

PHASE I RESOURCE INVENTORY October, 1983

# RECREATION ELEMENT



STATE OF ALASKA Department of Natural Resources 4420 Airport Way Fairbanks, Alaska 99701

U.S. DEPARTMENT OF AGRICULTURE Soil Conservation Service

HC 107 .A42 T3 V.4



#### RECREATION EXECUTIVE SUMMARY

The Tanana Basin includes 21 million acres of land along the Tanana River stretching from the Canadian border on the east to the Yukon River on the northwest. As shown in Figure 1, it includes the most populated area of Alaska's Interior. The area which this plan addresses includes all state selected, tentatively approved and patented land within the Tanana Basin Boundary exclusive of those areas which have had area plans completed or which do not have state in-holdings.

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This study indicates that there are a total of over 4 million user days spent on outdoor recreational activities by Basin residents (excluding those days associated with fishing or hunting). This is an average of over 70 user days per person per year. In addition, tourists from outside the state spend an estimated 258 thousand user days in the Basin each year.

Outdoor recreation activities generate an estimated \$46 million in income in the Basin each year and over 1300 jobs.

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# **CONTENTS**

Introduction	1-1
Issues and Local Preferences	2-1
Demand for the Resource	3-1
Supply of the Resource	4-1
Benefit-Cost Analysis	5-1
Demand vs. Supply	6-1
Recommendations	7-1
	Introduction Issues and Local Preferences Demand for the Resource Supply of the Resource Benefit-Cost Analysis Demand vs. Supply Recommendations

#### Appendices A. Total Expenditures on General Recreation in the Tanana Basin

#### I. Introduction

- II. Expenditures for General Recreational Equipment
  - A. Number of Households Owning Equipment
  - **B.** Cost/Year of Equipment
  - C. Percentage of Total Expenditures Attributable to **General Recreation**
  - **D. Summary**

#### **III. Expenditures on Travel**

- A. Total Number of Trips/Year
- B. Average Cost/Trip
- **C. Summary**
- IV. Expenditures For Food and Lodging
- V. Expenditures By Tourist
- **VI. Summary**

### **Bibliography**

# **Chapter** 1

# Introduction

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This report completes Phase I of the Alaska State Department of Natural Resources Tanana Basin Area planning process. The report analyzes background information on recreation in the Basin and will serve as the basis for the continuing phases of the planning process.

This information is part of a resource inventory of seven resources including fish and game, agriculture, forestry, minerals, outdoor recreation, settlement (land disposals) and water. The information included in this report was gathered by the Tanana Basin Area Planning staff of the DNR Division of Land and Water Management and the Alaska State Department of Parks and Outdoor Recreation. People who participated in the production of this report include Nat Goodhue (Planner, DNR Division of Parks and Outdoor Recreation), Susan Todd (Project Manager, Tanana Basin Area Plan), Delores O'Mara (Natural Resource Officer), and Rob Walkinshaw (Natural Resource Officer).

The information presented here is not an exhaustive study of recreation in the Basin. The recreation element is designed to provide an overall view of the supply of, demand for and value of recreational resources in the Tanana Basin. The element also constitutes an advocacy statement by the Division of Parks indicating how they would prefer recreation resources to be managed in the study area. These management recommendations, together with related information about other resources, will be used to formulate land allocations and management guidelines for public land in the study area.

# **Chapter 2**

# **Issues and Local Preferences**

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#### I. INTRODUCTION

Issues and local preferences are important pieces of information which must be incorporated into the planning process. Issues concerning the use of a specific resource provide a focus and framework for the planning process; local preferences show how the public feels these issues should be resolved. In this section of this report, issues and local preferences are documented for incorporation in the planning process through the work of the Planning Team Members.

#### A. Issues

An issue is something which is debated. For example, the amount of land to be disposed of is an issue; some people favor more land and others would prefer less. Another issue is the effect of agriculture on fish and game; some feel that the effect is positive, others feel that it is negative or neutral. The purpose of this paper is simply to report the issues objectively without siding with any particular viewpoint. These issues are then to be addressed in the Tanana Basin Area plan which will create policies to deal with them. The issues reported here are those which the plan can affect through classifications or management guidelines.

The issues identified in this chapter were collected and summarized from three sources. The public meetings that were held in the Tanana Basin during the spring of 1982 was the first source of issues used for this chapter. Planning team members, after reading the comments from the public meetings developed a series of issues concerning the resource they represent. The Tanana Basin Plan sketch elements were a second source used to identify issues. The sketch elements were developed in 1981 to provide a starting point for the Tanana Basin Area plan. The issues identified in the sketch elements were based on conversations public agencies, resource experts and interest with The third source was interviews with agency groups. representatives.

#### **B.** Local Preferences

Local preferences about how these issues should be addressed were determined from two principal sources. One of the sources which will be used in the planning process for developing local preferences is a series of community originated land use plans. Several communities are currently working on proposed plans for state land in their area; others have already submitted proposals to DNR. These local land use plans provide a clear indication of what a community prefers. This is particularly true when a proposal receives endorsement of village councils, city councils, native corporations, and other interest groups in the area.

The possibility of doing land use plans was mentioned at the public meetings and in a newsletter that was sent to all communities. Only a few of the communities, however, have decided to submit proposals. Most of these proposals will not be completed until February, but some have been on file with the State Department of Natural Resources and are included in this report.

The Tanana Basin Public Meetings are the other source of information on local preferences. Public meetings were held in all communities in the Basin in the spring of 1982 to discuss the Tanana Basin Area Plan. The notes from these meetings were given to members of the planning team who then developed the summaries included here. The summaries represent the planning team members' understanding of how residents want state land in their area managed for a specific resource.

These sources of local preferences are not as accurate as a public survey, but in most cases, they represent the only information available. They should not be considered to be representative of the entire community; they are simply indications of the opinions of some of the residents.

A survey now being conducted by the Alaska Department of Community and Regional Affairs will provide a better indication of local preferences in the Tok area. The results of this survey will be available to the planning team by March of 1983.

### **II. ISSUES CONCERNING RECREATION**

The following issues concerning recreation were drawn from the public meetings, sketch elements and interviews with agency representatives:

ISSUE 1. High expectations for recreational opportunities: the landscape and wildlife of the Tanana Basin provide an abundance and diversity of recreation opportunities which are one of the major attractions for living in the Basin. "Recreation opportunities" is the second most frequently cited important reason for living in the Interior Region of Alaska according to the Alaska Public Survey.

Responsibility for providing easily accessible recreation opportunities, by reason of land ownership and constituencies, is with the State of Alaska and its political subdivisions. The State owns seventy-five percent of the acreage within the Tanana Basin, much of which is located within one hour's travel time of communities. In contrast, national parks are where the outstanding natural features and extensive wilderness sought by national and international constituencies are located.

The highest recreation priority of the State of Alaska is to ensure the continued availability of easily accessible recreation opportunities for Alaska residents by retention of a variety of types and sizes of land and water areas in public ownership.

**ISSUE** 2. Need for recreational land base near population centers: action by the State of Alaska is required to maintain a recreation land base easily accessible to Alaskans.

Due to limitations of time, funds and fuel outdoor recreation participation within one hour's surface travel time of people's residences is more than double participation in more remote locations according to the Alaska Public Survey. A considerable amount of outdoor recreation activity occurs on lands which are not within the State Park System or other public use areas. Many of these lands, especially those near major population centers, are no longer available for public recreation as a result of conveyances of State, municipal and Federal lands to private ownership under land disposal programs and the Alaska Native Claims Settlement Act and land developments which prevent public recreation use. To meet existing needs for recreation opportunities close to people's homes, schools, and work sites and to anticipate future needs as the population increases, the State of Alaska will identify recreation use areas, designate those which will remain in State ownership for public recreation use (replace lands lost to public recreation use by acquiring alternative areas through purchase and land trades), provide technical and financial assistance to municipalities and cooperativley prepare land use plans with the private sector and other public land owners.

**ISSUE** 3. Inter-agency cooperation: policies and actions of many public agencies and private land owners affect outdoor recreation opportunities.

The availability of outdoor recreational opportunities is often dependent on the actions of various Federal, State, and local government entities. Many agencies, whether or not they are in the recreation business, make land use, facility design and other decisions which enhance or detract from outdoor recreation opportunities.

Outdoor recreational opportunities can, and should be, provided in conjunction with other programs such as road and school construction, land settlement, community planning, and forest and habitat management.

To significantly increase the benefits of public programs and projects, agencies should use broader concepts of their responsibilities, greater foresight in the execution of projects, and additional cooperative procedures. Realization of recreation opportunities through other programs will require the Alaska Division of Parks and Outdoor Recreation to initiate, coordinate, and follow-up on a variety of projects.

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**ISSUE** 4. Preserving and protecting Alaska's cultural heritage: prehistoric and historic sites contribute to the Tanana Basin's distinctive identity.

There is an on-going and sometimes urgent need for the State's heritage sites program to prevent needless destruction and neglect. Due to a major misunderstanding, what remained of the abandoned and historic gold mining town of Denali in the Alaksa Range was bulldozed away. A large gold dredge lies deteriorating on private lands north of Fairbanks in the Chatanika Gold Mining District. These are but a few of the historic resources from Alaska's past being lost due to neglect and lack of management capability. Not every historical resource worthy of preservation can be saved, but an adequate representation of the diverse prehistoric and historic sites must be preserved so future generations will understand and value the Tanana Basin's rich heritage.

**ISSUE** 5. Trails: the use of trails for transportation and recreation has historically been and continues to be a vital aspect of life in the Tanana Basin which should be perpetuated.

A high percentage of Interior Alaska residents participate in some form of trail-based recreation activity. Many of these people and other residents and visitors use trails as transportation routes to work, school and residences.

Trails more than other recreation resources, due to their linear configuration, are vulnerable to disruption from other land uses. Cooperative planning is required to prevent the loss of critical trail connections. Where loss of a trail segment is unavoidable an alternate route should be provided. Trails, when properly located and buffered, are an asset to residential neighborhoods. Trails should be located on lands in some form of common ownership with enough space either side of the trail to avoid conflicts between public use of trails and adjacent private landowners.

Trail planning and dedication of greenbelts for trails should be high priority of all land use planning and management agencies.

- **ISSUE** 6. The amount of state land classified and managed primarily for recreation.
- **ISSUE** 7. The effect of land classification, land disposals and resource development on recreation opportunities.
- **ISSUE** 8. The effect of land classification, land disposal, and resource development on access to rivers, lakes, trails and backcountry areas used for recreation.
- **ISSUE** 9. The effect of land classification, land disposals and resource development on cultural, historical and archeological sites.

ISSUE	10.	The effect of mineral-related activity on recreation.
ISSUE	11.	The effect of agriculture on recreation.
ISSUE	12.	The effect of land classification for habitat on recreation.
ISSUE	13.	The effect of forestry on recreation.
ISSUE	14.	Maintenance of greenbelts and setbacks near resource developments and land disposals.
ISSUE	15.	The effect of land classification for recreation on fish and wildlife.
ISSUE	16.	The effect of land classification for recreation on minerals.
ISSUE	17.	The effect of land classification for recreation on agriculture.
ISSUE	18.	The effect of land classification for recreation on land disposals.
ISSUE	19.	The effect of land classification for recreation on forestry.

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#### III. LOCAL PREFERENCES FOR RECREATION MANAGEMENT

#### A. Community Originated Land Use Plans.

The following section lists the various community originated plans that have been completed, or are in progress for state lands in the Basin. For detailed information on each plan listed here, contact the Division of Research and Development.

#### 1. MINTO FLATS

Minto Village Council passed a resolution in 1980 requesting that the state classify Minto Flats for Wildlife Habitat and Forestry. The village council sent the resolution with a "Summary Report" about Minto Flats to the Department of Natural Resources. The Summary Report discusses the fish and game resources, the village's utilization of these resources, and includes a map which identifies historic fishing spots and trails into the Minto Flats.

The Department of Natural Resources sent the Summary Report and classification request for interagency review, but in late 1980 the proposal was put on hold so that it can be addressed by the Tanana Area Basin Plan.

#### 2. TOK RIVER BASIN

In 1979 the Department of Fish and Game, in response to public opinion in the Tok area, requested that land in the the Tok River Basin be classified as Wildlife Habitat. DFLWM gave public notice of the proposed classification at which time the Tok Chamber of Commerce, Tetlin Village Council and Tok Fish and Game Advisory Board voiced their support of the classification. The Director of the Department of Land and Water and Forests concurred with the classification action and sent the request to the Commissioner, at which time it was decided that the classification should wait until the Tanana Basin Area Plan was under way.

The Department of Fish and Game wrote a report in support of the Tok River classification. The report addresses population, economic considerations, wildlife values, nonconsumptive recreation, timber harvesting, mining, management objectives and procedures, and it includes a legal description of the area proposed for wildlife habitat.

#### **3. LAKE MINCHUMINA**

In August 1979, the Lake Minchumina Homeowners Association sent the Department of Natural Resources a formal classification request based on a Land Use Plan for the Lake Minchumina Area. The community identified nearby lands for wildlife habitat, watershed, public recreation, forestry, greenbelts and dispersed open-to-entry disposal classification. The community wrote a narrative justifying their proposal.

The proposal went through in-house and interagency review and public notice. The DFLWM supported the classifications and felt that the proposal had generated "a general scheme for dealing with state lands tht both the public and the district can support". The District sent the proposal to the Commissioner at which time the request was put on hold pending the Tanana Basin Area Plan.

## 4. YANERT-REVINE CREEK AREA COMMUNITY LAND USE PLAN

In December 1979, the communities in the Yanert-Revine Creek area submitted a land use plan for lands adjacent to their community to the Department of Natural Resources. The plan was "the result of efforts of the entire community" and was developed over a period of three months during which time the community conducted three public meetings. The plan designated specific areas for disposals, recreation, and wildlife habitat, and included management guidelines for buffers, density of settlement and public easements. The plan did not include any formal classification requests, so it was not processed by the Division of Land and Water. However, the cover letter from the community stated that "We, as a community, strongly urge the Division of Forests, Land and Water Management to consider this proposal and adopt it as its guidelines for land disposals in this area."

#### 5. LOWER TANANA-MANLEY HOT SPRINGS AREA

The Forestry Section of DFLWM in response to a proposal from Northland Wood, requested that certain lands along the major river drainages between Nenana and Manley Hot Springs be classified for forestry. The proposal included a land use plan that discussed the following topics: location, criteria for the recommendation, access, vegetation, timber resources, soils, wildlife and fish habitat, recreation, current use, reasons for state selection of the lands, adjacent land uses, benefit to the public, expected impact of forest classification, proposed management guidelines, and justification for requested classification. The request was sent for interagency review at which time it was decided that the classification was premature since other resource potentials of the land had not been assessed fully.

#### 6. COMMUNITY STRATEGY PLANS

Tanana Chiefs Conference has worked extensively over the past several years with most Village Councils in the Doyon Region to develop Community Strategy Plans. Strategy Plans identify goals and objectives for each community. Most goals and objectives address social services. However, there is a section in each strategy plan that identifies land use concerns and priorities for each area.

#### 7. INTERIOR VILLAGE ASSOCIATION PLANNING PROJECT

Interior Village Association, an organization based in Fairbanks, which specializes in helping village corporations do corporate planning, is currently working with Manley Hot Springs and Tanana to develop corporate plans for the village's lands. These plans should be done by September. At that time, the village corporations will begin doing feasibility studies on the projects they identified in their plan. IVA is also encouraging other Village Corporations to do similar plans.

#### 8. BEAN RIDGE CORPORATION CLASSIFICATION REQUEST

Bean Ridge Native Corporation of Manley Hot Springs on October 15, 1982, requested the state to classify lands surrounding Manley Hot Springs as wildlife habitat. Bean Ridge feels it is critical to protect habitat lands in the Manley area, since the land is used for subsistence by residents of Manley, Minto, Tanana, Nenana and Rampart and sport hunters from residents of other areas.

#### 9. UPPER TANANA LAND USE PLAN

The Upper Tanana Development Corporation is currently working on a community and land use plan for the Upper Tanana region. The plan will be based on a coordinated efforts of all local governments and interest groups in the area.

The Upper Tanana Development Corporation hopes to have some information from their planning effort available in time to be used in the Tanana Basin Area planning process.

# **10. LOWER TANANA LAND USE PLAN**

Tanana Chiefs Conference is currently working with the village councils, city councils and village corporations of Minto, Manley, Tanana and Nenana on a set of classification requests for state land in the lower Tanana River basin. Classification requests are for forestry, minerals, and fish and wildlife habitat. Also included in the plan is a description of areas that should be off limits to disposals, and lands where some settlement might be acceptable. This effort should be completed in time to be used in the Tanana Basin Area planning process.

#### **11. LAND BANK NOMINATIONS**

The states land disposal program allows the public to nominate lands that they would like to see sold to the public. During September 1982, DNR received 7 different nominations for land in the Tanana Basin that should be sold. The decision on these requests was deferred to the Tanana Basin Area Plan for planning team review.

#### **B. Tanana Basin Public Meetings**

Nat Goodhue, the Tanana Basin Planning Team member from the Alaska State Department of Natural Resources, Division of Parks is responsible for incorporating recreation concerns into the planning process. After attending several of the public meetings and reading the meeting notes, he listed the following local opinions for each community in the Basin:

#### ANDERSON

Traditional traplines, access and ski trails are valuable land uses and should be protected.

Green spaces that are not going to be developed are needed between disposals, including farms. Land disposals should enable development of profitable commercial recreation enterprises such as ski lodges.

### CANTWELL

Opinion was polarized: "no more parks in this area." versus "unique areas should be protected" or "the state does not belong in the recreation business" versus "pave the Denali Highway because this will encourage tourism."

Popular trails should be recognized by providing a greenbelt between trails and disposals. Moderate setbacks to allow for public use along rivers should suffice.

### **DOT LAKE**

Consider public value of state retention of land. Classifying it Wildlife Habitat will protect recreation needs of people. Public recreation classification draws too much attention to it resulting in degradation from concentrated use.

Put in buffer zones between private lands. Disposals should not be located in trapping areas because trapping furbearers depends on the protection of an area not just a linear trail. Furthermore, trap lines are ruined when they are used as an access route to land disposals.

Interest was expressed in the recreation value of Craig Lake and careful scrutiny of area between Johnson and Robertson Rivers.

#### HEALY

Leave the land the way it is and recreational needs such as dog sledding, snowmobiling, hunting and fishing will be met.

Public access and trails through disposals should be insured. Areas of particular concern are the Yanert Valley, Eight Mile Lake, trumpeter swan nesting sites and caribou habitat.

#### MANLEY HOT SPRINGS

Local residents use a lot of land around Manley for recreation - subsistence purposes, and have an extensive sled dog trail system and trapping area. There is sentiment against these lands being over-run by people from outside the area.

State should create rights of way for trails to avert violence ("Don't tread here or your dog will be crippled for life.") Continued trapping opportunities depend on an area not just a single line through the woods. Minto Flats should be left alone.

#### MENTASTA LAKE

Hunting is the major concern; also there are problems with people on traplines.

Every village needs an adequate area for their hunting which should not be sold but retained as habitat. Streams in general and the Tok and Slana Rivers in particular are valuable areas. Public use of native lands should be by permission only.

#### MINTO

Perpetuation of traditional lifestyle is dependent on extensive, uninterrupted hunting, fishing and trapping areas and trails which are "all over the land." Intrusions such as hunters and trappers coming by road, boat and plane from outside the village and the planned road from Murphy Dome to the Chatanika threaten their lifestyle.

Areas which should be protected include the Minto Flats, Chatanika Valley and ridgelines to Dunbar, Murphy Dome, Wickersham Dome, and the Sawtooths.

#### NENANA

Greatest interest is in trail dependent recreation: snowmobiling, cross-country skiing, and dog mushing.

Recreation values can be perpetuated through combinations of multiple use designations and dedication of public easements. Trails should be insured through farmland to other private property and to recreation use areas. Separate trails should be provided for motorized and nonmotorized trail users. Buffers and setbacks should be provided along rivers.

#### **NORTHWAY**

Subsistence activities including moose hunting trapping and berry picking are the main concern. Canoeing and hiking are compatible with subsistence but anything which attracts outsiders is not.

Everything within the Northway area is used for subsistence with special mention of the area around Paradise Hills.

#### TANACROSS

Interest was expressed in perpetuation and expansion of a permanant sled dog trail system.

If the state will commit the land to sled dog trail use, local residents will brush it. Tok Hills are important for caribou.

#### TANANA

Interest exists in trails for dog mushing and snowmobiling and cabins to facilitate canoeing, horseback riding etc. Dependence of 66% of residents on subsistence hunting and trapping activities means they would like to see the "land left alone" for a considerable radius around the village.

Interest was expressed in opening up historic mail trails and a new trail along but separate from the Tofty/Manley road.

#### **TETLIN**

They like to see wild country and want to be able to live the Indian way 100 years from now.

Midway Lake and the trail to Chicken and Dawson were identified as important for subsistence activities.

#### TOK

Dog mushing, trapping, hunting and fishing are important recreation activities. Interest was also expressed in a ski hill providing something to do in winter and in access to recreation opportunities by means of boat launching sites and airstrips.

Recommendations were made for buffers along water bodies (a few hundred yards wide) around agricultural disposals and along easements in disposals.

#### FAIRBANKS

State's role should be to perpetuate some of the finest recreation opportunities in the world which are found in the Tanana Basin. High interest in trails because lots of recreation involves movement from one place to another. Reasons for living in the Basin are space and freedom that is close to home. Keep it that way with buffer zones around town and natural areas near cities which have educational as well as recreational value. Consider future population increases and economic values of recreation in land use plan.

State should retain lands for dispersed recreation experiences; private enterprise can provide for winter sports resorts, ski areas and cabins. Preference for reserves for a variety of recreation uses over the more restrictive State Park System designations and management was expressed. Existing access routes and additional public access to lakes and rivers and into and through subdivisions, remote and agricultural disposals should be set Individual parcels should not straddle public aside. access routes because of interference with private use of the parcels. Rivers and creeks should be protected with 300 foot greenbelts. Greenbelts for trails should be wide enough to provide adequate buffers between trail users and abutting property owners and to accommodate separate trails for incompatible activities. Interest was expressed in trails north and south of Chena Hot Springs Road with 1000 feet wide greenbelts either side of trails and around water bodies.

# **Chapter 3**

# **Demand for the Resource**

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#### I. INTRODUCTION

This chapter discusses the current and projected level of demand for general recreation (not including hunting and fishing) in the Tanana River Basin for 1980, 1985, 1990, 1995 and 2000.

The first part of this chapter provides a brief overview of this type of recreation in the Tanana Basin. The second part of this chapter discusses the method used to evaluate the current and projected level of demand for recreation . The last part of the paper presents the results of the analysis.

These results represent the best estimate of demand currently available. Although the estimates are not absolutely precise, they do represent an order-of-magnitude estimate, which is useful for the evaluation of general recreation in the Basin.

#### **II. CURRENT AND PROJECTED USE**

#### A. Methods

In this section, current and projected demand for general recreation in the Basin is estimated for residents and tourists to Alaska. The current and future demand for recreation in the Basin was estimated by approximating the total number of user days spent by Alaskans and nonresidents recreating on State land. First the number of occasions residents and tourists in the Basin spent in certain types of recreational activity were estimated. These current levels of activity were then increased on a per capita basis to project the increase in demand for the years 1985, 1990, 1995 and 2000.

Information on the particular sites where residents are recreating is not available. For this reason, demand for general recreation is calculated for the Basin as a whole, not for specific sites. Residents' current level of recreational activity was estimated from the results of a statistical survey done in 1979 by the Division of Parks (Alaska Outdoor Recreation Plan, ADNR, 1981). This survey has general information on the average number of "occasions" each adult participates in certain recreational activities. "Occasions," when translated into user days, provides an estimate of the total user days per year spent by residents in the Basin.

The average length of each recreational occasion was estimated from a recreational survey that was done in 1979 by the Bureau of Land Management for the Denali Highway. This survey determined that the average length of a recreational trip in that area was 1.2 days. Due to a lack

of information on the number of user days per trip in the Basin as a whole, the Denali Highway estimate was used in this report to estimate the level of recreation demand in the rest of the Basin.

This assumption probably overestimates the amount of time spent by residents in the Basin because the average length of an "occasion" may be less than 1.2 days since many trips are close to home. Also, it overestimates the amount of time spent by residents since it does not account for the time they spend recreating outside the Basin boundaries. However, there was no data available concerning the amount of time which other Alaskans spend in the Basin; people from Anchorage, the Susitna area and elsewhere also recreate in the Basin. Therefore, although the figure may overestimate the time spent by residents, it greatly underestimates the time spent by people from the largest population center. Consequently, the assumption of 1.2 days per occasion was considered to be the best estimate available.

The current level of recreational demand served as the basis for projecting demand in the years 1985, 1990, 1995, and 2000. Projected demand was calculated by increasing current demand on a per capita basis. The estimated population increase in the Basin was taken from the Tanana Basin Socioeconomic Paper (ADNR, 1982). The analysis assumes that residents in the future will have the same demand for general recreation per capita which they do today.

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An estimate of the average number of days spent by out of state visitors in general recreation on State land was made in two steps. First, the total number of days per year which tourists spend in the area was estimated from the results of a study done by Louis Berger and Associates on tourism in the Tanana Basin (Working Paper on Tourism, Interior Transportation Study, Louis Berger and Associates, 1982). This study estimated the total user days spent in the Interior by tourists who take tour packages or are independent highway travelers, fly and drive visitors, and recreational vehicle renters.

Not all of the visitor days that tourists spend in the Basin can be attributed to state lands. Tourists often never set foot on state land, but focus their visit on the communities in the Basin and Denali Park. For example, tourists who take a tour package spend most of their time in Fairbanks, driving the Parks Highway and visiting Denali National Park. The following assumptions were made about the percentage of total visitor days that should be attributed to State lands.

### **Travel Method**

### Percentage of Days Attributable to State Land

Tour Packages	08
Independent Highway	40%
Fly-Drive Visitors	30%
RV Renters	40%

Visitor days for state lands were calculated by multiplying this percentage by the total visitor days in each category (Step 2). The current level of use calculated in this process then served as the basis for projecting demand for the years 1985, 1990, 1995 and 2000. Projected demand was calculated by increasing 1980-81 current demand figures by the same percentage by which visitor days increased over the last 10 years. The trend in tourism over the last 10 years was found in the "Working Paper on Tourism" (Louis Berger and Associates, 1982).

#### **B. Results**

#### 1. Residents

#### a. Current demand

According to the Alaska Public Survey, 88% of Tanana Basin residents feel recreational opportunities are very important in Interior Alaska. Recreational opportunities are the second most frequently given reason by Interior residents for why they came to live in the Tanana Basin, and why they stay.

Alaskans on the average engage in recreational activities 5 times more than residents of other states in the U.S. (Alaska Outdoor Recreation Plan, 1981). Calculations based on the Alaska Public Survey indicate that the average resident of the Basin spends 1.5 days each week involved in some type of land-based recreational activity. Residents spend a total of approximately 4.2 million days each year involved in general recreation (see Table 1 for details).

The most popular winter activity in the Basin is snowmobiling, with the average adult spending approximately 1.9 days a month in this activity.<sup>1</sup> Closely following

'It is assumed that residents participate in winter recreational activities 7 months of the year, and summer activities, 5 months of the year. snowmobiling in popularity is cross country skiing with the average adult spending 1.7 days per month in this activity.

The most popular summer recreational activity is motorboating with the average resident spending about 2.6 days each month in the activity. This is followed in popularity by driving a motorcycle or some other ORV with residents spending 1.9 days each month in this activity. Tent camping closely follows in popularity, with residents spending 1.8 days a month camping.<sup>1</sup>

Table 1 summarizes the estimated total user days in the Basin for various types of recreation activity.

#### **b.** Projected demand

By 1985 there will be approximately 5.3 million user days spent in the Tanana Basin by residents engaged in general recreation activity. By the year 2000 there will be approximately 7.5 million user days. These estimates are based on population projections contained in the Tanana Basin socioeconomic report (ADNR, 1982). Table 3-2 shows the basis for these estimates and projected user days for 1990 and 1995.

#### 2. Tourists

#### a. Current demand

Tourists spent a total of approximately 258,500 user days in Interior Alaska during the 1980-81 tourist season involved in general recreation activity on state land. This estimate was based on the assumptions outlined in the methods section on the percentage of total visitor days that can be attributed to state lands. Out of a total of 776,500 user days spent in the Basin (tour packages--129,500 days; independent highway travelers--630,000 days; fly-drive travelers--3,000 days; recreational vehicle renters--14,000 days) 258,500 of these user days or 33% of an average visitor's stay is spent in activities associated with state land.

#### b. Projected demand

There will be approximately 438 thousand user days spent by tourists in Interior Alaska on state land by 1985. Byh the year 2000 there will be approximately 2.1 million user days. These projections are based on the assumption that the number of user days will increase 170%

<sup>1</sup>It is assumed that residents participate in winter recreational activities 7 months of the year, and summer activities, 5 months of the year.

# TABLE 3-1

# CURRENT GENERAL RECREATION USER DAYS PER YEAR ALL BASIN RESIDENTS

ACTIVITY	OCCASIONS PER RESIDENT <sup>1</sup>	USER DAYS PER RESIDENT <sup>2</sup>	TOTAL USER DAYS IN BASIN <sup>3</sup>
Motorboating	11	13.2	792,000
Snowmobile/Other Winter ORV	11.2	13.44	806,400
Cross Country Skiin	g 10	12	720,000
Motorcycle/Other Summer ORV	8.1	9.72	583,200
Tent camping	7.6	9.12	547,200
Hiking with a Pack	4.2	5.04	302,400
Kayak/Canoe	3.4	4.08	244,800
Alpine Skiing	• 8	•96	57,600
Horseback Riding	1.0	1.2	72,000
Other Inland Activities	2.4	2.88	172,800
TOTAL	59.70	71.64	4,298,400

<sup>1</sup>Alaska Public Survey Exhibit 27 (Alaska Outdoor Recreation Plan, DNR, Division of Parks, 1981). In this analysis it is assumed that the pattern of recreational activity of children is the same as adults.

<sup>2</sup>1.2 user days per occasion is used, based on the Denali Highway Study (Off Road Vehicle Use and Its Impact on Soils and Vegetation on Bureau of Land Management Lands Along the Denali Highway, Alaska: A Report on the 1975 Outdoor Recreation Survey, University of Alaska Agricultural Experiment Station, 1976).

<sup>3</sup>Basin population and user days per resident. The population of the Basin is currently 60,000 people (Tanana Basin Socioeconomic Report, DNR-DRD, 1982).

# **TABLE 3-2**

# PROJECTED RESIDENT USER DAYS FOR GENERAL RECREATION

YEAR	PROJECTED POPULATION OF TANANA BASIN (THOUSANDS) <sup>1</sup>	USER DAYS/ ADULT <sup>2</sup>	POTENTIAL TOTAL USER DAYS IN BASIN (MILLIONS)	
1985	75	71.6	5.3	
1990	85	71.6	6.0	
1995	95	71.6	6.8	
2000	105	71.6	7.5	

1 See Tanana Basin Socioeconomic Report (ADNR, 1982).

<sup>2</sup>See Table 4-1.

### **TABLE 3-3**

# PROJECTED USER DAYS FROM TOURISTS IN 1985, 1990, 1995 AND 2000

YEAR	PERCENTAGE INCREASE OVER 1980 USER DAYS <sup>1</sup>	TOTAL USER DAYS (THOUSANDS) <sup>2</sup>	
1980		258	,
1985	170	438	
1990	340	745	
1995	510	1267	
2000	680	2154	

1170% for each 5-year period.

<sup>-2</sup>Percentage increase times 258 (current user days) divided by 100.

Source: Working Paper on Tourism, Louis Berger and Associates, 1982.

every 5 years. This is the same rate of growth that has occurred in tourism over the last 8 years. Between 1973 and 1980 tourism grew 279%, or 34% per year, or 170% every 5 years (Tourism Working Paper, Louis Berger and Associates, 1982). Table 3-3 shows how these estimates were calculated along with the projected visitor days for 1990 and 1995.

#### **III. CONCLUSIONS**

There are currently a total of almost 4.5 million user spent on state land in the Tanana Basin on days recreational activities (Residents--4.2 million and Tourists--258,000). This current demand for recreation is likely to increase as population increases in the Basin, and as Alaska becomes a better-known vacation stop for out-of-state residents. By the year 2000, there will be roughly 9.6 million days of recreational activity on state land. This increase in user days is likely to put pressure on existing recreation facilities in the Basin and increase the use of areas that currently receive only moderate use.

# **Chapter 4**

# **Supply of the Resource**

### I. INTRODUCTION

This chapter discusses the supply of land for recreation in the Basin. It estimates the amount of land of different quality which is available in the area for supporting recreational activities.

Summaries of the various recreational resources in the Basin have been made by planning unit. These units have no significance in themselves but are used strictly for convenience in inventorying the resources; it was felt that acreage summaries could be more useful if done by smaller units rather than for the Basin as a whole.

# II. PHYSICAL CAPABILITY OF THE TANANA BASIN FOR RECREATION

This section of Chapter 4 is divided into two parts: (1) criteria used to produce the maps of physical capability, and (2) a summary of the various recreational sites in the Basin by planning unit.

### A. Criteria Used to Produce the Maps of Physical Capability.

The process used to develop a capability map for recreational areas in the Basin had two steps. The first step was to identify all sites in the Basin that have recreational values. The second step was to attach a relative value to each of these sites, so that the more important and critical areas were highlighted.

The first step in mapping recreation in the Tanana Basin was to identify specific areas with significant recreational values. The various recreational uses that were considered when identifying sites were as follows:

Trails:

ORV use, horses, backpacking, cross country skiing, dog mushing, snowmachining.

Waterways:

Motorboating, rafting, kayaking, canoeing.

Large Areas:

Backpacking, camping, mountain climbing ORV use, dog sledding, cross country skiing, wildlife viewing, berry picking, snowmachining.

**Small sites:** 

Boat launches, campgrounds, waysides, historic and archeological sites, sites with unique geological, ecological or other values; points of access. Other items that were considered in the mapping process were prominent landscape features and scenic views.

This map, and the accompanying narrative, was developed by Nat Goodhue, the planning team member from the Division of Parks and was based on the following sources of information.

- 1. The Tanana Basin Land Use Atlas -- This atlas, published as a part of the Tanana Basin Area Planning process in 1982, includes an inventory of backcountry areas, trails, waterways and sites less than 160 acres (historic and archeological sites, highway turnouts, and access points to trails, rivers and backcountry) currently used for the following activities: Cross country skiing, dog sledding, hiking, horseback riding, bicycling, four wheel drive vehicles, off road vehicles, motorcycling, snowmachining, boating, mountain climbing and wildlife viewing.
- 2. State Department of Natural Resources, Division of Parks Public Interest Land identification and classification request files.
- 3. Consultation with state park personnel.

4. Interviews with local residents.

The inventory map which was based on these sources was then used to rank the various recreation sites which have high, medium or low value.

The following criteria were used to determine these different values.

# CRITERIA

Existing Use (Intensity of existing use in identified site). HIGH

Area currently receives intensive use; or moderate use that is likely to become intensive in the short term (by 1985).

## RANKING

# MODERATE

Area receives moderate use which is likely to stay same over the short term (by 1985); or low use that is likely to become moderate use in the short term (by 1985).

Moderately accessible (road, trail or water access existing or proposed within 5 miles of site) with same travel distances as in high category. OR Easily accessible and further than 1 hour travel from community. OR Difficult access within 1 hour travel distance.)

#### LOW

Area receives a low level of use which is not likely to change over the short term (by 1985).

Difficult access

(road, travel or

Greater

water access

miles from

than 1 hour

site).

center.

greater than 5

travel distance

from population

relation to population centers (Provides for recreational experiences within certain travel time away from residences).

Location in

Easily accessible and within 1 hour travel of communities (boat or vehicle not airplane).

Irreplaceable nature of site.

= ĝ

Natural or cultural feature or recreation opportunity provided by site is or will be irreplaceable in the next 15 to 20 years.

Economic Value of Site for Tourism. placeable in short term, but will be 20 years from now.

Recreation

opportunity

provided by

site not irre-.

Recreation opportunity provided by site is abundant and not irreplaceable.

Value High potential Moderate poten- Low potential for for tourism. tial for for tourism. tourism.

These four criteria were chosen for several The existing use of an area was used to rank reasons. sites since the current level of recreation activity is a direct indication of the popularity of the sites. The location of a site in relation to population centers was based on the results of the Alaska State Outdoor Recreation Plan (ADNR, DOP, 1982). It was determined in this plan that residents in Interior Alaska highly value recreation opportunities close to where they live. To account for sites that are inaccessible, and do not currently receive heavy use, but nevertheless are extremely unique and valuable, the last criterion was developed. Sites of this type usually are highly valuable because they are irreplaceable.

A check list for each of the four considerations listed above was filled out for each site. The final ranking given to the site was then based on the highest ranking of the four criteria. For example, if a river is ranked high in the existing use category, but low in all three other criteria, the final ranking of the site is high. All sites, regardless of whether they were a campground, river, or mountain climbing area were ranked in this manner.

The map developed using these criteria provides a starting point for team members to develop a map that shows the actions the state should take to protect the recreational resources in the Basin (see Chapter 7). The map in this section indicates both the high priority areas and the areas that have a less pressing need of protection.

#### **B. Summary of Recreational Sites in The Tanana Basin**

The following summary shows how the Division of Parks applied the criteria discussed in the methods section to sites identified on the inventory map to determine whether the site was of high, medium or low value. Included for each site is the final ranking it received for existing use, location, the irreplaceable nature and economic value of the site.

The map identifying the specific location of the recreational sites included in the following summary is on file at the Department of Natural Resources in Fairbanks. Also included with the map is background information about the various recreational values and uses of the site.

3



# Recreational Resources in the Tanana Basin by Unit

UNIT 1A321Chitanana TrailL622B322Cosna TrailL622C167Wien Lake AccessM423T71Moosehart MountainM421UNIT 2A168West Twin Lakes AccessH423170Twin Lakes WaterwayM623295West Twin Lake LodgeM621B047Lake MinchuminaM421081Clearwater CreekM622225Lake MinchuminaM422Archaeological SiteM422296Wien Lake Lodge SiteMD059Kantishna RiverME082Toklat River TrailL623623Toklat RiverMF077Nenana-Kantishna TrailM623323Rex-Toklat RiverM623323Rex-Toklat TrailL6000Nenana-Totchaket Area PlanHH172Whale LakeM42162264Black Bear Lake TrailL622624Black Bear Lake TrailL		Unit	Reference Number	Name of Site	Rank- ing	Manage- ment
A321Chitanana TrailL622B322Cosna TrailL622C167Wien Lake AccessM423171Moosehart MountainM421UNIT 2A168West Twin Lakes AccessH423169East Twin Lakes AccessH423170Twin Lakes WaterwayM623295West Twin Lake LodgeM621B047Lake MinchuminaM421081Clearwater CreekM622225Lake MinchuminaM422Archaeological SiteM440320Lake Minchumina Upland BirchMP059Kantishna RiverME082Toklat River TrailL623623108Teklanika RiverF077Nenana-Kantishna TrailM623623108Teklanika RiverG000Nenana-Totchaket Area Plan623H172Whale LakeM891ack Bear Lake TrailL622622622	~	LINIT 1				
A321Chitanana TrailL622B322Cosna TrailL622C167Wien Lake AccessM423171Moosehart MountainM421UNIT 2A168West Twin Lakes AccessH423169East Twin Lakes AccessH423170Twin Lakes WaterwayM623295West Twin Lake LodgeM621B047Lake MinchuminaM421081Clearwater CreekM622225Lake MinchuminaM422Archaeological SiteM440320Lake Minchumina Upland BirchM296Wien Lake Lodge SiteM440320Lake Minchumina Upland BirchM623ForestM623F077Nenana-Kantishna TrailM623Teklanika RiverM623F077Nenana-Kantishna TrailM623Teklanika RiverM623G000Nenana-Totchaket Area PlanMH172Whale LakeM421324Black Bear Lake TrailL622		01111 1				
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C167 171Wien Lake Access Moosehart MountainM423 421UNNT 2A168 169 169 295West Twin Lakes Access H423 423 423 		B	322	Cosna Trail	L	622
UNIT 2A168West Twin Lakes AccessH423169East Twin Lakes AccessH423170Twin Lakes WaterwayM623295West Twin Lake LodgeM621B047Lake MinchuminaM421081Clearwater CreekM622225Lake MinchuminaM422Archaeological SiteM440320Lake Minchumina Upland BirchM296Wien Lake Lodge SiteM425ForestD059Kantishna RiverM623E082Toklat River TrailL622166Toklat RiverH623F077Nenana-Kantishna TrailM622108Teklanika RiverM623323Rex-Toklat TrailL622G000Nenana-Totchaket Area Plan421H172Whale LakeM421324Black Bear Lake TrailL622		C	167 171	Wien Lake Access Moosehart Mountain	M	423 421
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295West Twin Lake LodgeM621B047Lake MinchuminaM421081Clearwater CreekM622225Lake MinchuminaM422Archaeological SiteM440320Lake Minchumina Upland BirchM320Lake Minchumina Upland BirchM320Lake Minchumina Upland BirchM623ForestMD059Kantishna RiverM623Toklat River TrailL66Toklat RiverH623Teklanika RiverM7Nenana-Kantishna TrailM623Teklanika RiverM62108Teklanika RiverM62000Nenana-Totchaket Area PlanH172Whale LakeM81ack Bear Lake TrailL622			170	Twin Lakes Waterway	Μ	623
B047Lake MinchuminaM421081Clearwater CreekM622225Lake MinchuminaM422Archaeological SiteM440320Lake Minchumina Upland BirchM320Lake Minchumina Upland BirchM0059Kantishna RiverM623E082Toklat River TrailL623ForestH6237Nenana-Kantishna TrailM622108Teklanika RiverM623323Rex-Toklat TrailL6226000Nenana-Totchaket Area Plan62217Whale LakeM421324Black Bear Lake TrailL622			295	West Twin Lake Lodge	M	621
081Clearwater CreekM622225Lake MinchuminaM422Archaeological SiteM440320Lake Minchumina Upland BirchM320Lake Minchumina Upland BirchM425ForestD059Kantishna RiverME082Toklat River TrailL6622166Toklat RiverH623F077Nenana-Kantishna TrailMM622108Teklanika RiverM323Rex-Toklat TrailLG000Nenana-Totchaket Area PlanH172Whale LakeM324Black Bear Lake TrailL622622		В	047	Lake Minchumina	М	421
225Lake Minchumina Archaeological SiteM422 Archaeological Site296Wien Lake Lodge SiteM440320Lake Minchumina Upland BirchM425 ForestD059Kantishna RiverM623E082Toklat River TrailL622 623F077Nenana-Kantishna TrailM622 622G000Nenana-Kantishna TrailM622 622G000Nenana-Totchaket Area Plan622 622H172 324Whale Lake Black Bear Lake TrailM421 			081	Clearwater Creek	M	622
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320Lake Minchumina Upland BirchM425 ForestD059Kantishna RiverM623E082Toklat River TrailL622 66166Toklat RiverH623F077Nenana-Kantishna TrailM622 622108Teklanika RiverM623 			296	Wien Lake Lodge Site	M	440
D059Kantishna RiverM623E082Toklat River TrailL622166Toklat RiverH623F077Nenana-Kantishna TrailM622079Mile 400 to Toklat River TrailM622108Teklanika RiverM623323Rex-Toklat TrailL622G000Nenana-Totchaket Area PlanMH172Whale LakeM421Black Bear Lake TrailL622			320	Lake Minchumina Upland Birch Forest	М	425
E082 166Toklat River Trail Toklat RiverL622 623F077 		D	059	Kantishna River	М	623
166Toklat RiverH623F077Nenana-Kantishna TrailM622079Mile 400 to Toklat River TrailM622108Teklanika RiverM623323Rex-Toklat TrailL622G000Nenana-Totcnaket Area PlanHH172Whale LakeM421324Black Bear Lake TrailL622		E	082	Toklat River Trail	L	622
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079Mile 400 to Toklat River Trail M622108Teklanika RiverM623323Rex-Toklat TrailL622G000Nenana-Totchaket Area PlanH172H172Whale LakeM421324Black Bear Lake TrailL622		F	077	Nenana-Kantishna Trail	М	622
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323 Rex-Toklat Trail L 622 G 000 Nenana-Totchaket Area Plan H 172 Whale Lake M 421 324 Black Bear Lake Trail L 622			108	Teklanika River	M	623
G 000 Nenana-Totcnaket Area Plan H 172 Whale Lake M 421 324 Black Bear Lake Trail L 622		-	323	Rex-Toklat Trail	L	622
H 172 Whale Lake M 421 324 Black Bear Lake Trail L 622		G	000	Nenana-Totcnaket Area Plan		
324 Black Bear Lake Trail L 622		Н	172	Whale Lake	М	421
			324	Black Bear Lake Trail	L	622

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Unit	Reference Number	Name of Site	Rank- ing	Manage- ment
UNIT 3				· · · · · · · · · · · · · · · · · · ·
A	058	Tanana River	L .	623
С	049	Manley Hot Springs Road	н	621
	050	Manley Hot Springs	M	601
	066	Manley Hot Springs Trail	H	622
	221	Sawtooth Mountains Trail	H	622
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	243	Wolverine Creek Site	М	423
•	325	lanana-Woodchopper Irail	L	622
10 A	326	Bean Ridge	L	622
	327	Roughtop Mountain	L	622
	328	wolverine Creek	Ĺ	622
D	048	Sawtooth Mountains	L	601
	065	Dugan Hills Irail	M	622
	239	Hutiinana Hot Springs	H	425
	240	Baker Creek Recreation Site	H	415
	329	Eureka Dog Mushing Trails Nutlitakwa Trail	M	424
	221	Hutlitakwa (fali Hutlitakwa Crook Trail	I I	424
		hutiltakwa cieek ilali	L.	022
UNIT 4				
Δ	032	Tolovana River	н	417
A.	035	Tolovana Hot Springs Dome	н Н	417
	222	Minto-livengood Trail	1	425
	334	Tolovana Hot Springs Trail	M	424
В	016	Deadman Lake Access	M	415
<b>C</b> 1	009	Chatanika River	н	417
	028	Lake Within Island	Н	425
	030	Minto Lakes	M	610
	064	Dunbar to Brooks Terminal Tr.	M	622
	068	Fairbanks to Gibbon Road	M	622
	114	Alaska Railroad	н	621
	188	Nenana-Old Minto Trail	M	622
	332	Old-New Minto Trail	M	424
1. A	335	Minto Lakes Trail	М	424
C2	164	Tatalina River	М	623
	394	Washington Creek Trail	L a	622
D	156	Wickersham Dome	Н	460
	157	Dalton Highway Greenbelt	M	621
	159	Tolovana Campground	H	460
	161	Snoshoe Pass Campground	H .	460

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Unit	Reference Number	ference mber Name of Site					
UNIT 4				• •			
D	264	Brown Lake	M	415			
2	265	Tatalina River Access	м	423			
, <sup>1</sup>	309	Wickersham Burn	M	425			
E	155	White Mountain Access	Н	424			
	163	Amy Dome	М	421			
	245	Livengood Gold Mining Camps	М	440			
	353	Livengood Archaeological Dist.	M	422			
UNIT 5			. '				
A	010	Parks Highway	м	621			
	045	June Creek	М	415			
	046	Healy Campground	М	423			
	052	Stampede Road Trail	M	622			
	057	Nenana River	М	417			
	072	Rex to Bonnifield Trail	м	622			
	073	Rex to Bonnifield Alt.	H ·	622			
	074	Healy to Rex Trail	н	622			
	076	Negana Foothills Trail	м	424			
	078	Rev to Nepana Trail	Т.	121			
	080	Toklat River to Lake	H	622			
	091	Rey	м	415			
	097	Vanart River	н	623			
	112	Boar Crook	н	415			
	115	Panguingue Creek Historic Site	и и	413			
	122	Dry Crook Historia Site	ц ц	413			
	122	Otto Lako Historia Site	<u>п</u>	41J 112			
	133	Volto Lake Historic Site	и и	415			
	200	NODE Little Denguingue Clate	ш 11	410			
	235	Creeks Trail	Π	410			
	236	8 Mile Lake Trails	M	424			
	246	Suntrana Mine Safety Car	М	440			
	247	Panorama Mountain Landmark	L	425			
	248	Dry Creek Ridge Trail	М	424			
	281	Carlo Creek Archaeological Site	e M.	422			
	319	Nenana Canyon	М	425			
	337	Anderson Ski Area	М	421			
	344	Carlo Creek Trail	M	424			
	345	Carlo-Yanert Trail	М	424			
	351	Moose Creek Archaeological Site	еM	422			
	356	Healy Access Site		415			
	357	Denali Park River Access	Н	415			
	358	McKinley Village Access	H	415			

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Unit	Reference Number	Name of Site	Rank- ing	Manage- ment
UNIT 5				
B	051	Rex Dome Area	L	601
	145	Denali Highway	H	621
	237	Reindeer Hill	Μ	421
	249	Jonesville Bridge Access	H	415
	346	Wells Creek Access	M	415
	347	Jack River Trail	M	424
	359	Wells Creek Trail		424
UNIT 6				
	352	Cantwell Trails	L	435
LINHT 7				
UNIT /				
A1	021	Totatlanika River Trail	L	622
	250	Wood River	H	623
	251	Gold King Trailhead	M	624
	252	Japan Hills Trail	M	42.4
	267	Nenana Dog Mushing Area	M	421
A2	349	Blair Lakes Trails	L	622
D	071	Ponnifield Trail	м	622
D	071	Tiberty Poll and Danield	. M	622
	075	Dibercy Berr and Daniers	M 34	022
	201	Rex Dome	M	425
1. 1. 1. 1.	338	Walker Dome	M	421
	339	Healy Creek Trail	L	622
С	340	Dean Creek Trail	М	424
•	341	Yanert Trail	M	424
	342	Moose Creek Trail	M	424
	343	Revine Creek Trail	Μ	424
D	199	Mt. Hayes, Hess, Deborah	М	425
	350	Dry Creek Trail	L	622
	367	Black Rapids Trail	М	424
UNIT 8				
A	230	WAMCATS Historic Trail	H	416
	253	Volkmar River	М	417
	254	Shaw Creek	M	424
	382	Shaw Creek Trail	м	121

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Unit	Reference Number	Name of Site	Rank- ing	Manage- ment
UNIT 8			.4	• • •
A	384	Volkmar River Trail	M	424
	385	Goodpaster Trail	$\mathbf{L}$	622
	386	Black Mountain Trail	L	622
D	300	Hoaly Piyor	M	623
D	201	Rilly Crock Troil	EI T	623
	201	Billy Creek Itali	L .	022
	387	George Trails	L L	622
С	255	Fish-Wolf Lakes Waterway	M	623
	256	Lake Mansfield Access	М	423
	379	Mansfield Trail	M	622
	380	Mansfield-Dot Lake Trail	Μ	622
UNIT 9	<u> </u>			· · · · · · · · · · · · · · · · · · ·
Δ.	089	Robertson Lakes	н	414
<b>A</b>	142	Alaska Highway	н	621
	272	Knoh Didao Trail	M	121
	312	KHOD KIUYE ILALI	P1	444
В	054	Old Tetlin Trail	H	424
	093	Tok River	M	623
	103	Eagle Trail	H	424
	104	Mt. Neuberger	M	421
	109	Little Tok River	H	623
	126	Tanana River Access	н	415
	141	Taylor Highway	M	621
	143	Glenn Highway	H	621
	198	Tok Greenbelt	Ĥ	435
	205	Tok River Rec. Site	H	
·•	231	Clearwater-Verrick Trail	H	416
	257	Mentasta Mountains	M	421
	258	Mentasta Lake	M	423
· . ·	250	Mineral Lake	M	421
	201	Shaan Craak Trail	M	121
	275	Minoral Lakog Myail	M	424
	3/3	Minelal Lakes TTall Motlin Lakes Marcil	M	444
	3/0	Tetlin Lakes Trall	171 NG	622
· .	3/8	TANACTOSS TRAIIS	м. р. С. С. С	022
U <b>NIT 10</b>				
A	105	Panorama Peak St. Trail	Н	416
	119	Monte Lake	M	423
	148	Robertson River	M	623
en el la companya de la	242	Macomb Plateau St. Trail	H	416
	222	Debowhan Diway Covias Forest	M	425

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ReferenceUnitNumber		Name of Site	Rank- ing	Manage- ment	
UNIT 10					
B	118 260 374	Forrest Lake East Alaska Range Tok River Trails	M M L	423 610 622	
UNIT 11					
Α	223 232 233 234 262	Nabesna River Chisana River Island Lake Paradise Hill Cheneathda Hill Trail	M H M M	623 623 415 415 424	
В	377 206	Eagle Trail Rec. Site	M H	424	
UNIT 12					
<b>A</b>	006 007 008 027 209 297 336 393	Murphy Dome Ridge Trail Murphy Dome Murphy Dome Ski Chatanika Ridge Trail Lower Chatanika Rec Site Elliot Highway Chatanika Canyon Murphy Shovel Trail	H H M H H H	424 421 440 424 621 425 622	
В1	174 175 176	Goldstream to Murphy Dome Greenbelts Cache Creek-Left Fork Tr. Lincoln Creek Trail	H H H	424 424 424	
B 2	226	Goldstream Access	M	415	
C 1	011 097 298 314	Goldstream Valley Greenbelt Nenana Ridge Bonanza Creek Stratigraphic A Bonanza Creek Exp. Forest	H M M M	436 415 425 425	
C2	173	North Nenana Trail	Н		
D 1	113	Bonanza Forest Trail	Н	424	
D 2	107	Nenana Community Park	М	432	
E	002 012	Fairbanks Crescent Ester Dome	H H	436 601	

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Unit	Reference Number	Name of Site	Rank- ing	Manage- ment
<b>UNIT 12</b>				
Е	013	Ester Dome Ski	H	440
	0.15	Ester Community Trails	H	434
	124	Dunbar Trail	М	424
	192	Equinox Trail	н	435
	227	Ester Dome Nugget Trail	M	424
	266	Ester Gold Mining Camps	M	440
	268	Aqueduct Trail	M	434
	307	Ester Dome Mining Recovery	M	425
	311	Ester Tailings	M	425
ភ	023	Chena Slough	M	435
• . · ·	070	Fairbanks 100 Mile Loop Tr.	H	435
	160	Tanana Valley Overlook	Н	415
	207	Chona Lakos	н	414
	207	Cripple Creek-Dogia Creek	Ħ	434
	271	Tanana River Access at	M	423
		Bonanza		
G	003	Chena River	H	436
	017	Pedro Dome	H ·	425/413
	024	Davidson Ditch	H	416/413
	135	Fairbanks Public Reserve	H	433
	136	Heritage Park	Ĥ	433
	139	Tanana Valley Railroad	H	435
	177	Spinach Creek Trail	н	435
	178	Dome Spur	H	435
•	179	Moose Creek	н	435
	180	Moose Ridge	H	435
	181	O'Conner Creek	Ĥ	435
	182	Airfield Ridge	H	435
	183	Eldorado Creek	н	435
· •	184	Eldorado Ridge	н	435
	185	Silver Creek Trail	н	435
	186	For Ridge Trail	н	435
	100	Skuling Trail	и Ч	435
	107	Joff Studdort Dog Mushing Tr	11 11	435
	190	Skarland Ski Trail	ц.	435
	202	Chopp Divor Degregation Site	н ц	136
	202	Nouse Clough	11 T	430
	220	Noyes stough For Cold Mining Comp	M	410
	212	rox Gord Mining Camp	171 121	440
	2/3	Dig UTPper Direb Hill	u u	434
	2/4	DICCI IIII Organizza Dainu Wildlife Defunc	ព ប	434
	2/5	creamers Dairy Wildlife Refuge	n U	010
	2/6	SKI BOOT HILL Expansion	H	440
	277	MUSK OX Public Reserve	H	431
	278	Pearl Creek School Park	Н	431
	-305	Spinach Creek Res. Watershed	M · · ·	425
	308	Ballaine Lake Aquatic Study A.	M	425

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Unit	Reference Number	Name of Site	Rank- ing	Manage- ment	
<b>UNIT 12</b>					
G	312	Fox Tailings	M	425	
-			, <b></b>		
Ή	165	East Fairbanks Reserve	Н		
	279	Potlatch Ponds Public Reserve	H	433	
	280	Little Chena River	М	623	
	282	Chena Lakes Trail	М	435	
	283	23 Mile Slough Trails	Н	423	
	284	Chena Trail Čamp	М	433	
I	005	Chena-Gilmore Trails	H	424	
	152	Fairbanks-Circle Corridor	H	416/622	
	158	Steese Highway Greenbelt	H	621	
	211	DOT Trail 73c	М	622	
	285	Iowa Creek Trail	M	622	
	286	Anaconda Creek Trail	M	622	
	287	Colorado Creek Trail	M	622	
	288	Governer's Cup North Tr.	M	424	
J	289	Chatanika Gold Dredge	Н	440	
	153	Mt. Ryan Ridge Trail	M	424	
	208	Chatanika Rec. Site	H	405	
	212	DOT Trail 303 (Old Chatanika	М	424	
	010	Freight Irall)		600	
	213	DOT Trail 286 (Moose Creek)	M	622	
	214	DOT Trail 262 (Nome Creek)	H	622	
	216	DOT Trail 29/ (Fairbanks Cr.)	M	622	
	217	DOT Trail 288	L	622	
	218	DOT Trail 293 (Faith Creek)	L	622	
	219	DOT Trail 294 (Montana Creek)	L	622	
	222	Haystack Mountain Trail	М	424/622	
	304	Carlbou-Poker Creeks Research	, M	425	
*		Watershed			
	391	Cripple Creek Trail	M	424	
K	149	Far Mountain Trail	Μ	424	
	151	Chena Dome Trail	Н	416	
	196	Mt. Ryan	М	423	
	220	DOT Trail 203 (North Fork	M	622	
	229	West Fork Ridge Trail	Н	416	

4-13

ReferenceUnitNumberNa		Name of Site	Rank- ing	Manage- ment
UNIT 12	· .			
К	290 291	Middle Fork Chena River Jenny M. Trail	M M	417 424
L	004 241	Grange Hall Access Site Chena Hot Springs Winter Tr.	M H	416
M	020 313	Chena Dome Granite Tors	M H	425 425
N	026 150 197 292 388 389 390	Salcha River Water Trail Chena Sunny Far Mountain Salcha Caribou Trail Salcha Trails Middle Fork Chena Trail West Fork Valley Trail	M H M M M M	623 440 421 622 622 424 622
0	000	Eielson		
P	000	Wainwright		
UNIT 13			, <u>, , , , , , , , , , , , , , , , , , </u>	
	039 085 123 125 144 147 293 294 302 303 368 369 370 371	Black Rapids Delta River Corridor Fielding, Summit Lakes Tangle Lakes Richardson Highway Canwell Glacier Tangle Lakes Archaeological Site Tangle Lake Access Gulkana Glacier Black Rapids Glacier Sugarloaf Mountain Trail Gulkana-Canwell Trail Castner Glacier Trail Robertson River Trail	M H H H H H H H H H H M H H H	415 417/416 414 460 621 421 460 460 421 425 424 424 424 424

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# **Chapter 5**

# **Benefit-Cost Analysis**

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# I. INTRODUCTION

This chapter discusses the relative economic value of managing state land for general recreation in the Tanana River Basin. It is part of a study of the economic value of managing state land for six different resources: settlement, fish and game, forestry, agriculture, mineral development and general recreation. Each of the resources is examined separately first and then combinations (due to multiple use) will be discussed in a separate paper.

The first part discusses both the method used to evaluate the economics of all the resources and the specific application of this method to general recreation. The second part of the paper presents the results of the analysis. Due to lack of data on specific locations of general recreation activities only part of the economic analysis methods could be applied. Only net benefits to state, income and employment effects could be estimated for general recreation.

The results of this analysis represent the best estimates currently available. Although they are not precise, they do indicate an order-of-magnitude estimate and the method is significantly more detailed than any previous evaluation of general recreation activities to the economy of the Basin.

# PART 1. METHODS

#### I. General Approach to Economic Analysis

Before discussing in detail the method used to evaluate recreation some background is necessary on the general approach to the consistent evaluation of all of the land management alternatives and the reasons for examining the economic value of these alternatives.

There are three basic reasons for examining economic value. First, economic information complements the physical information presented in Chapter 3 of this report and gives perspective on both what is happening now in the Basin and what the potential is. Secondly, economic data supply important information concerning the profitability of resource development; if a resource cannot be developed profitably, it probably will not have a lasting effect on the economy. Finally, because two objectives of the state government are economic development and diversification, economic information is needed to make decisions which may benefit the economy.

The economic value of a resource has several meanings. Economists define economic value as the worth of an item or activity to society. This value can be measured in monetary prices in the market place or it can be nonmonetary. In the case of a business, its economic value can be measured in a relatively straight-forward way, in the form of a financial analysis of the profitability of the enterprise. In other cases, such as recreation or hunting activities, there are economic values to the society which are not measured directly in monetary terms, but are imputed in people's behavior and spending patterns.

Economic analysis attempts to measure people's values, or the worth they place on different things, in terms of their behavior. It assumes that if people cherish something their economic behavior will reflect this, and thus their behavior can be used to indicate the worth which the people attach to something. In this respect, economic analysis is analogous to an attitude survey which attempts to measure people's values.

For example, a view of Mt. McKinley may be considered a priceless experience. However, many people place a great deal of worth on this experience and expectedly, this worth is reflected in their economic behavior: the prices of homes with a good view of Mt. McKinley are significantly higher than those without such a view. Thus, the difference in the value of these homes compared to others of similar quality can indicate the minimum worth which people attach to the view. If the view were obstructed by some development, the property value decreases significantly.

#### A. EVALUATION TECHNIQUES

There are two common methods available for determining the economic effects of public policy decisions. The first is referred to as cost-effectivenss and the second is benefit-cost analysis.

Cost-effectiveness is simply a method for finding the least cost alternative for meeting a single objective. For example, if the objective is to improve public health there may be several alternative ways to meet this: more hospitals, better health instruction in schools, etc. Each approach would be costed out and the least cost alternative would be chosen. Unfortunately, this method is not of use in choosing between objectives. If there is not enough money to meet all objectives, then choices between objectives will have to be made and this method will not be of assistance.

For this purpose, benefit-cost analysis has long been the preferred approach. First developed by the Corps of Engineers in the 1930's, the method has become increasingly common to all types of public policy decisions. In the 1950's, it was adapted to private sector decision-making and is now used by most of the major corporations to make investment decisions.

It is not a panacea, but it does provide a systematic approach and there is extensive literature which documents the ways in which benefit-cost analysis has been used to examine a vast variety of public policy questions. Therefore the benefit-cost approach is used in this report.

### B. BENEFIT-COST ANALYSIS APPLIED TO LAND MANAGEMENT ALTERNATIVES

The approach used below determines net benefits (benefits minus costs) of each of six alternative ways to manage land (mineral development, recreation, agriculture, fish and game, settlement and forestry). Each of these alternatives is examined separately at this stage, and combinations will be discussed during the next phase (Alternative Development) in order to evaluate the benefits of multiple use.

First it is necessary to define who gains and who loses from a particular land management alternative. Three groups are generally identified: producers, consumers and government. Producers are those who provide goods and/or services for a monetary return. Consumers purchase these goods and services. The government often incurs a cost for any land management approach and this is often offset by revenues received from user fees. For each of these three groups, it is necessary to know what their situation is now and what the effect of a change in land management policy would have. For example, recreational users are receiving some benefit from the use of state land. What effect would a decrease in the amount of state land open to recreation have on these "consumers"? Likewise, what would be the effect on local sawmills of an increase in the state's allowable cut? Also, how much would it cost the state to increase the amount of land disposals and what would be the return to producers and consumers of doing so? Benefitcost analysis attempts to answer such questions.

The results of the analysis are aggregated over a period of 20 years. This period of time was used for three reasons. First, the time horizon of the plan is twenty years. Secondly, forecasting for a period beyond 20 years is very speculative and thirdly, the operation of the time value of money renders cash flows after 20 years insignificant. For example, \$1000 received 40 years from now is worth only \$22 today at a discount rate of 10%.

The net benefits of any action must be discounted to arrive at their present value. The need to discount the net benefits arises from the fact that a dollar received several years from now is not worth as much as a dollar received today. Before the dollars received in different years can be added together, they must be converted to today's dollars by discounting. This process is similar to converting measurements in yards and feet, into inches before adding them together.

The discount rate is generally set at the interest rate on borrowed funds. For this study, a discount rate of 10% was used which is the average interest rate charged on agricultural loans. Because it is important to be consistent, this rate was also used for the other resource evaluations.

Each major step of the analysis is described below. Producers, consumers and the state government are examined separately first and then the results are totaled.

#### **1. Net Benefits to Producers**

First it is necessary to define who the producers are. In this study, they are defined as those who expect to make a financial return on the use of a resource. For many resources, more than one product may be involved, in which case the producers of each product are examined separately first and then the results are summed. For example, there are producers of lumber and producers of fuelwood. The profits of each are examined separately and then the results are summed. For each type of producer, net benefits are measured as profits.<sup>1</sup> The profits of an operation, such as a sawmill or farm, are measured in purely monetary terms. The first step in the analysis, is to determine if the resource development is financially feasible. If the development has been taking place for many years, this step is very straightforward: what are the estimated profits of the venture right now and what is the capacity for expansion?

If, however, there is no current operation or if the development is expected to expand beyond current capacity, then a detailed financial feasibility analysis must be done to determine if the venture would be financially profitable.

For example, if local sawmills have been turning a profit for many years, they can be assumed to be feasible. The next step is to determine the likely timber supply if all available forest land were managed for timber. If the sawmills can already handle this increase in supply, then it is simply necessary to estimate profits. If they could not handle the supply, then it would be necessary to do a financial analysis of the expected costs and revenues to a new sawmill.

A brief summary of the financial analysis required for each resource is given below:

Settlement is unique as the purchase of a homesite is assumed to be "financially feasible". It is assumed that a person would not buy a parcel for more than its financial value to him.

With forestry, preliminary estimates indicated that current capacity is likely to be able to handle the foreseeable increase in timber supply and therefore no detailed financial feasibility analysis was necessary. Only current and projected profits of existing operations were used.

With fish and game, the producers were defined as those whose "principal" objective was financial return (guides, commercial fishermen, and trappers). These ventures are expected to be able to handle the foreseeable supply and therefore no detailed financial feasibility analysis was necessary. Only current and projected profits of existing operations were used.

<sup>1</sup>The analysis is complicated by the fact that a producer may also be contributing to the economy by such things as hiring people who may otherwise be unemployed. Due to limited time and data, these opportunity costs were not evaluated in this study. In mineral development, some types of minerals may be developed or expanded and a preliminary financial feasibility analysis was performed to estimate the likely returns to this industry.

With agriculture, the Delta farming area is now operating so it is assumed to be feasible for present operators. Other areas in the Basin may not be feasible so it was necessary to perform a detailed financial feasibility analysis.

For recreation, there is currently no large group of producers dependent on state land for recreational enterprises. There is some interest in commercial alpine skiing ventures, and a preliminary examination of the financial feasibility of this type of venture has been included.

#### 2. Net Benefits to Consumers

Consumers also stand to gain or lose due to changes in public policy. Consumers are defined in this study as those who purchase goods, services or "experiences" (as in the case of hunting or recreation). Benefits to consumers arise from two factors: 1) a decrease in the price of a good or an experience and 2) an increase in the quantity available of the good or of the experience. As in the analysis of producers, it is necessary to determine the status quo and/or potential and then the effect of a change in policy on consumers.

The benefit to consumers is an increase in the welfare or standard of living of the State's citizens (benefits and costs to non-Alaskans have not been counted in this analysis since state policies are generally aimed at only the citizens of this state). If a state policy changes either the <u>price</u> of a good or experience or the <u>quantity</u> available, then the welfare of the consumers is affected.

The analysis of consumers' net benefits requires an understanding of the demand curve for a resource. As an example, consider the market for fuelwood in Fairbanks. You may find someone who would be willing to pay \$120 per cord for a few cords because it is that valuable to them. Someone else might pay up to \$110 per cord for a few cords, but if the pice went any higher, they would burn another fuel. Yet another person would consider \$90 their upper If you could find each of these people and graph limit. their maximum willingness to pay against the cumulative number of cords they would buy, the curve might look like the one shown in Figure 1. If the supply were 20,000 cords, then all of the people who would pay \$70 or more would have purchased wood. The person who considered the wood to be worth only \$69 per cord would not buy wood until the supply expanded and the price fell to what she considered the wood to be worth.

The most difficult aspect of the analysis of the benefit to consumers is to estimate the demand curve. Ideally, information could be obtained in different people's willingness-to-pay (their upper limit) and this would be graphed against the quantity of the good or experience which they purchase. However, in many cases this information is not available.

Willingness to pay information is generally obtained from one of two sources: (1) through direct questions in a statistical survey and (2) indirectly through records on how much people actually paid for different quantities.<sup>1</sup> No accurate survey of the willingness-to-pay was available for any of the resources. However, it was possible to estimate the willingness-to-pay for hunting in the Basin through analysis of fish and game records.

For the other resources, a less desireable but necessary substitute was used, called replacement cost. This technique assumes that people would be willing to pay an amount equal to the cost of the next best alternative. For example, if no firewood were available, people may have to switch to fuel oil and the cost of an equivalent amount of heat in the form of oil could be used as a proxy for the willingness-to-pay.

This technique is less than ideal for two major reasons. First, it will underestimate what some people would be willing to pay. Someone may want to burn wood for aesthetic reasons and they will pay a lot for this pleasuse. The willingness-to-pay approach should reflect the lifestyle or aesthetic values which people obtain from a resource. The replacement cost method assumes that only financial reasons are involved in the value consumers place on an activity or item, and is therefore a less desireable approach.

Secondly, the replacement cost value is not accurate for those who would not switch to the assumed alternative but who would use some other replacement. Therefore, the replacement cost is not a precise estimate of the true benefit to consumers (which is represented by triangle ABC in Figure 2). However, it is often the only alternative short of a detailed and expensive survey and it has been used in this study to estimate the benefits to consumers for each resource except fish and game (which had adequate data available to use the willingness-to-pay approach).

This occurs only when people pay different amounts to obtain the same good, service or experience, as in the case of hunting or recreation when non-residents generally pay much more to enjoy the same experience which Alaskans can enjoy everyday.





The shaded area in Figure 1 represents the value to each of the consumers. The person who was willing to pay \$120/cord has gotten a bargain because she only had to pay \$70. The same is true for the person who would have paid \$110 and the one who would have paid \$90. The one who would have paid only \$70, however, must consider the deal just marginal; there is no "surplus" for him as he paid just what he thought it was worth. If the "surplus" for each individual who was willing to pay more were added together, the total value would be equal to the area of the triangle ABC shown in Figure 2. This shaded area determines the net benefit to the



# Figure 2. Hypothetical Consumer Benefits from Fuelwood

#### 3. Net Benefits to the State

The net benefit (or net cost) to the state was also estimated in order to give decision-makers an indication of what it costs the state, if anything, to provide benefits to producers and consumers.

The net return to the state from the land disposal program, for example, is determined from the revenues obtained from the sale of land less the costs of administering the program and surveying the land.

If the costs of a program exceeded the revenues to the state, then the decision maker should examine the total net benefits or costs (the sum of net benefits to producers, consumers and the state) to determine if the program has a positive effect overall.

## C. OTHER IMPORTANT INDICATORS OF ECONOMIC EFFECTS

Although benefit-cost analysis is the most thorough single method available for determining the benefits and costs to society, it does not cover all of the important economic effects which decision-makers need to consider in allocating land to different uses. Other important measures of the economic impact of resource use are also evaluated in this study in order to give a more complete picture of the contribution of each resource to the economy.

#### 1. Income Effects

Income effects are an important measure of the impact of a particular industry on the economy. These effects are important for the economic development of a region, which in many cases is an objective for the management of a resource. Therefore, these effects have been estimated for each resource.

#### 2. Employment Effects

Another concern of many decision-makers is the effect on employment of a change in policy. Estimates of these effects are therefore included in the evaluation of each resource.

#### 3. Net Fiscal Effects on Local Government

Although this study focuses on the benefits and costs to Alaskan consumers and producers, the effects of state decisions are also felt by local governments. Increases or decreases in tax revenue to local governments, balanced against changes in costs due to the policy, give an indication of the net fiscal effects to local governments.

#### 4. External Costs and Benefits

External benefits and costs are defined here as those social, environmental and economic effects which are not quantifiable but which are very important to decisionmaking.

No analysis is ever truly complete in documenting every possible effect and evaluating each of them in some standard unit of measurement. This inadequacy is nowhere more evident than in the evaluation of external costs and benefits. These include the effects which even the most sophisticated analysis cannot quantify with ease. Yet they are as important, if not even more important, than the effects which are more easily quantified.

This study includes qualitative discussions of some of the possible effects of resource use which must be considered by decision-makers in determining land use allocations. These discussions are inevitably inadequate because the effects cannot be measured in dollar terms and therefore it is not possible to indicate their magnitude relative to the effects discussed earlier. Also, it is not possible to predict all of the possible external effects of resource use.

However, we have attempted to document what some of the possible non-quantifiable social, environmental and economic benefits and costs may be for each resource and we hope that this serves at a minimum to indicate the importance of these considerations.

# **II. APPLICATION OF THIS METHOD TO GENERAL RECREATION**

## A. CURRENT NET BENEFITS

General recreation is defined here as those activities which require a natural setting and which do not involve hunting, trapping or fishing. These activities include backpacking, cross-country skiing, boating, snowmachining, mountain climbing, dog sledding, horseback riding and use of off-road vehicles (ORV's).

Recreational uses of land are compatible with other uses such as forestry or fish and wildlife habitat. In this chapter, however each resource is examined separately. At a later stage the effects of combined uses will be calculated to show the cumulative effect of multiple land use in Alaska.

#### 1. Net Benefits to Producers

In this analysis it is assumed that the majority of general recreational producers, such as tour operators, are not dependent on state land for their revenues. Although there are groups which offer tours of Fairbanks and the highway and railbelt areas, these operators do not depend upon state land. Therefore, an analysis of producers is not included in this report.

The benefits of Tanana Basin recreation are mainly to people employed indirectly as a result of recreational activities on state land (such as sport shop and cafe owners). These benefits are discussed under income and employment effects.

#### 2. Net Benefits to Consumers

As discussed in the general approach section, the benefits of recreation to consumers are best estimated in terms of the difference between what people would be willing to pay for a recreational experience and what they actually pay. However, several pieces of information which are necessary for this approach are not available.

To estimate consumer benefits of general recreation, it is necessary to have the following information:

- 1) The origin(by community) of the consumers;
- 2) The destinations of these people (as sitespecific as possible);
- 3) The cost of travel, food, lodging and equipment to each person; and
- 4) The number of user days spent on the trip.

Information on origins and destinations is lacking. Since the origin and destination information is essential to the analysis, it was not possible to estimate the benefits to consumers.

#### 3. Net Benefits to the State

The cost to the State of managing general recreational land was estimated from current operations in the North Central District of the Division of Parks. This was done by adding together a small percentage of the Division's overall planning budget and a large percentage of the operating budget of the Division's North Central District Office.

#### 4. Income Effects

Each year, the residents of the Basin and other Alaska residents and tourists spend thousands of dollars on equipment, travel and lodging for recreational purposes. This spending contributes to the local economy in two ways: (1) it has the direct effect of boosting the revenues of sport shops, lodges, gasoline stations, etc., (2) it has an indirect effect which occurs when these establishments buy materials or services locally.

To estimate income effects, it was assumed that expenditures on general recreational activities represent income to the trade sector of the economy. This income then served as the basis for estimating indirect income.

The multiplier that is used to determine indirect income to the trade sector is 1.69 (Logsdon, et al., 1977). This means that for every dollar spent in sport shops, and cafes; another sixty-nine cents is spent in Alaska by the owners of these establishments. The direct revenues, multiplied by this factor gives an order-ofmagnitude indication of the contribution which general recreation makes to the economy.

Not all of these expenditures on general recreation, however can be attributed to state land. Much of the income effect is due to recreation which occurs on private, borough or federal land. Also, many of the expenditures may occur outside the Basin or even outside the state. Therefore, the income effect reported here represents only a rough estimate of the importance of recreation to the regional economy and cannot be attributed only to State land.

#### 5. Net Employment Effects

To provide a rough estimate of the employment effects of recreation, the labor/output ratio of the trade sector was used. it is estimated that there are 45 man-years in this sector for every million dollars of income (Logsdon, et al., 1977). Thus, if recreationists spend one million dollars largely to businesses in the trade sector, then almost 45 man years of employment can be attributed to this spending. (Although these ratios date back to 1972, it is felt that the trade sector has not changed significantly since then.)

In turn for every 100 jobs in the trade sector, there are roughly 10 jobs in other industries (Logsdon et al., 1977). Thus, the direct jobs were multiplied by 1.1 to obtain a rough approximation of total man-years due to expenditures made by general recreationists in the Basin.

#### 6. Net Fiscal Effects on Local Governments

The types of general recreation activities discussed here which occur on state lands are unlikely to have a significant direct fiscal effect on local governments since no tax revenue is generated and few if any services are required of local governments.

#### 7. External Benefits and Costs

The social and environmental benefits and costs of outdoor recreation cannot be estimated precisely. These effects vary from individual to individual. A few of these possible external effects are mentioned in this analysis.

#### **B. POTENTIAL NET BENEFITS**

#### 1. Potential Costs to the State

It is difficult to estimate the cost to the state of new recreational management responsibilities for two major reasons. First, the cost to the state of managing for recreation is not directly tied to population increases. Second, the future cost to the State of managing land for recreation is subject to how much land the state manages. For these reasons no estimate of the potential cost to the State is given in this analysis.

#### 2. Potential Income Effects

Potential income benefits to the economy from recreation were estimated for the years 1985, 1990, 1995 and 2000. This was done by using the population projections found in the Tanana Basin Socioeconomic Report (ADNR, 1982). The current income figure determined previously in this report were increased by the same percentage as the increase in the population of the Basin between 1980 and 1985, 1990, 1995 and 2000.

The resulting potential income effects of recreation as estimated in this analysis is a rough approximation, since it is based on the assumption that in the future there will be no change in spending pattern of residents for recreational equipment, travel, choice of recreational activities, nor in the cost of equipment, travel, food or lodging. At present no better assumption is available.

Potential income effects from tourists were also estimated for 1985, 1990, 1995, and 2000, and added to resident income effects. This was estimated by increasing the 1980 income from tourists by 170% every 5 years.<sup>1</sup>

#### **3. Potential Employment Effects**

As in current employment estimates, potential employment was based on the potential income effects as calculated in the previous section. Total mean years of work that are generated in the Basin due to recreational spending was calculated by assuming that every million dollars of direct spending produces 45 man years of work (Logsdon et al., 1977). In turn, for every 100 jobs that are created from direct spending, there are another 10 indirect jobs created in the Basin (Logsdon et al., 1977).

#### PART 2. RESULTS

#### **1. Recreation in the Basin**

Residents in Alaska participate in outdoor recreational activities almost five times as much as residents of other states in the United States.<sup>2</sup> Much of the general recreation in the Basin occurs on State land, and basin residents spend a total of approximately 4.2 million user days every year on general recreation. This comes to approximately 71.6 user days per resident. (See Chapter 4 on Demand and Current Use for details on recreation activity in the Basin.)

<sup>1</sup>Economic Development: Tourism's Vital Role, Alaska Visitors Association, 1981. The report states that between 1973 to 1980 tourism has increased 279%. This is 34% per year increase or a 170% increase every 5 years. <sup>2</sup>Alaska Outdoor Recreation Plan, Alaska Division of Parks, Department of Natural Resources, 1981.

# A. Current Net Benefits to Producers

As explained in Section II, this part of the analysis was not applicable, since there are very few, if any, producers who are dependent solely on state land. (The income effects for local businesses, however are given later.)

#### **B.** Current Net Benefit to Consumers

As explained in Section II, there was not enough information available to estimate the benefit to consumers that result from recreational activities on state land in the Basin.

#### C. Current Net Benefits to the State

The State currently manages land for general recreation in the Tanana Basin. The Division of Parks has an office in Fairbanks that maintains and polices designated recreation areas in the Basin, and also has a planning staff that spends some of its time addressing recreational concerns in the Basin.

In calendar year 1981, the state expenditures on salaries, equipment and travel to administer and plan for general recreation in the Basin was approximately 590,000 dollars<sup>1</sup> (D. Snarski and N. Goodhue, Division of Parks, Alaska Department of Natural Resources, personal communication, Oct. 1982). During this time the state received no revenues from general recreation on state land in the Basin from permit or other fees. The net cost to the state from recreation in the Basin is therefore approximately 590,000 dollars.

If this expenditure continues every year for the next 20 years, the State's direct cost of managing land for recreation would be \$5 million dollars (at a discount rate of 10%).

<sup>1</sup>Alaska Outdoor Recreation Plan, Alaska Division of Parks, Department of Natural Resources, 1981.

#### **D. Current Income Effects**

As explained previously in Part 1, Section II, current income can be estimated by calculating the total amount of money spent in the Basin by Alaskans and non-residents for general recreation.

Residents in the Basin spend approximately 17 million dollars every year on recreation. This means that the average resident in the Basin spends approximately \$283/year on equipment, travel and food and lodging (see Appendix A for details).

Total direct expenditures by both residents and tourists for recreation is approximately 27 million dollars; including 17 million from residents and 10 million from tourists (see Appendix A).

Total indirect income from general recreation in the Basin was calculated by multiplying this total expenditure by 1.69. This results in a total direct and indirect income to the Basin from general recreation of 46 million dollars. This income however, should not be attributed entirely to state land since much of the general recreational activity in the Basin occurs on non-state lands.

#### **E. Employment Effects**

According to Logsdon, the labor to output ratio for the trade sector is 45 person years for every million dollars of revenue. Using this ratio the total number of direct jobs in the Basin as a result of recreation is approximately 1,240 man-years.

There are a total of about 1360 indirect and direct jobs in the Basin that result from general recreation on state land. This was calculated by using an employment multiplier of 1.10.

#### F. Net Fiscal Effects on Local Governments

General recreation has no direct fiscal effect on local governments.

# G. External Benefits and Costs

The principal external benefits of general (non-hunting and fishing) recreation are psychological. Recreation provides residents in the Basin with an opportunity to have unique and diverse experiences in a setting. Residents seem to value natural these opportunities highly, as is indicated by their high participation rates in general recreational activities.

The reasons for participation in these activities vary from individual to individual. The following is a list of reasons voiced by participants for their involvement, and indicate the nature of some of these external psychological benefits from recreation, and the percentage of residents in the Interior who cite each reason for their involvement.

#### **TABLE 5-1**

# IMPORTANT REASONS FOR PARTICIPATION IN FAVORITE RECREATION ACTIVITIES

REASONS	INTERIOR	
Getting away from usual demands of life	90%	
Being close to nature	798	
Being with friends and family	82%	
Keeping physically fit	81%	
Doing something exciting	798	
Experiencing new and different		
things	798	
Experiencing more elbow room	78%	
Testing your abilities	75%	
Developing skills and abilities	738	
Gaining self-confidence	758	
Being in control of things	69%	
Identifying with Alaska heritage	51%	
Being alone	48%	
	REASONS Getting away from usual demands of life Being close to nature Being with friends and family Keeping physically fit Doing something exciting Experiencing new and different things Experiencing more elbow room Testing your abilities Developing skills and abilities Gaining self-confidence Being in control of things Identifying with Alaska heritage Being alone	REASONSINTERIORGetting away from usual demands90%of life90%Being close to nature79%Being with friends and family82%Keeping physically fit81%Doing something exciting79%Experiencing new and different79%things79%Experiencing more elbow room78%Testing your abilities75%Developing skills and abilities73%Gaining self-confidence75%Being in control of things69%Identifying with Alaska heritage51%Being alone48%

Source: Alaska State Outdoor Recreation Plan, Division of Parks, 1981.

ADNR,

5-17

Closely related to these external psychological benefits, is the contribution that recreation makes to the overall quality of life in the Basin. Residents often say that having diverse recreation opportunities within a day's drive of their home is one of the major reasons they live in the Basin.

#### **III. POTENTIAL NET BENEFITS**

As explained in Section II above, the potential net benefits from recreation for producers, consumers and the state, were not calculated. The only potential benefit calculated in this analysis is income and employment.

#### **A. POTENTIAL INCOME EFFECTS**

The potential net income effect to the State from recreation on State land in 1985 is roughly 64 million dollars and in the year 2000, about 190 million dollars (see Table 5-2). The table also includes income estimates for 1990 and 1995.

As discussed in the methods section, these estimates assume that the principal factor affecting future recreational spending is population growth. No adjustments were made for changes in recreational patterns, prices or supply. Therefore, these results should be used to indicate only a very rough estimate of potential income effects in 1982 dollars.

#### **B. POTENTIAL EMPLOYMENT EFFECTS**

The potential number of jobs in the Basin by 1985 that are a result of general recreation spending is approximately 1900. By the year 2000, the total number of jobs is likely to increase to 5600 jobs. Table 5-3 gives estimates of the number of jobs that are likely to be generated from recreational spending every 5 years to the year 2000.

#### **PART 3. CONCLUSIONS**

As shown in Table 5-4, the total present net benefits of general recreation in the Basin for producers and consumers was not determined due to data limitations. Net benefits to the State, income and employment effects were calculated however.

# **TABLE 5-2**

# POTENTIAL INCOME EFFECTS FROM RECREATION IN 1985, 1990, 1995, 2000

YEAR	1980 Population (thousands)	Projected Population (thousands) <sup>1</sup>	<pre>% Increase in Population Over 1980 Population (b/a)</pre>	1980 Income in Millions of Dollars from Residents <sup>2</sup>	Potential Direct Income in Millions of Dollars from Residents (cxd)	Potential Direct Income in Millions of Dollars from Non- Residents <sup>3</sup>	Total Direct Income in Millions of Dollars (e+f)	Total Direct and Indirect Income in Millions of Dollars (gxl.69)4
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1980	60			. 17	17	10	27	46
1985	60	75	125	17	21	17	38	64
1990	60	85	142	17	24	29	53	90
1995	60	95	158	17	27	49	76	128
2000	60	105	175	17	30	83	113	190

<sup>1</sup>Tanana Basin Socioeconomic Paper. <sup>2</sup>See Appendix A. <sup>3</sup>This is based on the assumption that there is a 170% increase in non-resident recreation every 5 years (see text). <sup>4</sup>The multiplier for the trade sector is 1.69 (Logsdon et al., 1977).

YEAR	Direct Income <sup>1</sup> (\$ Millions)	Direct Jobs <sup>2</sup> (Man Years)	Total Jobs (Direct + Indirect) <sup>3</sup>							
1980	17	1200	1400							
1985	38	1700	1900							
1990	53	2400	2600							
1995	76	3400	3800							
2000	113	5100	5600							

# **TABLE 5-3**

**EMPLOYMENT EF** 

RECREATION FOR 1980 THROUGH 2000

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# <sup>1</sup>See Table 1.

<sup>2</sup>Assumption used to calculate Direct Jobs is that for every million spent there are 45 man months created in the economy (Logsdon et al., 1977). Rounded to nearest 100. <sup>3</sup>A 1.10 multiplier was used to get total jobs (Logsdon et al., 1977).

5-20

The yearly cost to the State to manage recreation in the Tanana Basin is approximately 590,000 dollars. The current contribution of general recreation to the local economy is roughly 46 million dollars, and the potential contribution recreation will make to the local economy by the year 2000 is approximately \$190 million. Current employment effects are roughly 1400 jobs, or about 6% of total Basin employment. By the year 2000, employment due directly or indirectly to general recreation may be in the range of 5600 person-years. These current and projected benefits cannot be attributed only to state lands, however, since much of the recreational activity in the Basin occurs on Federal, Borough, and private lands.

The external benefits of recreation reside principally in the psychological value people gain from participating in recreation and the contribution recreation makes to the overall quality of life in the Tanana Basin. السريقية استنقاب الربيع استقدمه فراجة استنباه استنقابه السريقية والسريقية الربابي السقائية الربابي السقائية فراجه سريا

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			NET BENEFITS									DIRECT & INDIRECT DIRECT &		NET FISCAL	
			то со	TO CONSUMERS		TO PRODUCERS		NET RETURN TO THE STATE		TOTAL		INCOME EFFECTS MILLIONS	INDIRECT EMPLOYMENT EFFECTS	EFFECTS ON LOCAL GOVERNMENTS	EXTERNAL COSTS AND
			\$/YEAR	PRESENT VALUE OVER 20 YRS	\$/YEAR	PRESENT VALUE OVER 20 YRS	( <del>†)</del> \$/YEAR	(†) PRESENT VALUE OVER 20 YRS	\$/YEAR	PRESENT VALUE OVER 20 YRS	\$/ACRE	%/YEAR	PERSON YEARS	(t) \$/YEAR	BENEFITS
'n	Current	Resident Tourist Total	No ( S	t Applicable See Part I, ection 11A)	li Inf Com ( Se	nsufficient ormation to plete Analysis See Part I, section 11B)	- 590,000	- 5,000,000				29 17 46	841 495 1336	0	Psychological quality of life benefits.
22	1985	Resident Tourist Total				Not Poss to Calcu (See Par Section	ible late t 2, A)					35 29 64	1039 842 1881	0	
	1990	Resident Tourist Total										41 49 90	1188 1435 2623	0	
	1995	Resident Tourist Total										45 83 128	1335 2425 3762	0	
	2000	Resident Tourist Total										50 140 190	1485 4108 5593	0	

## **TABLE 5-4**

# **Chapter 6**

# **Demand vs. Supply**

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## INTRODUCTION

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A quantitative comparison of supply and demand for recreation as a resource is not available at this time. The demand assessment (Chapter 3) was based on user days by activities rather than by estimates of acreage required to support demand. Supply areas (Chapter 4) were given a high, medium or low ranking based on their existing use, proximity to population centers, the irreplaceable nature of the site and the site's economic value for tourism. No estimate was made of the number or types of users for a given site or area. Therefore it is not possible to correlate supply and demand information at this point.

# **Chapter 7**

# Recommendations

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# I. STATEWIDE GOALS AND THEIR IMPLICATIONS FOR RECREATION MANAGEMENT IN THE TANANA BASIN

#### **A. Introduction**

1

The Statewide Natural Resources Plan is the broadest of the plans developed by the Department of Natural Resources. It provides the context for the area plans, such as the Tanana Area Plan, by setting forth goals and objectives for each resource. The Statewide Plan is used in formulating ADNR's budget and setting inventory and planning priorities.

#### 1. Provide Easily Accessible Outdoor Recreation Opportunities for Present and Future Generations of Alaska Residents.

A high proportion of outdoor recreation in the Tanana Basin requires extensive areas which are publicly owned and in which recreation experinces are not degraded by other uses. The highest proportion of outdoor recreation occasions occur close to people's homes. Therefore from a use viewpoint the most critical areas for recreation are within and adjacent to population centers. As communities become increasingly urbanized, people's need for places which enable a contrast in setting as afforded by an accessible and extensive natural environment is increasingly important. Dedication of land for public recreation is necessary to ensure that land is available for present and future generations.

In the Tanana Basin, this may not necessarily mean that lands will be placed in the State Park System. While it is important to retain a publicly owned land base for recreation, traditional outdoor activities may not require the additional protection afforded by legislative designation.

#### 2. Provide Easily Accessible Opportunities for Outdoor Enjoyment of Outstanding Natural Areas for Present and Future Generations

Outstanding natural areas and features contribute to the diversity of the landscape. Where these areas are easily accessible to residents and tourists, they deserve protection through public recreation classification in order to ensure their long term enjoyment. The Tanana Basin exhibits a substantial number of outstanding features which add to recreational variety in the Basin and are worth protecting for future generations.

#### 3. Encourage Appreciation of Alaska's Heritage Resources

Areas with heritage value provide historical knowledge that can contribute significantly to the Tanana Basin's distinctive identity.

Interior residents recognize their unique cultural heritage which is of interest to interior residents and tourists alike.

There are two legislative designations for areas with historic resources and another non-legislative designation recommended for some areas in the Tanana Basin. Additional sites may exist that are not yet identified or protected. Establishing adequate inventory programs and project planning processes that give early consideration to these resources will be a high priority.

# 3. Encourage Outdoor Recreation on Lands Outside the State Parks System

This goal is especially important in the Tanana Basin, where recreational needs and desires are often linked to subsistence and other activities not normally pursued within the confines of a state park. Large acreages are needed to meet interior residents' demand for uses such as trapping, snowmachining, backpacking and hunting. The continued use of many large areas is threatened by land disposals, development of private lands and concurrent loss of access. A prerequisite to non-park recreation is protection of the recreational land base. In Tanana many different types of recreation areas and trails are important to The proposed designations in this chapter are intended to preserve. create a system with, for example one trail leading to another and open spaces to break up urban and residential areas in order to create the feeling of open space and recreational opportunities instead of a few scattered recreational sites.

To achieve this goal for the Tanana Basin, it will be important for the Tanana Basin to keep abreast of people's recreational needs and desires. Encourage implies to make available but what is made available should always be tempered by a reasonable attempt to find out what people have in mind in terms of recreation and providing lands to fulfill those needs first. Also since needs will change it's very important to reserve enough recreation lands and open spaces to be able to use or develop new types of areas or opportunities as recreational patterns change or an increase in population creates new demands in recreational systems.

#### 4. Provide Support and Contribute to Alaska's Tourism Economy

One of the reason's people come to Alaska as tourists is to recreate. The unique and varied recreational opportunities attract many recreationists. An additional attraction is the possibilities for wilderness and backcountry experiences, possible because the state is not yet nighly populated.

It is important to protect these resources because they provide a source of income for state residents as well as recreational opportunities. The potential revenue by 1985 is \$17 million in annual direct income from tourists recreating in the Basin and up to \$83 million annually by the year 2000.

7-2

For recreation to support and contribute to Alaska's tourism economy recreation land must be available and accessible. A variety of recreation opportunities from wildlands to developed recreation facilities is needed.

# Conclusion

In the Tanana Basin exists one of the world's great opportunties to live in close proximity to both the benefits of a developed community and the freedom of a vast and wild hinterland. The freedom offered by room to roam to heights unsurpassed on the continent, and the shelter of the birch and spruce forests and abundant wildlife along the numerous rivers are important reasons for living in and visiting the Tanana Basin.

Although the continuing increase of human residents and transfer of lands from public to private ownerships threatens the freedom of the past, implementation of the recommendations for retention of an extensive and diverse array of land and water areas for public recreation use will enable a cherished lifestyle and attractions for visitors to continue.

The recommendations for achieving recreation and tourism goals within the Tanana Basin shall be implemented in the following methods:

- legislative designation of variety of geographically well distributed and outstanding recreational and historic resources as units of the State Parks System.
- Transfer of valuable state-owned recreation areas and greenbelts within communities to municipalities or local jurisdictions for community and neighborhood recreation area and trails.
- Private development and management of recreation resources such as lodge sites and winter sports resorts which provide recreation opportunities not as effectively provided by public agencies.
# Recommendations for how Tanana Basin will Contribute Toward Meeting Goals

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#### **II. MANAGEMENT RECOMMENDATIONS**

#### **I. RECOMMENDATIONS FOR DESIGNATIONS**

# 1. Legislatively Designated Inclusions into the State Park System

These lands are identified in the element map as meeting certain criteria and are recommended for inclusion into the State Parks System. The criteria and specific areas recommended for state park status are listed in the following sections by type of state park unit. These are as follows:

A. State Park

B. State Historic Park

C. State Historic Site

D. State Recreation Area

E. State Recreation Site

F. State Trail

G. State Recreational River

H. State Preserve

To further clarify the intent for management of land and resources within state park units, all lands within each park unit are classified in one or more of the following zones.

**Natural Zone** - Natural zones are established to provide for moderate to low impact and dispersed forms of recreation and to act as buffers between recreational development and wilderness zones.

These zones are relatively undeveloped and undisturbed, and are managed to maintain high scenic qualities and to provide visitors with opportunities for significant, natural outdoor experiences. An area's natural landscape character is the dominant feature within this zone. Landscape modification may be allowed to enhance, maintain or protect the natural setting according to the unit management plan.

**Cultural Zone** - Cultural zones are established to preserve, investigate, document and interpret Alaska's cultural resources and heritage.

Cultural zones are designated to provide adequate protection of historical, cultural, archaelogical or anthropological resources. These zones may contain a single feature or an assemblage of historic features. **Recreational Development Zones** - Recreational development zones are established within the state park system to meet the more intensive recreational needs of the public with convenient and well defined access via roads, railroads, boating anchorages, airstrips, and high standard trails; with more intensively developed recreational facilities such as campgrounds or picnic areas; with guided activities; and with information centers to orient the visitors to the unit's special features.

The landscape within this zone can be modified to suport educational and recreational activities and/or to enhance wildlife habitat and scenic qualities. These zones are established where soils, slope, drainage and vegetation can support more intensive recreational activities.

**Wilderness Zones** - Wilderness zones are established to promote, to perpetuate and where necessary to restore the wilderness character of the land and its specific values of solitude, physical and mental challenge, scientific study, inspiration and primitive recreational opportunities.

These zones are characterized by the natural landscape, its vegetation and geologic forms. Resource modification can occur in this zone only to resotre areas to a natural state. Natural processes will be allowed to operate freely to the extent that human safety and public and private property are protected.

#### A. STATE PARK

#### 1. Criteria for Recommending

#### a. State Park (SP)

A state park is a relatively spacious area possessing outstanding and distinct natural, cultural, scenic and/or scientific values. The dominant management objective of the unit is to maintain the park's natural and cultural resources for long-term use and enjoyment by the public. A level of recreational opportunities, which is compatible with the unit's resource values, shall be provided. In most cases, the primary purpose of the state park unit is set forth by the legislature through its enabling legislation and accompanying reports.

State parks have statewide or regional significance. State parks should be of sufficient size to insure long-term protection of an area's primary resource values.

The majority of lands in a state park normally will be classified as natural and wilderness zones. Recreational development zones will be strategically located to provide public access to, and enjoyment of, park resources.

#### 2. Sites Identified to be Included

No state parks were identified in the Tanana Basin.

#### **3. Justification**

The outstanding natural features in the Basin which meet the criteria for "Parks" status are presently under some form of management which has or could potentially protect the resource for enjoyment by future generations. These include:

- Mt McKinley or Denali within Denali National Park
- Dolomite Tors within Chena River Recreation Area
- White Mountains within the National Recreation Area
- Tangle Lakes within BLM management

- Wickersham Dome within BLM management

#### **B. STATE HISTORIC PARK**

#### **1. Criteria for Recommendation**

A state historic park is an area containing an assemblage of significant historical, cultural, archaeological or anthropological resources from representative eras of Alaska's history or prehistory. The dominant management objective of a state historic park is to preserve and interpret historic resources for Alaskans and visitors to the state.

State historic parks possess cultural resources of statewide or regional significance. A unit's size should be capable of providing adequate protection of historical, cultural, archaeological and/or anthropological resources. State historic parks are generally larger, in terms of land area, than state historic sites.

In most state historic parks, a majority of the land area will be classified as a cultural zone. Recreational development zones will be designated for the development of visitor support facilities (i.e., parking lots, interpretive centers, and toilets). The natural zone classification may be used for lands which are managed as buffers between the unit's historical or cultural resources and existing or anticipated adjoining land uses.

#### 2. Sites Proposed to be Included

The Delta State Historic Park (Rikas Landing) is an example of this category of management. No additional State Historic Parks were recommended in the Tanana Basin.

#### **3. Justification**

The historic areas in the Basin do not meet the criteria for State Historic Parks in terms of their size and focus. Areas with historic value are recommended for protection either as State Historic Sites or as Historic Sites not legislatively designated.

#### **C. STATE HISTORIC SITE**

#### 1. Criteria for Recommendations

A state historic site is a relatively small area established and managed to preserve, interpret and/or commemorate a structure, object and/or event of historical, cultural, archaelogical or anthropological value which represents an era of Alask's history or prehistory.

State historic sites possess a cultural resource of statewide or regional significance. They differ from state historic parks in terms of size and general focus; sites are smaller and focus on single items or events rather than on a complex or assemblage of historic resources.

In most state historic lists, a majority of the land area will be classified as a cultural zone. Recreational development zones will be designated for the development of visitors support facilities (i.e., parking lots, interpretive centers, and toilets). The natural zone classification may be used for lands which are managed as buffers between the unit's historical or cultural resources and existing or anticipated adjoining land uses.

#### 2. Sites to be Included

Davidson Ditch Historic Sites Pedro Dome Historic Sites Dry Creek Historic Site Otto Lake Historic Site

#### 3. Management Guidelines

The intent of these areas is to preserve and interpret historic resources for Alaskans and visitors. No other resource activities are permitted with the exception of those which are part of the unit's history or which support adaptive reuse and enhance the historical scene.

#### 4. Justification

Significant events and landmarks which don't require the preservation of the entire historic setting should be commemorated through the designation of specific sites of limited size. These sites enrich the lives of residents and visitors, and should be actively maintained so as to maximize the educational benefits.

#### **D. STATE RECREATION AREA**

#### 1. Criteria for Recommendations

A state recreation area is a relatively spacious unit and possesses a diversity of outdoor recreational opportunities. The dominant management objective of the unit is to provide a maximum level of outdoor recreational opportunity based on the natural values of the unit and its ability to sustain use without significant adverse effects on natural systems.

A state recreation area possesses recreational and/or natural resources of statewide or regional significance. A state recreation area represents diverse natural landscapes capable of supporting a wide variety of outdoor activities.

The majority of the lands within a state recreation area will be classified as natural and recreational development zones. Cultural zones will be established where appropriate. Only in special cases will any lands be classified as wilderness zones.

#### 2. Sites to be Included

Robertson Lakes Island Lake Paradise Hill Lake Minchumina Yanert Recreation Area Murphy Dome Fielding, Summit Lakes

#### 3. Management Guidelines

These areas will maintain fish and wildlife population at or above current levels and provide for human use of these resources. Personal firewood cutting is allowed where, with careful planning, it will contribute to enhanced outdoor recreation opportunities. New trails are permitted and so is habitat enhancement. Other resource uses are not permitted.

#### 4. Justification

Designation of State Recreation Areas is needed where recreation values are so great that legislation to insure term long protection is merited. Areas for active recreation will satisfy high participation in a number of activities. Recommended areas are intended to satisfy the current population which participates in activities such as fishing, camping, riverboating, and winter sports more frequently than the national average, a reflection on the opportunities which attracted people to stay or come to the basin. Also the distribution and number of recreation areas with long term protection must meet the needs of the projected increase in population. Designation must occur in advance of irretrievable loss to other uses.

# **E. STATE RECREATION SITE**

#### 1. Criteria for Recommendation

A state recreation site is a relatively small area that provides one or more outdoor recreational opportunities. A state recreation site may also be established to provide access to outdoor recreational lands and opportunities not managed as part of the State Park System. Management objectives are site-specific, but generally emphasize recreational use over resource protection.

State recreation sites possess recreational resources of statewide or regional significance. The unit should be of sufficient size to allow for future expansion of recreational facilities, to provide an adequate buffer to adjoining land uses, and to provide an adequate buffer for the protection of the quality of recreational opportunities in the unit.

Normally, from one-quarter to three-quarters of a state recreation site's land area will be classified as a recreational development zone. Sensitive areas such as wetlands, beaches or streambanks normally will be classified as natural zones. Cultural zones will be identified and established where the presence of historic and archaeological resources is significant enough to warrant this designation.

#### 2. Sites to be Included

Baker Creek Deadman Lake Access Brown Lake June Creek Rex Bear Creek Healy Access Site Denali Park River Access McKinley Village Access Nenana River Access Jonesville Bridge Access Wells Creek Access Tanana River Access Goldstream Access Sites Nenana Ridge Tanana Valley Overlooks Black Rapids Grange Hall Access

#### 3. Management Guidelines

Timber cutting and sales are allowed where they will help achieve a management objective such as clearing for recreational facility development or prevention of forest loss from disease or bark beetles. Habitat enhancement is allowed for the purposes of enhancing outdoor recreational opportunities while protecting natural and cultural values. These sites will often promote road access to recreation opportunities.

#### 4. Justification

Designation of relatively small sites for trailheads, boat launching sites, campgrounds and rest areas will in many locations provide extensive recreation opportunities in the back country and on the rivers and lakes. Heavy use of these departure and congregating points requires active management which can be provided within the State Park System.

#### F. STATE TRAIL

#### 1. Criteria for Recommendation

A state trail is a land and/or water-based linear recreation use oriented corridor which possesses significant recreational, natural, cultural, wilderness and/or scenic resource values. The management objective of this unit is to provide for the use and/or protection of recreational, educational, historical, scenic and natural values and opportunities for which the unit was identified and established.

State trails are of statewide or regional significance. Where possible, the width of the state trail corridor on land will be from 100 meters to one-half mile on each side of the trail centerline. There will be circumstances, such as easement purchases on non-state land, where it will be necessary to establish corridors of less than the desired width. A trail can be established on state land or may be designated in areas where other entities manage the surrounding land. The trail corridor shall be acquired in fee simple public ownership wherever practical and shall be of sufficient width to protect the values and opportunities for which the unit is established.

Since state trails are linear corridors, sections of a trail and adjoining lands will be zoned as necessary to protect the associated resource values. The amount of land classified per zone will vary from trail to trail depending on the nature of resource values present and the desired public use of the trail.

## 2. Trails to be Included

North Fork Valley Trail Little Panguingue Slate Creeks Trail Kobe Trail Eagle-WAMCATS Historic Trail Clearwater-Yerrick Trail Panorama Peak State Trail Davidson Ditch Chena Dome Trail West Fork Ridge Trail Chena Hot Springs Winter Trail Fairbanks-Circle Corridor Macomb Plateau State Trail Reindeer Mountain Trail White Mountains Access Trail

#### **3. Management Guidelines**

Permitted resource uses are access across trail corridors, habitat enhancement with the exception of prescribed fire, and removal of fallen trees for firewood.

#### 4. Justification

Extraordinarily high participation by Basin residents and visitors in trail related recreation opportunities require designation of a diverse trail system. Geographic distribution is needed to serve residents and travellers throughout the basin and adjacent to communities and major travel routes. Separate trails are needed for incompatible activities in order to ensure the enjoyment of all users. Designation of some trails as units of the State Park System is warranted to perpetuate the most outstanding trail experiences.

#### **G. STATE RECREATIONAL RIVER**

#### 1. Criteria for Recommendation

A State Recreation River is a continuous or, where necessary, a discontinuous corridor encompassing a river, or portion of a river, and the associated upland area which possesses significant recreational, natural, cultural, wilderness and/or scenic resource values. The primary management objective of the unit is to provide for the use and protection of the recreational, educational, historical, aesthetic and natural values and opportunities that are associated with the river and its related upland.

State recreation rivers possess recreational, natural and/or cultural resources of statewide or regional significance. Wherever practical, the unit corridor should be from 200 feet to one mile beyond each riverbank, allowing a natural buffer between the river and adjacent land uses. Since state recreation rivers are linear corridors, sections of the rivers and adjoining uplands will be zoned as necessary to protect the associated public use and resource values. The percentages of land classified per zone are variable depending upon the resources present and the desired public use of the river.

#### 2. Rivers to be Included

Chatanika River Nenana River Volkmar River Middle Fork Chena River Delta River Salcha River Goodpaster River

#### **3. Management Guidelines**

In addition to recreational uses, this category intends to maintain fish and wildlife populations at or above current levels and provide for human use of those populations. Timber cutting is allowed where it will achieve a management objective such as clearing for recreational facility development, habitat enhancement, or prevention of loss of forest from disease. Other forms of habitat enhancement are permitted including prescribed fire. The corridor is recommended to be roadless except that new rights-of-way and utility corridors are permitted at designated crossings. Trails are permitted.

#### 4. Justification

Recreational use of interior Alaskan waterways has always been an important part of interior Alaskan life. In certain waterways the quality of the recreation experience can be seriously degraded by siltation. The most outstanding and vulnerable waterways therefore require single purpose management as part of the State Park System. Some waterways should be managed for the primary purpose of enabling participation in outdoor recreation activities in a natural setting. Waterways selected for state recreation rivers should possess high scenic values and be reasonably accessible.

#### **H. STATE PRESERVE**

#### **1. Criteria for Recommendations**

A state preserve is an area having outstanding biological, paleontological, geological or ecological values of scientific or educational interest. The primary management of the units is resource protection. The purpose of these units is to provide for applied research, basic research, and/or outdoor environmental education.

A state preserve has a resource or resources of statewide or regional significance. The unit should be of adequate size to provide protection of the natural feature(s) for which it is established. The natural zone will be the primary land use zone within a state preserve, thus helping to guarantee protection of the unit's resource values. If there are cultural values associated with the preserve, a cultural zone will be established to protect these values. Wilderness zones may also be designated to help insure a high level of land and resource protection. Recreational development zones will only be used to allow the provision of scientific or educational support facilities.

#### 2. Sites to be Included

No areas within the Tanana Basin are recommended for inclusion in this category.

#### **3. Justification**

As exploration by scientists occurs, sites needing this degree of protection by the state may be identified. However, at this point no areas meeting the above criteria have been identified.

# II. OTHER STATE MANAGED AREAS WHERE RECREATIONAL VALUE MUST BE PROTECTED

Most areas identified in the Recreational Element that are not recommended for inclusion in the State Park System are recommended for recreation use in one of several categories.

The following categories include areas of regional significance which are recommended for public retention and management by the state:

- A. Public Recreation Reserve
- B. Historic Site
- C. Public Recreation Site
- D. Public Recreation Trail Corridor
- E. Natural Feature
- F. Multiple Use Area

#### **A. PUBLIC RECREATION RESERVES**

#### **1. Criteria for Recommendations**

Public recreation reserve status is recommended for areas is which recreation use and values are paramount but where public preferences and resource capability allow a variety of other compatible uses. The high recreation values require a degree of protection afforded by gubernatorial designation or public recreation classification.

# 2. Areas to be Included

Moosehart Mountain Kobe Whale Lake Amy Dome Reindeer Hill Walker Dome Mt. Neuberger Mentasta Mountains Mineral Lake Castner Glacier Mt. Ryan Far Mountain Canwell Glacier Gulkana Glacier

# **3. Management Guidelines**

Personal use timbercutting and material sales are allowed where they will not detract from and may enhance recreational opportunties. Minerals are subject to leasehold location. Leasing is also open for commercial use of land where it contributes to recreational opportunities. Habitat enhancement is allowed. New ROW, utility corridors and trails are permitted.

#### 4. Justification

A high proportion of outdoor recreation in the Tanana Basin requires extensive areas which are publicly owned, and in which recreation experiences are not degraded by other uses, but which do not require a high degree of land management by a government agency.

Public reserves provide the needed degree of permanence and management for an important aspect of Tanana Basin recreation needs.

#### **B. HISTORIC SITE**

#### 1. Criteria for Recommendation

These sites are managed to protect historic resources which although significant are not suitable for inclusion in the State Park system due to the nature of the resource or its location.

#### 2. Sites to be Included

Lake Minchumina Archaeological Site Panguingue Creek Moose Creek Archaeological Site Carlo Creek Archaeological Site Livengood Archaeological District

#### 3. Management Guidelines

Other resource uses which do not harm historic features are allowed. Specifically, personal use timber sales, leasehold location for minerals, new access routes, leasing for commerical use and habitat enhancement are permitted wherever they do not detract from historic resources.

#### 4. Justification

Historic and archaeological resources at many sites warrant protection but not active display. Those sites should be classified for the primary purpose of protecting cultural resources but do not require the active interpretation which could occur if included in the State Parks System. Protection of these cultural resources is important to insure their availability for research and should a site be found to have greater significance, the option for future inclusion in the State Parks System is assured.

### C. PUBLIC RECREATION SITE

#### 1. Criteria for Recommendation

These sites provide public recreational opportunities in conjunction with other resource uses on state lands retained in public ownership.

#### 2. Sites to be Included

Tanana River Access at Bonanza Wien Lake Access West Twin Lakes Access East Twin Lakes Access Wolverine Creek Site Tatalina River Access Healy Campground Lake Mansfield Access Mentasta Lake Monte Lake Forrest Lake Tolovana River Access Sites Chatanika Access Site

#### **3. Management Guidelines**

Other resource uses which do not detract from recreation are allowed. Specifically permitted in this category are personal use timber sales, roads which enhance recreational opportunities and habitat enhancement.

#### 4. Justification

Present and foreseeable use at many access and congregating sites is so low that only limited land management is required. Classification of these sites for public recreation will accommodate present low levels of use and preserve the option of future inclusion in the State Park System when and if increased use requires a greater degree of management to maintain recreation opportunities.

#### **D. PUBLIC RECREATION TRAILS**

#### 1. Criteria for Recommendation

To provide long term protection of trail related recreation activities and foreground scenery. These trails should have a minimum corridor width of 100 meters to enable separate trails for incompatible uses and buffers between trail users and adjacent land uses. These trails should be retained in public ownership and managed by DNR.

#### 2. Trails to be Included

23 Mile Slough Trails Goldstream to Murphy Dome Greenbelts Governer's Cup North Trail Robertson River Trail Caribou Pass Trails Eureka Dog Mushing Trails Hutlitakwa Trail Tolovana Hot Springs Trail Old-New Minto Trail Minto Lakes Trail Stampede Road Trail Nenana Foothills Trail Rex to Nenana Trail 8 Mile Lake Trails Dry Creek Ridge Trail Carlo Creek Trail Carlo-Yanert Trail Jack River Trail Wells Creek Trail Japan Hills Trail Dean Creek Trail Yanert Trail Moose Creek Trail Revine Creek Trail Black Rapids Trail Shaw Creek Shaw Creek Trail Volkmar River Trail Knob Ridge Trail

Old Tetlin Trail Eagle Trail Sheep Creek Trail Mineral Lakes Trail Cheneathda Hill Trail Ball Point Trail Murphy Dome Ridge Trail Chatanika Ridge Trail Cache Creek-Left Fork Tr. Lincoln Creek Trail Bonanza Forest Trail Dunbar Trail Ester Dome to Murphy Dome Trail Ester Dome Nugget Trail Chena-Gilmore Trails Mt. Ryan Ridge Trail DOT Trail 303 Cripple Creek Trail Far Mountain Trail Jenny M. Trail Middle Fork Chena Trail Sugarloaf Mountain Trail Haystack Mountain Trail

#### 3. Management Guidelines

Personal use firewood cutting is permitted where it will not detract from recreation experience within the corridor. Material sales are allowed for use for public improvements within the trail corridors. Intermittent crossings for roads and utilities are allowed. Habitat enhancement is permitted.

#### 4. Justification

High participation in trail related activities and extensive opportunities for trail activities on existing and proposed trails necessitate the classification of corridors for public recreation in order to insure that incompatible uses do not detract from recreation trail experiences.

#### **E. NATURAL FEATURES**

#### 1. Criteria for Recommendation

These sites are managed to provide for research and outdoor environmental education. The sites should be of adequate size to provide protection of the natural feature(s) for which it is established.

# 2. Sites to be Included

Lake Minchumina Upland Birch Forest Caribou-Poker Creeks Research Watershed Soda Creek Springs Dolomites Cripple Creek Vertebrates Dry Creek Dall Sheep Research Area Hutlinana Hot Springs Tolovana Hot Springs Dome Lake Within Island Wickersham Burn Nenana Canyon Rex Dome Mt. Hayes, Hess, Deborah Healy Lake and River Robertson River Spruce Forest Bonanza Creek Stratigraphic Area Bonanza Creek Experimental Forest Ester Dome Mining Recovery Ester Tailings Spinach Creek Research Watershed Ballaine Lake Aquatic Study Area Fox Tailings Chena Dome Granite Tors Black Rapids Glacier Shaw Creek Experimental St. Harding Lake Birch Forest Salcha River Fisheries Study Area Salchaket Moose Range Panorama Mountain Landmark Chatanika Canyon

#### 3. Management Guidelines

Other resource uses which do not harm natural features are permitted. Personal use timber sales and material sales, leasehold location for minerals, agricultural leasing and grazing are all permitted if they contribute to educational and recreational use or value of the natural feature. Habitat enhancement is allowed where it does not detract from recreation opportunities and natural features. New rights-of-way, utility corridors and trails are allowed or disallowed depending on the natural feature to be protected.

# 4. Justification

Preservation of a variety of unique natural features ensures diversity of the landscape for the future. For those sites which are not easily accessible to the public or which do not merit active interpretation as units of the State Park System the natural feature can be protected through public recreation classification.

#### F. MULTIPLE USE AREAS

#### 1. Criteria for Recommendation

These areas are intended to remain in public ownership for the protection of multiple resources, of which one is recreation. The areas will be managed conservatively to protect existing values while allowing compatible activities to occur.

#### 2. Areas to be Included

Manley Hot Springs Sawtooth Mountains Rex Dome Area Alaska Range Recreation Area Ester Dome Area Minto Lakes East Alaska Range Creamers Dairy Wildlife Refuge Pedro Dome Area

#### **3. Management Guidelines**

Guidelines will vary among these areas depending on the specific resources to be protected.

#### 4. Justification

In some areas there are important recreation values which occur in conjunction with other resource values in the area. It is important to recognize each of the values and identify the qualities which need protection in order to develop guidelines which will allow the values present to coexist.

#### III. MUNICIPAL PARK SYSTEM

The following areas contain recreational values of local significance. They may or may not be currently in state ownership. These designations are intended to provide the land and water base for open space and trail systems serving community residents.

- A. Neighborhood Recreational Area
- B. Community Recreational Area
- C. Municipal Public Reserve
- D. Neighborhood Greenbelt
- E. Community Greenbelt
- F. Metropolitan Greenbelt

#### A. NEIGHBORHOOD RECREATION AREA

#### 1. Criteria for Recommendation

These areas are intended to provide recreational opportunites within neighborhoods, perhaps in conjunction with existing or future elementary school sites. The sites should be 20 acres or larger in order to accommodate an elementary school. Sites may be smaller if there is little or no likelihood of a school on the site. Land in this category should be owned by municipal government, conveyed to municipal government if it is in State ownership or managed by a homeowners association.

#### 2. Areas to be Included

Musk Ox Public Reserve Pearl Creek School Park Alder Creek School Park

#### **3. Management Guidelines**

Primary land uses are recreation and education. New utility corridors may be permitted if they are needed to serve the neighborhood. Habitat enhancement is allowed.

#### 4. Justification

These areas are needed to provide a common area to residents of the immediate neighborhood. As long as undeveloped land surrounds a neighborhood the need for a close to home recreation area may not seem great, but where eventual residential development could result in the loss of existing natural areas it is critical that neighborhood recreation areas large enough to also include an elementary school be reserved.

#### **B. COMMUNITY RECREATION AREA**

#### 1. Criteria for Recommendation

These areas provide recreational opportunities within the community, perhaps in conjunction with an existing or future secondary school site. The sites should be 30 acres or larger in order to accommodate a junior high school or 100 acres or larger if to be developed in conjunction with a high school. Land in this category should be owned by or conveyed to municipal government if it is in State ownership.

#### 2. Areas to be Included

Wigwam Ski Nenana Community Park Big Dipper Expansion Birch Hill Expansion Manley Hot Springs McKinley Village Healy Donnelly

## 3. Management Guidelines

Primary land uses are education and recreation. New trails, utility corridors and habitat enhancement are permitted in these areas.

#### 4. Justification

These reasonably large areas are needed to serve multiple neighborhoods or, an entire small village and should be large enough to include a fairly extensive natural area, intense use playfields and in some cases a secondary school site.

#### **C. MUNICIPAL PUBLIC RESERVE**

#### **1. Criteria for Recommendation**

These areas are set aside to provide open space for recreation activities which require a large area close to where people live and to prevent residential or commercial development in natural hazard areas. Either management or ownership of state lands in this category should be conveyed to municipal government.

#### 2. Areas to be Included

Anderson Ski Area Nenana Dog Mushing Area Potlatch Ponds Public Reserve Fairbanks Public Reserve East Fairbanks Reserve Heritage Park

#### 3. Management Guidelines

Primary land uses are recreation and education, floodplain management and management of other areas to be retained in public ownership to prevent inhabitation due to natural hazards in the area. Personal use timber sales, new rights-of-way, utility corridors and trails, and habitat enhancement are allowed.

#### 4. Justification

As a community becomes increasingly urbanized people's need for places which enable a contrast in setting as afforded by an accessible and extensive natural environment is increasingly important. A former chairman of the Fairbanks Recreation Council succinctly stressed the role of municipal public reserves when he stated, "Maybe there should not be any parks in Fairbanks, maybe Fairbanks should be in a park".

# D. NEIGHBORHOOD GREENBELT

#### 1. Criteria for Recommendation

These areas provide close to home recreation opportunities and travel routes serving with all homesites. A minimum width of 30 meters is recommended to provide a buffer between neighborhood residents and trail users. Tracts should be retained in public ownership and management or be conveyed to homeowners for their management.

#### 2. Areas to be Included

Aqueduct Trail

#### 3. Management Guidelines

Material sales are permitted for public improvements within greenbelts. The area is intended to be roadless with the exception of intermittent road crossings. Underground utility corridors are allowed. Habitat enhancement is permitted with the exception of prescribed fire.

#### 4. Justification

A linear configuration to community open space has the advantage of providing places to recreate and travel routes within residential neighborhoods.

#### E. COMMUNITY GREENBELT

#### 1. Criteria for Recommendation

These areas are to provide recreation opportunities and travel routes for residents of multiple neighborhoods. A minimum width of 100 meters is recommended both to provide separate trails for incompatible uses and to provide a buffer between trail users and adjacent land uses. These areas should be retained in public ownership and managed either by municipal government or by user groups.

#### 2. Areas to be Included

Cantwell Trails 'Iok Greenbelt Equinox Trail Chena Slough Ester Community Trails Cripple Creek-Rosie Creek Baldry Creek Trail Straight Creek Trail Allen Trail Glenn Trail Tanana Valley Railroad Spinach Creek Trail Dome Spur Moose Creek Moose Ridge O'Conner Creek Airfield Ridge Eldorado Creek Eldorado Ridge Silver Creek Trail Fox Ridge Trail Skyline Trail Jeff Studdert Dog Mushing Tr. Skarland Ski Trail Noves Slough Chena Lakes Trail North Nenana Trail

#### **3. Management Guidelines**

Material sales are allowed where the materials are used for public improvements within the greenbelt. The area is recommended for a roadless area except for intermittent road crossings. However, new rights-of-way, utility corridors and trails are allowed. Habitat enhancement is permitted with the exception of prescribed fire.

#### **4. Justification**

A community greenbelt system provides opportunities for trail related and access to other recreation and subsistence activities and contributes to an aesthetically pleasing community design. They also provide a buffer between incompatible land uses.

#### F. METROPOLITAN GREENBELT

#### 1. Criteria for Recommendation

These areas provide recreation opportunities and travel routes for residents of multiple communities. A minimum width of 200 meters is recommended to provide separate trails for motorized and non-motorized trail uses, off-trail recreation activities and to provide a buffer between public recreation uses and adjacent land uses. The areas should be retained in public ownership and managed by municipal or state government.

#### 2. Areas to be Included

Fairbanks 100 Mile Loop Trail Goldstream Valley Greenbelt Fairbanks Crescent Chena River Tanana Valley Railroad

#### **3. Management Guidelines**

Personal use firewood sales are permitted if the firewood removed and the route and means of removal do not detract from recreation experience within the greenbelt. Material sales are allowed for public improvements within greenbelts. The areas are recommended for roadless areas with the exception of intermittent road crossings. However, new rights-of-way, utility corridors and trails are allowed. Habitat enhancement is permitted with the exception of prescribed fire.

#### 4. Justification

A metropolitan greenbelt system provides opportunities for trail related recreation activities and helps to define the boundaries of the metropolitan area through the provision of open space.

#### **G. PRIVATE RECREATION**

#### 1. Criteria for Recommendation

These areas possess recreation resources and opportunities which are suitable for private management. Wilderness lodges and remote lakes, winter sports resorts and living history are examples of recreation opportunities which are effectively provided by the private sector.

# 2. Areas to be Included

Sheep Creek Park School Livengood Gold Mining Camps Suntrana Mine Safety Car Murphy Dome Ski Ester Dome Ski Ester Gold Mining Camps Fox Gold Mining Camp Wigwam Ski Area (Ski Boot Hill Expansion) Chena Sunny Ski Area Wien Lake Lodge Site East Twin Lake Lodge Site West Twin Lake Lodge Site John Hansen Lodge Site Lake Minchumina Lodge Site

#### **3. Management Guidelines**

To ensure that the private owner or manager of outstanding recreation resources actually provides recreational opportunities to the public, conveyance of interest by the state will require recreation development and operation.

#### 4. Justification

State management of these areas is analoguous to its management of agriculture and mineral resources by which conveyances of interest in high potential resource areas requires a private party to utilize the resource.

#### **IV. REGIONAL CORRIDORS**

The following categories are of regional significance and should be retained in public ownership. Management authority will vary depending on location and specific needs of areas recommended for these types of management.

A. Highway/Railway Greenbelt

B. Multiple Use Trail Corridor

C. Multiple Use River Corridor

#### A. HIGHWAY/RAILWAY GREENBELT

#### 1. Criteria for Recommendation

These areas are recommended for both recreation and transportation use. They are dedicated to protect the natural foreground scenery for enjoyment of the travelling public and to buffer adjacent land users from major traffic by rentetion in public ownership of 100 meters either side of the right-of-way.

#### 2. Areas to be Included

Manley Hot Springs Road Alaska Railroad Parks Highway Denali Highway Alaska Highway Taylor Highway Glenn Highway Elliott Highway Steese Highway Richardson Highway

#### 3. Management Guidelines

Personal use timber sales are allowed where they will enhance views from road or railroad. Material sales are allowed if for improvements of highway, railway or intersecting side roads within the greenbelt. New rights-of-way are permitted at intersection with section lines or where designated by DOP and DOT. Utility corridors are allowed where whey will not detract form views from highways, railways or trails. Leasing for commercial use may be allowed as may habitat enhancement.

#### 4. Justification

Travel corridors are the location of a high proportion of people's sightseeing, departure points to the back country and in general outdoor living. Therefore preservation of foreground scenery along all highways and railroads makes a disproportionate contribution to the quality of residents and tourists outdoor experience.

#### **B. MULTIPLE USE TRAIL CORRIDOR**

#### 1. Criteria for Recommendation

These areas are managed for both recreation and transportation and provide access to a variety of resources. The minimum corridor width is 100 meters to enable separation of incompatible trail uses and possible conversion of trail to a road with parallel trail and utilities. Trail corridors would be retained in public ownership and managed by DOT.

#### 2. Areas to be Included

Toklat River to Lake Minchumina Trail Manley Rampart Trail Willer Creek Trails Delta Creek Trails Chitanana Trail Cosna Trail

Clearwater Creek Toklat River Trail Nenana-Kantishna Trail Mile 400 to Toklat River Trail Rex-Toklat Trail Black Bear Lake Trail Manley Hot Springs Trail Sawtooth Mountains Trail Tanana-Woodchopper Trail Bean Ridge Roughtop Mountain Wolverine Creek Dugan Hills Trail Hutlitakwa Creek Trail Minto-Livengood Trail Dunbar to Brooks Terminal Tr. Fairbanks to Gibbon Road Nenana-Old Minto Trail Washington Creek Trail Stampede Road Rex to Bonnifield Trail Rex to Bonnifield Alt. Healy to Rex Trail Totatlanika River Trail Blair Lakes Trails Bonnifield Trail Liberty Bell and Daniels Healy Creek Trail Dry Creek Trail Goodpaster Trail Black Mountain Trail Billy Creek Trail Healy River Trail George Trails Mansfield Trail Mansfield-Dot Lake Trail Tetlin Lakes Trail Tanacross Trails Tok River Trails Murphy Shovel Trail DOT Trail 73c Iowa Creek Trail Anaconda Creek Trail Colorado Creek Trail DOT Trail 286 (Moose Creek) DOT Trail 262 (Nome Creek) DOT Trail 297 (Fairbanks Creek) DOT Trail 288

DOT Trail 293 (Faith Creek) DOT Trail 294 Salcha Caribou Trail Salcha Trails West Fork Valley Trail

#### **3. Management Guidelines**

Personal use firewood sale is permitted if wood removed and method of removal does not interfere with transportation and recreation. Material sales are not permitted except for use for public improvements within the trail corridor. New trails are permitted to provide parallel trails for incompatible trail uses; to provide parallel trails if original trail becomes a road and to allow unlimited side trails to provide access to adjacent lands and waters. While other resource uses are not permitted, access to other resources is a primary use of these trails.

#### 4. Justification

The trails of Interior Alaska are used extensively both as recreation experiences and as access to hunting, fishing and other recreational pursuits. The high recreation value of the above trails warrants their classification for public recreation in conjunction with other compatible uses which do not detract from the trail experience.

#### **C. MULTIPLE USE RIVER CORRIDORS**

#### 1. Criteria for Recommendation

To provide for water based recreation and transportation and to maintain fish and wildlife populations at or above current levels and provide for human use of fish and wildlife. In general, corridors extending 100 meters beyond riverbanks will be retained in public ownership.

#### 2. Areas to be Included

Clear Creek Twin Lakes Waterway Kantishna River Toklat River Teklanika River Tanana River Tatalina River Wood River Fish-Wolf Lakes Waterway Tok River Little Tok River Robertson River Nabesna River Chisana River Little Chena River Tolovana River

#### 3. Management Guidelines

Most resource uses are allowed. Both commercial and personal use timber sales are allowed. In general a leave strip along riverbanks will be included in timber harvest. Exceptions include places where riverbank erosion will eliminate leave strip and selective cutting for firewood and personal use. Material sales are permitted except where permanent scars would remain within sight of the river. Minerals are open to leasehold location and land may be leased for agriculture or commercial uses. Trapper cabins, remote cabin permits and scattered small tracts are allowed if there is public retention of lands within 30 meters of riverbanks. New rights-of-way, utility corridors and trails are allowed. Habitat enhancement is also permitted.

#### **4. Justification**

The rivers of interior Alaska provide extensive boating, fishing, and recreational travel opportunities for interior Alaska residents. The high recreation value of some waterways warrant their classification for public recreation in conjunction with other uses which do not detract from water quality and foreground scenery.

# Appendices

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#### I. INTRODUCTION

Income that circulates in the economy of the Basin because of general recreation on state land can be estimated by calculating the total expenditures by residents and tourists for equipment, travel, food and lodging. This appendix estimates those expenditures. The estimate is then used in the results section of the general recreation chapter to indicate the economic and employment effects of general recreation in the Basin.

#### **II. EXPENDITURES ON RECREATION EQUIPMENT**

Total expenditures for general recreational equipment can be estimated by multiplying the number of households in the Basin which own a particular piece of recreational equipment by the yearly cost of that equipment.

#### **A. Number of Households Owning Equipment**

The number of households that own equipment was found by using data from the Alaska State Outdoor Recreation Plan. These data include the percentage of Interior households that own a backpack, tent, cross country skiis, boat, snowmachine, dirt bike, snowshoes, climbing equipment, raft, dog sled, or horse. By multiplying the number of households in the Basin by the percentage of households owning a certain piece of equipment, the number of backpacks, boats, or dog sleds owned in the Basin was estimated. Table A-3, columns 1 and 2 summarize this information.

#### **B.** Cost/Year of Equipment

The expenditures for each piece of equipment per year was found by averaging the cost of the equipment over the number of years that the equipment lasts. The cost of equipment was estimated by obtaining the local price of the most popular brand or size of equipment. In addition to the cost of the equipment the amount of money spent for operating and maintaining the equipment was computed. Table A-1 shows the cost/year of owning various types of recreational equipment.

#### C. Percentage of Total Expenditures Attributable to General Recreation

The entire cost of a piece of equipment should not be attributed entirely to general recreation. Some types of equipment are used for fish and game related activities. The portion of the cost attributable to fish and game is counted in the fish and game element, and excluded here.

	a	þ	с	d	е	f	g	h
	Purchase Price	Life of Equipment	Capital Cost/Year	Misc. Equip. Cost	Life of Misc. Equip.	Capital Cost/ Year	Annual Operating Cost (Maintenance, Gas, Food)	Total Cost/ Year
Backpack Equip.	.100	10	. 10	300	10	30	0	40
Camping Tent and Gear	100	10 .	10	200	10	20	0	30
Cross Country Skiis	125	10	12.50	125	10	12.50	0	25
Boat Large Small	4500 <sup>1</sup> 900 <sup>2</sup>	10 10	450 90	200 100	10 10	20 10	900 0	1370(60) 100(40) <sup>862</sup>
Snownachine	2000	10	200	150	10	15	450	660
Dirt Bike/ 3-Wheeler	1500	10	150	100	10	10	450	610
Snoshoes	80	10	8	0	0	0	0	8
Climbing Equipment	1000	10	100	0	0	0	0	100
Rafts	1000	10	100	100	10	10	0	110
Dog Sleds	750 <sup>3</sup>	10	75	500	10	50	720 <sup>4</sup>	845
Horse	1500	10	150	150	10	15	800	965

# TABLE A-1. EQUIPMENT COST/YEAR

Source: Conversations with local sports shops and recreationists.

#### **NOTES FOR TABLE A-1**

 $^{1}\mbox{Total cost includes, 2,000 for boat; 1,000 for the trailer and 1,500 for the motor.$ 

 $^2 \rm This$  is a weighted cost. It is based on the assumption that 60% of the people own large boats and 40% own small boats.

<sup>3</sup>Total cost includes 5 dogs at \$75/dog.

 $^{4}$  Total cost includes \$12/month food for each dog, or \$120/dog each year and \$120 for vet bills.

# **TABLE A-2**

# PROPORTION OF HOUSEHOLD RECREATION EQUIPMENT COST ALLOCATED TO GENERAL RECREATION (NOT FISH AND GAME)

Backpack	80%
Tent Camping	50%
Cross Country Skiing	100%
Boat	50%
Snowmachine	80%
Dirt Bike/Motor	50%
Snowshoes	80%
Climbing Equipment	100%
Rafts	100%
Dog Sleds	90%
Horses	75%

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Table A-2 summarizes the percentage of the total cost that is allocated to general recreation for a given piece of equipment.

#### **D. Summary**

Total expenditures by Basin residents for equipment is calculated in Table A-3. The table is based on assumptions and information that are discussed in the three previous sections of this appendix.

#### **III. EXPENDITURES ON TRAVEL**

Total travel costs can be estimated by multiplying the total number of times a household uses a vehicle for a recreational trip, by the average cost of that trip.

#### A. Total Number of Trips/Year

The number of trips made each year by a household was estimated using information from the Alaska Outdoor Recreation Plan Survey. The survey included a summary of the number of occasions each year that an adult participates in a certain recreational activity. Only some of these activities, however, involve travel costs. For example, cross country skiing is usually done close to home and does not require any significant travel. Other activites such as back packing usually requires driving to an area away from home. The percentage of each type of activity that involves travel is summarized in Table A-4 (Column d). Also estimated and summarized in the table (Column f) is the percentage of occasions that are for fish and game related activities and should not be attributed to general. recreation.

Table A-4 shows how these assumptions are used to estimate the total number of general recreation trips. The number of trips identified in this table is probably underestimated, as it does not include information on all types of recreational acivities. Information on dog mushing and motor boating, for example, was not available and are missing from this part of the analysis.

The number of trips children take in the Basin are not added into the total figure in Table A-4. Trips by children are assumed to be part of family excursions. During family excursions children travel with the adults and therefore they do not add any additional trips to the total trips estimated in Table A-4 that require travel.

#### **B. Average Cost/Trip**

No direct information was available on the length of the average trip, and therefore very general assumptions were required. If and when better data is available, these assumptions should be updated. This analysis assumes that residents on the average travel one hour each time they take a trip requiring travel, or two hours round trip. Assuming two hours is equivalent to 100 miles (50 miles per hour) at 30 cents per mile, the total cost per trip is \$30 dollars. Also it is assumed that two people on the average split this expense so that the total cost per occasion, per person is \$15.00.

#### C. Summary

Total expenditures on travel can be determined by multiplying \$15 dollars/trip by 456,408 occasions. This means that the total amount of money spent on travel is about \$6,846,000 dollars when rounded to the nearest thousand dollars.

#### **IV. EXPENDITURES FOR FOOD AND LODGING**

It is assumed that on the average, for each trip a resident takes in the Tanana Basin, they purchase one meal from a local cafe or lodge at 5.00/meal. This means that a total of 2,282,000 dollars is spent on food per year by recreationists (456,408 occasions x 5.00 = 2,282,040), rounded to nearest \$1000.

It is assumed that on one out of every 20 occasions, the recreationist spends a night in a lodge or motel at 50/night. This means that a total of 1,141,000 dollars is spent for lodging every year by recreationists (456,408 occasions/20 x 50/night = 1,141,000).

#### **V. EXPENDITURES BY TOURISTS**

Expenditures by tourists can be estimated by multiplying the total number of visitor-days spent in the Basin by tourists by the amount of money that a tourist spends every day. As detailed in Chapter 3, approximately 258,500 tourists participate in general recreation in the Basin. Each of these tourists spends an average of 40.37 dollars per day according to a report by Louis Berger and Associates entitled "Interior Transportation Study, Tourism Working Paper."

	% of Households in Basin Owning	<sup>#</sup> of Households in Basin	Total # of Households Owning Total Amount of Equip.	Cost of Equipment/ Year	Total Expenditure In Basin	% of Total Attributable to Recreation	Total Expended for 'Rec. Equip.
Back packing	48%	18,349	8,808	40	352,328	80%	281,856
Camping Tent	50%	18,349	9,174	30	275,235	50%	137,618
Cross Country Skiing	31%	18,349	5,688	25	142,200	100%	142,200
Boat	30%	18,349	5,505	862	4,745,310	50%	2,372,655
Snowmachine	23%	18,349	4,220	660	2,785,200	80%	2,228,160
Dirt Bike/Motorcycle	20%	18,349	3,670	610	2,238,700	50%	119,350
Snoshoes	28%	18,349	5,130	8	41,104	80%	32,883
Climbing Equipment	5%	18,349	917	100	91,700	100%	91,700
Rafts	9%	18,349	1,651	110	181,610	100%	181,610
Dog Sleds	7%	18,349	1,284	845	1,084,980	90%	976,482
Horses	1%	18,349	183	965	176,595	75%	132,446

# **TABLE A-3. TOTAL EXPENDITURES FOR RECREATION EQUIPMENT**

TOTAL

6,695,960

3.27 people/household into 60,000 population = 18,349 household. This figure is based on the 1980 Census of Population Supplementary Report (No. PC80-51-4). The following communities were included in the average: Fairbanks North Star Borough, Delta, Dot Lake, Fort Greely, Healy Lake, Northway, Tanacross, Tetlin, Tok, Mentasta, Cantwell, Healy, McKinley, Minto, and Usibelli.

· · · · · · ·	a	b	с	d	е	f	g
	Average Annual Occasions/ Adult <sup>1</sup>	Total Adults in Basin²	Total Occasions in Basin	% of Occasions Requiring Travel	Total Occasions Requiring Travel	% of Their Occasions for Recreation	Total Occasions Requiring Travel for Recreation
Snowmobile	11.2	43,200	483,840	5	24,192	50	12,096
Cross Country Ski	10	43,200	432,000	5	21,600	100	21,600
Motorcycle/Other ORV	8.1	43,200	349,920	25	87,480	50	43,740
Tent Camping	7.6	43,200	328,320	100	328,320	50	164,160
Kayak/Canoe	3.4	43,200	146,880	100	146,880	95	139,536
Recreation Vehicle	2.1	43,200	90,720	100	90,720	80	72,576
Horse	1.0	43,200	43,200	25	10,800	25	2,700
· · ·						TOTAL	456,408

# TABLE A-4. TOTAL NUMBER OF TRIPS REQUIRING TRAVEL

#### <sup>1</sup>Alaska Public Survey (ISER, 1978).

<sup>2</sup>72 percent of the FNSB population are adults (16 years or older) (Community Research Quarterly, FNSB, Summer, 1982). This percentage when applied to the population of the Tanana Basin means that there are 43,200 adults in the Basin.

Therefore, the total expenditures by tourists each year is approximately 10.4 million dollars (\$40.37/day x 258,500 days = \$10,435,645.

# VI. TOTAL EXPENDITURES

Residents and tourists spend a total of approximately \$27 million dollars per year for recreation in the Basin. This figure was calculated by adding together the total expenditures by residents on a) equipment (see Section 2), b) travel (see Section 3), c) food and lodging for residents (see Section 4), and d) total spending by tourists (see Section 5) as shown in Table A-5 below. This total should not be attributed entirely to state land however, since some of the recreation occurring on the Basin happens on borough or private land.

#### **TABLE A-5**

# TOTAL GENERAL RECREATION EXPENDITURES IN THE TANANA RIVER BASIN

1.	Resident's expenditures:						
	a. b. c.	Equipment: Travel: Food & Lodging:	\$ 6,696,000 6,846,000 3,423,000				
2.	To	urists' Expenditures:	10,436,000				

TOTAL

\$27,401,000
## Bibliography

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## **RECREATION BIBLIOGRAPHY**

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