varieties of climate, topography, and vegetation, is an unusually good area for a variety of fish and wildlife species. Map 12 presents information on generalized habitat types in the sub-basin.

The list below shows the principal types of species typically using these different habitats. This list, like Map 12, is general. Species cited are limited to fish and wildlife most frequently used by people.

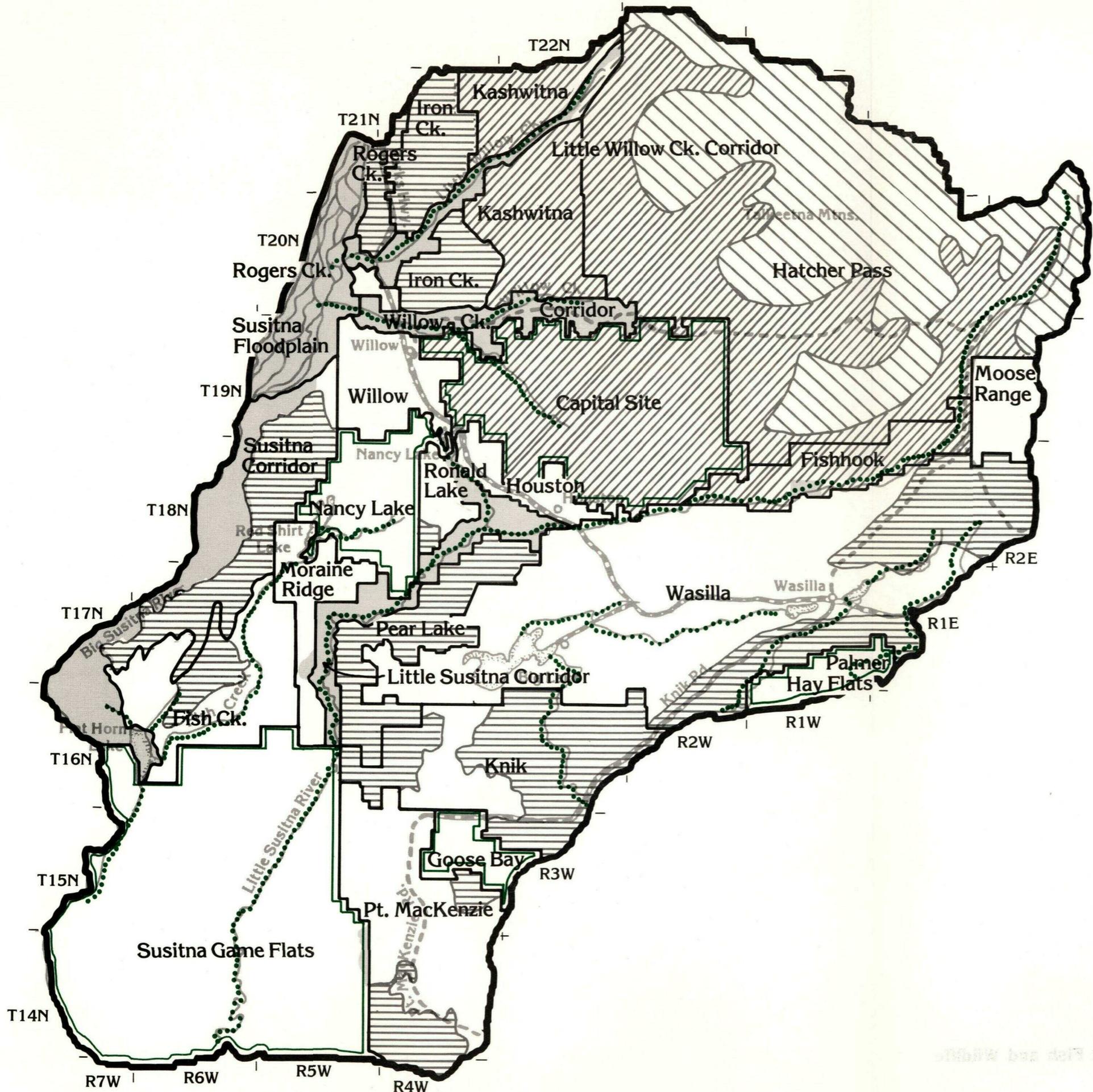
Habitat Use By Important Fish and Wildlife

Tundra and Associated Uplands - spring, summer, fall moose; brown bear; potential dall sheep, caribou and mountain goat; rock and white tailed ptarmigan, headwaters for anadromous streams.

Upland/Lowland Transitional Areas - moose (migration and seasonal use), ptarmigan and spruce grouse, brown and black bear.

River Corridors - anadromous fish and other sportfish, small fur bearers, brown and black bear, moose (Note: Some anadromous streams are protected by major river corridors, e.g., the Little Susitna. Streams running through non-public lands are often protected by a 50 foot easement along each bank. The many lakes supporting sportfish are not shown on this map).

Important Fish and Wildlife Areas



 State game refuges, state recreation area, moose range

First priority habitat & human use areas:

-  tundra & other uplands
-  transitional shrub/forest zone
-  selected key lowlands
-  river corridors
-  anadromous streams

Second priority habitat & human use areas:

-  other important lowlands



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Willow Subbasin Area Plan

Lowlands - moose, limited bear, and game birds.

Tidewater Estuaries and Adjacent Lands (presently protected by three legislatively designated game refuges) - waterfowl, moose winter habitat.

Habitat areas on Map 12 are prioritized into two categories to show their importance within the sub-basin. First priority areas (shaded on the map) were chosen because they support species most important to human users or support a large number of species, because they are of limited availability in the sub-basin and/or because they are unusually vulnerable to disruption. In addition, certain areas were designated first priority because they provide key linkages between two or more habitat zones. The remainder of the sub-basin is also important for fish and wildlife habitat and human use but is designated as second priority.

HUMAN USE OF FISH AND WILDLIFE

The use of most sub-basin fish and wildlife species - waterfowl, salmon, trout, moose, ptarmigan, and others - is large and growing. The substantial local population and the proximity of the sub-basin to Anchorage residents and visitors from other areas make this particular portion of Alaska one of the most heavily used fish and wildlife areas in the state. Details are outlined below:

1. The first and third most heavily used waterfowl hunting areas in Alaska, the Susitna Flats and Palmer Hay Flats state game refuges, are in the sub-basin.
2. The area offers high quality, accessible moose and other big game hunting. There were an average of 5700 hunter days per year from 1975-1980 with an average of 200 moose taken per year.
3. There is increasing nonconsumptive use of fish and wildlife including observation of birds and other species, wildlife photography, scientific study, etc.
4. There is substantial trapping along sub-basin streams and rivers although it is less than in the past.
5. Sub-basin streams contribute approximately 10% of the salmon caught in the multi-million dollar Cook Inlet Commercial Salmon Fishery.
6. There were 82,000 fishing days per year in 1977 within the basin or approximately 7% of the state's total sportsfishing activity, second only to the Kenai system.

In addition to the satisfaction directly obtained by these fishers, hunters, and sightseers, fish and wildlife related activities bring significant economic benefit to local and regional economies.

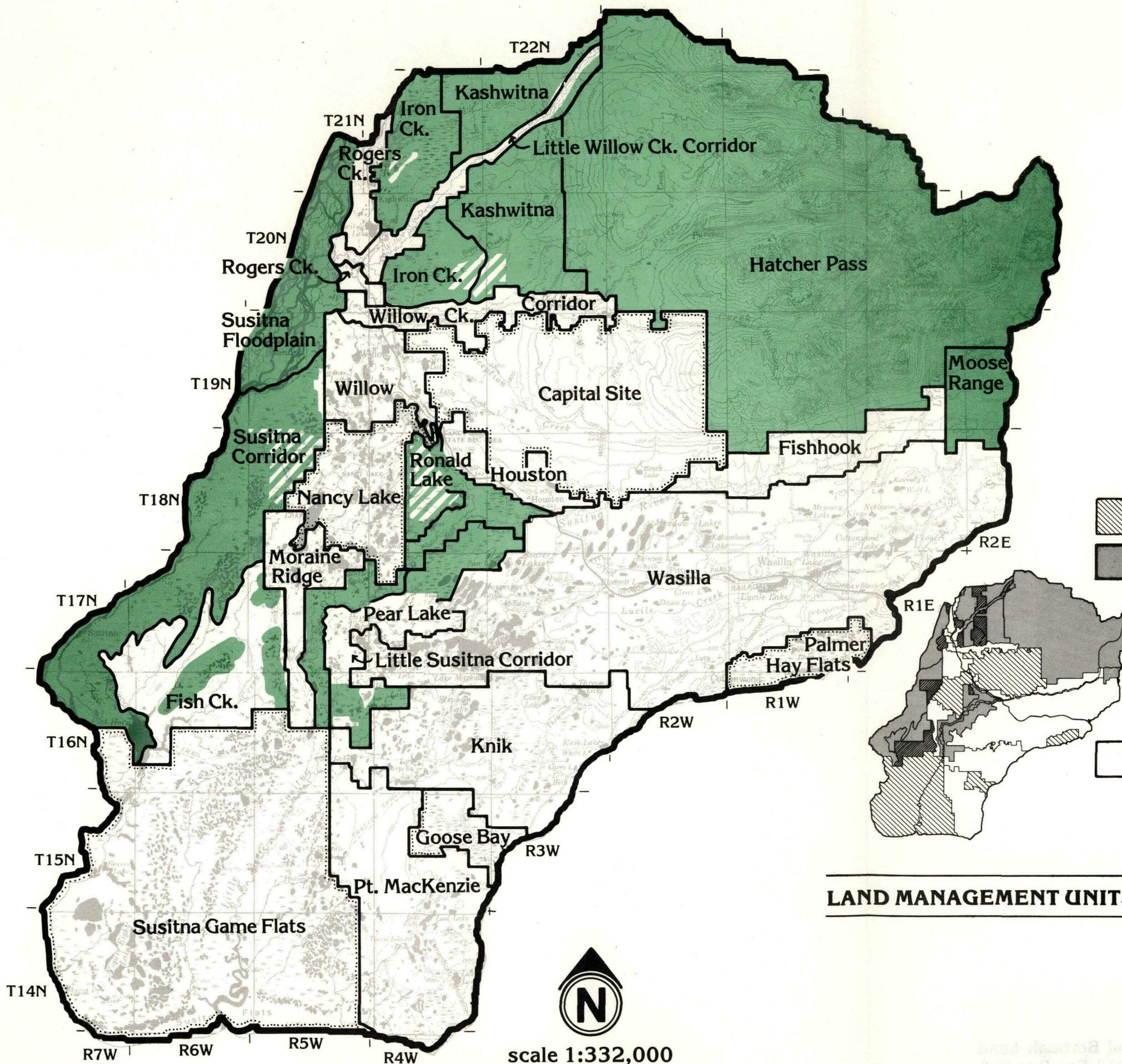
DESIGNATED LAND USES

This plan designates substantial acreage to fish and wildlife use and habitat protection (see Map 13). In each case, fish and wildlife is one of two or more primary designated land uses. For example, forestry is an additional primary use in the Kashwitna and Susitna Floodplain management units; mining, recreation, and grazing are also primary uses in Hatcher Pass; watershed is a second primary use in the large wetland areas within Pear Lake, Ronald Lake, and Susitna Corridor Management Units; and recreation is a use of equal importance in the Little Susitna River Corridor and other small stream and river buffers (these last two items are not shown on map).

The practical effect of these land use designations is to set aside an amount and variety of land sufficient to provide opportunities for a continuing high level of fish and wildlife use although the location of use will likely shift some from present locations. Shared uses of these lands will help protect or enhance habitat and assist the development of necessary access. Specifically, these designated land uses will:

- a. protect Little Susitna, Little Willow Creek, Fish Creek, and other aquatic habitats on public land to maintain existing sportfishing opportunities. This is partially contingent on protection of water quality in tributaries and portions of streams flowing through private land.
- b. provide sufficient spring, summer, fall, and winter habitat for moose as well as corridors connecting these areas to assure continuing high moose harvests. It is important to note that terrestrial species like moose require large amounts of land, at least one square mile per moose. Much of the existing moose habitat is currently on non-state land. Even if all the public land designated for fish and wildlife were to remain in that use, future development of the remaining land in the sub-basin will lead to reduced populations and significantly reduced human use.

State and Borough Land Designated For Use and Protection of Fish and Wildlife



 Primary land use
 Secondary land use

 Legislatively Designated Areas
 Areas with specific Land Use Designations
 Management units shown in gray are primarily owned by the state and borough. In these areas detailed land use designations are prepared as well as management guidelines to control how these uses occur.
 Diagonal lines indicate where land use designations are made on borough lands.
 Areas with General Land Use Objectives
 Management units shown in white are primarily privately owned but contain some parcels of state/borough lands. The area plan addresses appropriate land uses in these areas through general land use objectives prepared for each management unit; specific land use designations are made for state land in some cases.

LAND MANAGEMENT UNITS



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SETTLEMENT

INTRODUCTION

Settlement refers to residential, commercial, industrial and related land uses. The Willow Sub-basin is as yet sparsely settled with only 8,000 people for its nearly one million acres. Gold mines and farmlands were the historical attraction of the area; in recent times the sub-basin's location relative to Anchorage - near enough to provide jobs* and services but distant enough to provide a bit of Alaskan wilderness - has been the principal growth incentive.

Population growth in the Willow Sub-basin is almost certain to continue; the question is only how much and when. Presently the area has large amounts of vacant, subdivided land (17,350 lots totaling approximately 35,000 acres), is adjacent to the state's largest center of population, and may soon be affected by several proposed growth inducing projects, including port and industrial development at Pt. MacKenzie, the Knik Arm Crossing, the nearby Susitna Dam, and the capital move. The state and borough can have a profound effect on the future quality of life in the area through decisions on the amount, location, and type of land opened for settlement.

This land use plan designates approximately 6,000 acres of state and borough land for settlement use. Included in this figure is land designated solely for residential use or small farms and land designated for a combination of these uses. Additional public lands will be opened for settlement when the Fish Creek agricultural development occurs and on various solitary parcels of public land in management units that are primarily in private ownership.

The determination of the appropriate quantity and location of this land was based on several general conclusions. First, the existing large supply of private land is sufficient to meet existing and near term settlement needs. Second, public lands in the sub-basin are needed to provide a land base for the future economic development of the area. Third, the cost of publicly provided services and facilities is lowest when growth is concentrated.

* Approximately 33% of the sub-basin work force commutes to jobs outside the borough.

Given these considerations, the borough and the state have set a low priority on selling the outlying portions of the sub-basin, especially forestry, agriculture, mining and recreational lands. It is recognized, however, that public land should be made available when the private supply is limited or when public land highly suitable for residential use is of limited value for other purposes. The borough and state will jointly assess demand for residential land and establish annual disposal schedules.

The remainder of this discussion begins with a look at settlement related issues in the sub-basin. This is followed by a discussion of the current and future supply of and demand for settlement lands. Concluding the section are a mapped and narrative description of the lands designated for settlement use.

ISSUES

The over-riding issue relating to settlement in the sub-basin is determining which lands in which ownerships - state, borough, or private - will best meet future residential, commercial, and industrial land needs. Developing policy to resolve this issue requires consideration of the factors outlined below:

1. Sources of Supply of Land

There are limits to the amount of land that is physically capable of supporting settlement in the sub-basin. In addition, the supply of land available for settlement at any given time is affected by land ownership, access, and the presence of existing development.

2. Demand for Land

Various indicators of demand must be investigated to determine future needs for settlement land in the sub-basin. These include a review of price trends and sales activity on private land as well as for public land disposals; a look at the types of demand - year round and seasonal residential, commercial, industrial, and other urban uses; and a consideration of factors likely to induce population growth such as the capital move, Pt. MacKenzie industrial development, Susitna hydropower, etc.

3. Provision of Public Services and Facilities

The pattern of development - its relative compactness or scatteration - has a strong influence on the costs of providing and maintaining roads, schools, water and sewer, police and fire protection, and other public services and facilities. In almost every case, costs per household increase as densities decrease. In the case of services such as central water or sewer, the density of development can determine not just the cost but the feasibility of providing the service.

4. Impacts of Settlement on Economic Development

The future economic base of the Willow Sub-basin, and Alaska generally, is dependent on availability of large blocks of land in public or single ownerships for resource development or conservation. This is true both of activities that alter the landscape such as coal mining, agriculture and forestry, and of activities that require maintaining the land in a relatively natural state such as hunting, fishing, and other forms of outdoor recreation. Land disposal reduces or eliminates the potential to develop (or conserve) these resources.

5. Impact of Settlement on Natural Systems

The direct and indirect effects of settlement can have serious impacts on vegetation, water quality, and other aspects of the natural environment. Of special concern in the sub-basin are the long term impacts of wastewater discharge on the area's lakes and streams. In addition, development in areas subject to flooding or other hazards can pose risks to human life and property.

6. Impacts on Social Environment

Many of the residents of the Willow Sub-basin are living in the area specifically to get away from more populous, densely settled environments in Anchorage and elsewhere. Additional development in the region will likely affect this existing rural character.

This plan addresses these issues through the Goals, Policies, and Management Guidelines for Settlement in Chapter III, and through various land use designations. These land use designations are summarized below.

SETTLEMENT LANDS - SUPPLY AND DEMAND

The following discussion looks at the supply of and the demand for settlement lands. The discussion of the supply of land is divided into two general categories: the land's physical ability to support settlement, and the existing conditions (those affected by human activities such as road construction or land ownership) that affect supply. Existing conditions are discussed first.

SUPPLY OF SETTLEMENT LANDS

Existing Conditions

This section describes land ownership, existing developed areas, access and public facilities and services. Of the Willow Sub-basin's nearly 1,000,000 acres, over 200,000 are privately owned and a very small area - less than 10,000 acres or 1% supports settlement. Residential uses comprise the large majority of developed lands with essentially no industrial land and only small amounts of commercial land. Most private land in the sub-basin was originally obtained from the federal government through mining claims, homesteads, and two federally surveyed townsites (in Wasilla and Knik). Native Alaskans received title to 13,300 acres within the area under the Native Claims Settlement Act. Several relatively small sales of land from local and state governments to private individuals have occurred or are planned for the near future.

Further details of the supply and demand of land for settlement can be best described by dividing the sub-basin into three geographic regions: community centers, rural road accessed areas, and remote non-road accessed areas.

The Willow Sub-basin contains several communities: Wasilla, Houston, Willow, Big Lake, and Knik. These are depicted on the map as existing cities (Wasilla and Houston), proposed cities (Willow), and areas of community influence which depict communities which people consider themselves part of (Big Lake, Knik, and a suburban Wasilla area).

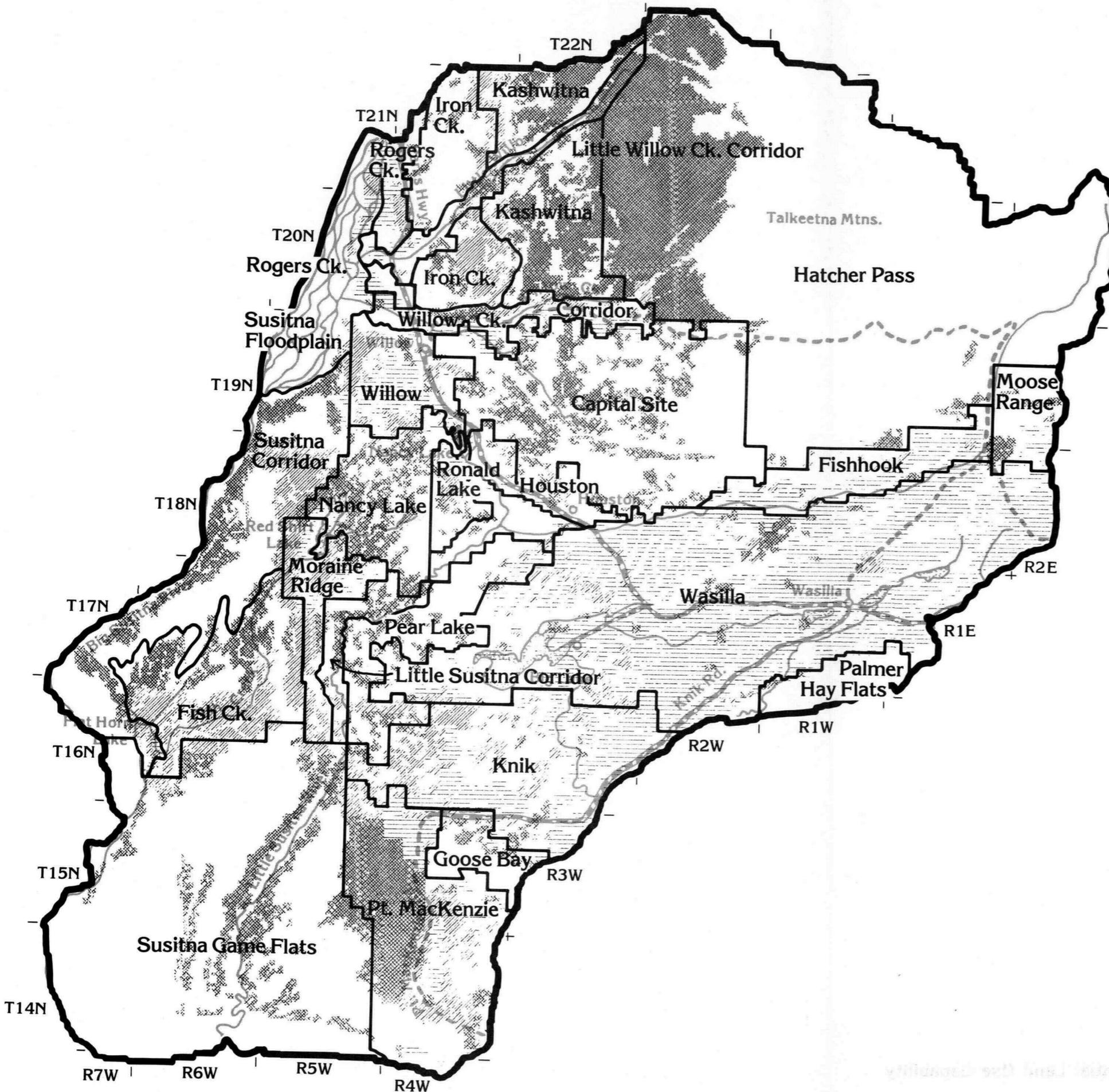
The rural, road accessed area is intended to capture the portions of the borough where road access exists or is close by. This includes places (such as the Burma road area) where the accuracy of this description will vary with road conditions, type of vehicle, and the boldness of the driver. Road accessed areas (including community centers) make up approximately 60% of the sub-basin. The remainder of the area is defined as remote. This is, roughly, the region west of the Little Susitna River and south of Nancy Lakes, the area north of Willow Creek and east of the railroad, most of the capital site, and the Talkeetna Mountains (excepting the Hatcher Pass and several adjacent roads).

Residential land use in the sub-basin could be described by proponents as having a much desired low density rural quality; by detractors as sprawling without thought to many of the considerations deemed important in community development. The principal pattern is a strong orientation toward water, most sub-basin houses are located on or adjacent to streams or lakes. Average lot sizes are 1.43 acres per unit for existing dwelling units, 2.0 acres per lot for existing subdivided undeveloped lots. Highest densities occur immediately adjacent to the lakes, particularly those with a longer history of residential use, and within old federally surveyed townsites (in Wasilla and Knik). State law places a minimum of 40,000 sq. ft. on lots with both on-site wells and disposal of sewage. This law has probably not had a significant effect on sub-basin densities to date however, as most residents strongly prefer larger lots.

Residential Land Use Capability

-  High/moderate capability on private land
-  High/moderate capability on borough land
-  High/moderate capability on state land
-  Low/very low capability - all ownerships

This map shows the land's physical capability to support low density residential land use (1 - 3 acres/unit - the typical existing density in the subbasin). This information is based on an evaluation of slope, soil drainage, soil bearing capacity and other natural factors affecting capability. (See text for details). Separate patterns are used to depict capable lands in different ownerships.



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There is some slight increase in residential densities adjacent to and within the small retail and service nodes that exist at the center of the communities in the sub-basin. Settlement densities in the remainder of the areas shown as communities on the map are similar to densities in the surrounding rural residential areas.

Public services and facilities in the sub-basin are limited. Nearly all residences in the area have some form of road access. The few residences in the remote area are typically located on lakes with fly-in access such as Red Shirt or Flathorn or along navigable rivers. There are no centralized water or sewer systems in the sub-basin although one is in the planning stages in Wasilla.

Physical Capability to Support Settlement

Certain qualities of the land - natural hazards such as floodplains or unstable slopes, slope, soil drainage and bearing capacity, etc. - together determine the physical capabilities of an area to support settlement. Some environmental attributes, such as slope or bearing capacity, primarily affect construction costs. Locating settlement in areas of natural hazards such as floodplains or unstable slopes, on the other hand, can pose a risk to human life and property.

Map 14 shows areas that are physically capable of supporting low density residential development of the type typically found in the sub-basin (single family units on 1-3 acres, on-site water and sewer).* This information was derived through an evaluation and systematic rating of information on soils, slopes, vegetation, natural hazards, and water availability. The original map rates each ten acre grid cell as having high, moderate, low, or very low capability to support this particular type of development. For purposes of this document, the categories have been compressed into high/moderate and low/very low. Approximately 38% of the sub-basin, or about 375,000 acres, falls into the high/moderate category. The majority of the lands in the sub-basin are steeply sloping, above timberline or in wetland areas where construction would be costly if feasible at all.

It is important to note that this information is intended to present a picture of the areas that have the physical capability to support development - not to present a final decision on where development should go. In addition, this information will not replace site specific evaluation but rather provide a good, large-scale indication of capable areas for the Willow Sub-basin's 1,000,000 acres.

* This map is one of several similar maps depicting capability for settlement. Other available maps not pictured cover settlement uses more and less intense than the one described here.

DEMAND FOR SETTLEMENT LAND

Demand for land for settlement can be divided into several categories: residential land for the population residing year round in the sub-basin, land to support second homes, and demand for commercial and industrial uses. In addition, there is general demand for land itself, either for investment purposes or some unspecified future use. Predicting the amount of demand in this last category is nearly impossible and, in addition, is not likely to affect management decisions. As a result, it is not dealt with here.

Projections of the need for land to support year round residential uses (as opposed to seasonal uses) are based on three population growth scenarios and an estimate of average household size and average land requirement per new household. Land demand for this use is shown in the first four rows of the following Table.

In the fifth row of the Table, projected land requirements for seasonal residential and commercial uses are added. Projections of seasonal or second home land demand are based on projections of population growth among people thought to be in the market for such homes (principally Anchorage), the relationship between population growth and the number of people buying homes, and the average land requirement per new household. Commercial land demand, which is the most speculative of these projections, is based on typical requirements of commercial space for populations of various sizes.

SUPPLY/DEMAND SUMMARY

There are 375,000 acres of land with high/moderate capability for residential use in the sub-basin (38% of the total area). More than half of this capable land, or over 185,000 acres is located within the rural road accessed and community center areas. Another measure of the existing supply of land was supplied by the Matanuska-Susitna Borough. Based on estimates prepared for January 1981, there are 17,350 vacant, subdivided parcels in the sub-basin (a total of 35,270 acres). This land is essentially all within the rural road accessed and community areas.

Comparing these various measures of supply against existing use and possible future demand shows that the amount of road accessed capable land is well in excess of near term demand. For example, under projections two and three, total settlement land demand in the year 2000 is 45,425 and 60,820 acres respectively, well below the 185,000 plus acres of capable land in the road accessed portions of the sub-basin. If the existing 17,350 vacant subdivided lots in the Willow Sub-basin were all developed and occupied at the existing average of 3.2 people per dwelling unit, this existing supply of land could support 55,000 new

Settlement Land Required to Support
Projected Increases in Population -
Three Population Projections

	PROJECTION 1 No capital move Moderate resource development	PROJECTION 2 No capital move Major resource development	PROJECTION 3 Capital move* Moderate resource development
1980 Existing Population & Residential Land Use	8,000 people 5,400 acres	8,000 people 5,400 acres	8,000 people 5,400 acres
1980-1985 Population increase Residential land required	4,900 people 3,648 acres	13,500 people 10,075 acres	18,800 people 16,295 acres
1985-2000 Population increase Residential land required	19,800 people 13,810 acres	40,000 people 27,970 acres	83,200 people 36,803 acres
1980-2000 Population increase Residential land required	24,700 people 17,458 acres	53,500 people 38,045 acres	102,000 people 53,098 acres
1980-2000 Seasonal residential land required Commercial land required	1,600 acres 145 acres	1,600 acres 380 acres	1,600 acres 725 acres
TOTAL NEW SETTLEMENT Land required 1980-2000 Total (existing and new) settlement land in 2000 Total (existing and new) population in 2000	19,200 acres 24,600 acres 32,700 people	40,025 acres 45,425 acres 61,500 people	55,423 acres 60,823 acres 110,000 people

Source: Demand for Land to Accomodate Projected New Dwelling Units and Commercial Facilities. Land and Resource Planning Section Unpublished Report. 1980.

* Residential land requirements for the capital move projection are based on plans developed by the capital move commission. Under these plans it is assumed that many new residents would reside in relatively high density dwelling units within the capital site, thus consuming less land than an equal number residing at the sub-basin's typically lower densities.

residents. This is larger than the population growth projected under projection two (53,500 new people) and larger than the population anticipated to live outside the capital site if the capital were to be moved. (Of the 102,000 people projected to move into the Willow Sub-basin if the capital moves to Willow, it is assumed the majority would live on the capital site.)

The purpose of these projections of demand for settlement land is not to predict the future but rather to identify a range of future conditions that might occur given assumptions about population growth, average household size, etc. Assuming that the demand projections cover a reasonable range of land needs, it is possible to conclude that the existing supply of capable road accessed land can meet the majority of settlement land needs through the year 2000.

DESCRIPTION OF LANDS DESIGNATED FOR SETTLEMENT

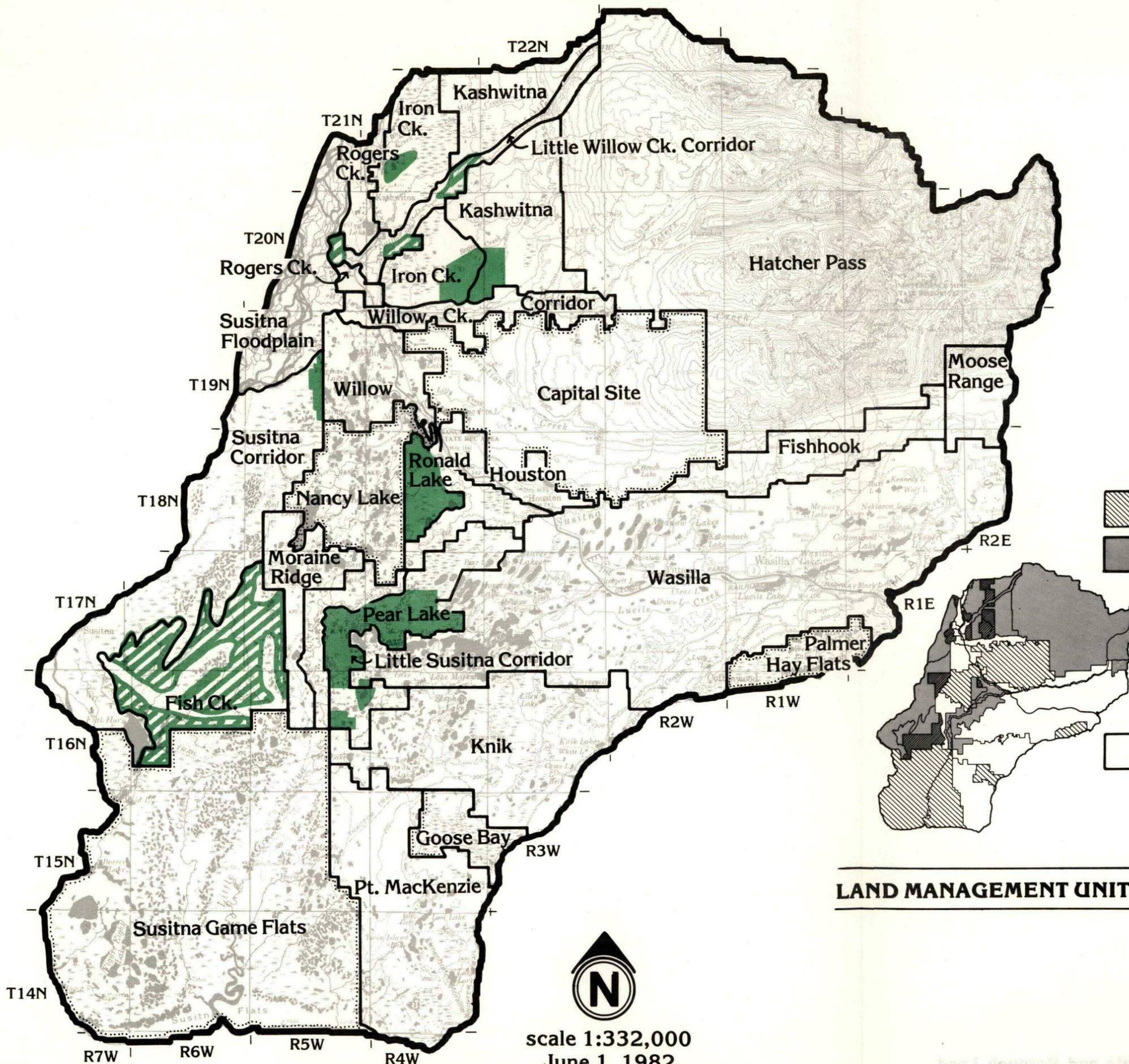
Map 15 illustrates specific areas where land is designated for settlement within the sub-basin. The following are management units in which settlement is a designated primary use on public lands: Pear Lake, Ronald Lake, and Iron Creek. In these units, the state has identified approximately 2,000 acres of land for which settlement is a primary designation. Settlement is designated as a secondary use on approximately 10,000 acres of state and 7,000 acres of borough land in the Fish Creek Unit. That does not mean that most of this land will be used for settlement, but that settlement may occur as compatible with the designated primary uses (principally agriculture).

For most of the management units with road access, where private landowners hold a majority of land, the plan lists settlement as a "recommended land use." This means that although there may be little public land in these units, it is both borough and state policy to encourage settlement in these accessed areas rather than on remote public lands.

Borough and state lands designated for use as small farms are in the Kashwitna, Ronald Lake, Pear Lake, Little Willow Creek Corridor, and Iron Creek Units. Agricultural land in the Fish Creek Unit not suitable for large farms because of topography will be sold for small farms. Although specific tracts have not been identified, small farms are a "recommended use" in the Knik Unit, where private landowners and the borough own considerable land suitable for that purpose. (There are several thousand acres of private land suitable for small farms in the Wasilla Management Unit.)

It is difficult to specify an acreage figure for small farms because the plan frequently designates small farms as one of several permitted uses

State and Borough Land Designated For Settlement



 Primary land use

 Secondary land use

 Legislatively Designated Areas

 Areas with specific Land Use Designations
 Management units shown in gray are primarily owned by the state and borough. In these areas detailed land use designations are prepared as well as management guidelines to control how these uses occur.

 Diagonal lines indicate where land use designations are made on borough lands.

 Areas with General Land Use Objectives
 Management units shown in white are primarily privately owned but contain some parcels of state/borough lands. The area plan addresses appropriate land uses in these areas through general land use objectives prepared for each management unit; specific land use designations are made for state land in some cases.

LAND MANAGEMENT UNITS

within a management unit. Sites for small farms will be identified specifically through more detailed planning. However, the plan does designate approximately 3,000 acres of state land and 2,500 acres of borough land for primary small farm use. Through this plan, the state and borough have also set small farm disposal targets of 3,000 acres and 4,000 acres, respectively, during the next 5 years.

SUBSURFACE RESOURCES

The Willow Sub-basin possesses a wealth of known and potential mineral resources. The history of the sub-basin has been influenced considerably by the rise and decline of mining activities. The area is presently the focus of growing interest in gold, oil and gas, coal, and a number of other subsurface resources. This section presents a discussion of subsurface management issues, a brief inventory of the sub-basin's mineral resources, and an explanation of how sub-surface exploration and development is affected by this plan.

SUBSURFACE RESOURCE MANAGEMENT ISSUES

The principal management issues in the sub-basin are similar to those confronted throughout the state: locating and developing these resources and minimizing unwanted effects of their development on the surrounding countryside and communities. The following list summarizes subsurface management issues in the Willow Sub-basin.

1. Infrastructure

One hurdle in the development of subsurface resources in the sub-basin is the lack of an adequate supporting infrastructure. Developing the region's subsurface resources will require access to explore and develop these resources, processing facilities, and the means to transport these resources from mine sites and processing areas to their final users. In addition, markets for some of these resources need to be explored and developed.

2. Protection of Surface Resources

Many of the known and potential mineral areas in the sub-basin are overlain by valuable surface resources. Mining could potentially have serious negative impacts on these resources. On the other side of the picture, efforts to protect surface resources from the unwanted side effects of mineral development can be so burdensome as to make mining impossible. There are numerous specific issues within this general category, several of which are listed below:

- a. Conflicts between Mining and Surface Uses: Specific areas where conflicts between surface uses and mining are likely to occur are as follows:
 - o Hatcher Pass/Willow Creek Mining District
 - o Anadromous Streams/River Recreation Corridors

- ° Residential and other developed areas where the surface is privately owned and the subsurface is publicly owned and therefore potentially open to some forms of mineral development.
- b. Placer Mining: Settling ponds and other standard procedures to protect water quality and streambed quality from the adverse effects of placer mining are costly and not always successful.
- c. Existing Permit and Regulation System: A system of permits, regulations, performance standards, etc., that can adequately protect the environment, that can be implemented with available staff and funds, and that also allows mineral development to occur in an economic fashion is not currently in existence in Alaska. State agencies responsible for issuing and monitoring water quality permits, anadromous stream permits, and miscellaneous land use permits do not always have the time or the staff to review each mining claim carefully or check compliance to permit stipulations in the field. In addition, there are communication problems between the various agencies responsible for this process.

A SUMMARY OF SUBSURFACE RESOURCES

COAL

Coal deposits in the Willow Sub-basin have been known and worked since the early 1900's. The Matanuska Coal Field extends into the area from the east, overlapping the Susitna Coal Field which extends into the northwestern regions of the sub-basin (see Map 16). The coal in this area is subbituminous.

Commercial use of coal in the Willow Sub-basin has been limited to a small mine near Houston which has operated intermittently since 1917. This mine is presently closed, and the city is seeking funds for rehabilitation.

Future prospects are difficult to predict. Hypothetical reserves of the sub-basin down to 1000 feet exceed 14 million short tons; however, existing data suggest beds are discontinuous and relatively thin. Ratios of the thickness of overburden to the thickness of the coal seams appear to make coal mining uneconomical. Geologists familiar with the area seem to agree other areas of the state are more likely prospects for development over the next 10 to 20 years. (Based on discussions with geologists at the State Division of Geological and Geophysical Surveys).

OIL AND GAS

The Willow Sub-basin is part of the Cook Inlet and Susitna sedimentary basins (Map 17). Interest in the sub-basin portions of these sedimentary basins has been fairly steady over the years; however, there have been no commercial finds to date.

Because these basins have produced commercial wells in other parts of Cook Inlet, petroleum geologists feel this area has definite potential. This opinion was reinforced when tracts in the Willow Sub-basin received the highest bids by industry in recently held state Oil and Gas Lease Sale No. 33. Another oil and gas lease sale, number 40, is scheduled in the area for the third quarter of 1983. Only future exploration will answer questions regarding the sub-basin's potential as an oil and gas producer.

METALLIC METALS

The Talkeetna Mountains' portion of the sub-basin (Map 16) has produced millions of dollars in gold in the last 80 years. Other minerals that have been found in the area (principally as a spin-off of gold mining) include tungsten, copper, mercury, molybdenum, and nickel.

High operating costs combined with a ceiling on gold prices effectively kept mines closed after they were temporarily shut down by federal decree during World War II. In more recent times, surging gold prices have resulted in a high level of interest in the area. Both placer and hardrock mining and exploration is occurring in earnest on the area's numerous claims (both patented federal and those staked on state land). The Independence Mine, largest operator in the area, currently employs 70 people year round.

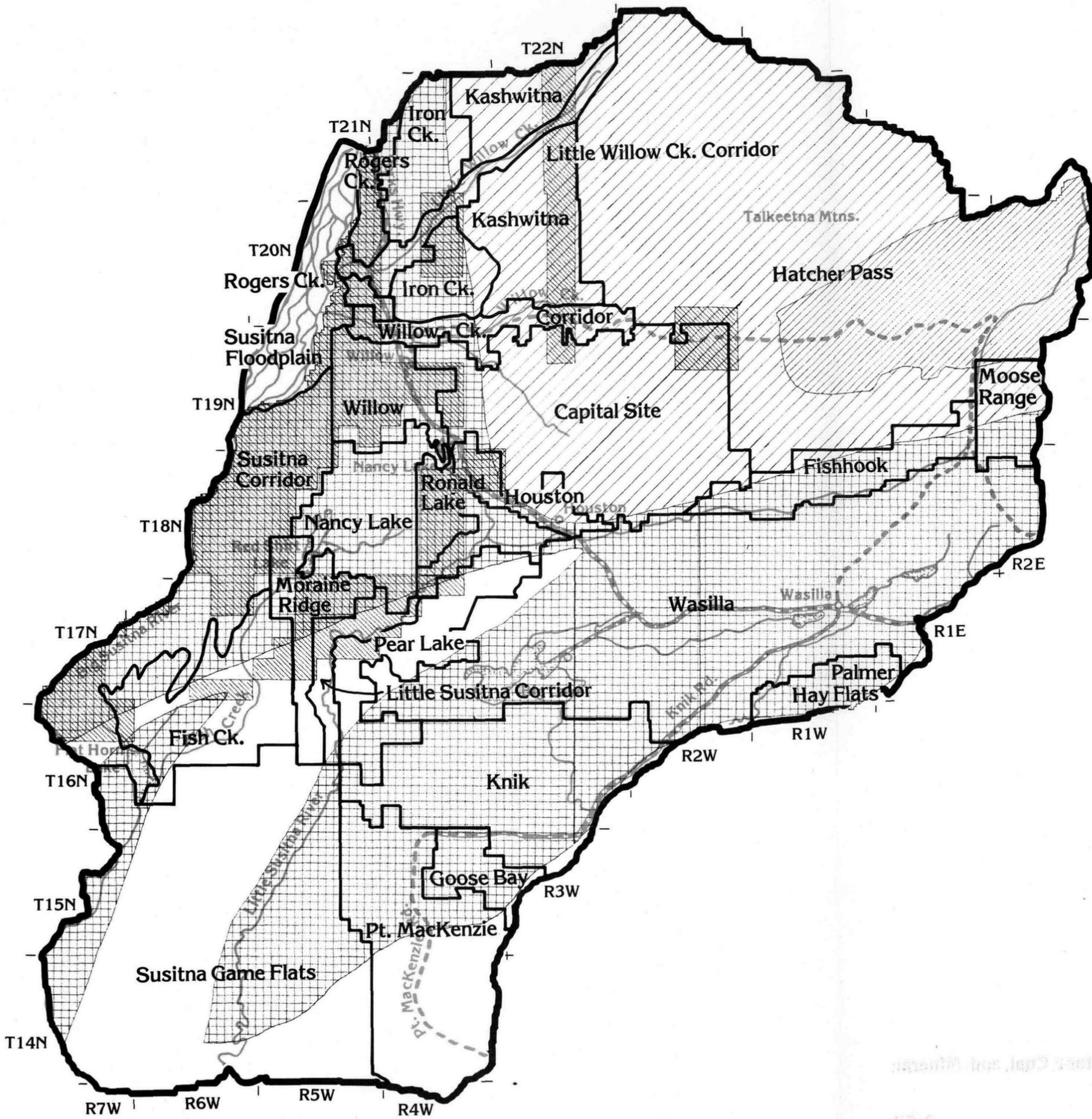
Future activity will be determined by the success of the Independence Mine and several adjacent projects. It appears probable, however, that with high gold prices, mining on both small and large scales is likely to continue.

Development of other metals is more uncertain. Development will depend on discovery of additional deposits, changes in minerals markets, and the effects of government policy.

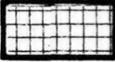
NONMETALLIC MINERALS

A variety of useful nonmetallic minerals occur in the Willow Sub-basin. Like other minerals discussed however, prospects for commercial development are generally uncertain. A partial list of nonmetallics occurring in the Willow Sub-basin is provided on the page following Maps 16 and 17.

Coal and Mineral Areas



COAL

-  Potential coal areas
-  Coal prospecting permit applications

METALLIC MINERALS

Potential/existing metallic mineral areas:

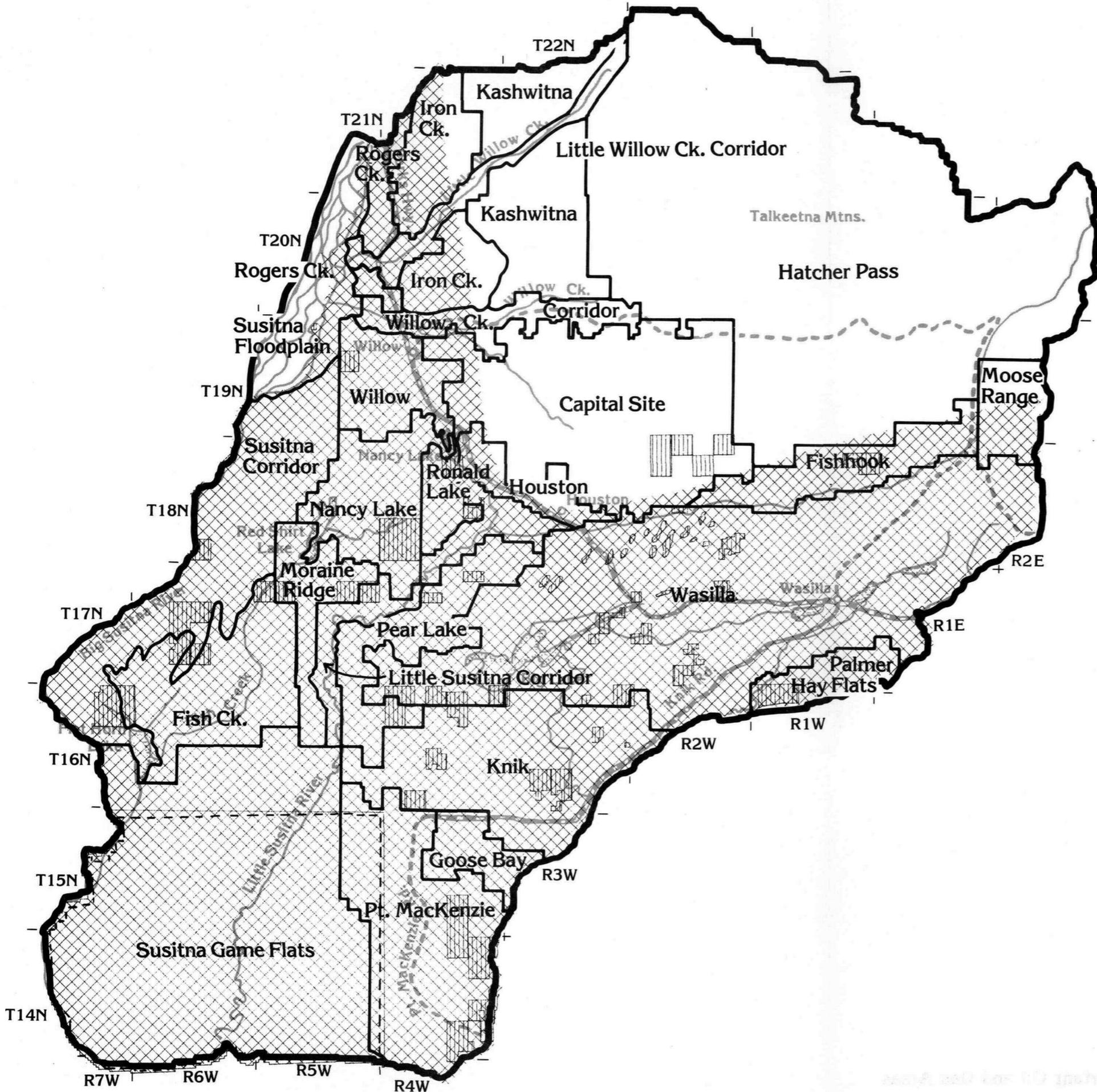
-  First priority
-  Second priority

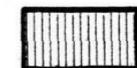
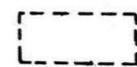


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Willow Subbasin Area Plan

Oil and Gas Areas



-  Potential oil & gas areas
-  Existing oil & gas leases Expiring in '82 - '84
-  Lease sale no. 33



scale 1:332,000
June 1, 1982

NONMETALLIC MINERALS

TYPE	USE	LOCATION	CURRENT* ACTIVITY
Quartz Sand	Abrasives	Willow Creek, Little Susitna River	Minimal
Phosphorus, Potassium	Fertilizers, Chemical Products	By-product of Matanuska Coal Field	None
Clay	Brick Making, Ceramics	Little Susitna, Fishhook Creek	Minimal
Lime (Marl)	Various Uses	Big Lake, Wasilla, Lucille, Finger Lakes	None
Soapstone	Jewelry	Grubstake Gulch near Willow Creek	Moderate
Sand Gravel	Roads, Construction	Throughout the Sub-basin - see discussion under Transportation	Heavy
Sandstone, Marble	Construction	Periphery of Talkeetna Mountains	None

* Information on current activity is the result of limited research. Any corrections or additions by people familiar with this area would be appreciated.

LAND USE DESIGNATIONS

The large majority of state-owned subsurface areas in the Willow Sub-basin are currently open to exploration and development of subsurface resources and will remain open under this land use plan.* However, an important effect of this plan is that it closes certain areas to specific types of subsurface resource exploration and development. The following section describes the areas closed by the plan. It is important to note that these mineral closures and other policies resulting from this plan do not alter or replace existing regulations, nor do they affect any existing mineral closures in the area. The areas closed to mining described below are closed only to new exploration or development activities; any existing leases, prospecting permits, or claims will not be affected. (Mineral closing orders will be prepared for these areas in compliance with AS 38.05.185.)

a. Areas closed both to mineral leasing and to locatable mineral entry by this plan**

The Little Susitna River Corridor Management Unit is closed to all mineral leasing and to locatable mineral entry.

b. Areas closed only to locatable mineral entry by this plan

Under current department policy, areas sold by the state for residential or agricultural purposes -- including those identified by the plan -- are closed to all locatable mineral entry. (These sale areas may, on a case-by-case basis, be open to development of leasable minerals.)

* The State retains subsurface rights when it transfers land to local governments or private owners. Consequently all subsurface rights in the sub-basin, with two notable exceptions, are held by the State and are subject to the policies in this plan. The first exception is certain private lands that were homesteaded and passed directly from federal to private ownership. Private land of this type comprises a relatively small percentage of the sub-basin's area, less than 5 percent (mostly in the Willow and Wasilla areas). The second exception is lands granted to Native regional and village corporations. Under the terms of the Alaska Native Claims Settlement Act, Native Corporations received both surface and subsurface rights. These lands make up about 1 percent of the sub-basin's area.

** "Leasable" minerals include oil and gas, coal, and geothermal resources. Development rights are acquired either at a lease sale, (the method always used for oil and gas) or non-competitively (by applying for a prospecting permit). Minerals such as gold, silver, copper, iron, asbestos, and uranium, are "locatable;" rights to these minerals are acquired by staking a mining claim.

c. Areas Closed To Coal Prospecting

Certain areas with exceptionally high surface resource values are closed to the issuance of coal prospecting permits*; these areas are described below:

-Large blocks of class II and III soils: The Point MacKenzie project and potential agricultural areas in the Fish Creek and Susitna Corridor Management Units.

-River Corridors: Little Susitna River, Little Willow Creek, Willow Creek, and the Big Susitna River.

The Little Susitna River: all of the Little Susitna River Management Unit and a corridor 300 feet on either side of the river over the remainder of the river's course.

Little Willow Creek: the portion of Little Willow Creek Management Unit east of where the railroad crosses the river and a corridor 300 feet on either side of the river over the remainder of the river's course.

Willow Creek: Willow Creek Management Unit and a corridor 300 feet on either side of the river over the remainder of the river's course.

Big Susitna River: a corridor at least $\frac{1}{4}$ mile on either side of the river (note: the eastern bank of the river forms the boundary to the study area).

-Recreation sites identified on the recreation map of this plan (Appendix 2). (These are primarily small sites -- less than 160 acres -- used for campgrounds, waysides, boat launches and access sites on water bodies and along trails.)

-A corridor 300 feet wide on either side of the Parks Highway right-of way to protect visual quality.

-Nancy Lake State Recreation Area.

-The proposed state capital site at Willow.

-All past and planned (through 1987) state subdivisions and the portions of state remote parcel sales areas like to be staked.

See Chapter III, Subsurface Resources, for additional policies and management guidelines affecting subsurface development in the Willow Sub-basin.

* Under State law, once a coal prospecting permit is issued, the state is required to grant the permit holder a coal lease if coal is found in commercial quantities. Any coal mining that occurs after a lease is issued would be subject to state, federal and local mining regulations.

TRANSPORTATION

INTRODUCTION

Transportation planning is a necessary component of a comprehensive land use plan. A plan which identifies areas for developable resources should also locate transportation corridors which provide access to those resources. It is necessary to do a general transportation assessment to insure that the routes are practical, that they can be constructed at reasonable cost, and that they do not have unacceptable environmental or social impacts. In addition, it is important to analyze the alignment of potential transportation routes, to determine if they are needed to access the resources described in this plan, and to ascertain if construction materials such as sand and gravel deposits are easily accessible. This is necessary to insure that today's land management and disposal decisions do not unnecessarily prevent the construction of a route which may be needed in the future.

This portion of the Willow Sub-basin plan is not intended to provide detailed route alignment or construction recommendations. This planning effort cannot hope to duplicate the detail or scope of preliminary engineering studies conducted by the Department of Transportation and Public Facilities (DOT/PF). This section addresses two subjects:

1. the general location of transportation routes necessary to provide access to resource development areas located in this plan;
2. a general analysis of the costs of proposed routes and of potential environmental impacts;

A set of policies and guidelines designed to minimize unwanted impacts created by proposed routes, to insure compatibility between transportation corridors and adjacent land uses, and to maintain the integrity of corridors which may be needed in the future is presented in Chapter III, Transportation.

DESCRIPTION OF PROPOSED TRANSPORTATION CORRIDORS

To implement the land use objectives of this plan, three major transportation systems are required: Fish Creek (agriculture), Susitna Corridor (forestry and agriculture), and Kashwitna (forestry). In addition, the Houston Right-of-Way is a potential future corridor accessing

Point MacKenzie. Each of these routes is shown on Map 5 and described in detail below. The cost referred to in the discussion of each of the roads is the estimated total initial construction cost of the road.* Using cost information from DOT/PF, the Soil Conservation Service and the Department of Natural Resources developed a methodology to estimate road costs based on soil characteristics, topography and hydrologic information. Cost estimates include the initial construction costs of gravel surfaces, underlying material, bridges, and culverts as well as related engineering, inspection, mobilization, and contingency fees.

Unless otherwise noted below cost estimates are for "class I" roads. A class I road is Alaska's standard, well built, two lane gravel road. It requires all of the costly design and construction techniques of the Parks Highway except for final paving; pavement can be added directly to it. Generally, the road is 32 feet wide including two four foot shoulders. (It has three to one side slopes and at least two feet of subbedding with six inches of graded gravel on top.) Examples of class I gravel roads include most of the Alaskan Highway and the first six miles of Petersville Road. If pavement is applied to class I roads, the result is a road similar to the Knik Road or much of the Parks Highway.

In a few cases cost estimates have been made for "pioneer roads." Unlike a class I road, a pioneer road is not designed for highway traffic volumes and speed. The road is narrower, has no shoulders, and does not have the same quality surface. Pioneer roads are recommended when access is needed into hunting, forestry, and some agricultural areas. Typically, construction costs of such a road is about 30%-35% less than that of class I roads.**

FISH CREEK - THE CHUITNA RIGHT-OF-WAY/WINNEBAGO WAY

The Fish Creek Management Unit is intended to provide acreage for a major commercial agriculture project. This project will require two main roads and a system of spur routes (pioneer roads) to access individual farms. DOT/PF has located an approximate alignment for a transportation corridor (road or railroad) to the Beluga Coal Fields, including alternate alignments to the Susitna River. That alignment, known as the Chuitna Right-of-Way, appears to adequately serve as the main road through the Fish Creek Management Unit. The second alignment located by DOT/PF runs north to south from five miles west of Willow to the Chuitna-Right-of-Way just north of Point MacKenzie. This route, also referred to as Winnebago Way, would provide continuous access from Fish Creek and Point MacKenzie to the Parks Highway and the Capital Site.

* Total initial construction costs are based on DOT/PF's average costs for engineering services, mobilization, construction, inspection, and contingencies.

** This cost assumes DOT/PF lets and administers the construction contract.

If the Knik Arm crossing were constructed, such a route would provide direct access from Anchorage to the Capital Site and shorten the distance between Anchorage and Fairbanks by 30 miles. Constructing this route would require particular care to avoid unwanted visual, noise, or access impacts on the adjacent Nancy Lake State Recreation Area.

In addition, the Fish Creek Management Planning Team has located approximate alignments for spur roads to all parcels of agricultural land 40 acres or greater and to possible settlement areas on Moraine Ridge. These routes are shown on Map 5. It is expected that these routes will be significantly revised during the Management Plan for the Fish Creek Unit or during DOT/PF alignment studies.

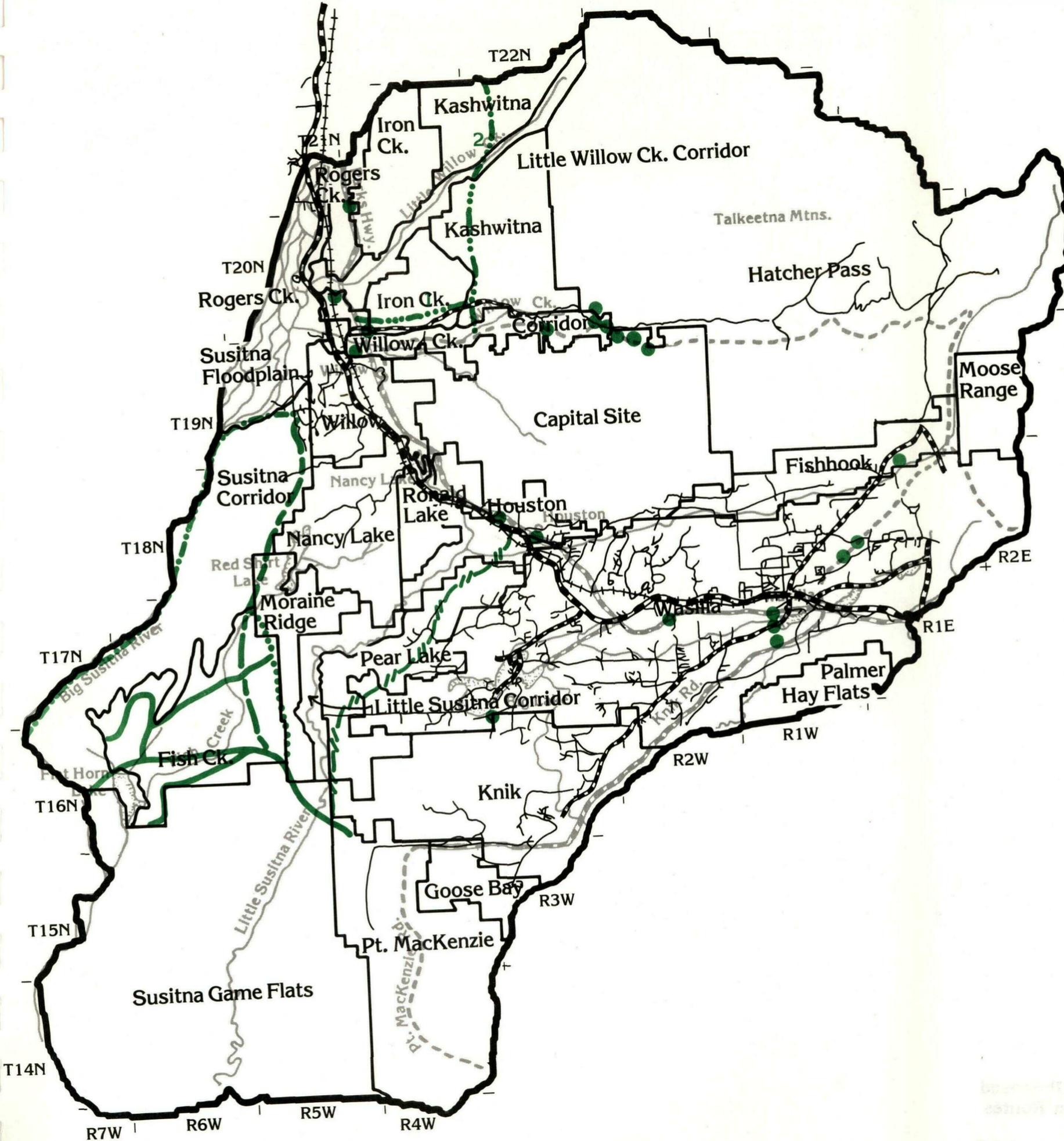
The road system in this area has the potential to generate important negative impacts on the hydrologic system of Fish Creek, its related recreational habitat resources, and the Iditarod Trail. Fish Creek is an anadromous fish stream, and its flow and quality is dependent on the many large and small wetlands which dot the area. Numerous stream and wetland crossings are required of the main road and the spur system. It is crucial that the crossings be minimized and that roads be designed to not disturb either the streamflow or the water and nutrient flow of the wetlands, and to avoid creating erosion and introducing sediment or road pollution into the streams. This will require special care due to both the number of crossings required and the fact that steep slopes routinely abut the streams and wetlands. Because the stream crossings will create excellent road access for recreation/fishing sites, care must be taken to incorporate the expected recreational use into road design.

Fish Creek

Road Segment	Total Length (Miles)	Total Cost (Million \$)	Average Cost per mile (Million \$)
Chuitna Right-of-Way	10.1	5.0	.50
Pioneer Road to agricultural parcels	27.5	10.00	.36
Winnebago Way	20.2	8.1	.40
Morraine Ridge Road (pioneer)	<u>10.3</u>	<u>3.7</u>	.36
Total*	68.1	26.8	

* These totals assume that the entire system is constructed.

Existing and Potential Transportation Routes



- Existing transportation:**
- ++++ railroads
 - primary roads
 - - - secondary roads
- Roads recommended by this plan:**
- Chuitna Right-of-Way and spurs
 - Moraine Ridge
 - - - Susitna Corridor
 - . - . Kashwitna
 - - - Winnebago Way
- Other potential transportation corridors:**
- . - . Houston Right-of-Way
- Material sites**
- sand and gravel



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June 1, 1982

Willow Subbasin Area Plan

SUSITNA CORRIDOR

The Susitna Corridor Management Unit is intended to provide a large area to be managed for its forestry/habitat values. Forestry operations require a network of logging roads that typically have 12 foot wide road surfaces which would probably be designed and built by various logging companies. It is likely that the development of logging roads would occur in increments spread out over many years--as more areas are harvested, more roads would be needed. However, a pioneer road is recommended through the plan to provide initial access into the area. Map 5 shows a possible alignment reaching as far south as Susitna Station. The estimated cost of this road is 35% less than the cost of an average class I road. The lower cost of the pioneer road is attributed to less intensive construction techniques, narrower clearing requirements, and the use of winter roads to cross wetlands. The cost estimates below are for a pioneer road from the Parks Highway South 20 miles to the Sustina Station (see Map 5).

Susitna Corridor

Road Segment	Total Length (Miles)	Total Cost (Million \$)	Average Cost per mile (Million \$)
Susitna Corridor	24	4.7	.24

KASHWITNA

The Kashwitna Unit is intended to be a multiple use management area emphasizing fish and wildlife habitat, and forestry. Grazing and small farms are also permitted uses. Although cost estimates were prepared for most of the road, entry into the unit is very difficult, and information is not available to provide a reasonable cost estimate for the northern portion of the road.

The initial access would require one of three expensive options: a major bridge across Willow Creek just downstream from a canyon-like area of the creek; a smaller bridge closer to the Parks Highway and a road along the north side of Willow Creek; or access from the Parks Highway north of the creek and a road along the north side of the creek. Roads cost estimates were prepared for the first option -- a major bridge across Willow Creek and 9 miles of road extending into the management unit. Access to the small farm area (just north of the creek) would need to be a class I road to allow conventional vehicle traffic into the agricultural areas. This portion of the road (segment 1) would extend

5.8 miles. The remaining portion of road (segment 2) leading into the part of the management unit designated for forestry and habitat management could be a pioneer road similar to that described for the Susitna Corridor Unit. See the table below for details.

Kashwitna Route

Road Segment	Total Length (Miles)	Total Cost (Million \$)	Average Cost per Mile (Million \$)
1*	5.8	2.4	.41
2**	3.2	1.6	.50
Total	9.0	4.0	

* Class I Road

** Pioneer Road

HOUSTON RIGHT-OF-WAY

A north-south connection between Point MacKenzie and Houston has been proposed by various agencies. Presently, DOT/PF has a right-of-way application for this route, but there are currently no construction plans. Construction through this area involves miles of continuous wetlands. For that reason, road construction would be tremendously expensive (approximately \$1.1 million per mile of road). Instead of a conventional road, DOT/PF is considering a rail corridor for transporting commodities into and out of Point MacKenzie.

Houston Right-of Way

Road Segment	Total Length (Miles)	Total Cost (Million \$)	Average Cost per Mile (Million \$)
Houston Right-of-Way	18.2	20.7	1.14

SAND AND GRAVEL

Sand and gravel - known in construction as "materials" - are essential for both the construction and maintenance of roads, railroads, and airports. In 1978, revenues from these materials reached \$160 million - second only to oil and gas of all mineral resources extracted in Alaska. DOT/PF is the state's largest user of sand and gravel.

The cost of building and maintaining a road is in large part dependent on whether materials must be purchased from private sources or are available from public lands, and whether materials must be found locally or must be hauled from a distance. Personnel at DOT/PF suggest that five miles from borrow site to building site is the maximum feasible hauling distance. Thus, it is critical that an analysis of potential material sites precede detailed management design of proposed route areas.

The quality of information concerning the locations of sand and gravel deposits varies throughout the area. In current road accessed parts of the basin, fairly good information exists and DOT/PF has located enough potential borrow sites to supply their needs through at least the year 2000 (these are shown on Map 5). In the areas currently without road access, existing soils data provide an indication of the existence of material deposits; however, a much more detailed analysis will be necessary to locate the required borrow sites. This analysis will be conducted by Division of Geological and Geophysical Surveys (DGGGS) or DOT/PF and the results should be integrated into the management plan for currently non-road accessed areas. DGGGS has completed a detailed assessment of the materials potential in the areas covered by USGS quadrangels Anchorage C-7 and C-8.

Appendix 3.
**CLASSIFICATION OF
STATE LAND**

APPENDIX 3

CLASSIFICATION OF STATE LAND IN THE WILLOW SUB-BASIN

As explained in Chapter I, the land use designations made in this plan will be officially established in state records through the state's land classification system. The system is a formal record of the primary uses for which each parcel of state land will be managed. Classification of state land in the Willow Sub-basin occurs simultaneously with the adoption of this plan. The classifications will be shown on land status plats which can be viewed at various offices of the Department of Natural Resources. These plats indicate the primary uses designated by this plan and will refer the reader to the plan for more detailed information, including land management guidelines.

Table 1 translates the land designations made by this plan into the language required by the state's classification regulations. Refer to the map following Table 1 for the location of management units and sub-units.

TABLE 1
 PRIMARY LAND USE DESIGNATIONS
 AND LAND CLASSIFICATIONS
 STATE LAND

MANAGEMENT UNIT	SUB-UNIT	PRIMARY USE(S) DESIGNATED BY WILLOW SUB-BASIN PLAN	CLASSIFICATION
Kashwitna	1a	Forestry/Fish & Wildlife	Forestry/Wildlife Habitat
	1b	Forestry/Fish & Wildlife	Forestry/Wildlife Habitat
	1c	Small Farms	Agriculture
Iron Creek	2a	Small Farms	Agriculture
	2b	Watershed/Fish & Wildlife	Watershed/Wildlife Habitat
	2c	Small Farms/Settlement	Agriculture/Private Recreation
Little Willow Creek Corridor	4a	Fish & Wildlife/Recreation	Wildlife Habitat/ Public Recreation
	4b	Small Farms	Agriculture
Susitna Floodplain	-	Forestry/Fish & Wildlife	Forestry/Wildlife Habitat
Susitna Corridor	8a	Forestry/Fish & Wildlife	Forestry
	8b	Fish & Wildlife/Watershed	Wildlife Habitat/ Watershed
	8c	Small Farms	Agriculture
	8d	Fish & Wildlife	Wildlife Habitat
Fish Creek	9a	Agriculture	Agriculture
	9b-	(streams) Fish & Wildlife/ Recreation	Wildlife Habitat/ Public Recreation
		(wetlands) Fish & Wildlife/ Watershed	Wildlife Habitat/ Watershed
	9c	Recreation (Iditarod Trail)	Public Recreation
Little Susitna Corridor	11a	Watershed/Fish-Wildlife	Watershed/Wildlife Habitat
	11b	Recreation/Fish & Wildlife	Public Recreation/ Wildlife Habitat

Pear Lake	12a	Fish & Wildlife/Watershed	Wildlife Habitat/ Watershed
	12b	Small Farms/Settlement	Agriculture/Private Recreation
	12c	Small Farms/Settlement	Agriculture/Private Recreation
	12d	Fish & Wildlife/Forestry	Wildlife Habitat/ Forestry
Ronald Lake	13a	Settlement/Small Farms	Agriculture/Private Recreation
	13b	Fish & Wildlife/Watershed	Wildlife Habitat/ Watershed
*Hatcher Pass	All Subunits	Mining/Recreation/ Fish & Wildlife/Grazing	Public Recreation/ Minerals
Moose Range	-	Fish & Wildlife	Wildlife Habitat

*DNR policy allows a maximum of two primary land uses to be listed in the classification of a single parcel of land. Therefore, in the Hatcher Pass Management Unit, where the land use plan designates four primary uses, only two uses appear in the proposed classification. However, the classification records will defer to the plan for detailed land management guidance. Therefore, the other primary uses designated in the plan are not adversely affected by the official classification. Potential conflicts among these land uses will be dealt with through management guidelines and through more detailed land allocations to be made in 1982.

WILLOW SUB-BASIN AREA PLAN: PRIMARY & SECONDARY DESIGNATED LAND USES

Management Unit & No.	Subunit	Primary Uses	Secondary Uses
1. Kashwitna	1a	Forestry/Fish & Wildlife	Recreation
	1b	Forestry/Fish & Wildlife	Grazing
	1c	Small Farms	Grazing, Fish & Wildlife, Forestry
2. Iron Creek	2a	Small Farms	Grazing, Fish & Wildlife, Forestry
	2b	Watershed/Fish & Wildlife	—
	2c	Small Farms	Fish & Wildlife
3. Rogers Creek	Recommended Land Uses	*Settlement *Fish & Wildlife (Migration & Harvest) *Parks Highway Scenic Areas *Forestry	
4. Little Willow Creek Corridor	4a	Fish & Wildlife Recreation	Forestry
	4b	Small Farms	Forestry, Fish & Wildlife, Recreation
5. Willow Creek Corridor	Recommended Land Uses	*Fish & Wildlife *Small Farms *Settlement *Recreation	
6. Susitna Floodplain	—	Forestry/Fish & Wildlife	Recreation
7. Willow	Recommended Land Uses	*Community Land Needs *Parks Highway Scenic Areas	
8. Susitna Corridor	8a	Forestry/Fish & Wildlife	Recreation
	8b	Fish & Wildlife/Watershed	—
	8c	Agriculture	Forestry, Fish & Wildlife, Watershed
	8d	Fish & Wildlife	Grazing
9. Fish Creek	9a	Agriculture	Forestry, Settlement, Small Farms, Recreation
	9b °streams	Fish & Wildlife/Recreation	Forestry
	9c °wetlands	Fish & Wildlife/Watershed Recreation (Iditarod)	Forestry Forestry
10. Moraine Ridge	—	Settlement	Forestry, Fish & Wildlife, Recreation
11. Little Susitna Corridor	11a	Watershed/Fish & Wildlife	—
	11b	Recreation/Fish & Wildlife	Forestry
12. Pear Lake	12a	Fish & Wildlife/Watershed	—
	12b	Small Farms/Settlement	Forestry
	12c	Small Farms/Settlement	Recreation
	12d	Fish & Wildlife/Forestry	—
13. Ronald Lake	13a	Settlement/Small Farms	Fish & Wildlife, Forestry
	13b	Fish & Wildlife/Watershed	—
14. Houston	Recommended Land Uses	*Community land needs *Parks Highway Scenic Areas	
15. Hatcher Pass	All sub-units	Mining, Recreation, Fish & Wildlife Grazing	— —
16. Fishhook	Recommended Land Uses	*Settlement *Watershed *Fish & Wildlife (Moose Habitat)	*Recreation *Forestry
17. Moose Range	—	Fish & Wildlife	Forestry, Grazing
18. Wasilla	Recommended Land Uses	*Settlement *Small Farm & Commercial Agriculture *Recreation (fishing - local & regional parks)	*Forestry (personal use) *Parks Highway Scenic Areas
19. Knik	Recommended Land Uses	*Small Farms *Settlement *Recreation (Iditarod & other trails)	*Fish & Wildlife (stream buffers) *Forestry (personal use)
20. Pt. MacKenzie	Pt. MacKenzie Agricultural Project. Recommended Land Uses (in remainder of area)	*Development of Port, Industrial Area, Community	
Legislatively Designated Areas:	21. Capital site 22. Nancy Lakes Recreation Area	23. Susitna Flats Refuge 24. Goose Bay Refuge	25. Palmer Hay Flats Refuge

Note: For details of subsurface resource management, see Chapter III (Subsurface resources, goals and policies)

**Designated Primary and
Secondary Land Uses**

Appendix 4.

**PLAN
MODIFICATION**

APPENDIX 4

MODIFICATIONS OF AND EXCEPTIONS TO THE PLAN AS IT AFFECTS STATE LANDS

The goal of this land use plan is to produce maximum benefits from public land. To achieve this goal the plan strongly encourages multiple land uses. Primary uses designated by the plan are not the exclusive uses allowed to occur on public lands; designated secondary uses as well as other uses not specifically mentioned by the plan may occur if they are consistent with the management intent for the management unit in question and any applicable policies. In general the plan specifies the intent for the management of a particular resource or area and leaves the method for achieving this goal to the knowledge and creativity of staff implementing the plan.

Procedures for amendments to and minor modifications of the plan as it affects state lands are described below. Following this is a description of the procedures for making special exceptions to the plan to be used when modifications are not necessary or appropriate.

MODIFICATION OF PLAN

The land use designations, the policies, and the management guidelines of this plan may be changed if conditions warrant. The plan will be updated periodically as new data and new technologies become available and as changing social and economic conditions place different demands on public lands. The Department of Natural Resources and the Matanuska-Susitna Borough will jointly review proposed modifications of the plan.

A. Periodic Review

An interagency planning team, led by the Division of Research and Development, will coordinate periodic review of this plan at the request of the Commissioner of the Department of Natural Resources or the Mayor of the Matanuska-Susitna Borough. The plan review will include meetings with all interested groups and the general public.

B. Amendments

The plan may be amended. An amendment adds to or modifies the basic intent of the plan. Changes to the planned uses, policies, or guidelines constitute amendments. A proposal to change an agricultural area for disposal to residential use, or a proposal to sell land up to the river's edge where a guideline requires that a 300 foot buffer be retained in public ownership are examples of changes requiring amendment. Amendments require public notice and public hearings. They must be approved by the Commissioner. Management plans developed by the Division of Land and Water Management may recommend amendments to the plan. Amendments may be proposed by agencies, municipalities, or members of the public. Requests for amendments are submitted to the Anchorage office of the Division of Research and Development, Alaska Department of Natural Resources.

C. Minor Changes

A minor change is one which does not modify or add to the basic intent of the plan. Minor changes may be necessary for clarification, consistency, or to facilitate implementation of the plan. Minor changes do not require public review. Minor changes may be proposed by agencies, municipalities, or members of the public. Requests for minor changes are submitted to the Anchorage office of the Division of Research and Development, Alaska Department of Natural Resources.

SPECIAL EXCEPTIONS - DNR PROCEDURES

Exceptions to the provisions of the plan may be made without modification of the plan. Special exceptions shall occur only when complying with the plan is excessively difficult or impractical and an alternative procedure can be implemented which adheres to the purposes and spirit of the plan.

The Department of Natural Resources may make a special exception in the implementation of the plan through the following procedures:

- A. The District Manager of the Division of Land and Water Management shall prepare a finding which specifies the following:
 1. The extenuating conditions which require a special exception.
 2. The alternative course of action to be followed.
 3. How the intent of the plan will be met by the alternative.
- B. Agencies having responsibility for land uses with primary or secondary designations in the affected area and the Matanuska-Susitna Borough will be given an opportunity to review the findings. In the event of disagreement with the District Manager's decision, his decision may be appealed to the Director of the Division of Land and Water Management, and the Director's decision may be appealed to the Commissioner. If warranted by the degree of controversy, the Commissioner will hold a public hearing before making his decision. The public hearing may be held jointly with the Borough if appropriate.