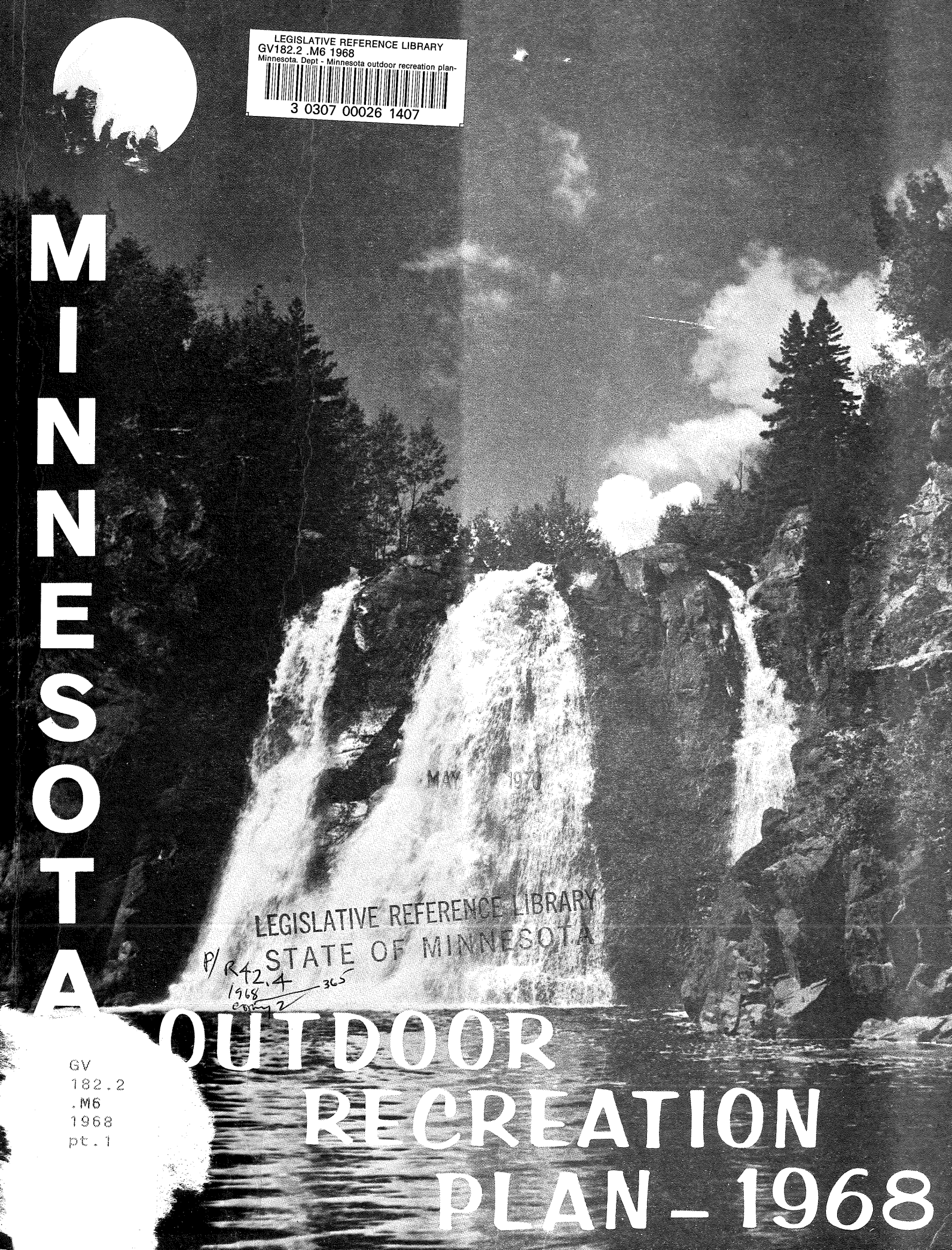

MINNESOTA OUTDOOR RECREATION PLAN-1968

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OUTDOOR RECREATION PLAN
1968

Bureau of Planning
Minnesota Department of Conservation
St. Paul 55101

June 1969

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State Department of Highways
State Planning Agency
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Minnesota Resources Commission

Particular thanks are due the Commissioner's Advisory Committee appointed for the review of this plan.

PREFACE

This new outdoor recreation plan constitutes the updating and improvement of Minnesota's first state-wide outdoor recreation plan entitled "Minnesota Outdoor Recreation, Preliminary Plan, 1965". The 1965 plan was the first attempt to prepare a comprehensive outdoor recreation plan for Minnesota and as such lacked certain elements necessary for proper planning. However, the document contains one of the most complete descriptions of Minnesota's resources and other background ever prepared for our state.

The needs and recommended action program of the 1965 plan were quite general, largely because a sufficient analysis of outdoor recreation demand was not available. Areas where more complete studies were warranted include a search into the proper role of various governmental agencies and the private sector, urban needs, specific needs for the handicapped and methods of financing.

When these needs were presented to the 1967 Legislature, the response was to fund a recreation demand study and to provide a planning staff to undertake the work. Since the demand study required immediate attention and additional staff and since the work would be periodical as compared to a permanent part of the program, Midwest Research Institute of Kansas City, Missouri, was contracted by the Department of Conservation.

In updating the 1965 plan, one of the first steps taken was to establish a data bank system for the inventory of Minnesota's recreational areas and for analyzing the results of the demand survey. This data bank was initiated by the Midwest Research Institute and considerable help was provided by the State of California Resources Agency, Parks and Recreation Department (PARIS System).

A data processing system was prepared and the data collected in a manner to allow more complete analysis than was possible when the initial plan was prepared.

In the "Minnesota Outdoor Recreation Plan, 1968", we have tried to review and objectively analyze the factors identified with problems in outdoor recreation, and recommend solutions.

This plan will be superseded by later plans based on more advanced research on standards, measures of demand, etc. Where new findings make elements of the plan obsolete, changes in the plan will be made. In this early period of recreation planning, such plans as these must be looked upon as guidelines and the "posts" on which they are based will become stronger with the growth of our knowledge in this field.

This plan would not have been possible without the generous assistance of many agencies and individuals who, through the course of the various studies, made this huge task a success. (Although many of the agencies are mentioned in the plan, our acknowledgement list could not include all who have contributed.)

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CHAPTER 1 — INTRODUCTION

I. SCOPE AND OBJECTIVES OF THE PLAN

A. Scope of the Plan

The 1968 Outdoor Recreation Plan includes a new Minnesota Demand Survey with information on the social and economic attributes of our state, and the attitudes of our residents toward outdoor recreation activities. Information is also included which defines the participation of Minnesotans in outdoor recreation activities. An attempt was made to re-evaluate the existing and potential recreation areas which now provide for outdoor activities.

This plan delineates the responsibilities of the various levels of government and the private sector in the field of outdoor recreation. The network of state canoe routes and other trails are included as a new and significant aspect in providing for outdoor recreation in Minnesota. Moreover, the aesthetic and cultural importance of our parks, forests, wildlife management areas, historical areas and other key areas of the state, along with aspects of environmental quality, are brought forth.

A five-year action program for scheduling the acquisition of lands needed for recreational purposes has been made. It is hoped that through this action plan, administration and implementation of outdoor recreation plans will be facilitated at all levels.

All plans, particularly early plans such as this, are subject to change as new conditions arise and as the needs of our citizens and resources become apparent. No plan is static. It must be flexible and subject to periodic review and updating; the means for such review and updating are included in this plan.

B. Objectives of the Plan

The primary objective of this 1968 Outdoor Recreation Plan is to indicate ways and means to provide for a quality environment including outdoor recreation opportunities, particularly those needed by Minnesota residents and their visitors. As we look at the future needs, all indications are that the demands for lands will be greatly accelerated. It is our immediate responsibility to set aside needed areas for the future use of our citizens. The Plan will establish priorities for setting aside these areas and for developing facilities as needed. Without a plan, the task and the risk of missing our objectives in the limited time available would be too great.

The secondary objectives of this plan are as follows:

a. To provide the decision-makers with alternative solutions in land acquisition and capital improvement programs for the comprehensive management of our environmental resources.

b. To provide a source of information for detailed planning of outdoor recreation.

c. To provide a means of coordinating the energies of those involved in outdoor recreation planning.

d. To provide the base plan by which the State of Minnesota will proceed in the administration of Federal Land and Water Conservation Funds designed for outdoor recreation purposes.

II. LEGAL AUTHORITY

A. Certification

See pages 2-7, 1965 Plan (Office of the Attorney General, June 25, 1965, to Commissioner of Conservation and certification from former Governor Karl F. Rolvaag). The Attorney General's Opinion affirms the fact that the Department of Conservation has the necessary legal authority to meet the requirements of Public Law 88-578. This affirmation is summarized as follows:

"We conclude, and it is our opinion, that the State of Minnesota has full power and authority to participate in the Land and Water Conservation Act of 1965, and that it was the clear intention and purpose of the Legislature in the enactment of Chapter 810, and other laws to which reference has been made, that the state shall fully participate in such Act. It has clearly designated the Governor as the state agency to apply for, accept, receive and disburse all federal and private funds which are granted to the State from the Act. It further authorizes the Governor to designate a state agency, or agencies, to act for him applying for, receiving and accepting federal funds under the provisions of subdivision 1 of Chapter 810. All requirements of federal law and any rules and regulations thereunder, shall be complied with to enable the application for and the receipt of an acceptance of such federal funds."

B. Designation

The Governor's authority and responsibility for participation in the Land and Water Conservation Fund Act Program are defined by Minnesota Laws, 1965, Chapter 810 as amended in 1967, Chapter 867. Excerpts of the laws are cited as follows:

"Sec. 21 (86.71) Federal Land and Water Fund; acceptance of funds; distribution. Subdivision 1. The Governor is designated as the state agency that applies for, accepts, receives, and disburses federal funds and private funds which are granted to the State of Minnesota from the Federal Land and Water Fund Act.

"Subdivision 2. The Governor may designate a state agency or agencies to act for him in applying for, receiving and accepting federal funds under

the provisions of Subdivision 1. Such designation of a state department or agency shall be filed in the office of the Secretary of State."

"Subdivision 3. The Governor or any state department or agency designated by him shall comply with any and all requirements of federal law and any rules and regulations promulgated thereunder to enable the application for, the receipt of, and the acceptance of such federal funds. The expenditure of any such funds received shall be governed by the laws of the State except insofar as federal requirements may otherwise provide. All such monies received by the Governor or any state department or agency designated by him for such purpose shall be deposited in the state treasury and shall be hereby appropriated annually in order to enable the Governor or the State Department or agency designated by him for such purpose to carry out the purposes for which the funds are received. None of such federal monies so deposited in the state treasury shall cancel and they shall be available for expenditures in accordance with the requirements of federal law."

III. COORDINATING THE PLAN WITH RELATED PLANS

The coordination of recreation planning is a difficult task whether it be on the local or on a higher level. Outdoor recreation planning, however, cannot succeed without joint action from all levels of administration involved.

Aspects of land use, open space, water and related land resource plans will exert major influences in determining the course of outdoor recreation. Other plans will also affect recreation to the extent that coordination will be a prerequisite to any successful planning for outdoor recreation.

Minnesota is fortunate that a State Planning Agency, serving under the Governor's Office, can coordinate the comprehensive aspects of long-range state-wide planning. In this Agency, outdoor recreation planning is conducted in conjunction with state-wide economic studies on tourism, water and related land resource planning, as well as various phases of regional, county and municipal planning.

Because the Department of Conservation manages much of the state-wide natural resource and park recreation programs, coordinating state outdoor recreation planning with that of other departments involved in the management of fish, wildlife, water, minerals, public lands, forests, parks and recreation is greatly facilitated.

With the data bank system established by the Department of Conservation, information from this plan can be provided to aid other agencies and local units of government. Similarly, other plans of various agencies have been extremely helpful in the preparation of this plan.

Regional coordination with other states for water and related land resource planning will be provided through the four comprehensive basin planning efforts now under way (Souris-Red-Rainy, Great Lakes, Upper Mississippi, Missouri).

CHAPTER 2 — FINDINGS, POLICIES AND RECOMMENDATIONS (SUMMARY)

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I. MAJOR POLICIES AND STANDARDS

A. Roles and Responsibilities of Government and the Private Sector.

The **state** will assume more responsibility in leadership and guidance in the provision of outdoor recreation facilities both for the welfare of its residents and the tourist impact on the state economy. The state will establish high quality standards in design of facilities and in the protection of its more fragile resources. Financing of state grants-in-aid and coordination of federal grants-in-aid will be important to implement this plan. Areas of state-wide significance should be protected from uses not compatible with preserving their value and acquired as necessary for their protection and development to meet recreation needs.

The **federal** government can be the implementor through financial assistance in grants to the state. It can manage large holdings of national significance where the state is not capable of meeting the financial management obligations.

The **county** should serve to provide medium sized recreation areas outside of communities for day use and group activities. Through zoning and taxation incentives counties should seek to protect lands with vital recreational, scenic, historical and cultural potential.

The **metropolitan** government can benefit the Twin Cities metropolitan area through coordination in planning of physical development and through equitable tax distribution. Their function in preserving open space will be vital to retaining alternative sites for recreation by 1980. Controls of federal assistance affecting such protection should be continued and more thoroughly interrelated.

Municipalities should concentrate on providing for local daily leisure needs for all age groups. Environmental quality of the town and the services it provides to visitors will be most important insofar as local economy and welfare of its residents are concerned.

Quasi-public groups should concentrate on character building and outdoor education of our people to provide more profitable channels for their leisure time.

Private enterprise has a major role in providing services and facilities to the tourist. It should be encouraged to assist the government in meeting the overall recreational needs in luxury camping or resort facilities, transient facilities and services as required by a recreating and vacationing public. To facilitate this, more technical assistance and financial incentives in the form of low interest loans should be made available.

B. State Policies and Standards

The primary goal of this outdoor recreation plan is to maintain and improve the welfare of Minnesota's residents through protection of natural resources, preservation of scenic, historical and other aesthetic values within proper open space setting and development of compatible recreational facilities for the public.

Responsibility for providing the lands, waters and facilities should be assigned to the lowest unit of government (or private sector) capable of meeting the need.

The state and federal government will generally provide larger areas for low to medium intensive forms of outdoor recreation activity while the county, municipal, schools and private sector provide for highly developed facilities.

II. FINDINGS OF SUPPLY AND DEMAND SURVEYS

A. Major Needs in Lands

The Region in which the greatest need will occur is Region 11 (Metropolitan Area). Most of this Region lies within one hour driving time and will be used mostly for daily recreation by this large population center. The east central and southeastern portions of the state (Regions 7 and 10) will also experience the greatest demand for outdoor recreation lands because of less public land ownership, and the population rate of increase predicted for the southeast portion of Minnesota.

In this plan, the 1980 forecast indicates a need for approximately 228,000 acres of **developed** (state-wide) recreation lands. Of this total, some 22,000 acres should be provided by the state in parks, forests, public boat launch sites and highway waysides. This does not include the 1980 needs of 446,000 additional acres of wildlife management lands required to maintain resources for hunting.

For lands to be developed in existing state parks, additional buffer lands at a ratio of about 75:1 (undeveloped : developed lands) will be necessary to maintain the quality of parks as developed in the past. In most state forests, buffer lands likely will be provided and planned development can be accommodated without further land acquisition. This will not be true, however, in those Regions in southeastern and east central Minnesota where existing state forest land will not be entirely sufficient for adequate buffering.

Trail development, a responsibility for which the state will assume a large part, constitutes the major land resource need on which state park and forest land requirements are based. On the other

hand, land needs for golf courses, playgrounds and similar day-use facilities constitute the major underlying recreation need for county, municipal and private lands for recreation.

The overall needs for lands have been distributed among the levels of government and the private sector based largely on past history which reflects the ability of each to provide such facilities. The private sector will be encouraged to provide more in services and occupancy types of development.

State-wide, the percentages of land requirements were assigned as follows: state 8.3%, federal 3.2%, county 20.4%, municipal 35.3%, private 32.8%.

B. Major Needs in Waters

The 1967 demand study indicated a demand far in excess of the supply of cold-water (trout, salmon) fishing waters. It also predicted that by 1980 the carrying capacity of some waters in heavily populated southern and Twin Cities Regions will not be sufficient to meet the warm-water fishing demand being placed upon it.

It is recommended that restoration and maintenance of trout or salmon habitat and fishing access be given priority in streams and lakes so classified for cold-water management. It is further recommended that promotion of fishing in the state be concentrated on highly productive acres and on the more abundant species. In this manner, the more fragile wilderness quality of the northeastern lakes can be preserved and the fishing demand will more likely be met in other areas with greater resource capabilities.

Spatial deficiencies of surface water for boating in 1980 are indicated for Regions 11 (Twin Cities metropolitan area) and Regions 6, 7, 8, 9, and 10 (southern half of state). Although lakes and rivers in other Regions can accommodate this deficiency, conflicts in surface use of these waters can be anticipated.

To meet the accelerated demand for canoeing, development must continue on the 4,074 miles of existing streams considered as good canoe routes. In the southeast, use of the myriad system of side channels on the Lower Mississippi bottomlands will provide additional canoeing opportunities.

Studies of the recreational potential of future reservoirs should continue in the water deficient regions of the state. Additional use can be made of marginal lakes (lakes which are too shallow for fish and too deep for waterfowl management) for boating and water skiing in many regions to alleviate heavy boating demand.

Because water is probably Minnesota's greatest asset for outdoor recreation, protection of water quality and the aesthetic values of shorelines are vital. Quality of life for Minnesota residents and the attraction of tourists who bolster the state's economy, depend heavily on the preservation of this key resource.

C. Future Needs

To meet the deficiencies in lands for outdoor recreation, certain legislative, planning, financial and other actions must be taken. All levels of government and the private sector have a role to play in meeting these needs.

1. Legislative

Appropriations should continue at the magnitude instituted by the Natural Resources Program and acquisitions of lands in the Metropolitan, Southeast and East Central Regions should receive priority, as increasing demand and price escalation present a two-fold problem. Some of the major legislative needs are as follows:

- Shoreland and flood plain zoning and use of the latter for recreation purposes.
- Establishment of conservation curricula in schools and outdoor nature centers.
- Development of a system of state wild and scenic rivers.
- State acquisition of accesses on certain smaller lakes now excluded by law.
- Establishment of new state park and extension of existing state forest to implement St. Croix National Scenic Waterway in Minnesota.

2. Planning

- Increase state leadership in resource planning and development.
- Use of the State Planning Agency as "clearing house" for scheduling new federal project planning involving state in recreation and other resource matters.
- Establishment of a state land use plan including identification of key recreational and aesthetic sites.
- Provisions for additional technical assistance to local government and private individuals to coordinate state and local plans.
- Implementation of a state-wide, cross-country trail system.

3. Research

- Better user-preference, attendance, activity participation and travel pattern statistics need to be collected prior to revision of this Plan.
- Additional methods are needed for preserving high-intensity use areas, fragile wilderness areas and virgin forests or other natural areas.
- New state and local policies are needed relating to future development of lakeshore lands.

- Better means for establishing monetary values on recreational experiences to establish a policy relating to conflicts in land use, etc.
- Additional study should be made of the means for alleviating current losses of open-space because of pressures of taxation.

4. **Financing**

- All available sources of financing from federal grants should be scrutinized at a regional or state level from the standpoint of eliminating overlap that can constitute competition between funds.
- Continuation of the 1963 Natural Resources Program to the extent that it can supply the revenue for accelerated acquisition and development by state and local government.
- Local units will be urged to utilize existing authority for local financing prior to granting state or federal assistance.
- Allocation of federal funds (Land and Water Conservation Fund monies) will be assigned on a priority basis based on an acceptable County Action Program, state-wide or regional needs and evaluation of the urgency and intrinsic values of the area. Safety of the user and preservation of the area qualities are given priority in development.

III. SPECIAL PROBLEMS, OPPORTUNITIES

A. Special Problems

One of the major problems in meeting outdoor recreation demand occurs because the natural resource is lacking in areas where the need is greatest. This problem is magnified because of the lack of public support in the past for acquisition of high priced land near population centers.

The southern and southeastern regions of Minnesota will experience heavy use pressure in the future. Tourists from population centers in the East will find easy access on interstate highways and will compete with Minnesota residents for already limited resource.

Land use controls through land zoning and easements are necessary to protect flood plains; steep and erodable topography; and key natural scenic, historic and scientific areas. These land use controls are needed to supplement public programs to acquire, by fee simple, key tracts of land in order to control development in prime recreation resource areas.

The President's Council on Recreation and Natural Beauty recommends[1] the encouragement of better design of new neighborhoods and points out the importance of conveniently locating new parks and open space, as well as good maintenance of existing parks.

Historic site preservation is lagging because of the lack of financing and divided interests. In Minnesota there are 1,100 known archeological sites but less than 200 have been tested or excavated.

Pollution of air, water, and land is causing increasing concern. The expected population increase will require more supporting facilities, particularly in agriculture and manufacturing. Each will produce waste and yet require more clean water.

Mining operations in some areas of the state have changed the original landscape. Efforts should be made for continued exploration of ways of enhancing the landscape with pre-planning and renovation.

The influence of utilities on the environment is an important problem and one which is of concern to utility companies as well as the public. Indications are, however, that the costly process of underground service to new residential districts will be solved by 1980. With additional financial assistance, a target date of 1975 is realistic. Following this date, no new overhead distribution lines to new residential subdivisions should be constructed.

Rivers and flood plains are seen as a focal point of natural beauty, used by wildlife and enjoyed by man. In some cases, water development projects are designed and built in such a way that some of the natural area is destroyed.

Controls also should be established to provide a state-wide system of river protection to complement the proposed nation-wide scenic and wild river system.

Many of our lakes are losing their natural and recreational qualities due to pollution. Water quality standards and accelerated research are needed in order to solve the problem.

Wetlands are disappearing at a rapid rate from drainage, sedimentation and other pollutants. It ultimately will be necessary for the state to determine the amount of wetland acreage that must be preserved, to identify these areas and to provide for their permanent protection.

Zoning controls or acquisition of undeveloped islands should receive high priority as in some cases they are the only remaining natural feature on our lakes.

The state needs to provide for the designation, acquisition and protection of natural areas. A system of natural areas must be incorporated into existing institutional arrangements whereby leg-

[1]**From Sea to Shining Sea**, the President's Council on Recreation and Natural Beauty, Washington, D.C. 1968

islation, financing and administration can insure their preservation.

Preservation of the natural environment is now given consideration in the placement and design of the state's highways. This is being accomplished through a cooperative agreement between the State Department of Highways and the Department of Conservation. This consideration must be continued, particularly at the county or regional level.

A study should be made to determine if the Department of Conservation should supply overnight rest and camp facilities for road travelers along our major highways.

In the future Minnesota may have to provide additional facilities for tourists who arrive by air. More airports in the heart of the vacation areas may become necessary as air travel becomes more popular.

B. Recreational Potential

The Division of Lands and Forestry administers 2,996,659 acres of State forest land. Of this total, 487,000 acres are within a three-hour drive of more than 1.8 million people and will be of particular importance in helping the state fulfill its obligation to the recreation demand.

Potential new state parks and development of existing lands offer much opportunity for future recreation.

The Minnesota Department of Conservation is planning a state-wide network of recreation trails which will weave for more than 3,000 miles throughout the state. This system will tie in with the trails planned by our cities and the potential National North Country Scenic Trail.

River trails are ideal for canoeing and in some cases, boating. Some, however, are not suitable for surface-water recreation, but because of their wild and scenic qualities would remain as they are and guarded and protected by a state recreational rivers system.

The proposed Voyageurs National Park offers an unexcelled opportunity for many recreation activities and would give Minnesota national recognition.

Economists estimate that within five years the park would attract nearly 1.5 million visitors a year. According to the master plan prepared by the U. S. Department of Interior, National Park Service, the objective would be to allow a large volume of visitors to use the area without destroying its charm, by "dispersion" of the developed areas.

In July, 1968, the Congress of the United States enacted the National Wild and Scenic Rivers System. Included in the system was 200 miles of the upper St. Croix River of which 75 miles adjoins Minnesota's eastern border above Taylors Falls. This federal law provides for the preservation of river corridors and additional facilities for canoeing, hiking, and other outdoor activities.

C. Other Opportunities

A new and comprehensive inventory of all environmental resources should be incorporated in future active land use planning. The improvement or maintenance of our present environmental quality is desirable. Presently there are a number of programs or systems that are aiding wildlife production on private and public lands. Judging from present trends, most forms of wildlife are going to need all the help they can get. Wildlife must be considered a part of the land management problem if hunting is to continue as a form of outdoor recreation for a major segment of the population.

Hunters can help themselves by investigating and trying a hunt for the lesser known birds such as woodcock, jacksnipe, and rail along with small mammals such as squirrels and rabbits.

Fishing continues to grow in popularity. An accelerated effort of fisheries management is needed to prevent or arrest the decline of fish habitat. Because the expansion of our fishing resources is very limited, an intensified effort should be made to prevent destruction of fish spawning grounds. Increased fish population control efforts, and experiments with exotic species are other opportunities that should be explored.

Anglers pass up fine fishing opportunities by not recognizing the potential of species such as burbot, perch, white bass and bullhead.

The opportunities for winter activity are relatively unexplored and unpublicized. This potential is currently being developed and should continue.

Driving for pleasure ranks high in the state and nation as a recreation activity. Expansion of existing public areas and private services along scenic routes is needed, as well as zoning and easement, to protect scenic areas along the highways. Historic sites along highways will have particular importance.

Opportunities occur for development of outdoor recreation. Facilities for the aged and handicapped should be expanded. Every Minnesota citizen should have an opportunity to enjoy outdoor recreation if he or she so desires.

IV. RECOMMENDED ACTION NEEDED (STATE PROGRAMS, LEGISLATION, FINANCING AND COORDINATION)

The action program contains recommendations on Legislation, Programs, Coordination, Research, and Financing. Five broad areas are covered, (A) Minnesota Environmental Resources; (B) Recreation Facilities—land and water requirements; (C) Relations with other agencies in Planning for recreation; (D) Allocation of Federal Assistance Funds; and (E) Maintenance of the Plan.

A. Minnesota's Environmental Resources

1. Shoreland Protection—There is a need to prevent undesirable type of development on shore land of lakes and rivers. It is recommended that Legislation be adopted whereby local units of government can utilize their regulatory authorities consistent with state-wide guidelines and standards, model zoning; and that inducement by state government be provided. The state must adopt rigid practices and encourage local governments to do likewise in protecting state-owned lands bordering recreational lakes or streams from encroachments by power lines, roads, dumping grounds, and timber cutting. Classification of flood plains will be of high priority in land use classification.

2. Protection and preservation are essential to key scenic, natural, historical and aesthetic environment. Minnesota has many sites of outstanding scenic beauty, and a rich historical background.

Legislative designation of state historic sites, monuments, and state parks should continue. Wild and scenic portions of lakes and rivers, including public islands, should be included in Legislative designation where state action is needed to protect and preserve the aesthetic qualities of such waters. State action is needed to provide for acquiring such public domain islands as may be declared available by the federal government.

A state-wide inventory of all scenic, historic, cultural, natural and otherwise aesthetically valuable lands and waters should be undertaken immediately.

3. Resource protection by the private sector is needed. A significant amount of the natural values, particularly wildlife, are currently under the control of private landowners.

Assistance both legal and financial is needed to give private landowners incentive to retain needed open space land.

4. Lake and reservoir dam protection is needed. Many old dams impounding additional water in natural lakes and reservoirs are in danger of being lost. There is a definite need to establish the role and responsibility of the dam owners, and the local, state and federal governments for the reconstruction and maintenance of such dams.

5. Water quality has an obvious relationship to the recreation value of our lakes and streams. Legislation will be sought to modify state pollution control laws so as to strengthen local enforcement, require immediate notification of accidental pollution spills or losses, require permits for waste treatment for certain industrial buildings and extensions of liability beyond health concerns to that of fish or other natural resources.

B. Recreation Facilities — Land and Water Requirements

1. State government will concentrate on the development of existing land to promote needed recreation while preserving the resource. When necessary the state will acquire and develop new lands.

Use pressures will be increasingly evident, particularly in Regions 7, 10, 11. Greater utilization of all state lands through multiple use will be necessary in the future. A new trend toward increased winter recreation is evident, prompting the need for increased winterizing of additional state recreational facilities.

Recreation areas along river valleys must have proper development in order to establish a means for the enjoyment of these areas and yet preserve the resource.

Development of recreation areas should be compatible with existing open space patterns and standards, particularly in the Metropolitan Region.

By 1975, a total of 44,360 acres of **new** park land should be purchased. Of this total 2,713 acres should be developed for special purposes such as swimming, camping, picnicking, access to water, and trails. The remainder of the land will be used for buffer or dispersed use activities, and future development.

In addition to the above there is a need for the purchase by 1975 of an additional 28,882 acres of land within or adjacent to existing State Parks. The majority of this land will be for dispersed use activities.

A number of existing parks are capable of further development without more land acquisition. The survey indicates 5,363 acres of these lands should be developed by 1975.

By 1975, a total of 5,000 acres of Memorial Hardwood Forest land should be acquired for primitive type campgrounds. Of this amount 260 acres will be developed into campgrounds and other supporting facilities. The remainder will be used for dispersed use activities.

The total deficiency for new public access acreage by 1980 is 913 acres of land. By 1975 purchase

of 690 acres should be completed and 450 of these acres should be developed by providing parking spaces, boat ramps, and sanitary facilities. By 1975 easement or acquisition should be completed on 1,200 miles of new multi-purpose trails on private lands. To the extent possible these trails will be connected with new and existing trails in state parks and state and federal forests. Development should be completed by 1975 on approximately 750 miles.

By 1975, a total of 190 acres of land should be acquired for wayside rest and picnic spots along Minnesota highways. Of this total 119 acres should be developed by 1975. Establishment of transient campgrounds by the private sector will be encouraged near major tourist travel routes.

A total of 233,080 acres should be developed by 1975. Some of this development is possible on existing county, state, or federal lands. Some can be developed on private lands through cooperative agreements with industry and other private landowners, and some will require acquisition of new lands through exchange, gift, easement, or fee purchase.

Land acquisition should be related to areas having concentrations of outstanding scenic, historic and natural factors.

2. Five-year Action Program — Direct Programs (State) By Regions tables indicating need for land acquisition and development for the 11 Recreation Regions in the state may be found in Chapter 7. The land required by 1980 is considerable. It is hoped that all lands to fill out key existing parks in areas of price escalation will be completed entirely by 1975.

Land will be acquired by exchange, easements, gifts, or fee purchase. It is beyond the scope of this Plan to indicate the method of acquisition and the extent to which it will be employed in any of the above programs.

Information on financing the Action Program may be found in Chapter 7 of this Plan.

C. Relationship With Other Agencies in Program or Project Planning for Research.

A state "clearing house" should be established for project planning in which the state is expected to sponsor, approve or otherwise participate.

Additional competent staff and related expenses should be provided to initiate more state leadership in the water resources planning under way in the various river basins of the state. Adequate state input is needed to establish water resource development. Further information on Land Use Planning, Regional Planning, and Coordination with current Federal Programs may be found in Chapter 7 of this Plan.

D. Allocation of Federal Assistance Funds for Meeting Recreational Needs.

The Land and Water Conservation funds and the Natural Resource program are administered by the Bureau of Planning. An effort will be made to keep appraised of the current policies and potentials of the Housing and Urban Development Open Space Program.

E. Maintenance of the Plan

The Minnesota Outdoor Recreation Plan must be maintained in order to be a useful document. A maintenance schedule and further information may be found in Chapter 7 of this Plan.

V. OUTDOOR RECREATION PLANNING REGIONS

V. Outdoor Recreation Planning Regions

In 1967, Dr. John F. Hoyt of the Department of Agricultural Economics, Institute of Agriculture, University of Minnesota, determined the boundaries of 11 Economic Regions. These Regions were adopted as Outdoor Recreation Regions for the 1968 Plan. Figure 1 indicates the boundaries and counties of each Region.

Capacity conversion factors as found in Chapter 4 of this plan were determined for three major areas of the state; Figure 2.

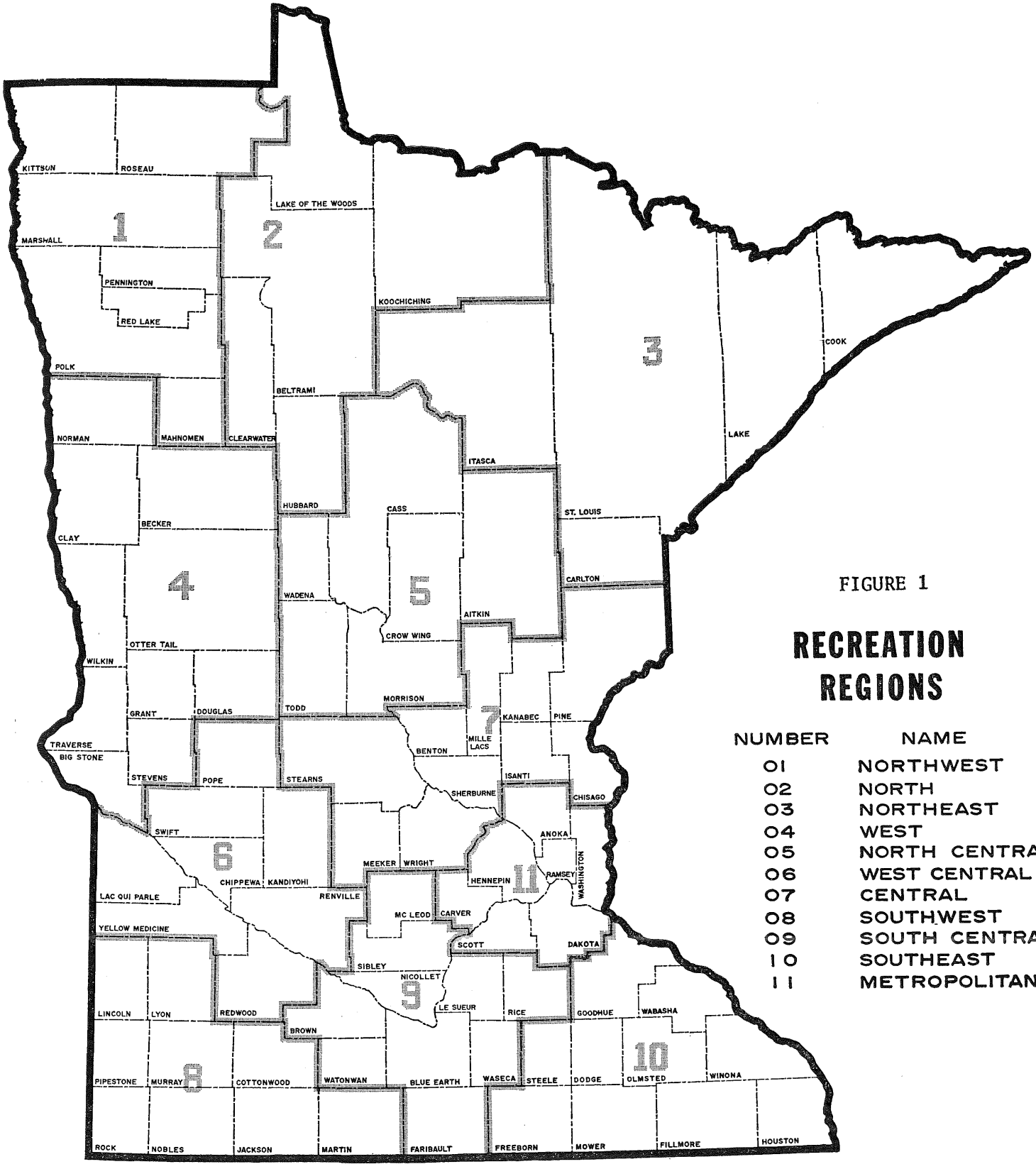


FIGURE 1

RECREATION REGIONS

NUMBER	NAME
01	NORTHWEST
02	NORTH
03	NORTHEAST
04	WEST
05	NORTH CENTRAL
06	WEST CENTRAL
07	CENTRAL
08	SOUTHWEST
09	SOUTH CENTRAL
10	SOUTHEAST
11	METROPOLITAN

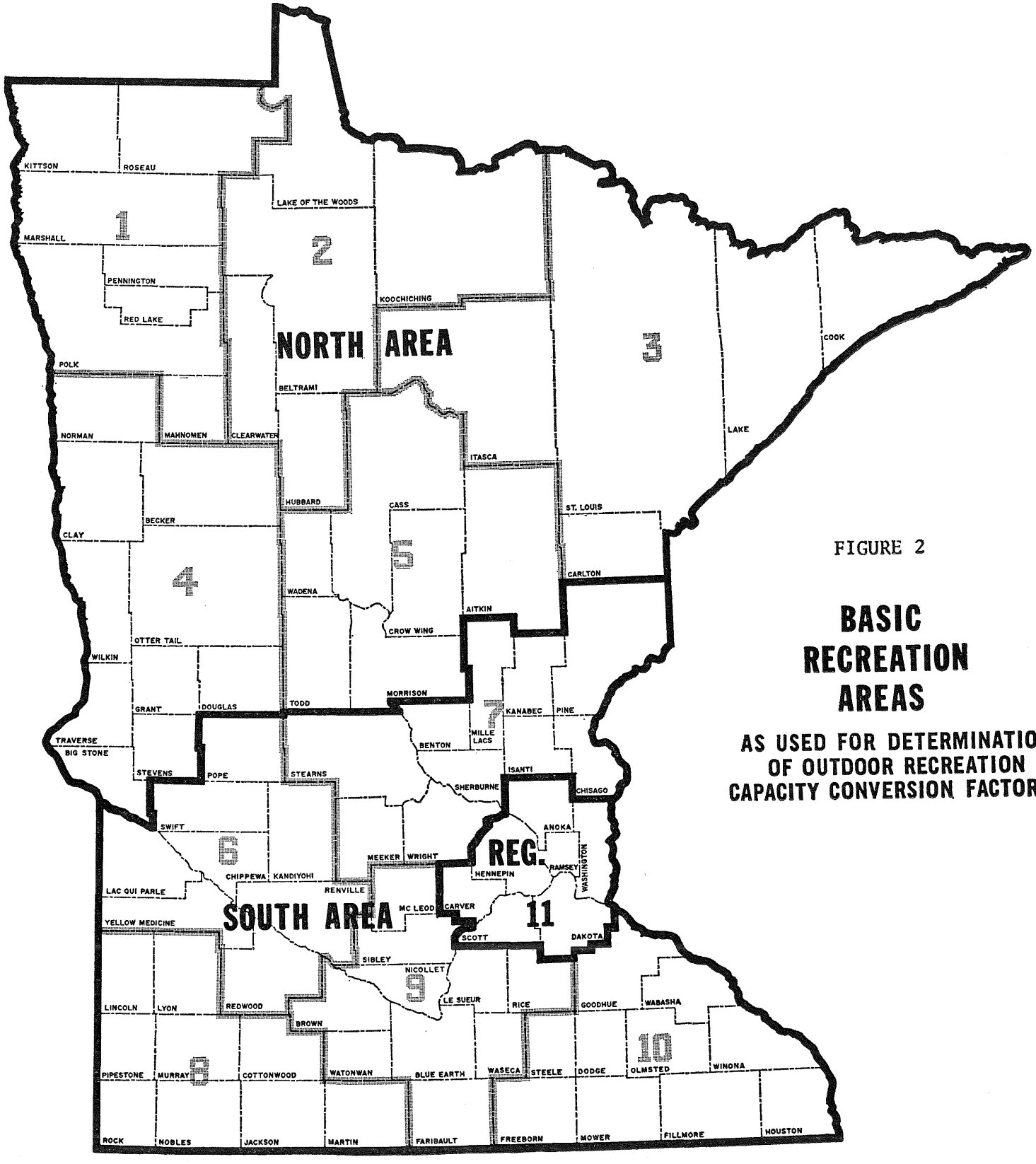


FIGURE 2

BASIC RECREATION AREAS

AS USED FOR DETERMINATION OF OUTDOOR RECREATION CAPACITY CONVERSION FACTORS

CHAPTER 3 — STATE CHARACTERISTICS

I. **The Faces of Minnesota**
   - A. Historic and Cultural Resources
   - B. The Lay of the Land
   - C. Minnesota's Liquid Heritage
   - D. The Weather
   - E. Forests and Vegetation
   - F. Wildlife
   - G. Minnesota's Fish

I. THE FACES OF MINNESOTA

Minnesota has been blessed with a great abundance and variety of natural resources. How we manage these resources is vital to the standard of living and well-being of our citizens.

Although in some parts of our state the natural resources remain much as they were before the arrival of the white man, in other parts we have destroyed our resources without regard to the future. The development and use should be only such as will not waste and despoil our precious heritage. Preserving our natural resource heritage is Minnesota's greatest need — once gone, it cannot be recovered.

This chapter presents a brief description of "The Faces of Minnesota" — a brief look at the resources of our state. For a more complete account of our resources, see pages 20-53, 1965 Minnesota Outdoor Recreation Plan.

A. Historic and Cultural Resources

Throughout Minnesota are legacies of three significant periods in our state's history: the period of discovery, including exploration and occupation; the period of settlement, founding of institutions and the exploitation of natural resources; and the period of change from youthful to a mature state — from the spirit of exploitation to that of management for sustained use.

Because of Minnesota's abundance of fur-bearing animals, French, English and American fur traders were attracted to the territory at very early dates. (Perhaps the most colorful was the French regime started by Duluth, an explorer-statesman who made his way to Mille Lacs in 1679.)

By way of three waterways — The Red, St. Louis and Mississippi Rivers — traders came in canoes, lured by the treasures of furs and skins; explorers to seek the Northwest Passage to the Orient and to claim this inland empire; missionaries to convert Indians to Christianity; and settlers to build the commonwealth.

Although the British were slow to exploit the Northwest, once they were established in the region, it remained British for a generation after the close of the American Revolution. When the fur magnates of Montreal yielded the empire of beaver and muskrat south of the international boundary to American businessmen after the War of 1812, the American period began and the state moved into the Age of the Pioneer.

During this period, pioneer settlements appeared near the walls of Fort Snelling and at a number of other points along the river. The extension of civilization meant the clearing of soil for farm land, the founding of towns and cities (frequently in highly speculative and short-lived fashion) and a gradual inhabiting of the region. Native American settlers came by the thousands from New York, New England and the Old Northwest. Thousands more came from Scandinavian countries, Germany, the British Isles and other parts of Europe. Farms, lumber camps, mills, mines and factories drew increasing numbers of Finns, Poles, Czechs, Slavs and other nationalities, while the amount of immigration from Norway, Sweden, Denmark, Germany and the British Isles also increased. Minnesota became a state in which two-thirds of the population was of European descent.

The Age of the Pioneer marked the beginning of institutions. Government was solidly established; political parties appeared; churches representing religious influences of the Old and New World were organized; educational systems began; a frontier press sprang up; social life took form, and cultural activities multiplied. After having been a territory for nine years, the State of Minnesota was formed in 1858.

The generation after the Civil War witnessed the passing of the frontier, brought about by such occurrences as the building of a state-wide network of railways, a continuing increase in population and the settlement of the western borders of Minnesota and beyond. But the spirit of pioneer exploitation and consumption of natural resources continued. Wheat became king and its reign lasted through the 1860's and 1870's. Then farming methods changed, new problems arose, and the wheat empire began to decline.

A large factor in Minnesota's growth was the rise of modern industry. A mighty flour industry was built. Lumbering came into its golden age, rising to astounding peaks of production. Manufacturing interests were widened. The iron deposits of the Northeast were exploited. Labor was organized. The Twin Cities became the nerve center for a wide area. Notable changes took place in the culture of the state; in music, art and literature. There arose a sense of civic and social responsibility. One began to hear about conservation, the cooperative movement, public health and organized sports. There was a marked expansion of state government.

The succession of events from the **Age of the Fur Trader,** to the **Age of the Pioneer** to the **Age of Minnesota Growing Up** all have brought our state into the modern world.

B. The Lay of the Land

Minnesota covers a vast area — some 84,068 square miles. Of this total, 4,059 square miles are covered by water; one-fifth of the remaining land is swamp or muskeg. There are 10 or 12 million acres of swampy, steep and rocky soils, and millions of acres of level ground covered by light, sandy soil, which has a short growing season and

high cost of improvement. These areas are unsuited for agriculture and, in part, are best suited for forestry and recreational purposes. Much of this land in the northern half of Minnesota has reverted to public ownership through tax forfeiture due to delinquent taxes.

Most of Minnesota varies from level to rolling prairie and forest land with irregular glacial moraines and hills rising 50 to 300 feet. The roughest topography is in the northeast, with the highest point (Eagle Mountain) reaching 2,230 feet above sea level; the lowest point (602 ft.) is not far away — at the surface of Lake Superior.

C. Minnesota's Liquid Heritage

Minnesota is the roof of mid-America and from it water flows in three directions; east to the Gulf of the St. Lawrence, south to the Gulf of Mexico and north to Hudson Bay and the Arctic Ocean. Little water enters Minnesota from streams originating in other states, but considerable areas of North Dakota, Wisconsin and Canada are tributary to the boundary waters on the western, eastern, and northern borders of the state respectively.

Minnesota, the "Land of Sky-tinted Waters" is rightfully proud of its water. About 2.6 million acres, or about five per cent of the state's area, is covered by this liquid heritage. To this we add 1.4 million acres which is Minnesota's portion of Lake Superior. Our inland waters cover an area equal to that of the combined area of the states of Rhode Island and Connecticut. The river systems and major lakes are shown in Figure 3.

The lakes which dot the landscape are of many kinds, shapes and sizes. Exactly how many there are depends on the size at which the counting begins; there are 15,291 lake basins of ten or more acres. But if we include all the smaller waters, ponds and wetlands, perhaps 100,000 would be too small a number.

The Mississippi, Minnesota, St. Croix, Red and St. Louis rivers, together with hundreds of tributary systems, make up more than 25,000 miles of flowing water. Like the lakes, the streams differ greatly. There are the rock-bottomed, rapid streams along the forested North Shore with their beautiful waterfalls; there are placid streams winding through prairie farmlands; and many gradiations between. In northwestern Minnesota, many streams have their origin in the "Big Bog" that lies in the basin of the immense, extinct lake of glacial times — Lake Agassiz. The Big Bog, in this ancient lake basin, is a muskeg wilderness of tamarack, black spruce, low shrubs and springy sphagnum moss. Streams originating in this boggy wilderness feed the Red River and through it eventually reach Hudson Bay.

D. The Weather

Minnesota's vast area is characterized by temperature extremes. The coldest month is January; the hottest July. The annual temperature averages 42 degrees F., and it varies from below —30 degrees F., to above 90 degrees F. The greatest extremes occur in the northwest. The greatest precipitation falls from April to September. The southwestern part of Minnesota has the least number of rainy days, the northeastern, the greatest.

E. Forests and Vegetation

Among Minnesota's greatest attractions are the magnificent forests of conifer and hardwood, with many varieties of ferns, mosses and flowering plants. The state is covered by about 19 million acres of forest land. Shaded uplands, bare rocks ledges, marshes and the drier prairies all provide ideal conditions for a wide variety of plant life. Wild flowers abound and many kinds of native orchids, including the showy pink and white lady's slipper, the State Flower, can be found in the northern forests and muskegs.

F. Wildlife

Of the native mammals originally present, all remain in Minnesota except the grizzly bear, caribou, antelope and bison. Moose are found in the coniferous forests of the north; white-tailed deer occur in every county, with higher populations in the north and northeastern one-third of Minnesota; black bear are found in the extensive northern forests; a few elk still linger in the Red Lake area in northwestern Minnesota. Eighteen species of mammals annually provide about 12,000 trappers with about 600,000 animals. The largest remaining concentration of timber wolves in the contiguous United States inhabits the northeastern border lakes region. Gray and red squirrels, jack rabbits, cottontails, snowshoe or varying hares are common in various parts of the state.

The ringneck pheasant has been the most important upland game bird. However, ruffed grouse are the most important forest game bird and at times of high population, their numbers may even exceed that of the ringneck pheasant. Sharptail grouse, spruce grouse, woodcock, and small populations of greater prairie chicken and Hungarian partridge also are found in Minnesota.

We have 22 different species of waterfowl. Most common are the mallard, bluewinged teal and lesser scaup. Canadian, blue and snow geese move through during migration.

G. Minnesota's Fish

Minnesota's wide variety of fish has given the state a reputation as one of the nation's best for fishing.

The best areas for our State Fish, the walleye, are lakes larger than 1,000 acres and the larger rivers. Saugers are common in some lakes and larger rivers. In terms of annual numbers of fish caught, panfish are first in the angler's catch and second only to northerns in total weight of fish caught. Trout are in the smaller, cold-water streams. Other game fish, such as the largemouth bass and northern pike offer sporting challenges in the warm-water lakes and larger rivers. Smallmouth bass thrive in cooler lakes and streams, especially in portions of the St. Croix and the Upper Mississippi rivers.

Lake Superior and the cold, deep lakes of the beautiful Boundary Waters Canoe Area are especially noted for lake trout.

Channel catfish occur in the Mississippi River drainage system below St. Cloud; mud cats are in the lower Mississippi and St. Croix and Minnesota rivers. Channel catfish also inhabit the St. Louis drainage system.

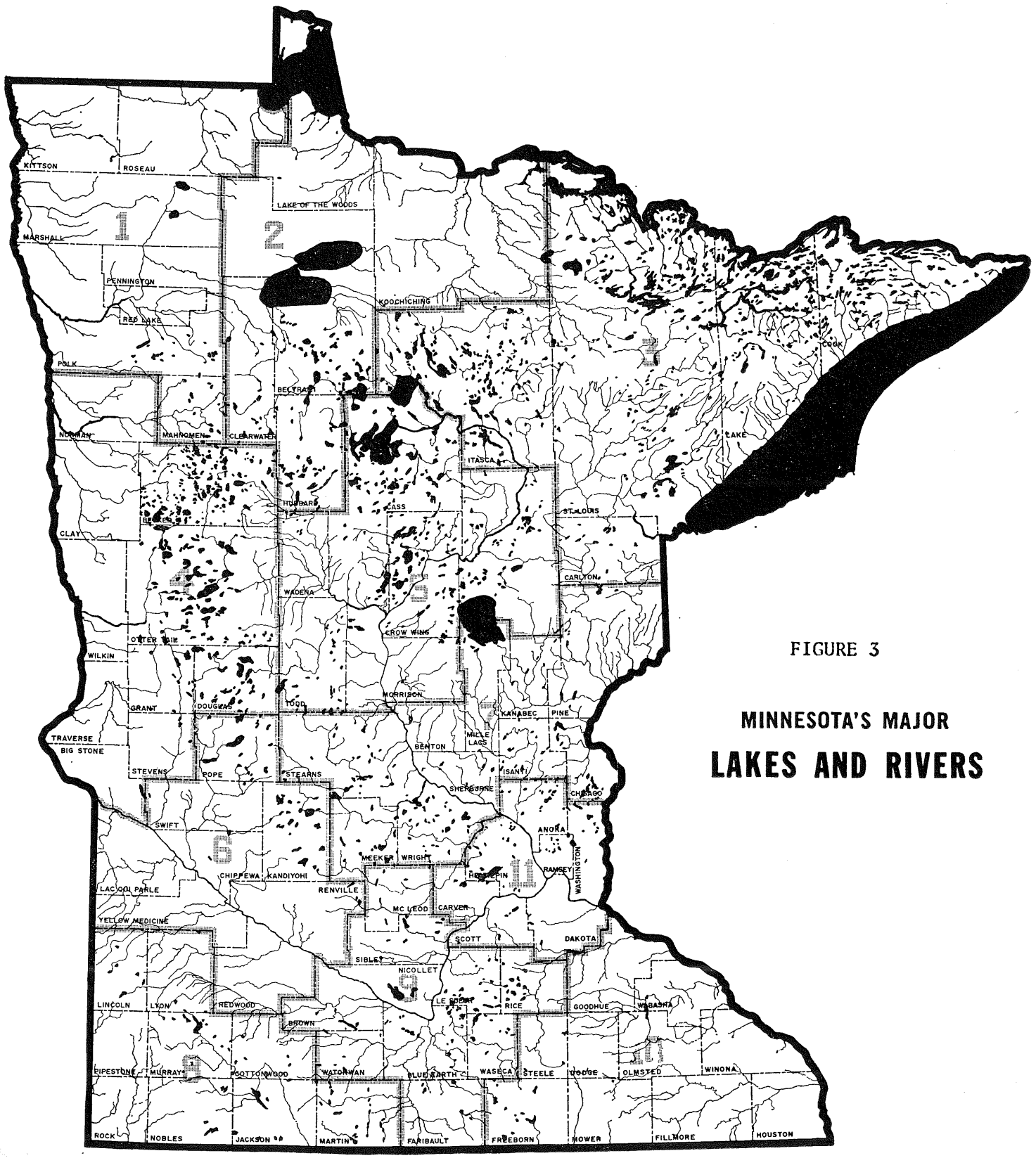


FIGURE 3

MINNESOTA'S MAJOR

LAKES AND RIVERS

CHAPTER 4 — OUTDOOR RECREATION INVENTORY

I. Introduction

II. Land Resources for Recreation

A. Land Ownership

B. Identification of governmental agencies, significant recreation resources and levels of responsibility.

1. Summary of Public Lands
   a. U.S. Department of Agriculture — Forest Service
   b. U.S. Department of Interior — Bureau of Sport Fisheries and Wildlife, National Park Service, Bureau of Land Management
   c. U.S. Department of Defense — Army Corps of Engineers
   d. State Department of Conservation
   e. State Department of Highways
   f. State Historic Sites
   g. Historic sites of National Significance — sites in national registry of historic places eligible for national registry
   h. Scientific and Natural Areas
   i. County Parks and Recreation Areas
   j. County Forests
   k. School Recreation Areas
   l. Municipal Parks and Recreation Areas
   m. Quasi Public Recreation Areas
   n. Private Lands for Recreation

III. Facilities for Land-Based, Snow-Based, Water-Based Activities

A. Facilities for Land-Based Activities
   1. Camping
   2. Golf Courses
   3. Hunting
   4. Picnicking
   5. Outdoor Sports and Games
   6. Tennis Courts
   7. Trails
      a. Bicycling
      b. Hiking with Gear and Nature Walking
      c. Horseback Riding

B. Facilities for Snow-Based Activities
   1. Trails for Snowmobiling
   2. Ice Skating Rinks
   3. Snow Skiing

C. Water Resources for Recreation
   1. Facilities for Water-Based Activities
      a. Access to Boating Waters (Public)
      b. Boating
      c. Canoeing
      d. Fishing
      e. Swimming

IV. Standards for Outdoor Recreation and Capacity Conversion Factors

I. INTRODUCTION

As stated in Chapter 3, Minnesota covers about 84,000 square miles of which 4,000 is water; 15,291 lake basins of ten acres or more dot the landscape; 25,000 miles of rivers and streams wind through our state; 19 million acres are forest land. Minnesota has both an abundance and variety of wildlife, and a wide range of other natural assets.

What does this mean in terms of recreation and to what use is this land and water being put? What types of outdoor activities do our land and water resources support and how many people can these resources accommodate for various purposes? These questions led to the need for inventorying and analyzing our outdoor recreation lands and waters.

The inventory provided an insight into our total recreation resource picture. The procedures that were used for updating the inventory in our 1965 plan gave us the opportunity to record the facilities on each of our recreation areas and to relate these features to the recreation activities each area supports.

To get the most complete picture, the 44 different recreation activities measured in the demand study were also inventoried for the supply. The facilities and the recreation capacities of the various resource areas were recorded in a manner to allow matching capacity with the demand regarding the activities that each type of area can support.

The inventory information was collected in the proper coding to make it possible for the information to be arranged for data processing. The data bank system was designed to provide for future updating of the inventory. Data on new and expanded facilities can be added, and outdated information replaced, at any time.

The inventory of supply includes both existing and future program areas. The future areas, those programmed in the next five years, were included and matched against the future demand.

The following types of areas were included—national forests, national monuments, U. S. Corps of Engineers recreation areas, U. S. Bureau of Sport Fisheries and Wildlife refuges and management areas, state parks, state forests, state wildlife management areas, state and county highway waysides, state historic sites, county forests, county parks, city and village parks (parks in cities and villages of over 1,000 population), private forests, private campgrounds and private hunting areas.

The Supply inventory includes land areas where both dispersed and intensive use occur. Each recreation area was considered as a unit whether it consisted of a county park, state park, or state forest. In the case of a state forest, the forest was divided into compartment units for convenience. Those recreation areas which were in more than one county were divided into units, each of which included only that portion of one county. Thus, the information could be compiled on a county as well as a multi-county or regional basis.

The inventory of game hunting areas was included on each recreation area with the waterfowl hunting areas inventoried separately by the state game managers.

The updating procedures for the inventory went beyond what was possible when the 1965 plan was compiled. (In the first plan, an inventory was made as part of the 1964 Bureau of Outdoor Recreation inventory utilizing the Bureau's forms 8-73 and 8-75 for existing and potential areas.) Although the inventory for the first plan was not complete, particularly in the tally of municipal and private recreation areas, it provided a guide for improving inventory procedures and methods for this plan.

The inventory of the supply was designed to include all land and adjacent water used for outdoor recreation by the public. The land inventory included areas designated for public recreation and lands utilized for this purpose by private enterprise. The inventory of water areas included both lakes and streams inventoried by the Division of Waters, Soils, and Minerals and was included in the publication "State Water Inventory".

The most complete compilation of public lands was carried out in August, September and October, 1967. In September, an inventory of private resorts was made by mail survey. However, this portion of the inventory is not complete since the survey return was only 25 per cent.

The inventory of public lands was conducted by selected personnel of the Minnesota Department of Conservation with the help and cooperation of other state agencies along with federal and local agencies.

Because of possibility of duplicating wildlife hunting areas, particularly where several public accesses were inventoried on the same lake, each including the same waterfowl hunting area, the latter areas were inventoried separately.

In addition to the lakes and streams adjacent to the recreation land areas, the entire state and stream inventory was used to determine the fishing and boating supply.

Note: For further information regarding programs and administrative functions for the various resources and activities, refer to the "Supply Section, 1965 Plan".

II. LAND RESOURCES FOR RECREATION

Minnesota has a great wealth of desirable land for outdoor recreation activities. The aesthetic qualities of our landscape, the expanses of forest and atmosphere of refreshing wilderness create a resource base which attracts hundreds of thousands of Minnesotans and their out-of-state visitors each year. Primarily because of the forest environment and the related resources, Minnesota has the potential for becoming one of the nation's leading states in the outdoor recreation industry.

One-fourth, or more than 12.5 million acres of Minnesota's 51.2 million acres are publicly-owned. Seventeen counties in the northern part of the state contain 87 per cent, or nearly 11 million acres of the total land owned by governmental agencies. In comparison, the southern and western parts of the state are largely devoted to agriculture and have minimal public land ownership.

The publicly-owned lands in the state are of high priority in planning the development of statewide public recreation facilities.

In the western and southern sections of the state, distribution of recreational opportunities in relation to population concentrations must be a primary consideration. Public land use must be in harmony with the private sector for comprehensive multiple use resource management.

IDENTIFICATION OF GOVERNMENTAL AGENCIES — Significant Recreation Resources and Levels of Responsibility.

The federal government owns approximately 3.5 million acres of Minnesota lands suitable for various forms of outdoor recreation—3,000,000 Forest Service; 170,000 U.S. Fish and Wildlife Service; 578 Park Service; 41,000 Bureau of Land Management; 133,000 Corps of Engineers.

The State of Minnesota administrates approximately 8.9 million acres of land, mostly in the northern part of the state.[1] The Department of Conservation is directly responsible for 5.1 million acres (57 per cent), counties administer 3.6 million acres (40 per cent), and the Department of Highways and various state institutions administer the remaining 3 per cent.

Of the land under the Department of Conservation, 2.9 million acres (57 per cent) are in state forest, 0.4 million acres (7 per cent) are in game and fish management areas, and 0.1 million acres (2 per cent) are in state parks.

Of the lands under county control, slightly less than one-third are in memorial forests.

[1]Land Exchange Report, Division of Lands and Forestry, Dept. of Conservation 1969.

Figures 4 and 5 indicate the proportion of county area which is considered recreational land and the percentage each type of ownership controls.

Note: The ownership figures shown in this section are for public land owned and administered entirely, or in part, for outdoor recreation purposes.

RECREATION LANDS — U.S. Department of Agriculture, Forest Service

The Forest Service, U.S. Department of Agriculture, administers two national forests in Minnesota:

(1) The Superior National Forest, located in Recreation Region No. 3, with nearly 2,500,000 acres and containing the nationally famous 1,000,000-acre Boundary Waters Canoe Area (B. W.C.A.)

(2) The Chippewa National Forest, Recreation Regions 2, 3, and 5, containing slightly more than 726,000 acres.

Their location is shown in Figure 6.

The national forests contain some of the most rugged land in Minnesota, with combinations of rock out-croppings, extensive woodlands, pristine lakes and rushing streams.

These two forests contribute an important share of the state's recreation supply and in recent years, the recreational facilities have been expanded.

Hiking, sightseeing, canoeing, recreational boating, nature study, swimming, water skiing, winter sports and other activities are available without charge. A camping fee for certain campgrounds was authorized by P.L. 88-578. The forests are available to the hunter and fisherman who abide by state hunting and fishing laws and regulations.

To fulfill the varied outdoor recreation demands, the U.S. Forest Service applies multiple use management practices. As forests serve many purposes, multiple use provides for the use and enjoyment of the forest resources for the greatest number of people. Because of their national significance, aesthetic qualities and varied recreational opportunities, the Superior and Chippewa National forests are two of the greatest attractions in the state.

RECREATION LANDS — U.S. Department of the Interior, Bureau of Sport Fisheries and Wildlife

The Bureau of Sport Fisheries and Wildlife, U.S. Department of the Interior, administers five

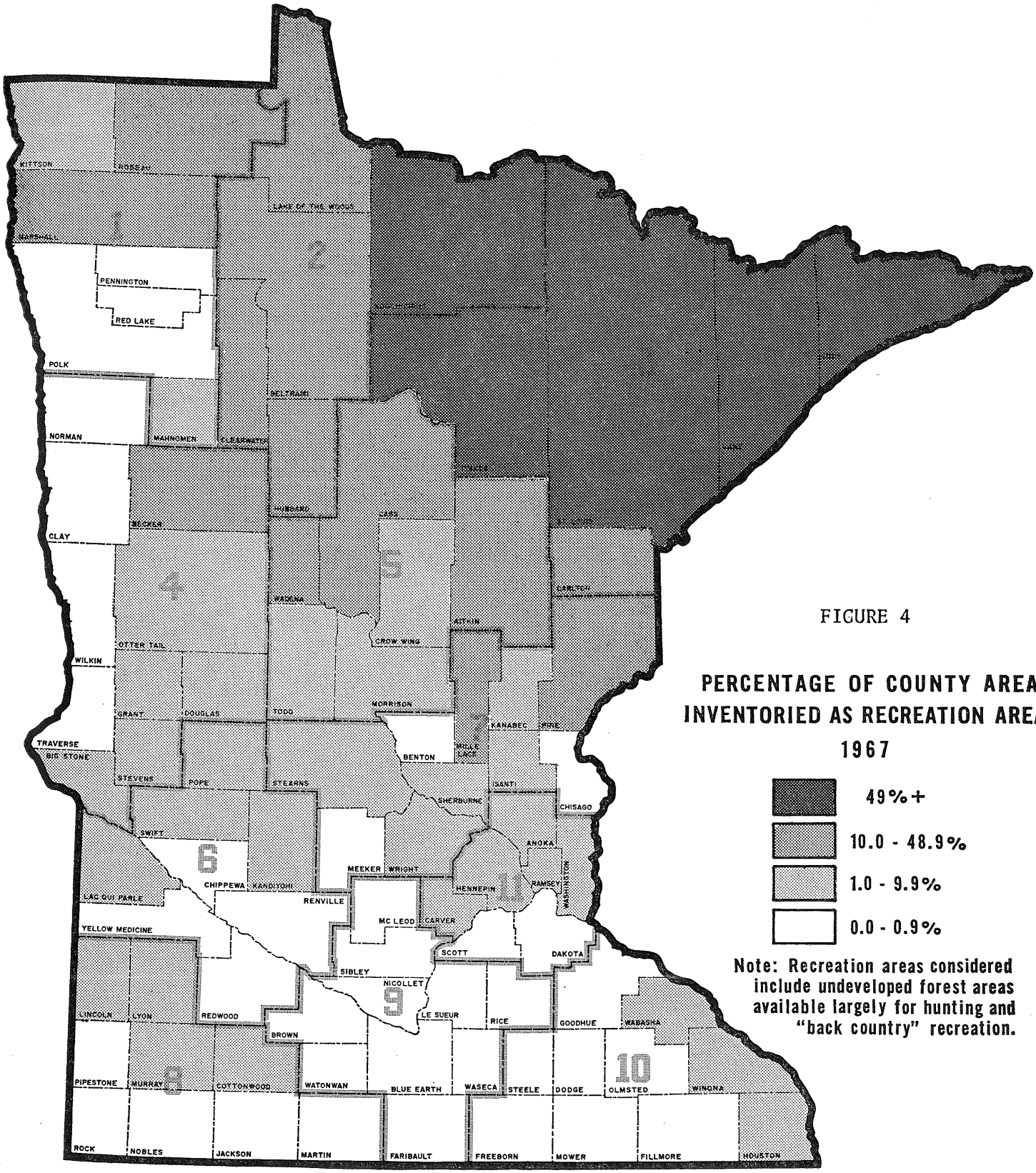


FIGURE 4

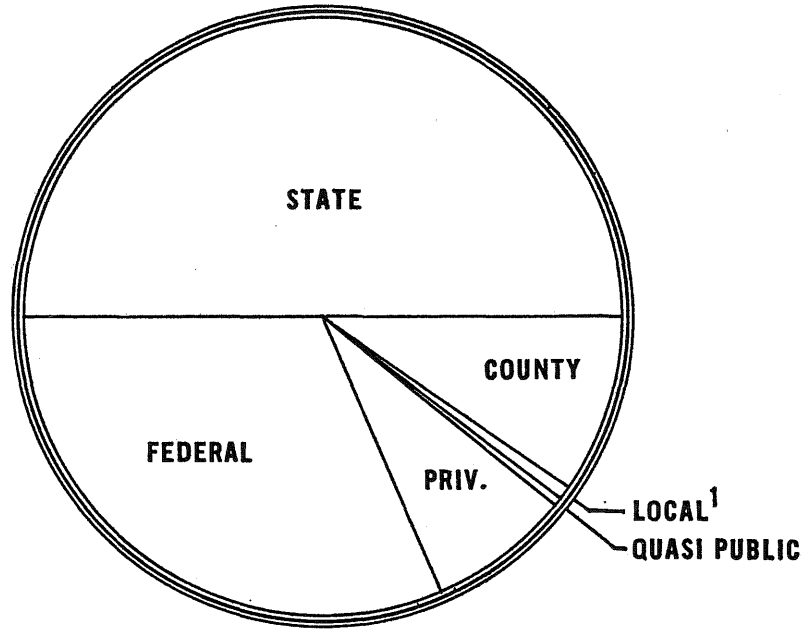
PERCENTAGE OF COUNTY AREA INVENTORIED AS RECREATION AREAS 1967

- 49%+
- 10.0 - 48.9%
- 1.0 - 9.9%
- 0.0 - 0.9%

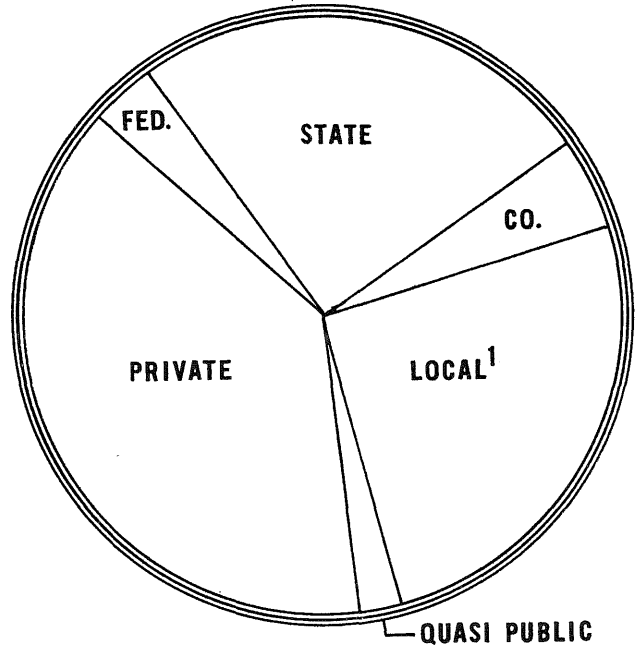
Note: Recreation areas considered include undeveloped forest areas available largely for hunting and "back country" recreation.

FIGURE 5

OWNERSHIP OF TOTAL LAND ACREAGE INVENTORIED AS RECREATION LAND IN MINNESOTA, 1967



PERCENT OF DEVELOPED LAND ACREAGE BY LEVEL OF GOVERNMENT, 1967



[1] INCLUDES MUNICIPAL, SCHOOL AND OTHER LOCAL

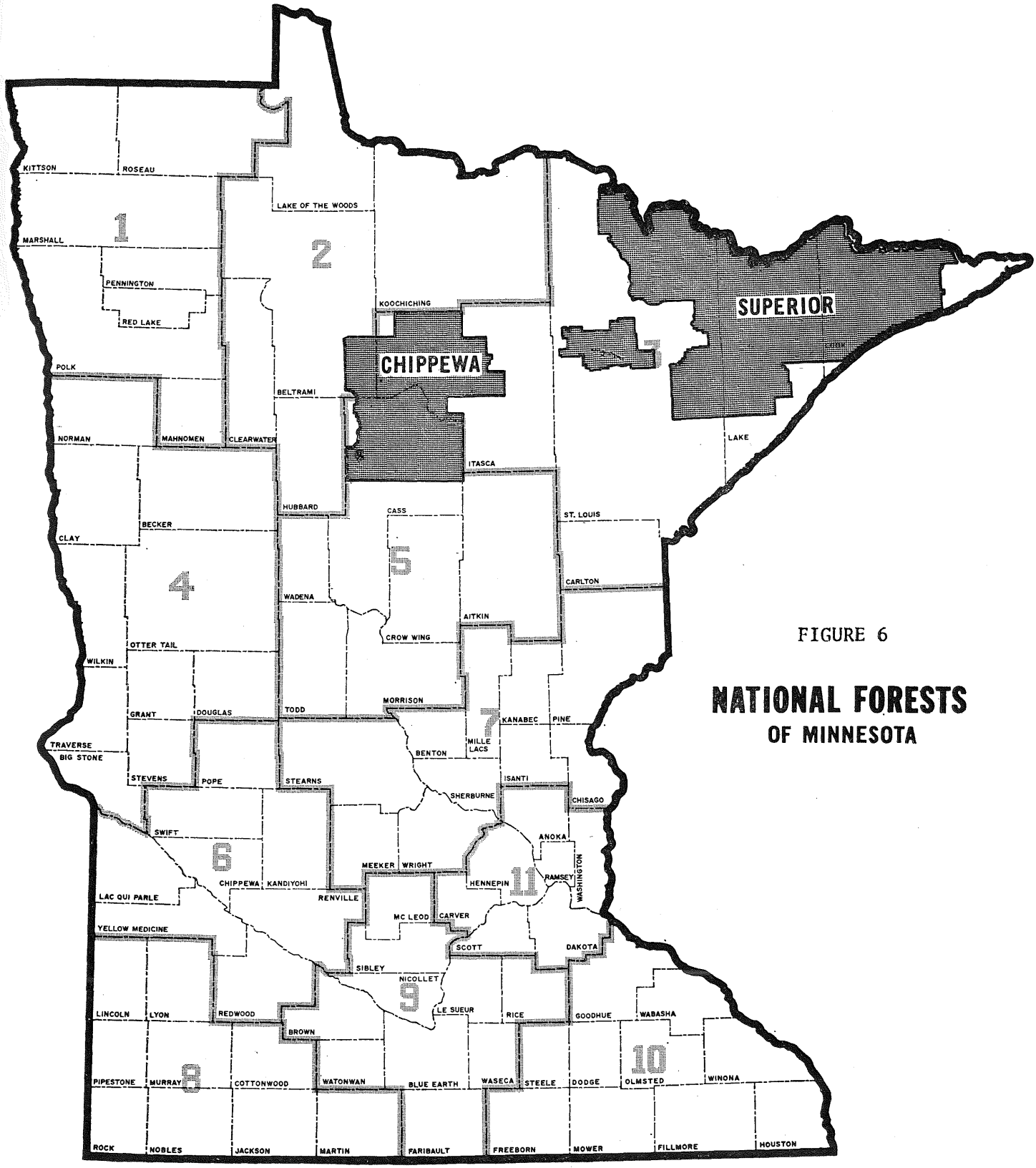


FIGURE 6

NATIONAL FORESTS
OF MINNESOTA

wildlife refuges in Minnesota totaling slightly over 168,000 acres. They are listed in Table 1.

Table 1

NATIONAL WILDLIFE REFUGES IN MINNESOTA

Refuge	Region	County	Total Acres Including Water
Agassiz	1	Marshall	61,487
Rice Lake	5	Aitkin	17,230
Tamarac	4	Becker	42,342
Upper Mississippi	10	Wabasha, Winona, Houston	32,924*
Sherburne	7	Sherburne	14,034
Total			168,017

*15,421 acres owned by Corps of Engineers.

Although these areas are managed primarily for waterfowl, other wildlife also benefits. Federal wildlife refuges are used for waterfowl production and, in part, for hunting. They also provide opportunties for fishing and trapping.

These large refuges serve as fine outdoor classrooms for a growing number of conservation-education programs. Photographers, bird-watchers, naturalists, hikers and many other recreationists find fun and relaxation on the wildlife refuges.

The Bureau also manages 387 waterfowl production areas (approximately 52,000 acres) scattered throughout 19 western counties (as shown in Figure 7). This land was acquired by fee purchase or perpetual easement and all have public accesses. The larger purchase areas are open to public hunting except during emergency or critical conditions when temporary closure is necessary.

They are also prime hunting, trapping, nature study, and associated recreation areas.

RECREATION LANDS — U.S. Department of the Interior, National Park Service

There are two areas in Minnesota administered by the National Park Service—Grand Portage National Monument and Pipestone National Monument.

Grand Portage, in the northeastern corner of Recreation Region 3, totals 315 acres of land and lies on the shores of Lake Superior. Because of its unique role in history, the area was designated as a national monument in 1960. Today, the wilderness of Grand Portage is much the same as it was during the great fur trade era. A replica of the original stockade has been reconstructed on the excavated site that once was the great depot of the Northwest Fur Company.

The **Pipestone National Monument,** in the southwestern part of the state in Recreation Region No. 8, totals 283 acres of land. For at least three centuries, a large proportion of the ceremonial pipes used by the American Plains Indians and other tribes were produced from the unusual stone quarries at this area. It was preserved by Congress in 1937. The monument includes a visitor center and trail and road side interpretative exhibits.

RECREATION LANDS—U.S. Department of the Interior, Bureau of Land Management (B.L.M.)

Included in federal ownership of land in Minnesota are certain lands of the public domain under the jurisdiction of the Bureau of Land Management (B.L.M.). The regional distribution is listed in Table 2.

Table 2

BUREAU OF LAND MANAGEMENT

Administered Lands in Minnesota as of June 27, 1966

County	Unreserved	Reserved* E.O. 5003	Total
Region 1			
Roseau	1,198.75		1,198.75
Region 2			
Beltrami	0.01		0.01
Hubbard	11.91		11.91
Koochiching	13,759.93	19,483.69	33,243.62
Lake of the Woods	4,707.93	849.99	5,557.92
Region 3			
Carlton	5.75		5.75
Itasca	498.31		498.31
St. Louis	176.70		176.70
Region 4			
Becker	42.87		42.87
Otter Tail	63.13		63.13
Clay	2.78		2.78
Region 5			
Aitkin	45.67		45.67
Cass	8.19		8.19
Crow Wing	0.65		0.65
Morrison	54.43		54.43
Region 6			
Pope	5.51		5.51
Region 7			
Isanti	1.05		1.05
Region 9			
Blue Earth	8.65		8.65
Region 10			
Winona	15.83		15.83
Region 11			
Washington	84.28		84.28

*E.O. 5003 of 12/3/1928 to effectuate the provisions the Act of May 22, 1926 (44 Stat. 617), for carrying into effect the convention between the United States and Great Britain concluded February 24, 1925, to regulate water level in Lake of the Woods and Rainy River.

At the present time, about 41,000 acres of land, mostly in extreme northern Minnesota, and an unknown number of islands remain under the management of this Bureau. The islands presently are being inventoried.

RECREATION LANDS — U.S. Department of Defense, Army Corps of Engineers

The Corps of Engineers, while not primarily a recreation agency, has included recreational developments at various existing and proposed water development projects.

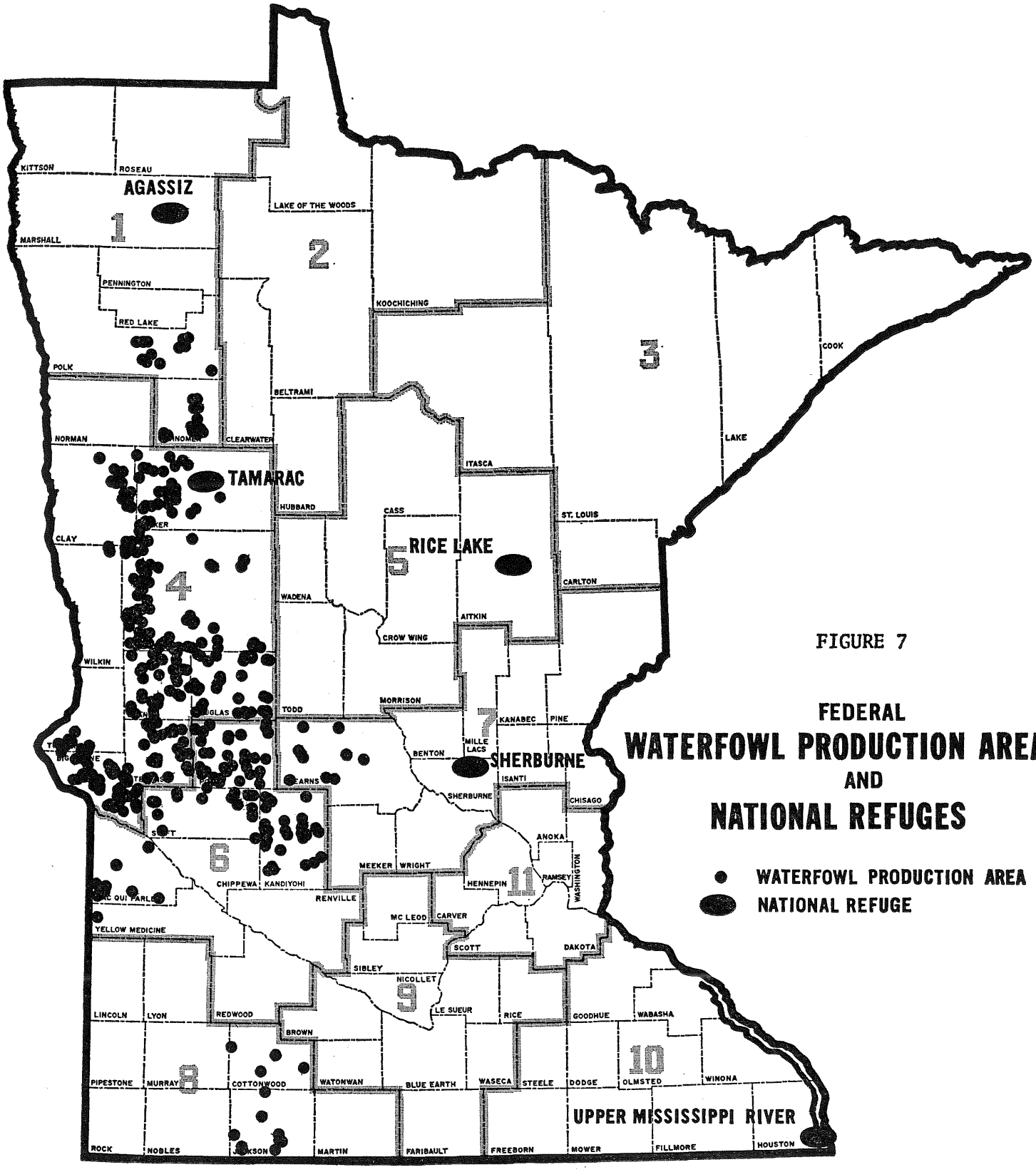


FIGURE 7

FEDERAL WATERFOWL PRODUCTION AREAS AND NATIONAL REFUGES

● WATERFOWL PRODUCTION AREA

NATIONAL REFUGE

The Corps presently owns or administers approximately 133,000 acres of land suited to recreational use in Minnesota; 23,000 acres of land are owned by fee and 109,600 by easements. The original distribution of these lands is shown in Table 3.

Table 3

Land Administered by Corps of Engineers in Minnesota, 1967, Acres—By Region

Region	Acres	Per Cent 100
1	5,048.00	3.8
2		
3	15,536.00	11.9
4	11,482.82	8.8
5	60,582.00	45.9
6	14,461.39	10.9
7		
8		
9		
10	21,778.00	16.4
11	3,994.00	3.3
State Total	132,882.21	101.0

At the headwaters of the Mississippi, the Corps has designed, constructed and put into operation, six dams on existing lakes and maintains levels from 1-12 feet higher than normal on these reservoirs. Although the primary purpose of Corps of Engineers' dams is flood control, the reservoirs serve many other purposes—navigation, power for industry, recreation, wild rice crops, water supply, fish and wildlife conservation and pollution abatement. Therefore, management of the system must remain as flexible and responsive as possible to meet the demands of all concerned.

RECREATION LAND — State Department of Conservation

The Conservation Department is the largest land managing organization in Minnesota and the largest land managing agency in the contiguous 48 states outside of the federal government. The regional distribution of this land is summarized in Table 4.

The Department has jurisdiction over many types of land vital to most forms of outdoor recreation including wildlife management areas, state forests, state parks and public accesses to lakes and rivers.

Under the Reorganization Act passed by the 1967 Legislature the names of most of the Department's divisions were changed as follows: Game and Fish; Lands and Forestry; Parks and Recreation; Waters, Soils, and Minerals; and a new Division of Enforcement and Field Service encompassing the Game Warden Force of the Division of Game and Fish. Game Wardens now are known as Conservation Officers

Division of Enforcement and Field Service

The Division of Enforcement and Field Service has the responsibility of enforcing game and fish laws pertaining to sport hunting and fishing, commercial fishing, trapping, minnows, fur buyers, migratory birds, and transportation of wild animals.

The Division is responsible for the management of the wild rice program including surveys of rice areas, setting of seasons, posting areas and enforcing the picking and licensing requirements; boat, water, and snowmobile law enforcement; enforcement of laws pertaining to lake and stream bed alteration; littering, and dumping of wastes; surveillance of lakes and rivers for water pollution; predator control and wild animal damage complaints; disposal of wild animals killed by automobiles; game surveys and censuses for pheasants, moose, beaver, deer and deer yards; and a state-wide public relations program consisting of informing the public of Division and Department policies and the reasons for them.

The Hunter Safety Program is administered by the Conservation Officers. A corps of instructors teaches safe handling of firearms, hunter responsibilities, sportsmanship, landowner relationship, first aid and markmanship.

The public access program is a responsibility of this new Division. Public accesses are designed to

Table 4

LANDS ADMINISTERED BY THE DEPARTMENT OF CONSERVATION

Region	Parks	Forest	Access	Wildlife Management Areas	Total
1	4,127.15	85,306	34.2	232,609.01	322,076
2	28,923.01	1,515,270	87.8	408,673.11	1,952,954
3	29,363.31	774,469	74.9	5,439.62	809,346
4	8,575.72	35,049	168.2	41,226.21	85,019
5	15,738.22	414,340	349.0	35,878.95	475,073
6	3,850.43	—	380.3	44,645.75	48,576
7	42,143.18	154,539	227.4	62,716.72	259,625
8	1,882.04	—	51.2	23,181.48	25,114
9	2,885.98	—	61.0	9,245.17	12,192
10	6,014.20	17,603	10.8	31,193.73	54,822
11	1,324.58	56	36.1	16,713.35	18,130
State Total	144,827.82	2,996,632	1,480.9	911,523.10	4,062,927

provide an adequate entrance road from the nearest highway or public road to the area, a boat launching ramp and a car-trailer parking area. Of the funds available, about 35 percent is spent for acquisition of new sites and 65 percent for development and maintenance costs of existing sites. (See Table 9, Page 44)

Division of Game and Fish

The Division of Game and Fish has jurisdiction and care of all wildlife, including birds, fish and mammals. Its activities include management of game and fish population to insure a maximum yield for both recreational and commercial purposes, along with research in game and fish management methods and techniques.

Game programs are formulated to maintain, restore, and manage wildlife resources on public hunting grounds (Wildlife Management Areas) throughout the state. Work is done with related agencies to manage wildlife habitat on private lands as well. Game research and technical service projects include censuses of wildlife population and hunting take. Major emphasis is placed on finding ways to improve the habitat whereby more game can be produced.

One of the most important activities of this Division is the acquisition of wildlife lands under the "Save the Wetlands" program; a total of 163 tracts of wildlife wetlands comprising 13,300 acres were optioned and acquired during the past biennium (1966-1968).

The fisheries program is geared to (1) provide a maximum sustained yield of fish and (2) provide a maximum number of satisfactory sport fishing hours.

In addition to the various activities in fisheries management, the fisheries research unit carries out research projects on both cold-water and warm-water lakes.

Management of the fisheries resource in Minnesota involves 2,600,000 acres of fishing waters used by more than 1.5 million fishermen. These fishermen make at least 15-16 million fishing trips a year and remove approximately 55 million sport fish, weighing about 27,500,000 pounds. The Department has provided through easement rights, public access for trout fishing as well as stream improvements along nearly 500 miles of trout streams.

Closely allied is the Section of Technical Services responsible for sounding and mapping lakes, conducting biological studies and investigating aquatic nuisances concerning fish and wildlife (pesticides, pollution, algae and weed control).

Division of Lands and Forestry

There are two types of areas under the management of the Division of Lands and Forestry:

1. State forest lands designated by law.
2. State lands outside state forests.[1]

There are slightly less than 3,000,000 acres of state owned land in 54 state forests. It is the policy of the Division of Lands and Forestry to protect, develop, and administer the lands in state forests so they are utilized in the best combination of uses to fulfill the needs of Minnesota citizens and to maintain the natural environment.

Individual state forests may vary in character but, in total, they are a vast reservoir of natural resources for use by present and future generations.

Many types of outdoor recreation activities are provided—hunting, primitive camping, picnicking, hiking, nature study, berry picking, fishing, canoeing, and sightseeing.

There are 1,600,000 acres of state land outside of state forests that are administered by the Division of Lands and Forestry. Much of this is school land held in trust by the state and managed by the Division. This land is being classified to determine its best use and whether it should be retained by the state.

In Minnesota, approximately 40 per cent of all forest land is privately-owned. Cognizant of this fact, Division personnel assisted some 7,849 owners in the management of 159,000 acres of forest land during the past two years.

Planting stock needs have stabilized at predicted levels of 20,000,000 trees annually. The number of trees shipped in 1968 totaled 19,951,357 of which 10,428,895 constituted private sales and 9,522,462 were planted on public lands.

The Division is also charged with forest fire protection on 17,643,000 acres of forest and grass land.

There are now 44 school forests in Minnesota comprising 3,783 acres. These outdoor laboratories are devoted to conservation education.

As of June 30, 1968, there were 41 campgrounds, 12 day-use areas (in addition to those provided at campgrounds), 21 hiking and riding trails and 4 canoe routes in state forests for a total of 70 designated recreational areas provided by the Division of Lands and Forestry.

Division of Parks and Recreation

The Division of Parks and Recreation is charged with the responsibility of preserving the best examples of the scenic, cultural and historical features that make up Minnesota's diverse and rich landscape, and to provide applicable recreation opportunities for Minnesotans and their out-of-state visitors.

[1]This land does not include lands managed by other Divisions in the Conservation Department and other State Agencies.

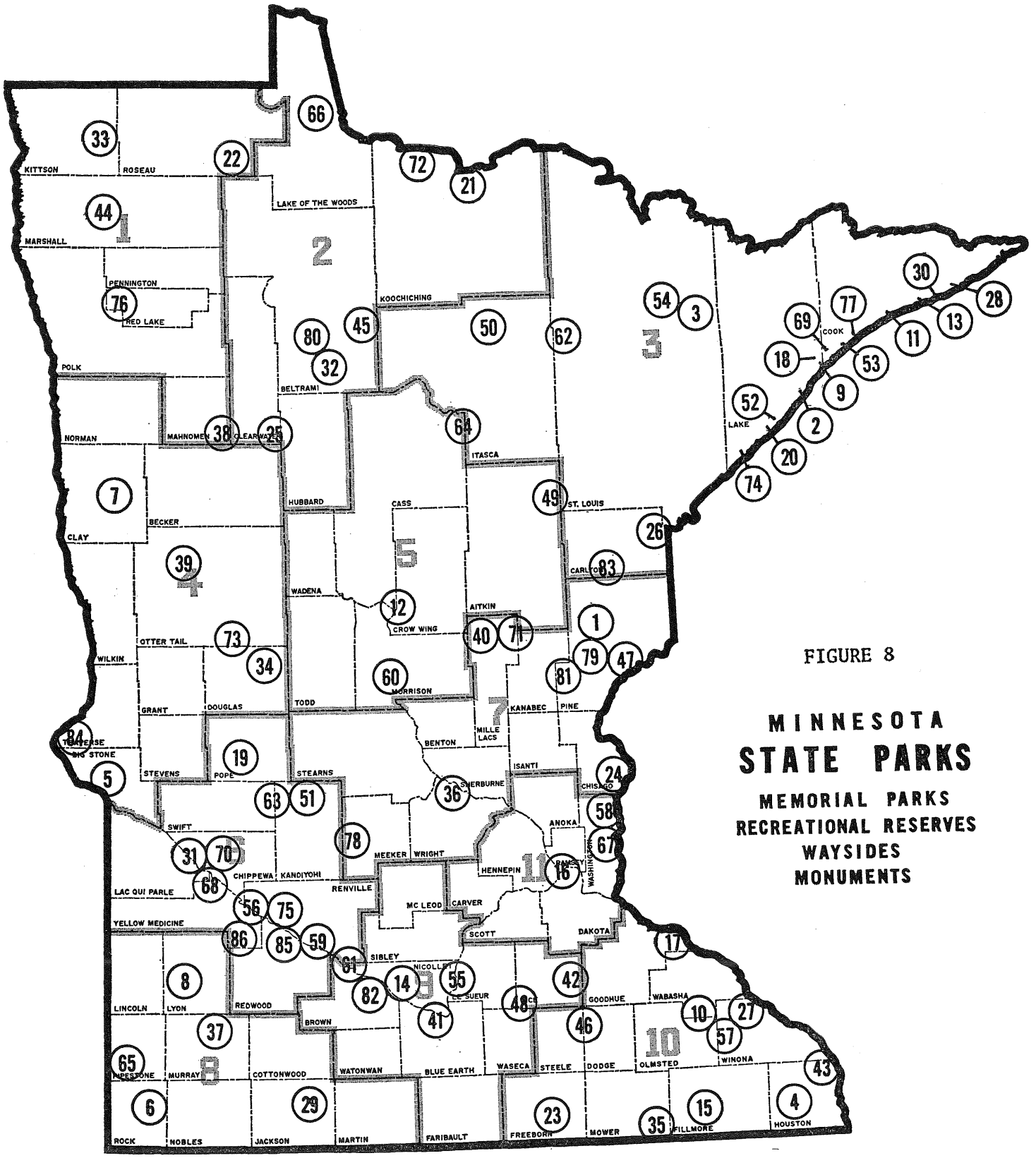


FIGURE 8

MINNESOTA STATE PARKS

MEMORIAL PARKS
RECREATIONAL RESERVES
WAYSIDES
MONUMENTS

DIVISION OF PARKS AND RECREATION

STATE PARKS

Code	State Parks
1.	Banning
2.	Baptism River
3.	Bear Head Lake
4.	Beaver Creek Valley
5.	Big Stone Lake
6.	Blue Mounds
7.	Buffalo River
8.	Camden
9.	Caribou Falls
10.	Carley
11.	Cascade River
12.	Crow Wing
13.	Devils Track Falls
14.	Flandrau
15.	Forestville
16.	Fort Snelling
17.	Frontenac
18.	George H. Crosby – Manitou
19.	Glacial Lakes
20.	Gooseberry Falls
21.	Grand Mounds
22.	Hayes Lake
23.	Helmer Myre
24.	Interstate
25.	Itasca
26.	Jay Cooke
27.	John A. Latsch
28.	Judge C. R. Magney
29.	Kilen Woods
30.	Kodonce River
31.	Lac Qui Parle
32.	Lake Bemidji
33.	Lake Bronson
34.	Lake Carlos
35.	Lake Louise
36.	Lake Maria
37.	Lake Shetek
38.	Little Elbow Lake
39.	Maplewood
40.	Mille Lacs Kathio
41.	Minneopa
42.	Nerstrand Woods
43.	O.L. Kipp
44.	Old Mill
45.	Pine Tree
46.	Rice Lake
47.	St. Croix
48.	Sakatah Lake
49.	Savanna Portage
50.	Scenic
51.	Sibley
52.	Split Rock Lighthouse
53.	Temperance River
54.	Tower Soudan
55.	Traverse Des Sioux
56.	Upper Sioux Agency
57.	Whitewater
58.	William O'Brien

Memorial Parks

59.	Birch Coulee
60.	Charles A. Lindbergh
61.	Fort Ridgely
62.	McCarthy Beach
63.	Monson Lake

Recreational Reserves

64.	Schoolcraft
65.	Split Rock Creek
66.	Zippel Bay

Scenic Reserves

67.	St. Croix Islands

Waysides

68.	Camp Release State Memorial Wayside
69.	Cross River Scenic Wayside
70.	Chippewa Lac qui Parle Mission Memorial Wayside
71.	Father Hennepin State Memorial Wayside
72.	Franz Jevne State Wayside
73.	Inspiration Peak State Scenic Wayside
74.	Flood Bay State Wayside
75.	Joseph R. Brown State Memorial Wayside
76.	Old Crossing Treaty State Historical Wayside
77.	Ray Berglund Memorial Wayside

Monuments

78.	Acton Monument
79.	Brook Park Monument
80.	Count Beltrami State Monument
81.	Hinckley State Monument
82.	Milford State Monument
83.	Moose Lake State Monument
84.	Sam Brown State Monument
85.	Schwandt State Monument
86.	Wood Lake State Monument

At the present time, Minnesota has 86 state parks, recreation areas, waysides, historic sites and monuments comprising 146,730 acres of land and 5,362 acres of water, or a gross area of 152,092 acres.

A present study of the state reveals approximately 25 new and unique areas that merit consideration for inclusion in the Minnesota State Park System. Unless action is taken soon, at least some of these potential park areas may be lost. Many contain natural and scientific areas for which protection is needed.

The 1967 Legislature established the Casey Jones Trail extending from Pipestone to Lake Shetek State Park and designated an additional 12 rivers as canoe waterways to supplement the four named in 1963.

The 1967 Legislature also delegated to the Division of Parks and Recreation the responsibility of promoting and developing of recreational facilities for snowmobile users.

Division of Waters, Soils, and Minerals

In the reorganization of 1967, a new Division of Waters, Soils, and Minerals was established. It is comprised of the former Division of Waters and the Minerals Section of the former Division of Lands and Minerals.

Minnesota is blessed with an abundance of surface water and a vast supply of ground water. In spite of this abundance we still need to regulate and control this commodity in order to insure an adequate supply of clean water in the future. This is the function of the Waters Section of this new Division.

The Minerals Section is responsible for the administration of minerals on more than 5,000,000 acres of trust fund lands owned by the state. Its primary function is to promote and regulate the exploration and extraction of state-owned minerals on these trust fund and tax-forfeited lands.

On December 20, 1966, 267 copper-nickel leases were issued covering approximately 87,000 acres. This first sale of copper nickel leases involved the Duluth Gabbro complex which extends through portions of St. Louis, Lake and Cook counties. There is good possibility in the development of a new mineral industry that may approach the scale of Minnesota's taconite operations.

Bureaus of the Conservation Department

In addition to the five operational divisions in the Department of Conservation there are six service and staff bureaus: License Center, Business Management, Engineering, Information and Education, Legal, and Planning.

(The preceding map, and following maps and tables indicate the lands administered by the Department of Conservation entirely or in part for outdoor recreation purposes.)

Table 5

STATE PARKS

Name	County	Year Established	Acres '66	Acres '68*
Region 1				
Lake Bronson	Kittson	1937	893.50	893.50
Little Elbow Lake	Mahnomen	1963	937.65	937.65
Old Mill	Marshall	1937	285.00	285.00
None	Polk		.....	.....
None	Pennington		.....	.....
Old Crossing Treaty	Red Lake	1931	111.00	111.00
Hayes Lake	Roseau	1967	.....	1,900.00
REGION 1 TOTAL			2,227.15	4,127.15
Region 2				
Count Beltrami Monument	Beltrami	1945	1.00	1.00
Lake Bemidji	Beltrami	1923	285.48	285.48
Pine Tree	Beltrami	1947	31.55	35.82
Itasca	Clearwater	1891	21,479.00	21,479.00
Itasca	Hubbard	1891	4,278.46	4,278.46
Franz Jevne	Koochiching	1967	.....	117.00
Zipple Bay	Lake of the Woods	1959	2,726.25	2,726.25
REGION 2 TOTAL			28,801.74	28,923.01
Region 3				
Jay Cooke	Carlton	1915	8,920.00	8,920.00
Moose Lake Monument	Carlton	1929	0.10	0.10
Cascade River	Cook	1957	.....	.....
Cross River	Cook	1961	640.00	640.00
Devil's Track	Cook	1961	240.00	240.00
Judge C. R. Magney	Cook	1957	4,195.00	4,195 00
Kodonce River	Cook	1947	127.80	127.80
Ray Berglund	Cook	1951	45.90	45.90
Temperance River	Cook	1957	112.00	112.00
Savanna Portage	Itasca	1921	1,334.11	1,334.11
Schoolcraft	Itasca	1959	79.30	79.30
Baptism River	Lake	1945	705.85	705.85
Caribou Falls	Lake	1947	91.62	91.62
Flood Bay	Lake	1961	27.00	27.00
George Crosby Manitou	Lake	1955	4,040.00	4,040.00
Gooseberry Falls	Lake	1937	717.83	717.83
Split Rock Lighthouse	Lake	1945	35.00	35.00
Bear Head Lake	St. Louis	1961	3,535.73	3,535.73
McCarthy Beach	St. Louis	1945	1,117.87	1,117.87
Savanna Portage	St. Louis	1961	521.00	521.00
Tower Soudan	St. Louis	1963	982.20	982.00
REGION 3 TOTAL			29,363.31	29,363.31
Region 4				
Itasca	Becker	1891	3,442.94	3,442.94
Big Stone Lake	Big Stone	1961	584.96	584.96
Toqua Lakes	Big Stone	1919	40.00	40.00
Buffalo River	Clay	1937	380.16	380.16
Lake Carlos	Douglas	1938	1,131.35	1,131.35
None	Grant		.....	.....
None	Norman		.....	.....
Inspiration Peak	Otter Tail	1931	82.00	82.00
Maplewood	Otter Tail	1963	1,904.05	2,349.80
Pomme de Terre	Stevens	1937	563.51	563.51
Sam Brown Monument	Traverse	1929	1.00	1.00
None	Wilkin		.....	.....
REGION 4 TOTAL			8,129.97	8,575.72
Region 5				
Savanna Portage	Aitkin	1961	14,087.55	14,237.97
Crow Wing	Cass	1959	18.23	21.23
Schoolcraft	Cass	1959	133.03	133.03
Crow Wing	Crow Wing	1959	1,032.82	1,112.82
Charles A. Lindbergh	Morrison	1931	110.42	233.17
None	Todd		.....	.....
None	Wadena		.....	.....
REGION 5 TOTAL			15,382.05	15,738.22

*Estimated acreage July 1, 1968.

Table 5—STATE PARKS (Continued)

Name	County	Year Established	Acres '66	Acres '68*
Region 6				
Chippewa Lac Qui Parle	Chippewa	1931	16.79	16.79
Sibley	Kandiyohi	1919	1,277.85	1,277.85
Camp Release	Lac Qui Parle	1889	16.79	16.79
Lac Qui Parle	Lac Qui Parle	1959	694.71	694.71
Glacial Lake	Pope	1963	1,239.20	1,239.20
None	Redwood		.....	.....
Birch Coulee	Renville	1893	82.00	82.00
Joseph R. Brown	Renville	1937	3.00	3.00
Schwandt Monument	Renville	1915	0.10	0.10
Monson Lake	Swift	1937	198.95	198.95
Upper Sioux Agency	Yellow Medicine	1963	320.04	320.04
Wood Lake Monument	Yellow Medicine	1907	1.00	1.00
REGION 6 TOTAL			3,850.43	3,850.43
Region 7				
None	Benton		.....	.....
Interstate	Chisago	1895	167.63	167.63
None	Isanti		.....	.....
None	Kanabec		.....	.....
Acton Monument	Meeker	1909	0.10	0.10
Father Hennepin	Mille Lacs	1941	199.85	211.35
Mille Lacs Kathio	Mille Lacs	1957	6,602.80	6,649.00
Banning	Pine	1963	3,354.37	3,354.37
Brook Park Monument	Pine	1915	0.10	0.10
Hinckley Monument	Pine	1894	0.10	0.10
St. Croix	Pine	1943	30,702.42	30,762.42
None	Sherburne		.....	.....
None	Stearns		.....	.....
Lake Maria	Wright	1963	992.11	992.11
REGION 7 TOTAL			42,018.76	42,143.18
Region 8				
None	Cottonwood		.....	.....
Kilen Woods	Jackson	1945	273.00	273.00
None	Lincoln		.....	.....
Camden	Lyon	1935	469.96	469.96
None	Martin		.....	.....
Lake Shetek	Murray	1937	475.29	553.84
None	Nobles		.....	.....
Split Rock Creek	Pipestone	1937	227.64	227.64
Blue Mounds	Rock	1937	357.60	357.60
REGION 8 TOTAL			1,803.49	1,882.04
Region 9				
Minneopa	Blue Earch	1905	119.94	119.94
Flandrau	Brown	1937	836.48	836.48
Milford Monument	Brown	1929	1.00	1.00
Sleepy Eye	Brown	1921	4.56	4.56
None	Faribault		.....	.....
Sakatah	Le Sueur	1963	459.08	459.08
None	McLeod		.....	.....
Fort Ridgely	Nicollet	1911	317.30	317.30
Traverse Des Sioux	Nicollet	1905	296.52	296.52
Nerstrand Woods	Rice	1945	563.00	563.00
Sakatah Lake	Rice	1963	288.10	288.10
None	Sibley		.....	.....
None	Waseca		.....	.....
None	Watonwan		.....	.....
REGION 9 TOTAL			2,885.98	2,885.98

*Estimated acreage July 1, 1968.

Table 5—STATE PARKS (Continued)

Name	County	Year Established	Acres '66	Acres '68*
Region 10				
Rice Lake	Dodge	1963	35.40	90.60
Forestville	Fillmore	1963	1,584.31	1,584.31
Helmer Myre	Freeborn	1947	346.05	346.05
Frontenac	Goodhue	1957	720.87	720.87
O. L. Kipp	Houston	1963	.....	.....
Beaver Creek Valley	Houston	1937	570.91	570.91
Lake Louise	Mower	1963	651.70	655.30
Oronoco	Olmsted		25.00	25.00
Rice Lake	Steele	1963	473.39	473.39
Carley	Wabasha	1949	211.00	211.00
John A. Latsch	Winona	1925	338.39	338.39
O. L. Kipp	Winona	1963	.....	.....
Whitewater	Winona	1919	896.38	998.38
REGION 10 TOTAL			5,853.40	6,014.20
Region 11				
None	Anoka		.....	.....
None	Carver		.....	.....
Ft. Snelling	Dakota	1961	238.73	324.55
Ft. Snelling	Hennepin	1961	210.00	210.00
Ft. Snelling	Ramsey	1961	220.00	220.00
None	Scott		.....	.....
St. Croix Islands	Washington	1943	39.96	39.96
William O'Brien	Washington	1945	530.07	530.07
REGION 11 TOTAL			1,238.76	1,324.58
STATE TOTAL			141,555.04	104,197.82

*Estimated acreage July 1, 1968.

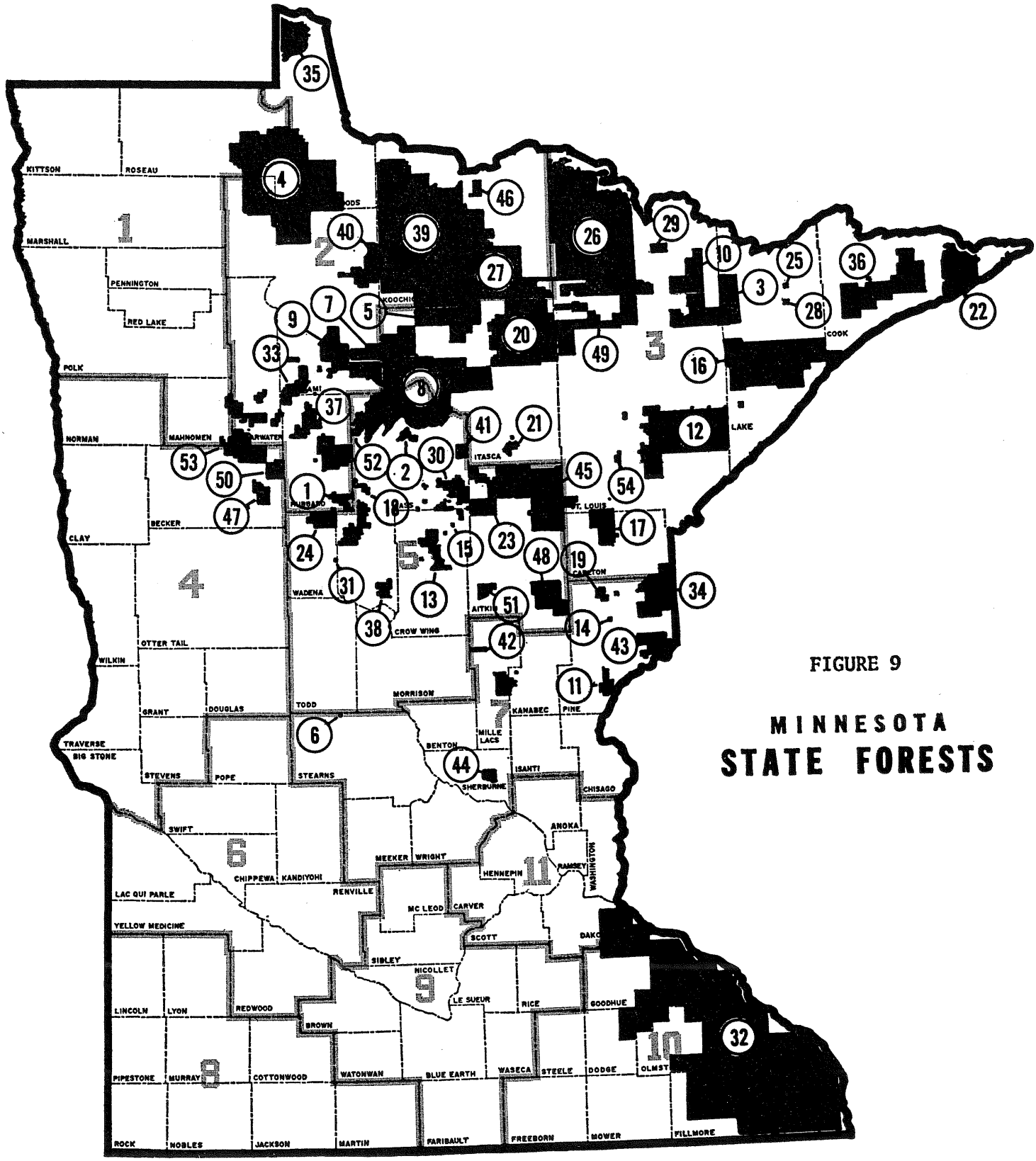


FIGURE 9

MINNESOTA
STATE FORESTS

DIVISION OF LANDS AND FORESTRY

STATE FORESTS

Code	State Forest
1.	Badoura
2.	Battleground
3.	Bear Island
4.	Beltrami Island
5.	Big Fork
6.	Birch Lakes
7.	Black Duck
8.	Bowstring
9.	Buena Vista
10.	Burntside
11.	Chengwatana
12.	Cloquet Valley
13.	Crow Wing
14.	D. A. R.
15.	Emily
16.	Finland
17.	Fond du Lac
18.	Foot Hills
19.	General C. C. Andrews
20.	George Washington
21.	Golden Anniversary
22.	Grand Portage
23.	Hill River
24.	Huntersville
25.	Insula Lake
26.	Kabetogama
27.	Koochiching
28.	Lake Isabella
29.	Lake Jeanette
30.	Land O'Lakes
31.	Lyons
32.	Minnesota Memorial Hardwood
33.	Mississippi Headwaters
34.	Nemadji
35.	Northwest Angle
36.	Pat Bayle
37.	Paul Bunyan
38.	Pillsbury
39.	Pine Island
40.	Red Lake
41.	Remer
42.	Rum River
43.	St. Croix
44.	Sand Dunes
45.	Savanna
46.	Smokey Bear
47.	Smoky Hills
48.	Solana
49.	Sturgeon River
50.	Two Inlets
51.	Wealthwood
52.	Welsh Lake
53.	White Earth
54.	Whiteface River

Table 6

LANDS ADMINISTERED BY THE DIVISION OF LANDS AND FORESTRY—ACRES

County	Inside State Forest	Outside	Total
Region 1			
Kittson		25,338	25,338
Marshall		60,390	60,390
Polk		2,459	2,459
Pennington		2,420	2,420
Red Lake		800	800
Roseau	76,404	126,468	202,872
Mahnomen	8,902	6,191	15,093
Total	85,306	224,066	309,372
Region 2			
Beltrami	277,458	298,429	575,887
Clearwater	15,186	10,866	26,052
Hubbard	67,122	12,882	80,004
Koochiching	895,422	225,991	1,121,413
Lake of the Woods	260,082	173,492	433,574
Total	1,515,270	721,660	2,236,930
Region 3			
Carlton	49,590	13,856	63,446
Cook	72,471	51,109	123,580
Itasca	230,066	91,357	321,423
Lake	106,086	53,577	159,663
St. Louis	316,283	246,240	562,523
Total	774,496	456,139	1,230,635
Region 4			
Becker	35,049	10,119	45,168
Big Stone		94	94
Clay		758	758
Douglas		160	160
Grant			
Norman		320	320
Otter Tail		3,402	3,402
Stevens			
Traverse		40	40
Wilkin			
Total	35,049	14,893	49,942
Region 5			
Aitkin	258,323	119,050	377,373
Cass	134,644	48,014	182,658
Crow Wing	7,080	16,971	24,051
Morrison		3,295	3,295
Todd		4,024	4,024
Wadena	14,293	4,531	18,824
Total	414,340	195,885	610,225
Region 6			
Chippewa		11	11
Kandiyohi		200	200
Pope		275	275
Renville			
Swift			
Lac qui Parle			
Redwood			
Yellow Medicine			
Total		486	486

County	Inside State Forest	Outside	Total
Region 7			
Meeker		40	40
Stearns	437	246	683
Wright			
Benton	120		120
Isanti		320	320
Kanabec	11,231	4,318	15,549
Mille Lacs	13,346	7,067	20,413
Pine	125,568	14,415	139,983
Sherburne	3,837	200	4,037
Chisago		120	120
Total	154,539	26,726	181,265
Region 8			
Cottonwood			
Jackson			
Lincoln			
Lyon			
Martin		51	51
Murray			
Nobles			
Pipestone			
Rock			
Total		51	51
Region 9			
Blue Earth		7	7
Brown		80	80
Faribault			
LeSueur		80	80
McLeod		1	1
Nicollet			
Rice		500	500
Sibley		41	41
Waseca			
Watonwan			
Total		709	709
Region 10			
Dodge			
Fillmore	2,320		2,320
Freeborn			
Goodhue	2,752		2,752
Houston	6,776		6,776
Mower			
Olmsted	98		98
Steele			
Wabasha	2,447		2,447
Winona	3,210	2	3,212
Total	17,603	2	17,605
Region 11			
Anoka		682	682
Carver			
Dakota	56	8	64
Hennepin			
Ramsey			
Scott		1	1
Washington			
Total	56	691	747

Table 7

CAMPGROUNDS ADMINISTERED BY DIVISION OF LANDS AND FORESTRY

Name	Number of Campsites	County
Region 1		
Bemis Hill	3	Roseau
Total	3	
Region 2		
Bass Lake	1	Hubbard
Ben Linn Landing	2	Koochiching
Blueberry Hill	8	Lake of the Woods
Faunce	2	Lake of the Woods
Gulch Lake	1	Hubbard
Johnson Landing	2	Koochiching
Mantrap Lake	27	Hubbard
Sturgeon River Landing	2	Koochiching
Waskish	17	Beltrami
Total	62	
Region 3		
Ash River	7	St. Louis
Bear Lake	13	Itasca
Beatrice Lake	25	Itasca
Cedar Bay	4	St. Louis
Cottonwood Lake	6	Itasca
Eckbeck	31	Lake
Finland	18	Lake
Gappa's Landing	13	St. Louis
King Williams Narrows	7	St. Louis
Larson Lake	4	Itasca
Long Lake	9	Itasca
Lost Lake	15	Itasca
Mukooda	6	St. Louis
Owen Lake	21	Itasca
Thistledew	21	Itasca
Wakemup Bay	22	St. Louis
Whiteface River	13	St. Louis
Woodenfrog	40	St. Louis
Total	275	
Region 4		
Hungry Man	12	Becker
Total	12	
Region 5		
Greer Lake	15	Crow Wing
Hay Lake	20	Aitkin
Lougee Lake	20	Crow Wing
Rock Lake	9	Cass
Washburn Lake	29	Cass
Total	93	
Region 7		
Ann Lake	16	Sherburne
Birch Lake	14	Stearns
D. A. R.	4	Pine
Willow River	13	Pine
Total	47	
Grand Total	492	

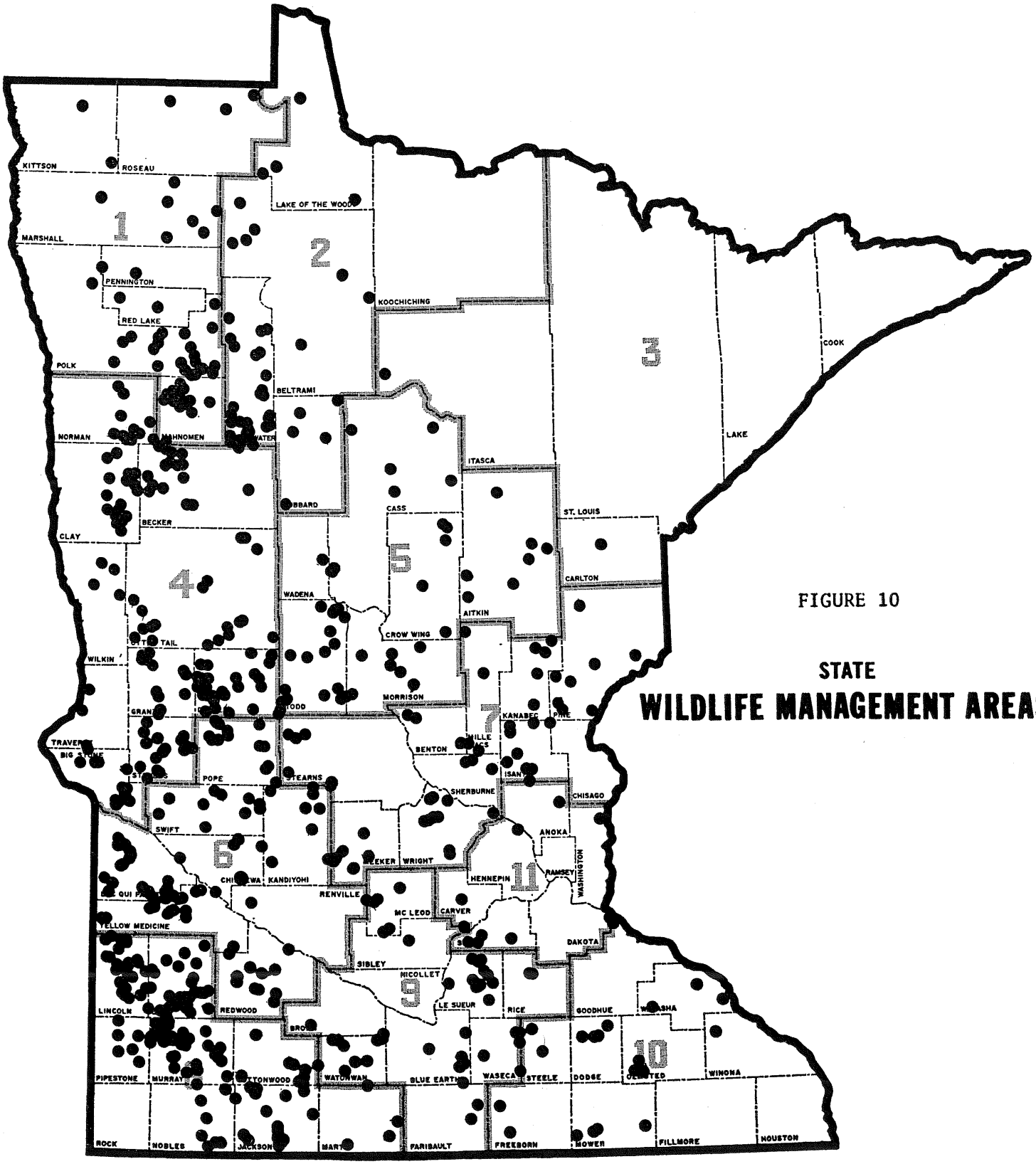


FIGURE 10

STATE
WILDLIFE MANAGEMENT AREAS

Table 8

WILDLIFE MANAGEMENT AREAS AS OF JULY 1, 1968

County	Number of Acres
Region 1	
Kittson	13,899.75
Mahnomen	9,091.68
Marshall	62,185.86
Polk	6,426.71
Pennington	240.00
Red Lake	347.00
Roseau	140,418.01
	232,609.01
Region 2	
Beltrami	185,641.56
Clearwater	3,276.38
Hubbard	724.89
Koochiching	—
Lake of the Woods	219,030.28
	408,673.11
Region 3	
Carlton	539.62
Cook	—
Itasca	4,900.00
Lake	—
St. Louis	—
	5,439.62
Region 4	
Becker	4,933.94
Big Stone	8,418.83
Clay	4,683.06
Douglas	3,811.69
Grant	2,184.20
Norman	3,327.91
Otter Tail	7,901.85
Stevens	1,404.63
Traverse	1,056.35
Wilkin	3,503.75
	41,226.21
Region 5	
Aitkin	23,014.23
Cass	12,491.34
Crow Wing	2,470.82
Morrison	1,641.59
Todd	3,950.66
Wadena	1,077.11
	44,645.75
Region 6	
Chippewa	8,439.81
Kandiyohi	2,515.47
Pope	1,721.72
Renville	40.00
Swift	5,413.22
Lac qui Parle	13,417.33
Redwood	1,580.16
Yellow Medicine	2,751.24
	44,645.75

County	Number of Acres
Region 7	
Meeker	976.21
Stearns	1,185.75
Wright	2,404.56
Benton	910.50
Isanti	3,360.48
Kanabec	9,491.71
Mille Lacs	32,865.11
Pine	2,062.49
Sherburne	932.00
Chisago	8,526.91
	62,716.72
Region 8	
Cottonwood	4,060.38
Jackson	2,110.22
Lincoln	3,566.44
Lyon	5,367.97
Martin	819.30
Murray	5,092.02
Nobles	778.20
Pipestone	1,386.95
	23,181.48
Region 9	
Blue Earth	710.25
Brown	1,024.91
Faribault	1,915.60
Le Sueur	1,713.30
McLeod	1,110.70
Nicollet	22.29
Rice	327.60
Sibley	278.90
Waseca	1,472.06
Watonwan	669.56
	9,245.17
Region 10	
Dodge	79.90
Fillmore	—
Freeborn	223.70
Goodhue	4,256.12
Mower	549.20
Olmsted	1,918.06
Steele	720.80
Wabasha	3,023.10
Winona	20,422.85
	31,193.73
Region 11	
Anoka	14,583.57
Carver	201.56
Dakota	1,366.28
Hennepin	50.54
Scott	486.40
Washington	25.00
	16,713.35
Grand Total	911,523.10

RECREATION LAND — State Department of Highways

Minnesota has a network of 452 waysides, turnout and picnic areas on primary and secondary trunk highways. These are under the jurisdiction of the Minnesota Highway Department.

There are 266 rest and picnic areas along the state trunk highway system, 107 of which have lavatory facilities. There are also 100 historical and geological markers, 86 scenic overlooks that permit stopping and parking and 58 lake and river access points with boat launching and parking areas.

In 1968, the Highway Department began to construct travel information centers and rest area stations. In a few years, there will be 32 such units along 905.4 miles of Minnesota's Interstate Highway System. (Six will be travel information-rest area centers.)

RECREATION LAND — State Historic Sites — (See Pages 4-47 1965 Plan)

Historic sites are areas set aside to preserve the location of a significant historic occurrence. Their preservation provides an educational experience in helping visitors visualize the past and to show how people once lived. The list of major historic sites designated by the Minnesota Historical Society includes geological, archaeological, Indian, fur trade, mission, agricultural, and industrial sites, along with historic houses, villages, and government buildings.

HISTORIC SITES — Federal Designation

Seven of Minnesota's historic sites are owned, or partially owned, by the federal government because of their national interest and significance.

Flat Lake Mounds, on the Tamarac National Wildlife Refuge, is administered by the U. S. Fish and Wildlife Service. Eagle Mountain, on the Superior National Forest, is administered by the U. S. Forest Service. Two sites, Duluth Ship Canal and Minnesota Point Lighthouse, are administered by the U. S. Coast Guard, and the two National

Table 9

PUBLIC ACCESSES ADMINISTERED BY DIV. OF ENFORCEMENT & FIELD SERVICE

County	Number of Acres
Region 1	
Mahnomen	8.3
Polk	20.5
Red Lake	2.4
Roseau	3.0
Region 2	
Beltrami	33.0
Clearwater	26.9
Hubbard	13.9
Koochiching	7.0
Lake of the Woods	7.0
Region 3	
Carlton	12.1
Itasca	31.2
Lake	3.0
St. Louis	28.6
Region 4	
Big Stone	9.2
Douglas	40.2
Grant	2.2
Otter Tail	101.6
Stevens	11.0
Traverse	4.0
Region 5	
Aitkin	95.5
Cass	76.7
Crow Wing	69.5
Morrison	19.3
Todd	44.4
Wadena	43.6
Region 6	
Chippewa	4.1
Kandiyohi	30.0
Redwood	1.5
Renville	28.0
Swift	7.2
Yellow Medicine	9.5
Region 7	
Chisago	7.4
Isanti	5.8
Kanabec	12.2
Meeker	31.1
Mille Lacs	4.5
Pine	20.5
Sherburne	26.1
Stearns	64.3
Wright	55.5
Region 8	
Cottonwood	1.5
Jackson	9.5
Lincoln	17.4
Lyon	10.9
Martin	3.0
Murray	6.5
Nobles	2.4
Region 9	
Blue Earth	8.2
Brown	3.0
Faribault	2.4
Le Sueur	17.6
McLeod	16.6
Nicollet	5.2
Waseca	6.5
Watonwan	1.5
Region 10	
Dodge	1.5
Freeborn	6.3
Goodhue	3.0
Region 11	
Carver	16.1
Dakota	4.5
Hennepin	4.4
Scott	11.1

Monuments — Grand Portage and Pipestone — are administered by the National Park Service, U.S. Department of the Interior. (Old Fort Snelling is presently a combination of state and federal ownership.)

There are nine national historic landmarks and three natural areas which are part of the National Historic Landmark Program. These are listed in Table 10. (A National Historic Landmark has national designation only. There are no provisions for federal ownership or financing.)

The location and names of state and federal historic sites are shown in Figure 11.

Table 10

HISTORIC SITES HAVING NATIONAL SIGNIFICANCE*
Minnesota Natural and Historic Sites Not Administered by Federal Government

National Historic Landmarks

Site	Location	County
Fort Snelling	Adjacent to Minneapolis	Hennepin
James J. Hill Home**	240 Summit Ave., St. Paul	Ramsey
Mille Lacs Kathio State Park	Near Vineland	Mille Lacs
Oliver H. Kelly Homestead	2 Mi. South of Elk River on U.S. #10	Sherburne
Hull-Rust-Mahoning Open Pit Iron Mine	North of Hibbing	St. Louis
Pillsbury Mill	Minneapolis	Hennepin
Soudan Mine	Tower	St. Louis
St. Croix Boom Site	Stillwater	Washington
Sinclair Lewis Boyhood Home	Sauk Centre	Stearns

Natural Areas—Part of the Landmark Program

Site	Location	County
Itasca Natural Area	30 Mi. Southwest of Bemidji	Clearwater
Lake Agassiz Peat Land	30 Mi. South of Int'l Falls	Koochiching
Ancient River Warren Channel	Minn.-So. Dak. Border	Big Stone (½) Roberts, So. Dak. (½)

Minnesota National Monuments Administered by the National Park Service

Site	Location	County
Grand Portage	Grand Marais	St. Louis
Pipestone	Pipestone	Pipestone

*Source—National Parks and Landmarks—Jan. 1966.
**Qualified two years ago, but family has not accepted National Historic Landmark status.

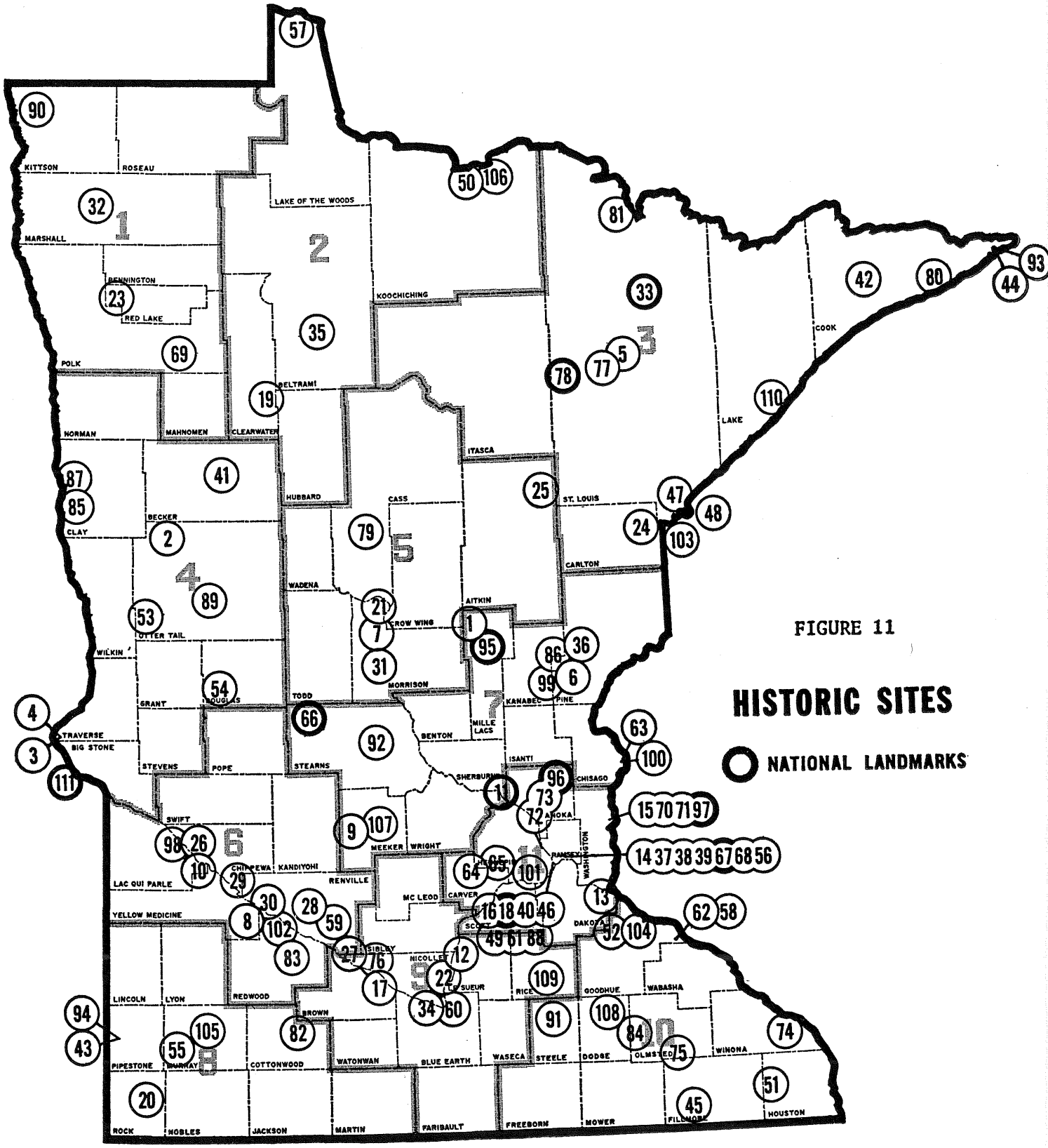


FIGURE 11

HISTORIC SITES

NATIONAL LANDMARKS

HISTORIC SITES

1. Kathio
2. Minnesota Man
3. Browns Valley Man
4. Continental Divide
5. Continental Divide
6. Connor's Fur Post
7. Fort Ripley
8. Wood Lake
9. Acton
10. Camp Release
*11. Oliver H. Kelley Homestead
12. Wm. W. Mayo House
13. William G. LeDuc House
14. Alexander Ramsey House
15. Washington County Courthouse
16. Minnehaha Depot
17. Defender's Monument
*18. Fort Snelling
19. Source of the Mississippi River
20. Blue Mound
21. Old Crow Wing
22. Traverse des Sioux
23. Old Crossing
24. Grand Portage of the St. Louis River
25. Savanna Portage
26. Lac Qui Parle Mission
27. Fort Ridgely
28. Birch Coulee
29. Upper Sioux Agency
30. Ruins of Joseph R. Brown House
31. Charles A. Lindbergh House
32. Old Mill
*33. Soudan Mine
34. Seppman Mill
35. Count Beltrami Monument
36. Hinckley Fire Monument
37. Indian Mounds Park
38. Chapel of St. Paul
39. Old State Capitol Site
40. Minnehaha Falls
41. Flat Lake Mounds
42. Eagle Mountain
43. Red Pipestone Quarries
44. Grand Portage
45. Meighen Store
46. Camp Coldwater
47. Duluth Ship Canal
48. Minnesota Point Lighthouse
49. Major Lawrence Taliaferro's Indian Agency, Fort Snelling
50. Grand Mound
51. Yucatan
52. Sweeney Fort
53. Orwell Farm
54. Kensington Runestone Discovery
55. Buffalo Ridge
56. Carver's Cave
57. Fort St. Charles
58. Fort Beauharnois
59. Redwood Ferry
60. Site of Hanging 38 Sioux
61. Old Mendota
62. Frontenac
63. Taylor's Falls
64. Wendelin E. Grimm Homestead
65. Peter Gideon Homestead
*66. Sinclair Lewis Home
*67. James J. Hill House
68. Burbank Griggs House
69. Ole Bakken Cabin
70. 1848 Convention Site
71. Site of First Commercial Sawmill
72. Nicollet Island
73. Falls of St. Anthony
74. Pickwick Mill
75. Fugle's Mill
76. Harkin-Massopust Store
77. Mountain Iron Mine
*78. Hull Rust Mahoning Mine
79. Sugar Point
80. Witch Tree
81. Bourassa's Fur Post
82. Petroglyphs
83. Lower Sioux Agency
84. Mayowood
85. Solomon G. Comstock House
86. Brook Park State Monument
87. St. John's Episcopal Church
88. Cantonment New Hope
89. Morrison Mounds
90. James J. Hill Farm
91. Security Bank and Trust Co.
92. St. John's Abbey and U. Church
93. Grand Portage National Monument
94. Pipestone National Monument
*95. Kathio
*96. Pillsbury Mill
*97. St. Croix Boom Site
98. Fort Renville
99. Stumne Mounds
100. Folsom House
101. Gideon Pond House
102. Camp Pope
103. Union Depot
104. Bartron Village Site
105. Great Oasis Village
106. McKinstry Mounds
107. G.A.R. Hall
108. Wasioja Seminary
109. Alexander Faribault House
110. Split Rock Lighthouse
111. Ancient Warren River Channel

*National Historic Landmarks

RECREATION LAND — Scientific and Natural Areas

"Scientific and Natural Areas" are areas of land and water in public or private ownership which have been formally designated for preservation, protection, and management for the values inherent in their natural conditions. These values include, as living museums, sites for scientific study, areas for the teaching of natural history and conservation, places of historic or prehistoric interest and scenic beauty, and habitats for rare and endangered species of plants and animals."

(The preceding definition was adopted by the Advisory Committee to the Commissioner of Conservation—Scientific and Natural Areas Committee.)

With our increasing human population, recreational development and intensified land use, there is a growing need for the preservation of selected natural areas—areas to be set aside undisturbed by human activities. The status of such lands in Minnesota has been summarized by U.W. "Judge" Hella, Director, Division of Parks and Recreation, Department of Conservation, for the 19th Annual Meeting of the American Institute of Biological Sciences (AIBS) as follows:

> "In the past, the Department of Conservation's interests in scientific and natural areas has been expressed in her state parks. State and national parks are established to protect scenic, scientific and historic values, and generally up to 80 percent of the total land and water area in these parks is preserved in a natural state and inviolate from intensive development. The wilderness portions of the parks are made accessible only by foot trails and waterways and by a limited scenic road system. (Administrative trails are developed for necessary access to remote regions in order to protect these areas from fire and other harmful depredations.)
>
> "Occasionally, areas within a park are designated as a scientific and natural area and not provided with access. A case in point is an area of 2,600 acres within the heart of 32,000-acre Itasca State Park. It is anticipated that in the master planning of other state parks, specific portions may also be zoned as natural area into which no public access will be permitted.
>
> "The Division of Lands and Forestry, Minnesota Department of Conservation, has set aside and dedicated 30,000 acres of the Red Lake Bog, characteristic of that region of North Central Minnesota, lying to the north and east of Upper and Lower Red Lakes, as a scientific and natural area. This area will not be developed and access to it will be limited.
>
> "The Division of Game and Fish, Minnesota Department of Conservation, also administers and identifies scientific and natural area tracts within their refuges and other land holdings.
>
> "The Nature Conservancy owns and operates ten natural area units in Minnesota. The University of Minnesota operates a 3,000-acre scientific and natural area at the north end of the Twin Cities Metropolitan area. A number of private colleges have tracts of their own. Some of the newly-emerging state colleges are planning the acquisition of similar tracts."

Mr. Hella concludes that a law is needed allowing the Commissioner of Conservation to acquire lands by gift, lease, easement or purchase for establishing and maintaining scientific and natural areas.

Minnesota Nature Conservancy Preserves

The following is a listing of lands now owned or leased by the Nature Conservancy, under purchase contract, as of April, 1968.

LANDS OWNED OR LEASED BY THE NATURE CONSERVANCY, INC.

APRIL, 1968

Name	Description	Status
Helen Allison Savanna (1961) Anoka County	Tall grass prairie; oak openings and sand blow-outs; low marshy swales.	Owned; open to public.
Black Pass (1965) Becker	Mature hardwood forest situated between two lakes; bird migrating area.	Owned; gift of Hunting Club. Visitors by permission only.
Caledonia Oaks Preserve (1956) Houston County	Old-growth forest of white, red, and burr oak; rich herbaceous flora.	Owned; visitory by permission.
Lotus Lily Field (1968) Hennepin County	In Lake Minnetonka, one of the rare lotus lily beds in Minnesota.	Owned; admission by permission.
Lowry Preserve (1965) Hennepin County	Mature wooded open space in rapidly growing housing area.	Owned; gift.
Malmberg Prairie (1961) Polk County	Virgin Grassland, big and little bluestem predominate on heavy, wet Fargo clay.	Owned; gift.
Partch Woods (1965) Stearns County	Maple, elm upland with tamarack around peat meadow.	Owned; gift. Visitors by permission.
Rabbit Run Woods Rice County	Small valley sloping to Cannon River, hardwood forest.	Carleton College.
Schaefer Prairie (1965) McLeod County	Rolling tall grass prairie alive with flowers in spring.	Sale Agreement; open to public.
Agassiz Dunes (1965) Polk and Norman Co.	Fossil dunes with savanna-type vegetation. Merging area of eastern and western animal species.	Owned; visitors welcome.

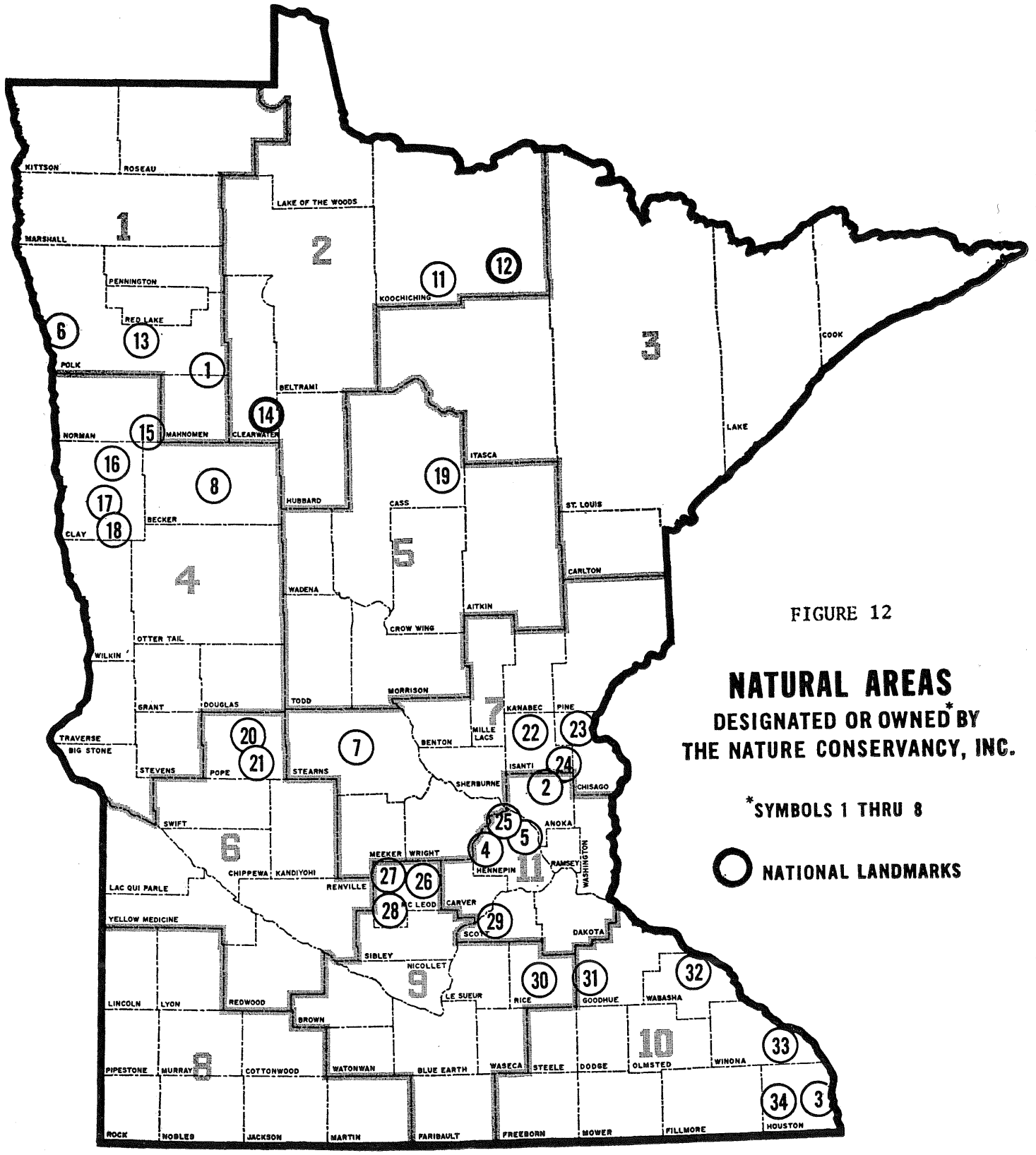


FIGURE 12

NATURAL AREAS

DESIGNATED OR OWNED* BY THE NATURE CONSERVANCY, INC.

*SYMBOLS 1 THRU 8

NATIONAL LANDMARKS

NATURAL AREAS DESIGNATED OR OWNED BY THE NATURE CONSERVANCY, INC.

APRIL 1968

Code	Area
1.	Agassiz Dunes
2.	Helen Allison Savanna
3.	Caledonia Oaks Preserve
4.	Lotus Lily Field
5.	Lowry Preserve
6.	Malmberg Prairie
7.	Partch Woods
8.	Black Pass
11.	Cedar Swamp
12.	Lake Agassiz Peatlands
13.	Low Prairie
14.	Itasca Park Natural Area
15.	Frenchman's Bluff
16.	Felton Prairie
17.	Berg Prairie
18.	Elkton Prairie
19.	Boy River Swamp
20.	Glenwood Prairie
21.	Lovering Prairie
22.	Cambridge Tamarack Swamp
23.	St. Croix Flood Plain Forest
24.	Cedar Creek Natural History Area
25.	Taylors Woods
26.	Laible Woods
27.	Schaefer Prairie
28.	Leonard Prairie
29.	Lehnert Woods
30.	Rabbit Run Woods
31.	Kenyon Woods
32.	Weaver Dunes
33.	Gwinn's Bluff
34.	Creeping Juniper Ridge

RECREATION LANDS — County Parks and Recreation Areas (Also see pages 150-158, 1965 Plan)

The 1967 inventory revealed 331 county recreation areas including parks, forests, recreation areas, public access sites, and waysides.

Many of these areas were made possible through provisions of the 1961 County Park Law. The law provides for the establishment, maintenance and operation of county parks. Such parks are defined as "all areas existing or to be acquired by any county under any law for public park purposes, public access to waters, or related outdoor recreational purposes."

The objective of most counties in establishing these areas is to provide outdoor recreation for the citizens and visitors of the county.

RECREATION LAND — County and School Forests

County Memorial Forests

There are approximately one million acres in 16 counties entered under the County Memorial Forest Law.

These forests may be set aside by resolution through county boards from tax-forfeited lands which are suitable for forestry purposes. These lands may be dedicated as memorial forests and are open to the public for hunting and fishing. Income from forest products is "dedicated" and used for development and maintenance of the area.

School Forests

In addition to the County Memorial Forests, there are approximately 3,783 acres in 44 School Forests. The School Forest law was enacted in 1949 and allows educational units to establish and maintain school forests subject to the approval of the Commissioner of Conservation.

School Forests are managed on the multiple use principle which provides for wildlife, recreation and water conservation values as well as the production of timber.

RECREATION LAND — Schools

The 1967 inventory included 3,561 acres of lands administered by public schools for recreational purposes.

The inventory of school recreation land was difficult, and the above acreage is far from complete. An additional inventory has been planned in cooperation with the State Department of Education.

RECREATION LAND — Municipal Parks and Recreation Areas

Municipal parks and recreation areas (including golf courses) total 41,553 acres in the state. This acreage consists of 497 recreation areas administered by independent cities and villages.

Municipal parks include totlots, neighborhood parks, playgrounds, playfields, special community facilities and general community-recreation areas.

Municipal parks generally are located in or adjacent to areas with high population densities so that the needs of the people are met within a short traveling distance from their homes.

Neighborhood parks generally are smaller than municipal parks and provide less variety of recreation, but are more important from the standpoint of providing open space.

RECREATION LAND — Quasi-Public

Quasi-public organizations such as youth agencies, church groups, and service clubs, supply a large part of the outdoor facilities for youth in the state.

Incorporated recreational groups and organizations supply special types of recreational and educational facilities.

For instance, sportsmen's organizations and special interest clubs usually are involved in such activities as hunting, fishing, camping, trap and skeet shooting, rock hounding, and many other activities.

RECREATION LAND — Private (Also see pages 230-258, 1965 Plan)

Private golf courses, forests, historical sites, picnic and sports areas, campgrounds, horseback riding stables, ski resorts, commercial lodging, seasonal homes, natural areas, fishing areas, hunting areas, shooting preserves, sports arenas, country clubs and organized camps all makes contributions to recreation in Minnesota.

Industrial firms, such as timber and electrical utility companies, provide numerous recreational opportunities, and allow a large part of their lands to be used for recreational purposes. These acreages may generally be classified in the same resource management category as federal, state and county forest lands. For the most part they are managed under the multiple use concept of forest management, and may be used by the general public for such dispersed recreation activities as hunting, fishing, hiking, boating and sightseeing. Some of the private forest lands provide sites for occupance use such as camping and recreational homes.

Minnesota with its large number of lakes has more than 3,500 resorts supplying facilities and services for certain outdoor recreation activities. Included in this category are many motels and hotels licensed as resorts.

Although the mail survey of these licensed resorts did not yield a complete response, it is felt that the major resorts supplying outdoor recreation facilities were included.

III. FACILITIES FOR LAND-BASED, SNOW-BASED, WATER-BASED ACTIVITIES

Land acreages and jurisdictional agencies were discussed in the first part of this Chapter. When the lands were inventoried, developed facilities designed for various recreational activities also were included.

This section includes the inventory of developed facilities together with their capacities for users. For purposes of determining carrying capacities, certain standards were used. (These are shown on Page 72, "Standards for Outdoor Recreation and Capacity and Conversion Factors".)

Activities Not Covered in the Supply Chapter

Twenty-two of the 44 activities included in the 1967 demand survey did not lend themselves to comparison with the supply. Many of these activities depend on an intangible supply or one that is very difficult to measure. Two examples are driving for pleasure and sightseeing. Open space is utilized but both are nearly impossible to measure.

The following activities are discussed in the demand and need sections of this report, but the facilities were not inventoried:

Hiking with Gear
Walking for Pleasure
Bird Watching
Wildlife Photography
Viewing Outdoor Games
Attending Outdoor Plays
Mountain Climbing
Sightseeing
Driving: Sedan
Driving: Other
Shooting: Trap and Target
Visiting Zoos
Wild Berry Picking
Snow Shoeing
Sledding and Tobogganing
Ice Fishing
Sailplane Gliding
Model Plane and Kite Flying
Relaxing Outdoors
Gardening for Pleasure

FACILITIES, LAND-BASED ACTIVITIES — Camping

The 1967 inventory included 802 campgrounds; 6,063 acres and 20,531 campsites of which 25 per cent were listed for tent camping only and 75 per cent for tent, trailer or camper use.

Figure 13 shows the state-wide distribution of campgrounds. Table 11 shows the number of campgrounds, acreage, and number of campsites in Minnesota by region.

Table 11

NUMBER AND ACREAGE OF CAMPGROUNDS AND NUMBER OF CAMPSITES BY REGION; 1967

Regions	1	2	3	4	5	6	7	8	9	10	11	State-wide
Number of Campgrounds	28	122	129	133	142	36	93	20	33	46	20	802
Acreage	141	630	2,692	445	698	162	633	95	139	246	182	6,063
Number of Campsites (Tent only)	70	1,081	1,779	573	361	56	772	15	101	339	12	5,159
Number of Campsites (Tent-Trailer)	497	1,276	3,049	1,991	2,371	752	2,663	572	588	1,350	263	15,372
Total Sites	567	2,357	4,828	2,564	2,732	808	3,435	587	689	1,689	275	20,531

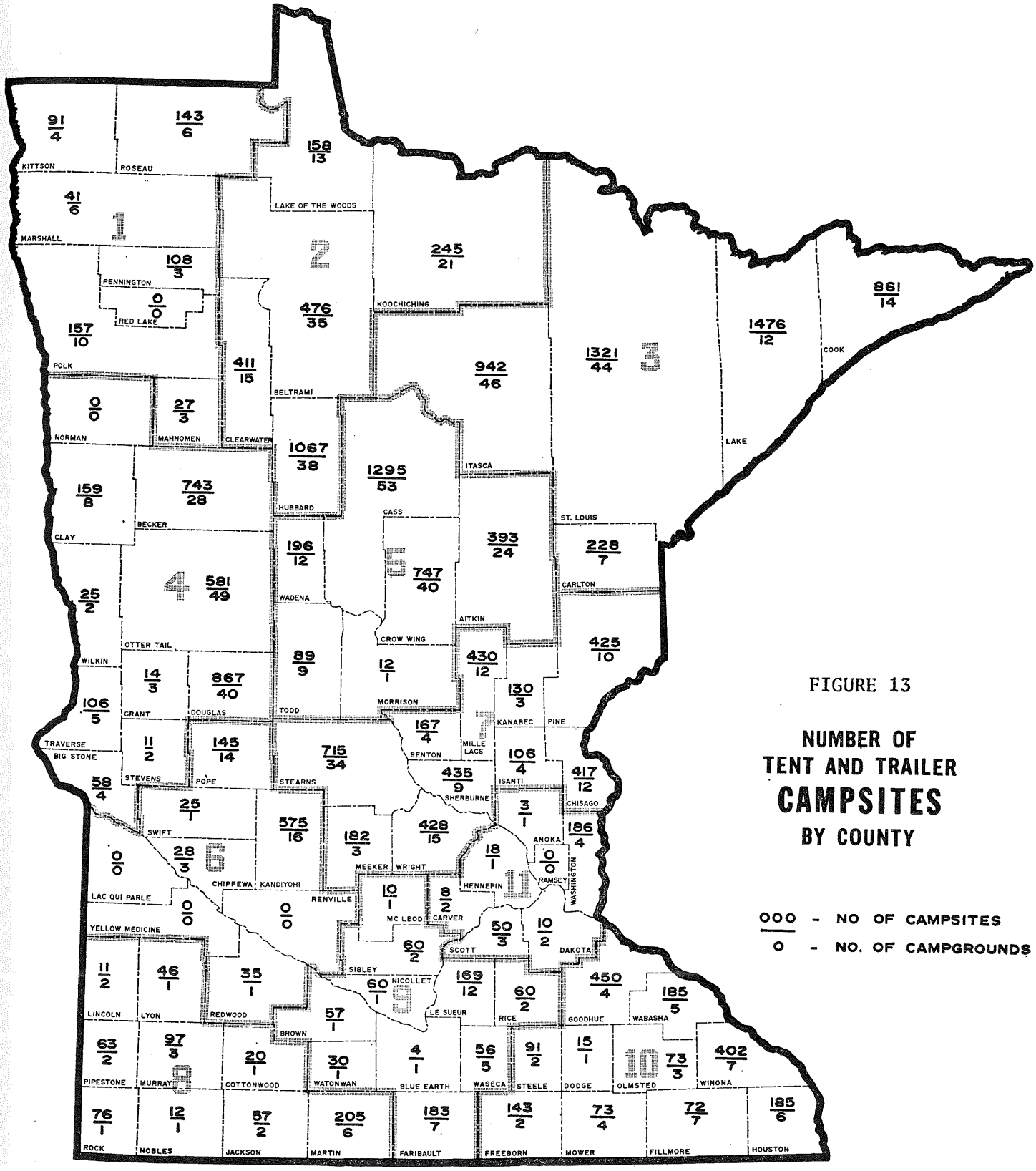


FIGURE 13

NUMBER OF TENT AND TRAILER CAMPSITES BY COUNTY

000 - NO OF CAMPSITES

0 - NO. OF CAMPGROUNDS

The greatest number of campsites are in Region 3 with Regions 7 and 5 following in that order. The number of sites available for tent or trailer camping outnumber those for tent camping and reflect the growing demand for camper and trailer campsites.

FACILITIES, LAND - BASED ACTIVITIES — Golf Courses

There are 273 golf courses in Minnesota with a combined total of more than 3,000 golf holes. Of this number, 30 per cent are in the metropolitan area (Region 11). Figure 14 shows a fairly widespread distribution of golf courses throughout the state. The inventory was based on "holes of golf" due to the fact that 9-hole, 18-hole and 36-hole golf courses are all included and it was felt the capacity more closely related the number of holes provided rather than total size, distance or type of course.

Table 12

NUMBER OF HOLES OF GOLF AND PERCENT OF TOTAL BY REGIONS, MINNESOTA, 1967

Regions	1	2	3	4	5	6	7	8	9	10	11
Total											
3,174	140	90	252	264	306	115	252	126	207	333	1,089
100%	4%	3%	8%	8%	10%	4%	8%	4%	7%	10%	34%

FACILITIES — LAND - BASED ACTIVITIES — Hunting

The 1967 inventory included public and private lands available to the general public for big game and small game hunting. The inventory excluded lands not within a mile from a road. Although such lands are hunted by a few, it was felt that the bulk of the hunters do not venture more than a mile from any road.

The supply of lands listed in Table 13 includes public lands and private lands owned by timber companies where the general public is allowed to hunt. A large percentage of the private lands are open for public hunting and are particularly important for hunting pheasants, Hungarian partridge and rabbits. However, no data is available on the acreage of such rural farm lands nor on the proportion open for public hunting.

Of the 10.8 million acres of recreation lands, 9.5 million are available for big game hunting with 66 per cent accessible* to hunters; 58 per cent of the 9.4 million acres of small game lands are accessible to the small game hunter.

The supply of hunting areas for big game is the largest in the forested regions reflecting public and timber company land ownership in those regions. Hunting areas for small game are distributed in a similar pattern since most small game hunting (except for pheasants) is also supplied by these forests.

*Accessibility refers to areas within one mile of an access road.

Table 13

BIG AND SMALL GAME

Habitat—Acres—Per Cent Accessible

	BIG GAME				SMALL GAME			
	Total Acres Available		Per Cent Accessible	Total Acres	Total Acres Available		Per Cent Accessible	Total Acres
Region	%	Acres			%	Acres		
1	6.9	433,399	83	534,216	5.8	314,214	62	506,796
2	21.3	1,345,012	52	2,586,562	13.9	750,799	30	2,502,664
3	48.9	3,088,341	66	4,679,304	54.5	2,939,380	63	4,666,000
4	1.8	112,601	64	175,939	1.7	91,751	61	150,412
5	16.9	1,067,939	92	1,160,803	19.2	1,036,999	88	1,178,408
6	0.3	17,666	78	22,649	0.4	20,924	80	26,155
7	2.6	161,414	57	283,183	3.0	162,113	58	279,506
8	0.2	13,928	90	15,476	0.3	15,654	85	18,416
9	0.1	5,130	58	8,845	—	7,350	54	13,612
10	0.7	46,865	92	50,940	0.9	48,004	89	53,937
11	3.0	14,846	77	19,280	0.3	17,682	73	24,222
Total	100%	6,307,141	66	9,537,197	100%	5,404,870	58	9,420,128

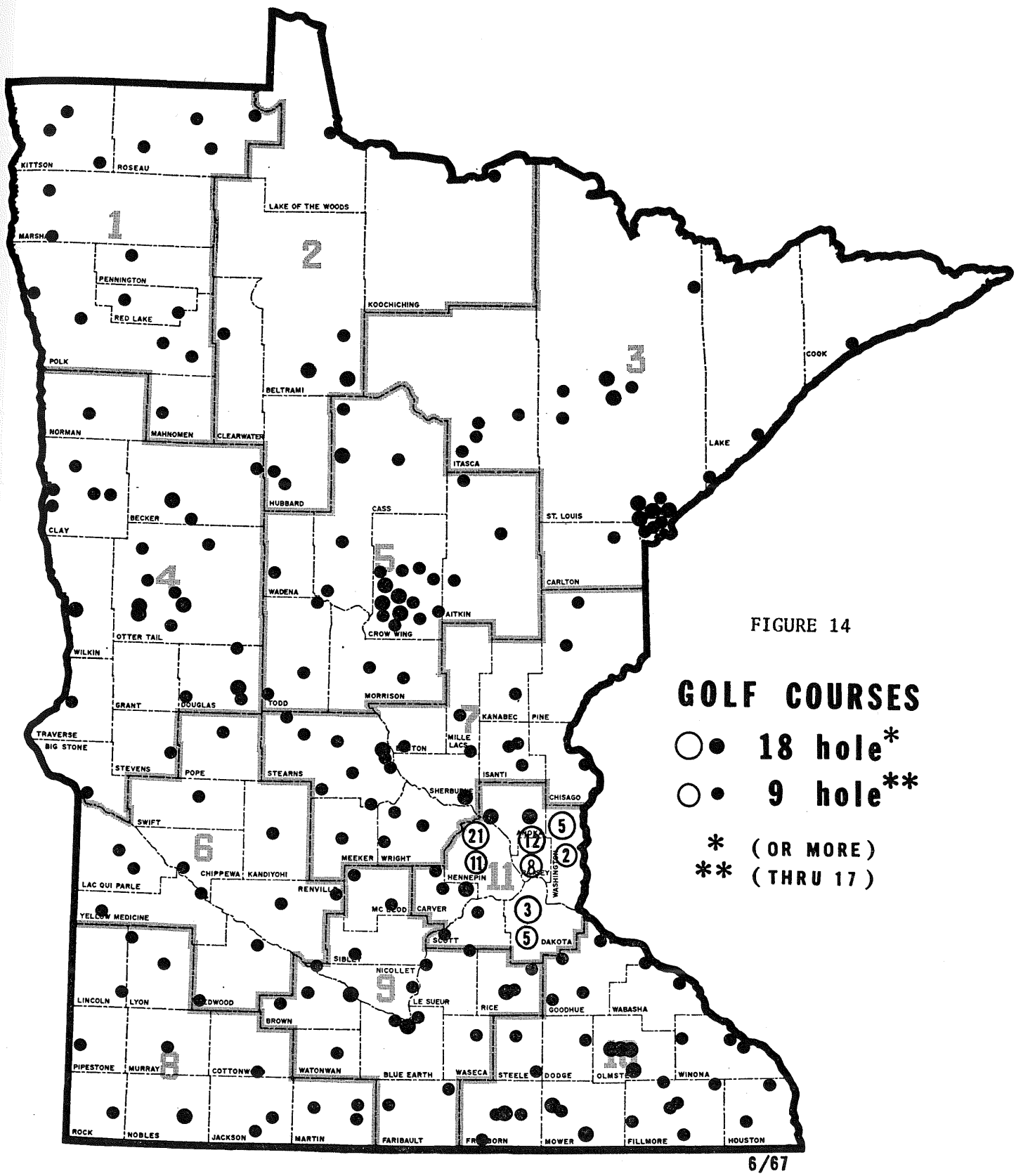


FIGURE 14

GOLF COURSES

○● 18 hole*

○● 9 hole**

* (OR MORE)

** (THRU 17)

6/67

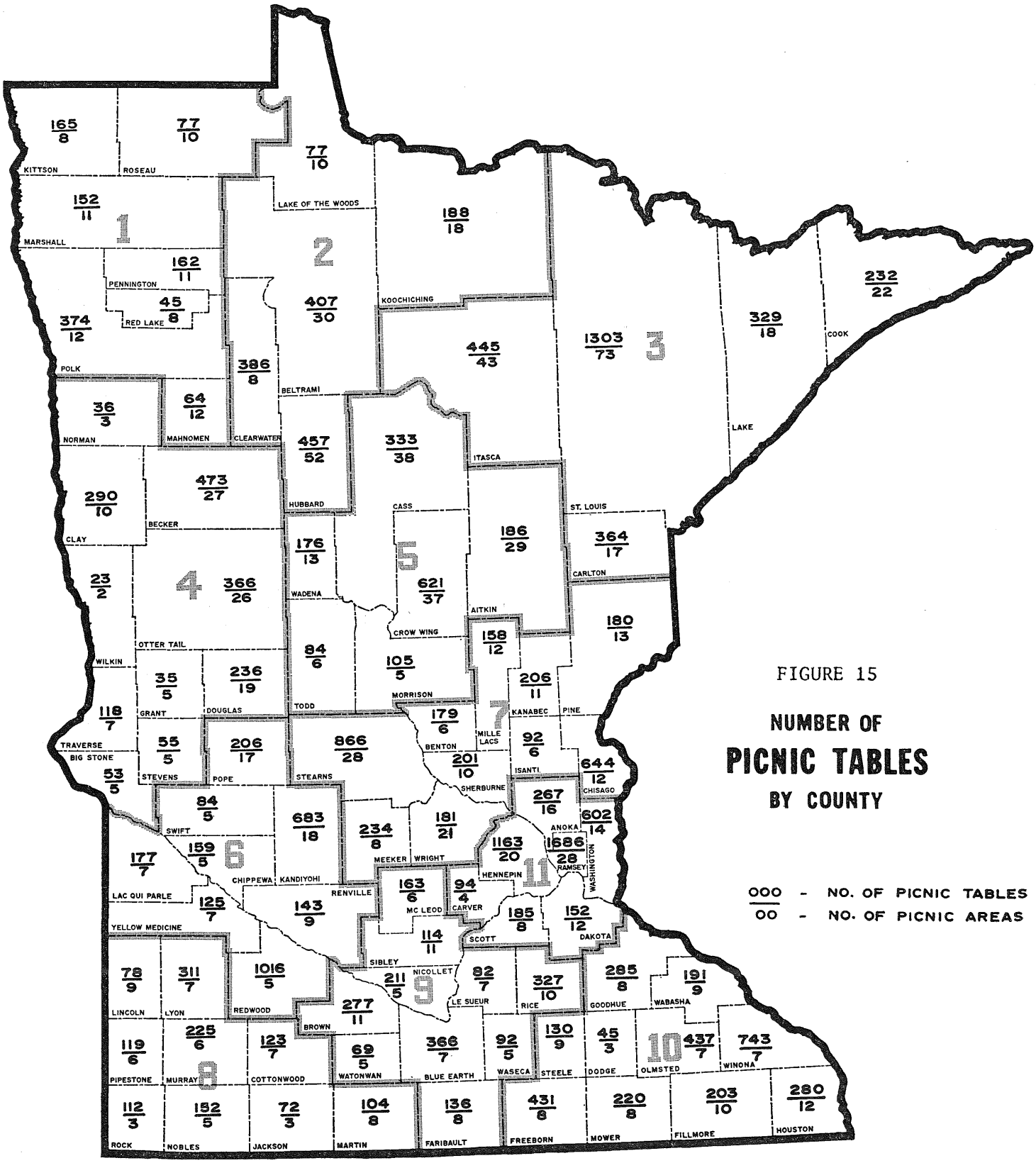


FIGURE 15

NUMBER OF PICNIC TABLES BY COUNTY

000 - NO. OF PICNIC TABLES
00 - NO. OF PICNIC AREAS

FACILITIES, LAND-BASED ACTIVITIES—Picnicking

An inventory was made of acreage set aside for picnicking and of numbers of picnic tables available for this day-use activity.

Table 14 below lists acreage and number of tables by region and state-wide.

Table 14

ACREAGE OF PICNIC AREAS AND NUMBER OF TABLES BY REGION, MINNESOTA, 1967

Region	State	1	2	3	4	5	6	7	8	9	10	11
Acreage	6,893	275	254	649	428	1,414	250	504	200	451	969	999
Per Cent	100	4	4	18	6	21	4	7	3	7	14	14
Tables	24,186	1,039	1,515	2,673	1,685	1,505	2,581	2,941	1,296	1,837	2,965	4,149
Per Cent	100	4	6	11	7	6	11	12	5	8	12	17

FACILITIES, LAND-BASED ACTIVITIES—Outdoor Sports and Games

Facilities for playing outdoor sports and games are largely provided by municipal parks and schools. Playfields used primarily for playing baseball and football were inventoried throughout the state except for communities of less than 1,000 population. (The inventory of outdoor sports and games provided by schools is not complete.)

More effort is needed to obtain a complete inventory of playfields, particularly those provided by schools. Such an inventory will be sought in conjunction with the Department of Education's annual state-wide recreation survey.

Table 15 lists the acres of playfields inventoried by region.

Table 15

ACRES OF PLAYFIELDS BY REGION, MINNESOTA, 1967

Regions	1	2	3	4	5	6	7	8	9	10	11
State-wide total 5,491 acres	325	174	319	216	169	301	279	164	256	607	2,681
100%	6%	3%	6%	4%	3%	5%	5%	3%	5%	11%	49%

FACILITIES, LAND-BASED ACTIVITIES—Tennis Court

Tennis courts often are found as part of school or park facilities. In Minnesota, there were 654 courts inventoried on 155 recreation areas. Of this total, 578, or 85 per cent are found on 111 municipal and city recreation areas. The regional distribution is shown on Table 16.

Additional tennis courts may be located at school recreation areas, where a more complete survey is needed.

FACILITIES, LAND-BASED ACTIVITIES—Trails For Bicycling

According to the 1967 inventory, there are 351 miles of bicycle paths available in 70 recreation areas of the state. Of this number, 91 per cent were found on public lands with the largest mileage in municipal parks and recreation areas.

Only those trails or paths considered as usable bicycling trails were included in the survey. No consideration was made of sidewalks, roads, and other bicycling facilities.

FACILITIES, LAND-BASED ACTIVITIES—Trails for Hiking With Gear and Nature Walking

The inventory of path, or trail facilities, for back packing did not separate cross-county trails used for hiking with gear and local nature trails.

There are slightly more than 1,500 miles of trails available throughout the state with Recreation Region 3 having the greatest number followed by Regions 2 and 7.

Of the total, about 1,400 miles (90 per cent) are on publicly-owned lands.

Federal Lands contain 190 miles of trails, approximately 12 per cent of the total state supply; 867 miles (57 per cent) are widely distributed on state-owned lands.

Table 16

TENNIS COURTS BY REGION, MINNESOTA, 1967

Regions	1	2	3	4	5	6	7	8	9	10	11
Total 654	13	24	48	17	23	30	22	28	30	48	371
100%	2	4	6	3	4	5	3	4	5	7	59

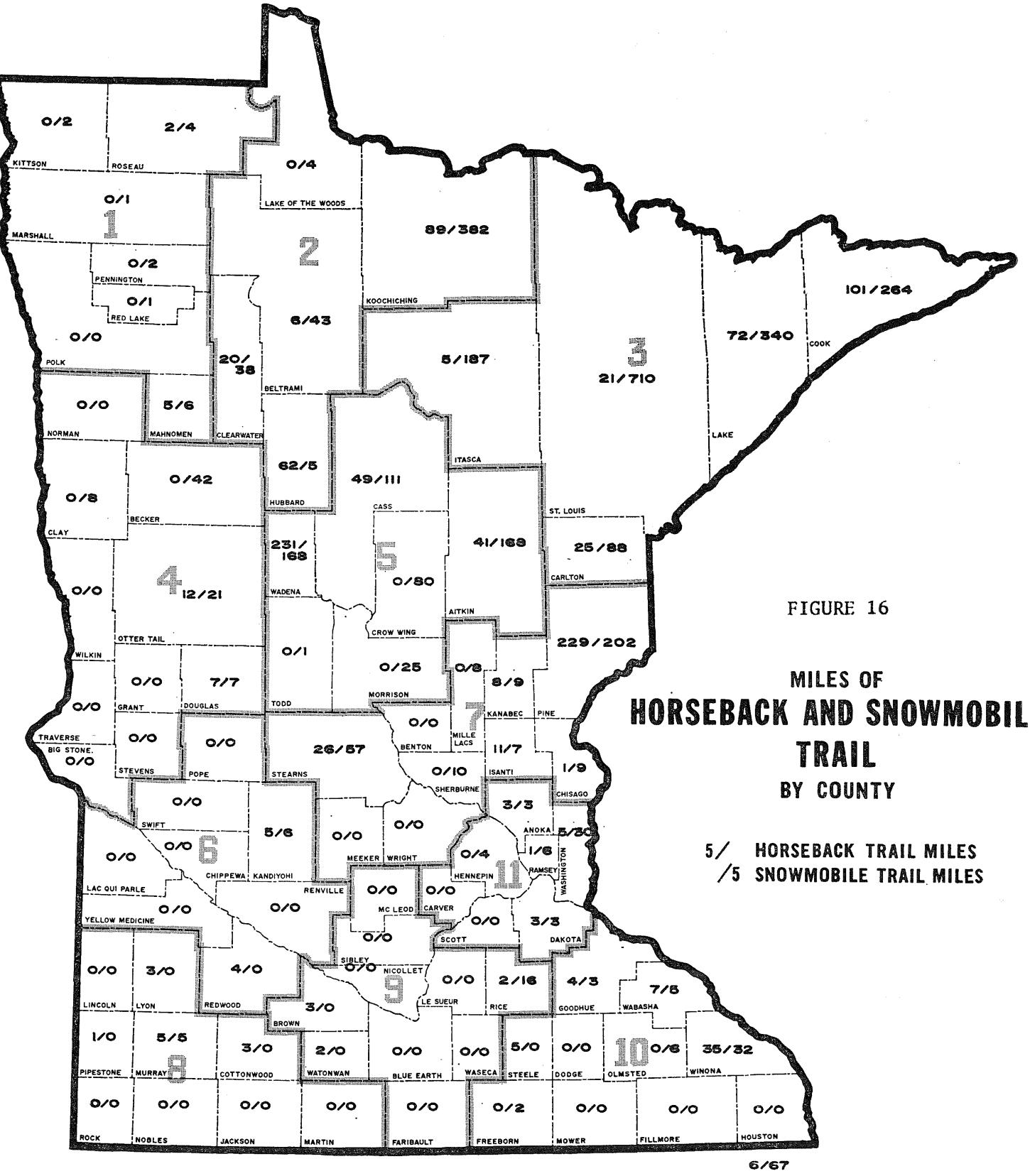


FIGURE 16

MILES OF HORSEBACK AND SNOWMOBILE TRAIL BY COUNTY

5/ HORSEBACK TRAIL MILES
/5 SNOWMOBILE TRAIL MILES

Foot trails in the metropolitan region total only 105 miles and are largely in city parks. Although a complete inventory in this region is very difficult, it appears that the number and length of hiking trails is very limited.

It is known that cross-county trails are lacking in Minnesota at the present time. Plans are currently being made to correct this problem.

FACILITIES, LAND-BASED ACTIVITIES — Trails for Horseback Riding

The 1967 survey showed 1,104 miles of horseback riding trails available throughout the state. Of this mileage, 88 per cent are on public land, largely in state parks and state forests.

As in the case of many other such dispersed recreation activities, most of the horseback trails are in the northeastern portion of the state. Only nine miles were recorded in the metropolitan region (Recreation Region 11). As in the case of bicycle trails, it is quite evident that much horseback riding is done elsewhere and is probably confined to rural farm lands and dirt roads.

FACILITIES, SNOW-BASED ACTIVITIES — Trails for Snowmobiling

There are no designated cross-country snowmobile trails at this time, but plans for an integrated state system are being made. There are, however, many miles of undesignated trails being used for snowmobiling in our state and federal recreation areas. Although there are some newly constructed trails the majority are along old logging roads, and railroad grades. They are regionally summarized in Table 17.

The 1967 survey recorded 3,128 miles of snowmobile trails in Minnesota. Of this mileage, 76 per cent was on public lands with the largest per cent in state forests. Federal lands at that time had 60 miles of trails. By the end of 1968, the Superior National Forest had developed 232 miles and the Chippewa National Forest had 240 miles of marked snowmobile trails. These new trails alone have increased the total to approximately 3,600 miles.

The location of these trails is shown in Figure 17. The total mileage is conservative in view of other trails developed since 1967.

On privately-owned lands, there are 760 miles of snowmobile trails available.

FACILITIES, SNOW-BASED ACTIVITIES — Ice Skating Rinks

The inventory of ice skating areas included only ice rinks maintained for the general public. The many areas cleared by private individuals on ponds, rivers or lakes could not be tallied. Rinks maintained for competitive hockey were not included in this inventory but as part of the inventory of playfields. About two-thirds of the skating area was recorded in the metropolitan region under municipal park programs.

In 1967, there were 346 acres of designated skating areas on 214 recreation sites. Of this total, 310 acres are found on 155 of the municipal recreation sites throughout the state.

FACILITIES, SNOW-BASED ACTIVITIES — Snow Skiing

Minnesota usually has ample snowfall north of the metropolitan area. In Region 11, all but three ski resorts have artificial snow-making machines.

In 1967, there were 39 ski areas in the state. Their location is shown on Figure 18. The geographic distribution reflects the limited elevation and restricted snow coverage in portions of the state. The metropolitan area (Recreation Region 11) had the majority (13 areas, or 33 per cent). A significant number of Minnesota skiers go across the border into Wisconsin and Michigan. (There was no data available showing the per cent of the demand that could be matched against the supply to give efficient indication of the need for ski areas in Minnesota.)

MINNESOTA SKI AREAS 1968/69 SEASON
CODE — SKI AREA (See Fig. 18, Page 62)

1. Afton Alps
2. Arctic Park
3. Benton Valley
4. Buffalo Valley
5. Buck Hill
6. Buena Vista
7. Cedar Hills
8. Como Park
9. Detroit Mountain
10. Eko Backen
11. French Rapids
12. Frontenac
13. Giant's Ridge
14. Hallaway Hill
15. Hidden Valley
16. Hyland Hills
17. Inver Hills
18. Little Squaw Valley
19. Lookout Mountain
20. Lutsen
21. Mont Du Lac
22. Mt. Itasca
23. Mt. Rockwood
24. Old Smokey
25. Pine Bend
26. Powder Ridge
27. Quadna Mountain
28. Ski Devil
29. Ski Gull
30. Ski Haven
31. Ski Tonka
32. Sugar Hills
33. Tartan Park
34. Theodore Wirth
35. Timberlane
36. Val Chatel
37. Val Croix
38. Villa Park
39. Welch Village

Table 17

MILES OF SNOWMOBILE TRAILS IN MINNESOTA, 1967

Regions	1	2	3	4	5	6	7	8	9	10	11
Total 3,128	16	472	1,589	78	553	6	302	5	16	48	43
100%	1	15	51	2	18		10		1	1	1

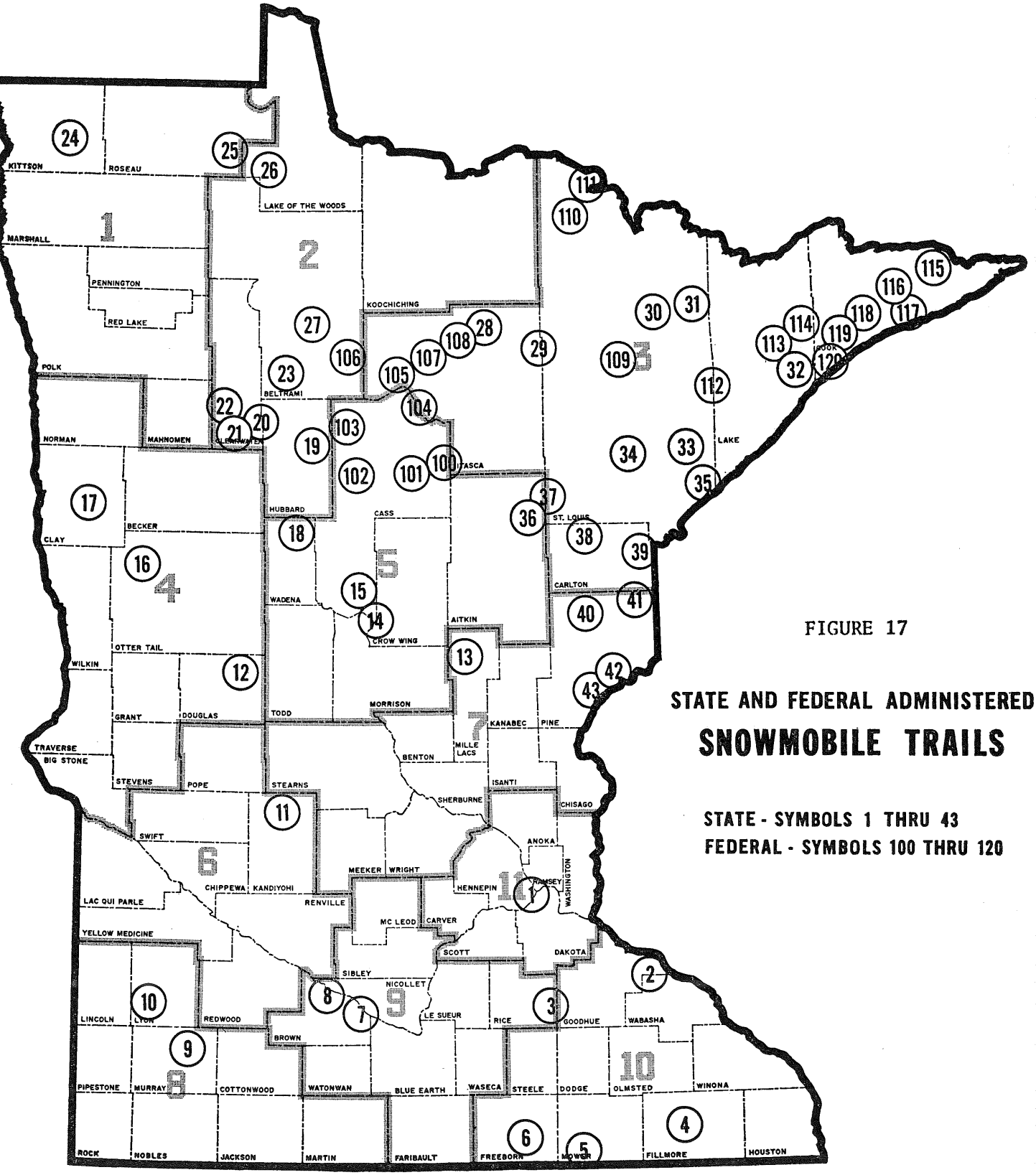


FIGURE 17

STATE AND FEDERAL ADMINISTERED
SNOWMOBILE TRAILS

STATE - SYMBOLS 1 THRU 43
FEDERAL - SYMBOLS 100 THRU 120

1968-1969 SNOWMOBILE TRAIL GUIDE

Location Number	Unit	Miles of Trails	Miles & Direction From Nearest Town	Local[1] Information Source
	Dept. of Conservation			
1	Fort Snelling*	4	10 Mi. S.W. of St. Paul (ML)	612-722-2911
2	Frontenac*	6	1½ Mi. E. of Frontenac (ML)	612-345-3401
3	Nerstrand Woods*	5	10 Mi. S.W. of Northfield (ML)	6371 Kenyon
4	Forestville*	6	West of Preston (ML)	507-765-3641
5	Lake Louise*	5	29 Mi. S.E. of Austin (ML)	507-324-5750
6	Helmer Myre*	4	5 Mi. S.E. of Albert Lea (ML)	507-373-5084
7	Flandrau*	4	S.W. of New Ulm (ML)	507-354-4415
8	Fort Ridgely*	2	7 Mi. So. of Fairfax (ML)	Fairfax 65404
9	Lake Shetek*	5	3 Mi. No. of Currie (M)	Currie 2680
10	Camden*	2	7 Mi. S.W. of Marshall (ML)	507-865-4530
11	Sibley*	5	6 Mi. W. of New London (M)	612-354-2443
12	Lake Carlos*	4	10 Mi. No. of Alexandria (ML)	612-852-7620
13	Mille Lacs Kathio*	6	5 Mi. N.W. of Onamia (ML)	612-532-3523
14	Crow Wing*	8	8½ Mi. S.W. of Brainerd (ML)	218-829-8022
15	Pillsbury#	20	3½ Mi. N.E. of Pillager (M)	218-829-2205
16	Maplewood*	15	E. of Pelican Rapids (ML)	
17	Buffalo River*	2	12½ Mi. E. of Moorhead (ML)	218-498-4459
18	Huntersville#	19	City Limits, Nimrod (M)	218-732-4580
19	Paul Bunyan#	26	14 Mi. N.E. Park Rapids (ML)	218-732-4580 218-755-2890
20	Itasca*	15	21 Mi. N.W. Park Rapids (ML)	218-266-3654
21	Aspen Hills—White Earth#	40	19 Mi. So. of Bagley (ML)	218-755-2890
22	Buckboard—White Earth#	29	17 Mi. So. of Bagley (ML)	218-755-2890
23	Mississippi Headwaters#	6	5 Mi. W. of Bemidji (ML)	218-755-2890
24	Lake Bronson*	5	2 Mi. W. of Lake Bronson (ML)	218-754-3200
25	Beltrami Island#	36	19 Mi. S.W. of Warroad (ML)	218-386-1304
26	Red Lake*	22	34 Mi. So. of Warroad (ML)	218-783-5861
27	Buena Vista#	18	12 Mi. No. of Bemidji (ML)	218-755-2890
28	Scenic*	3	6 Mi. S.E. of Bigfork (ML)	218-743-3362
29	Side Lake—George Washington#	38	1½ Mi. No. of Side Lake	218-263-6405
30	Tower Soudan*	7	No. of Tower (ML)	218-753-2245
31	Tower Ely Trails—Bear Island#	46	Tower Soudan & Ely (ML)	218-757-3200
32	Finland#	21	1½ Mi. W. Finland (M)	218-724-7606
33	Cloquet Valley#	11	26 Mi. No. of Duluth (ML)	218-724-7606
34	Lake Williams Lands and Forestry	10	1½ Mi. W. of Cotton (M)	218-879-6638
35	Sucker River Lands and Forestry	14	12 Mi. No. of Duluth (ML)	218-724-7606
36	Savanna Portage	36	17 Mi. N.E. of McGregor (ML)	218-426-3271
37	Savanna#	22	6 Mi. So. of Floodwood (ML)	218-697-2476
38	Fond du Lac#	21	4 Mi. E. of Cromwell (M)	218-879-6638
39	Jay Cooke*	3	S.W. of Duluth (ML)	218-384-4610
40	General C.C. Andrews#	10	City Limits, Willow River (M)	218-485-4688
41	Nemadji#	27	29 Mi. N.E. of Sandstone (ML)	218-485-4688
42	St. Croix*	200	20 Mi. E. of Hinckley (ML)	Hinckley 8221
43	Chengwatana#	19	9 Mi. E. Pine City (ML)	218-485-4688
	U. S. Forest Service			
100	Chippewa†	21	1 Mi. E. of Remer (ML)	218-566-4515
101	Chippewa†	18	4 Mi. W. of Remer (ML)	218-566-4515
102	Chippewa†	29	7 Mi. S. of Walker (ML)	218-547-1044
103	Chippewa†	17	5 Mi. S.E. Cass Lake (ML)	218-335-2279
104	Chippewa†	15	.5 Mi. W. of Ball Club (ML)	218-665-2334
105	Chippewa†	18	6 Mi. So. Squaw Lake (M)	218-246-8233
106	Chippewa†	23	7 Mi. So. of Blackduck (ML)	218-835-4942
107	Chippewa†	23	5 Mi. W. of Marcell (M)	218-832-3161
108	Chippewa†	27	4 Mi. So. of Bigfork (M)	218-832-3161
	Superior†			
109	Lookout Mountain	12	4 Mi. No. of Virginia (ML)	218-741-5736
110	Long Lake	36	Cook (ML)	218-666-4421
111	Namakan Lake	35	Cook (ML)	218-666-4421
112	Mount Weber	30	16 Mi. E. of Aurora (ML)	218-229-2848 218-834-4042
113	Kelly Landing	15	5 Mi. N.W. Isabella (ML)	218-834-7013
114	Sawbill Landing	9	16 Mi. No. of Isabella (ML)	218-834-7013
115	Greenwood Lake	20	16 Mi. No. of Grand Marais (ML)	218-387-1750
116	Twin Lake	20	8 Mi. N.W. Grand Marais (ML)	218-387-1750
117	Bally Creek	18	W. of Grand Marais (ML)	218-387-1750
118	Honeymoon	20	10 Mi. No. of Tofte (ML)	218-663-7280
119	Temperance River	21	7 Mi. No. of Tofte (ML)	218-663-7280
120	Wilson Lake	13	5 Mi. W. of Schroeder (ML)	218-663-7280

#State Forest (Div. of Lands & Forestry)
*State Park (Div. of Parks & Recreation)
†National Forest (United States Forest Service)
*State Wildlife Mgmt. Area (Div. of Game & Fish)

[1]State Forest—Area Hdqts.
State Park —Park Mgr's Office
State Wildlife Mgmt. Area—Area Hdqts.
U. S. Forest Service—Dist. Ranger's Office
(M) Meals (L) Lodging

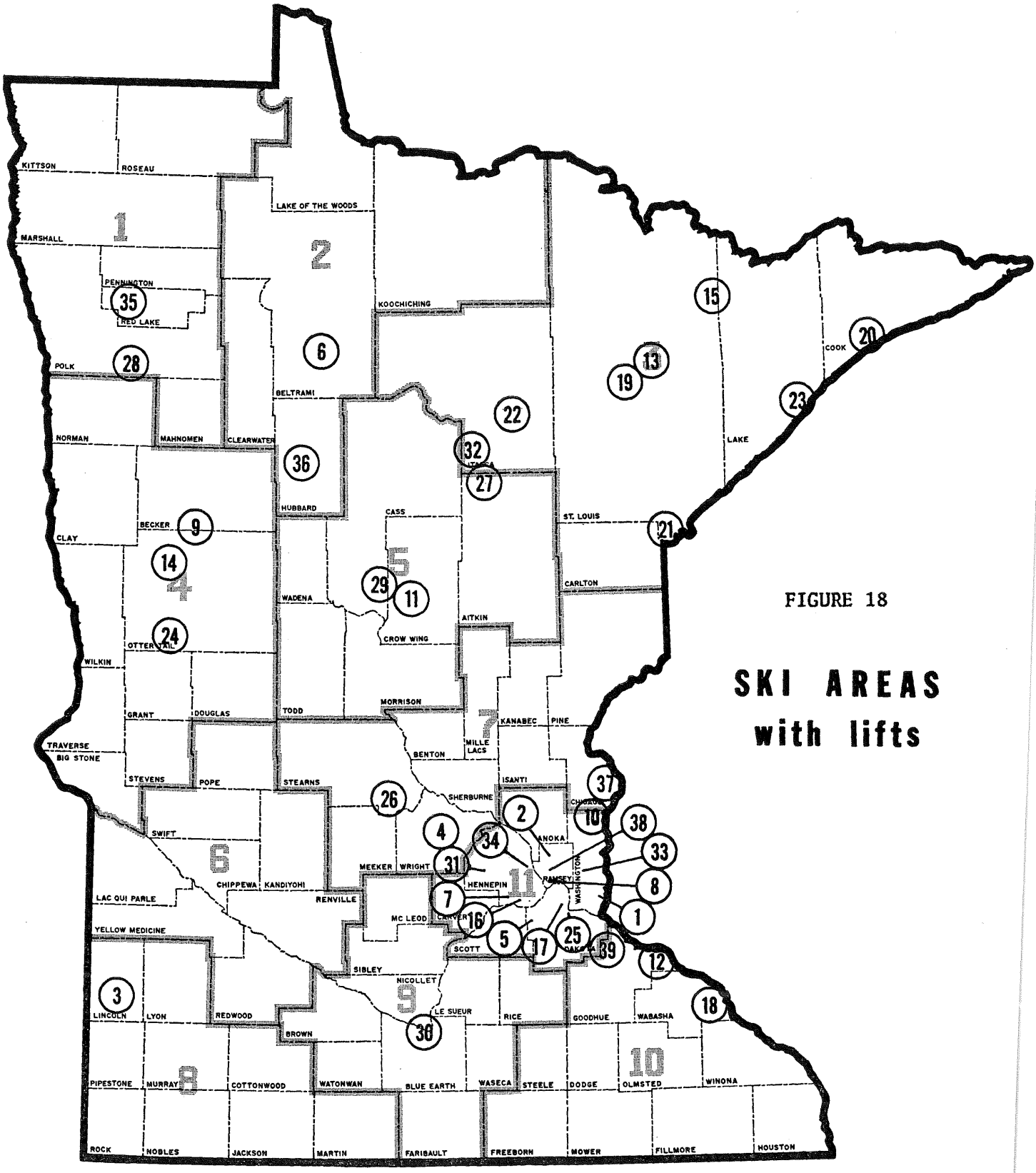


FIGURE 18

SKI AREAS with lifts

WATER RESOURCES FOR RECREATION

Thousands of lakes, streams and ponds have given the state national recognition as a vacation wonderland. Today more emphasis is being placed on the aesthetic qualities and purity of Minnesota's sky-tinted waters. Recreation is largely a non-consumptive use of our water resources. Water for recreation is used both directly for swimming, boating and fishing, and indirectly for its aesthetic qualities.

Rivers and Streams

If the Mississippi, Minnesota, St. Croix and St. Louis rivers and the hundreds of tributary systems are combined, the river system in Minnesota makes up approximately 25,000 miles of flowing waters.

Near the Twin Cities, the Minnesota, St. Croix, and Mississippi rivers join to mark the beginning of the Mississippi as a large river. Below this junction are seven dams stretching between Minnesota and Wisconsin. The pools formed by these dams impound about 119,000 acres of water including lakes St. Croix and Pepin and numerous backwater lakes.

Lakes

A recent survey by the Department of Conservation showed a total of 15,291 lake basins larger than ten acres. Of these, 3,025 basins were drained or otherwise dry; thus the total number of lakes with water numbered 12,034. The areas of high lake concentration are indicated in Figure 19 (Page 66). The combined surface of these lakes totals approximately 2.6 million acres or about five per cent of the state's area. To this we might add the 1.1 million acres which is Minnesota's portion of Lake Superior. A regional summarization is listed in Table 18.

Our lakes range in size from the great rolling expanse of Lower Red Lake near Bemidji, which is 25 miles across, to lakes of only a few acres in the pine forests along the North Shore. In descending order of size, the ten largest Minnesota lakes are as follows:

Name	Square Miles
Upper and Lower Red	450
Mille Lacs	207
Leech	171
Winnibigoshish	118
Vermilion	76
Cass	46
Kabetogama	40
Mud	37
Pokegama	24
Minnetonka	22

In addition, four large basins on the Minnesota-Ontario, Canada border constitute considerable area — Lake of the Woods (636 square miles in Minnesota), Rainy (86 square miles), Lac La Croix (31 square miles) and Basswood (23 square miles).

The majority of our lakes are less than 100 feet in depth. The deepest lakes known in Minnesota are Saganaga on the Canadian border (240 feet), Gabimichigama in Lake and Cook counties (226 feet), Mountain Lake in Cook County (210 feet), Lower LaSalle in Hubbard County, (204 feet) and Loon Lake (202 feet), in Cook County.

In southern Minnesota, most lakes are less than 25 feet deep and many have filled in with silt considerably during the past 75 years. Such shallow lakes are highly productive of fish, but they can store only limited amounts of oxygen in the water below the ice. In shallow lakes less than 20 feet, if there is snow on the ice, the stored oxygen may be used before spring and the lakes "freeze out" or "winterkill". The fish die of suffocation. However, these lakes can provide many indirect benefits that often go unrecognized. Some assist in retarding runoff, thereby preventing flooding. Others, through seepage, may act to replenish groundwater. Some serve as stock watering basins, and nearly all are of some value to wildlife, especially waterfowl.

FACILITIES, WATER-BASED ACTIVITIES — Public Access to Water Including Boat Launching Ramps and Marinas

Although administration and ownership of the state's accesses to public water is vested largely in the Department of Conservation, the Department of Highways also provides accesses. The U.S. Forest Service, Superior and Chippewa National forests, U.S. Corps of Engineers, U.S. Fish and Wildlife Service and many counties, municipalities and townships of the state also provide similar accesses.

A high number of private large marinas in the Twin Cities metropolitan area contribute to providing launching sites, particularly for the larger boats found in increasing numbers on the Mississippi and St. Croix rivers as well as on some large lakes.

The responsibility for purchase of state public access sites to Minnesota's lakes and streams rests primarily with the Division of Enforcement and Field Services, Department of Conservation. Since the public access program was initiated in 1947, more than 600 sites have been acquired. These small areas, usually five acres or less, are developed to provide a place to launch boats and park cars and trailers.

Not all of Minnesota's lakes can be considered for a Department of Conservation public access. Under provisions of the Public Access Statute, lakes must be 150 acres or more within the meander lines. There are 1,057 lakes eligible for public access that presently do not have such a facility.

Inventory

Public access sites and marinas on lakes or streams were tallied with an account made of the

Table 18

THE LAKES OF MINNESOTA

County	Total Lake Basin Acreage	"Dry" Basin Acreage[1]	"Wet" Basin Acreage[2]	Total County Area, in Acres	Per Cent of County Area in Lake Basins of 10 Acres or more	Per Cent of County Area in "Wet" Lake Basins of 10 Acres or more	Per Cent of Lake Basin Acreage which is "Dry"
Region 1							
Kittson	829	0	829	719,360	0.1	0.1	0
Mahnomen	19,110	1,418	17,692	375,680	5.1	4.7	7.4
Marshall	32,015	745	31,270	1,152,000	2.8	2.7	2.3
Pennington	35	0	35	398,080	0.1	0.1	0
Polk	18,242	513	17,729	1,297,920	1.4	1.3	2.8
Red Lake	68	0	68	276,480	0.1	0.1	0
Roseau	6,924	6,849	75	1,073,280	0.1	0.1	98.9
Region 2							
Beltrami	345,965	602	345,363	1,955,200	17.7	17.6	0.1
Clearwater	40,829	3,851	36,978	659,200	6.2	5.6	9.4
Hubbard	48,318	2,109	46,209	637,440	7.6	7.2	4.3
Koochiching	32,003	303	31,700	2,030,720	1.6	1.5	0.9
Lake of the Woods	317,297	0	317,297	1,147,520	27.7	27.7	0
Region 3							
Cook	101,152	0	101,152	990,720	10.2	10.2	0
Carlton	9,142	2,232	6,910	559,360	1.6	1.1	24.4
Itasca	183,768	1,434	182,424	1,856,000	9.9	9.8	0.7
Lake	118,038	0	118,038	1,472,640	8.0	8.0	0
St. Louis	337,632	1,206	336,426	4,295,040	7.9	7.8	0.3
Region 4							
Becker	94,578	11,231	83,347	914,560	10.3	9.1	11.8
Big Stone	25,448	2,727	22,721	334,080	7.6	6.8	10.7
Clay	4,650	122	4,528	673,280	0.7	0.6	2.6
Douglas	65,519	7,954	57,565	462,720	14.2	12.4	12.1
Grant	24,582	3,207	21,375	367,360	6.7	5.8	13.0
Norman	415	36	379	566,400	0.1	0.1	8.6
Otter Tail	173,851	4,388	169,463	1,416,320	12.3	11.9	2.5
Stevens	19,394	8,430	10,964	366,720	5.3	2.9	43.4
Traverse	9,991	111	9,880	371,840	0.3	2.6	1.1
Wilkin	675	123	552	481,280	0.1	0.1	18.2
Region 5							
Aitkin	113,929	6,871	107,058	1,272,960	8.9	8.4	6.1
Cass	258,217	6,612	251,605	1,523,200	17.0	16.5	2.5
Crow Wing	101,769	1,864	99,905	731,520	13.9	13.6	1.8
Morrison	15,204	717	14,487	740,480	2.0	1.9	4.7
Todd	27,901	4,252	23,649	627,200	4.4	3.7	15.2
Wadena	3,802	2,028	1,774	346,240	1.1	0.5	53.3
Region 6							
Chippewa	9,158	3,878	5,280	374,400	2.4	1.4	42.3
Kandiyohi	61,637	18,059	43,578	551,680	11.2	7.8	29.2
Lac qui Parle	16,770	7,294	9,476	496,000	3.4	1.9	43.4
Pope	34,731	5,543	29,188	459,520	7.6	6.3	15.9
Redwood	7,206	6,487	667	559,360	1.3	0.1	90.7
Renville	10,592	6,581	4,011	628,480	1.7	0.6	62.1
Swift	12,393	4,747	7,646	478,720	2.6	1.5	38.3
Yellow Medicine	7,274	3,367	3,907	485,120	0.1	0.1	46.2
Region 7							
Benton	2,067	229	1,838	260,480	0.8	0.7	11.0
Chisago	15,764	1,443	14,321	284,160	5.5	5.0	9.1
Isanti	12,164	3,032	9,132	288,640	4.2	3.1	24.9
Kanabec	4,837	791	4,046	339,200	1.4	1.1	16.3
Meeker	34,633	11,640	22,993	409,600	8.5	5.6	33.6
Mille Lacs	73,609	229	73,380	432,000	17.0	16.9	0.3
Pine	11,596	169	11,427	913,280	1.3	1.2	1.4
Sherburne	11,443	2,701	8,742	286,808	4.0	3.0	23.6
Stearns	34,345	4,503	28,592	892,160	3.9	3.2	16.7
Wright	44,384	7,393	36,242	458,240	9.8	7.9	18.3

[1]Dry Basins are "affected by ditch" or "photo showed beds exposed."
[2]Wet Basin acreage is total acreage minus dry acreage.

Table 18—Continued

County	Total Lake Basin Acreage	"Dry" Basin Acreage[1]	"Wet" Basin Acreage[2]	Total County Area, in Acres	Per Cent of County Area in Lake Basins of 10 Acres or more	Per Cent of County Area in "Wet" Lake Basins of 10 Acres or more	Per Cent of Lake Basin Acreage which is "Dry"
Region 8							
Cottonwood	9,154	4,283	4,871	412,800	2.2	1.1	46.7
Jackson	17,042	3,223	13,819	458,880	3.7	3.0	18.9
Lincoln	14,958	6,478	8,480	346,240	4.3	2.4	43.3
Lyon	9,261	3,605	5,656	458,240	2.0	1.2	38.9
Martin	19,218	5,037	14,181	465,280	4.1	3.0	26.2
Murray	17,634	8,721	8,913	461,440	3.8	1.9	49.4
Nobles	7,222	3,143	4,079	460,160	1.6	0.8	43.5
Pipestone	80	0	80	296,960	0.1	0.1	0
Rock	29	0	29	310,400	0.1	0.1	0
Region 9							
Blue Earth	19,319	11,322	7,997	481,920	4.0	1.6	58.6
Brown	9,951	7,968	1,983	395,520	2.5	0.5	80.0
Faribault	12,240	7,099	5,141	459,520	2.7	1.1	57.9
LeSueur	22,172	7,139	15,033	298,880	7.4	5.0	32.1
McLeod	17,092	6,500	10,592	321,920	5.3	3.2	38.0
Nicollet	17,014	4,492	12,522	293,760	5.8	4.2	26.4
Rice	13,448	2,321	11,127	327,040	4.1	3.4	17.2
Sibley	16,062	7,200	9,098	377,600	4.2	2.4	44.8
Watonwan	5,166	1,400	3,685	279,680	1.8	1.3	28.6
Waseca	11,743	5,902	5,841	272,000	4.3	2.1	50.2
Region 10							
Dodge	1,716	1,531	—	278,400	0.6	0.1	89.2
Fillmore	112	14	98	549,760	0.1	0.1	12.5
Freeborn	20,852	8,696	12,156	459,520	4.5	2.6	58.2
Goodhue	16,375	87	16,288	493,440	3.3	3.3	0.6
Houston	12,545	0	12,545	364,800	3.4	3.4	0
Mower	143	0	143	449,920	0.1	0.1	0
Olmsted	776	0	776	419,840	0.2	0.2	0
Steele	5,488	4,233	1,255	273,280	0.2	0.1	77.1
Wabasha	15,377	57	15,320	342,400	4.4	4.4	0.3
Winona	9,878	42	9,836	404,480	2.4	2.4	0.4
Region 11							
Anoka	16,168	5,962	10,206	283,520	5.7	3.5	36.8
Carver	20,290	8,633	11,657	239,360	8.5	4.8	42.5
Dakota	10,255	539	9,716	376,320	2.7	2.5	5.2
Hennepin	36,814	5,945	30,869	389,760	9.4	7.9	16.1
Ramsey	10,871	1,768	9,103	109,440	9.9	8.3	16.2
Washington	20,605	554	20,051	268,160	7.7	7.4	2.6
Scott	15,407	8,790	6,617	232,960	6.6	2.8	57.0
Total	3,409,109	308,474	3,100,635	53,803,520	6.32	5.76	9.0

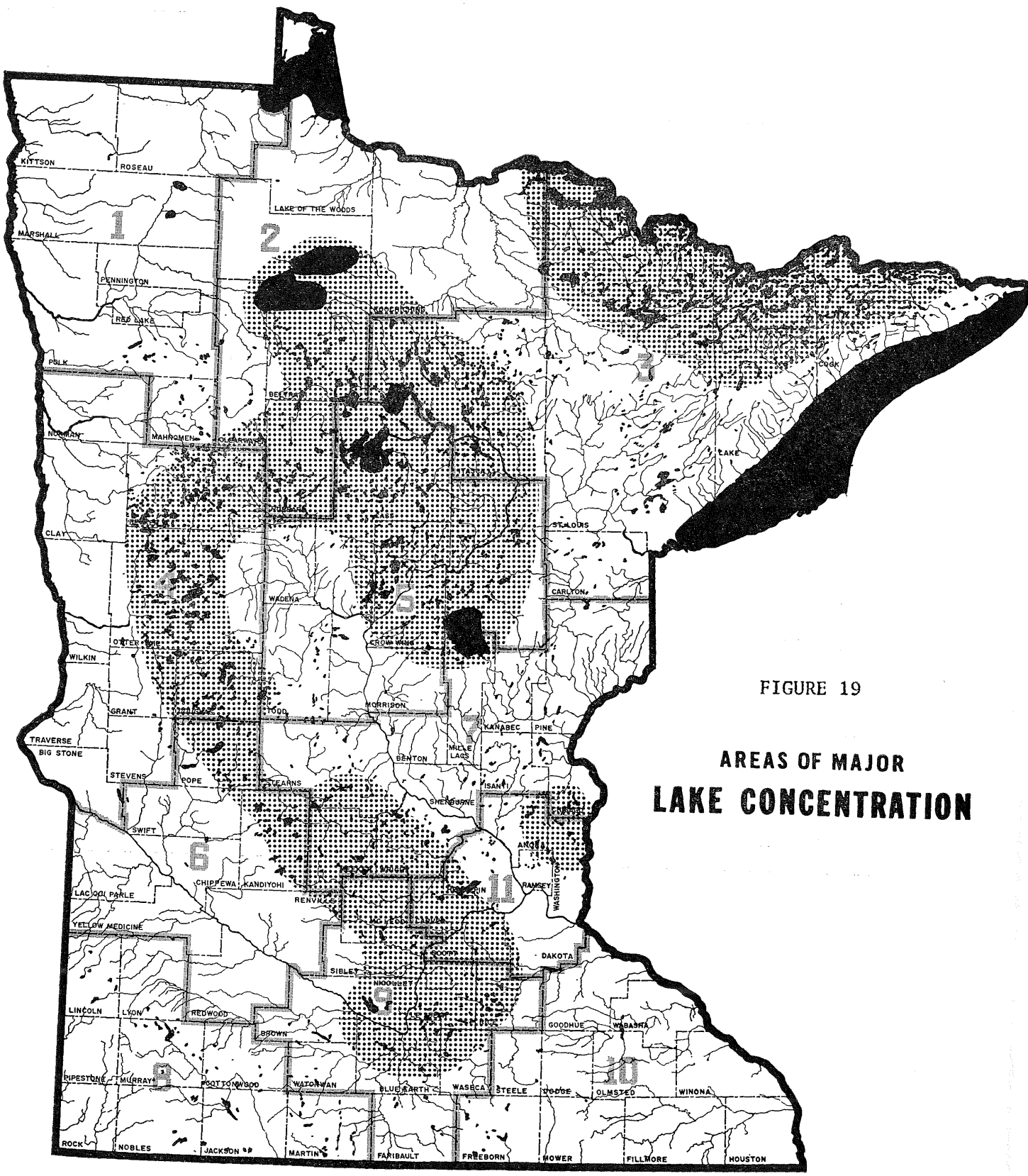


FIGURE 19

AREAS OF MAJOR

LAKE CONCENTRATION

number of parking spaces (car and trailer) at boat launching ramps and of marina boat slips.

The survey showed slightly more than 31,800 parking spaces at boat launching ramps and 9,081 boat slips at marinas for a total of approximately 40,800 spaces and boat slips. A regional distribution is presented in Table 19, while a county breakdown is given in Figure 20.

Table 19

NUMBERS OF PARKING SPACES AND BOAT SLIPS RECORDED AT BOAT LAUNCHING SITES AND MARINAS, BY REGION

Region	Boat Launch Site— No. Parking Spaces	Marina— No. Boat Slips
1	670	247
2	1,792	768
3	4,795	703
4	2,759	378
5	4,128	1,102
6	1,649	233
7	5,006	250
8	938	54
9	2,815	84
10	3,579	1,622
11	3,699	3,640
Total	31,830	9,081

At the present time, free access is provided by launching sites on 1,220 lakes. There are 1,430 access sites, 60 of which are on rivers.

Of the agencies providing boat launching sites, the state leads with 861 sites, or 60 per cent. County, township, and city sites total 426 and federal government sites total 143. Quasi-public organizations appear to supply a significant number of boat access sites as well.

Marinas of the private sector can accommodate 9,081 boats, according to this survey. Many thousands of boats can be accommodated at resorts where launching facilities and dockage for rental craft are provided.

In addition to supplying parking space for transient boaters and fisherman, the public access site serves hunters, snowmobilers, ice fishermen and others.

FACILITIES, WATER-BASED ACTIVITIES — Boating

The state presently has about 280,000 licensed watercraft (this includes all aquatic vehicles except duckboats, sailboats, canoes and float planes). Minnesota boaters have ample opportunity to enjoy this sport in most Recreation Regions of the state. There is a total of 2,033,491 acres of boating water in Minnesota. A regional break-down of this total is listed in Table 20.

Boating is often enjoyed in conjunction with other activities, such as fishing, picnicking, and sightseeing. Power boating, however, often conflicts with fishermen, sail boaters, and swimmers and the noise is often objectionable to people seeking a quiet, restful experience.

Table 20

SURFACE ACRES OF BOATING WATER IN MINNESOTA

Region	Acres, Boating Water
1	43,136
2	741,289
3	382,000
4	237,215
5	418,166
6	42,230
7	139,666
8	13,831
9	22,992
10	105,507
11	103,000
Total	2,249,032

To determine the supply of surface water available for boating, this study considered all lakes which could be termed suitable for recreational boating and all larger rivers on which boating occurs. Because of a simultaneous study of lakes[1] to determine the extent and trends in lakeshore development, it was possible to record acreage of all lakes over 150 acres in size with recreational developments. In this way shallow lakes not conducive to good boating were excluded. In the Twin Cities Metropolitan Region 11 all lakes with 100 or more acres of surface water were included.

In the Boundary Waters Canoe Area where lakeshore development is not permitted, the surface acreage of water was included on lakes where motors were permitted. Only the Minnesota portion of boundary waters was included. Lake Superior, because of its dangerous nature and limited use, was omitted.

FACILITIES, WATER-BASED ACTIVITIES — Water for Canoeing

River systems with their natural shoreline environments are becoming increasingly important to the state recreation picture. Because of this Minnesota has taken steps toward the classification, evaluation, preservation, and improvement of its river system.

In 1966, the Minnesota Department of Conservation contracted with Midwest Planning and Research, Inc. and the U.S. Geological Survey (U.S.G.S.) to survey and analyze 24 rivers for the purpose of selecting those which should be considered in a Recreational River System.

The following objectives, or prerequisites, were considered carefully in arriving at the eligibility of a river.

[1] University of Minnesota, Department of Geography (in press).

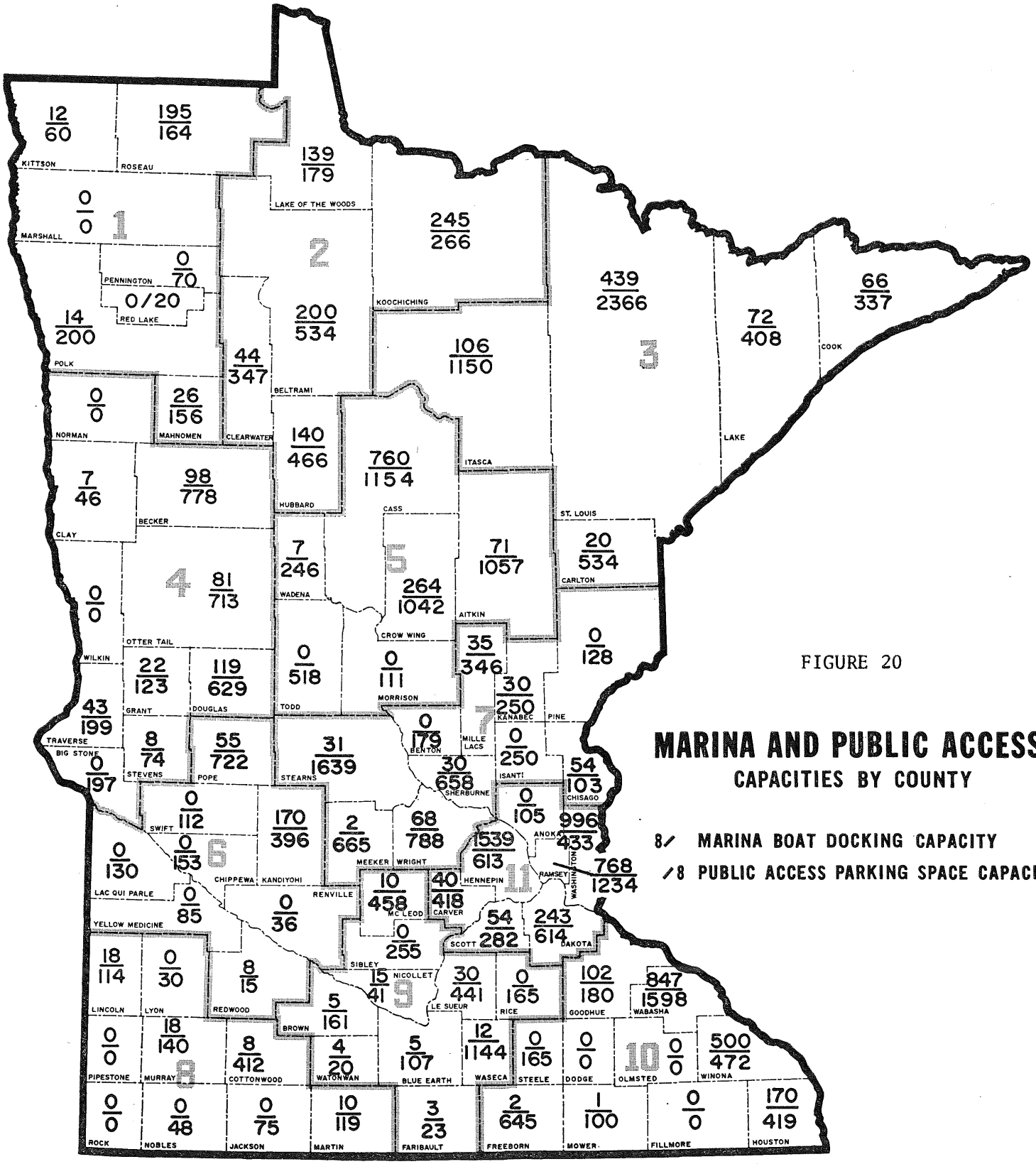


FIGURE 20

MARINA AND PUBLIC ACCESS

CAPACITIES BY COUNTY

8/ MARINA BOAT DOCKING CAPACITY

/8 PUBLIC ACCESS PARKING SPACE CAPACITY

1. To include rivers which normally have canoeable waters during the summer season (May 1 through September 10).

2. To include rivers requiring a variety of canoeing skills.

3. To include rivers requiring a variety of camping skills.

4. To include rivers so located as to permit a state-wide service range.

5. To include rivers which will provide a wilderness atmosphere.

6. To include rivers which can accommodate, with proper development, a large number of canoeists.

The Commissioner of Conservation has been authorized by the Legislature to develop certain designated streams as canoe routes. The 1965 and 1967 sessions of the Legislature named a total of 16 streams as part of the Recreational River System.

Table 21 includes about 4,000 miles of boating water by Region. The largest proportion (1,433 miles) was found in northeastern Minnesota (Region 3), with the Boundary Waters Canoe Area contributing many hundreds of miles of inter-connected lakes and streams with access to the waters of Ontario, Canada. The location of designated canoe routes is shown in Figure 21.

The mileage shown includes many types of canoeing waters which, under certain conditions, may prove to be unnavigable due to adverse wind conditions, especially large lake crossings, or low water during drought periods. However, to indicate the total available supply, these waters were included. Not included are the many acres of lakes or smaller streams on which canoeing occurs as a convenient pastime.

FACILITIES, WATER-BASED ACTIVITIES — Water For Fishing

Not all of the 12,000 inland lakes above ten acres in size are of sufficient depth to provide good sport fishing. About 16 per cent of the acreage of these lakes is estimated to be shallow and classified as waterfowl or "winterkill" bullhead lakes. The remaining 84 per cent of the surface acreage provides the bulk of the state's fishing resource.

For the purposes of this inventory, the total acreage of surface water was calculated for both cold-water (trout) and warm-water (bass, walleye, sunfish) lakes. Most of the trout lakes are in the northeastern, rock outcrop region of the state and the total surface acreage measures approximately 121,700 acres.

Warm-water lakes which provide the bulk of the fishing for panfish, walleye, bass, northern pike, muskellunge, are fairly well-distributed except for the extreme northwest, southwest and southeast corners. The total surface acreage of this type of fishing water is estimated to be 2,584,410 acres. (See Table 22.)

Much of Minnesota's 25,000 miles of rivers and streams have excellent fishing opportunities. About 2,048 miles are classified as cold-water or trout streams. The northeastern part of the state

Table 21

CANOEING WATER IN MINNESOTA, 1967

Regions Rivers	1	2	3	4	5	6	7	8	9	10	11	Total
Bigfork*	—	108	62	—	—	—	—	—	—	—	—	170
Brule	—	—	20	—	—	—	—	—	—	—	—	20
Cannon*	—	—	—	—	—	—	—	—	35	53	—	88
Cloquet*	—	—	70	—	—	—	—	—	—	—	—	70
Crow*	—	—	—	—	—	17	102	—	45	—	26	190
Cottonwood	—	—	—	—	—	—	—	—	54	—	—	54
Crow Wing*	—	25	—	—	75	—	—	—	—	—	—	100
Des Moines*	—	—	—	—	—	—	—	100	—	—	—	100
Kettle*	—	—	10	—	—	—	69	—	—	—	—	79
Little Fork*	—	37	85	—	—	—	—	—	—	—	—	122
Minnesota*	—	—	—	22	—	106	—	—	94	—	117	339
Mississippi*	—	40	60	—	217	—	67	—	—	207	67	658
Ottertail	—	—	—	144	—	—	—	—	—	—	—	144
Pine	—	—	—	—	31	—	—	—	—	—	—	31
Red Lake*	171	17	—	—	—	—	—	—	—	—	—	188
Root*	—	—	—	—	—	—	—	—	—	131	—	131
Rum*	—	—	—	—	—	—	142	—	—	—	16	158
Snake*	—	—	—	—	22	—	68	—	—	—	—	90
St. Croix*	—	—	—	—	—	—	79	—	—	—	42	121
St. Louis*	—	—	186	—	—	—	—	—	—	—	—	186
Vermillion	—	—	—	—	—	—	—	—	—	—	38	38
Willow	—	—	—	—	37	—	—	—	—	—	—	37
B.W.C.A.	—	—	960	—	—	—	—	—	—	—	—	960
Total	171	227	1,453	166	382	123	527	100	228	391	306	4,074

*Designated Canoe Route.

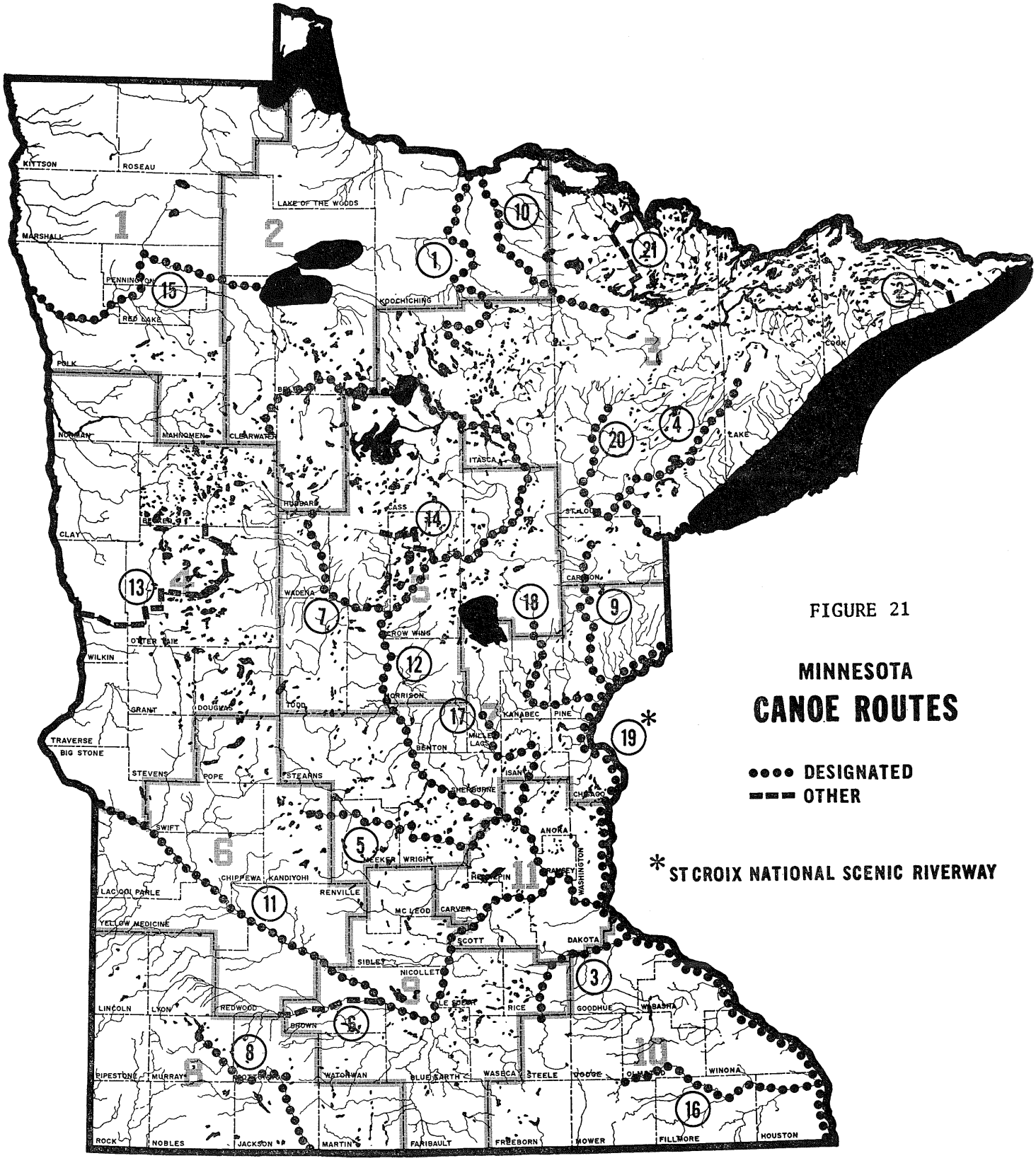


FIGURE 21

MINNESOTA
CANOE ROUTES

●●●● DESIGNATED
▬▬ OTHER

* ST CROIX NATIONAL SCENIC RIVERWAY

Table 22

SURFACE WATER ACREAGE ESTIMATED FOR EACH CLASS OF LAKE OR RIVER

Class of Lake or Stream	(Estimated) Acres (Surface Water)	Miles
Coldwater lakes (trout)	121,705*	
Warmwater lakes	2,578,410	
Coldwater streams (trout)		2,048*
Warmwater streams (estimated for fishing)		10,000
Totals	2,700,115	12,048

has 1,182 miles; the southeastern, 153 miles; and the east-central, 393 miles. A complete inventory and classification of warm-water streams has not been made. (The Division of Waters, Soils and Minerals, Department of Conservation has this project as a high priority.) It is estimated that there are 10,000 miles of streams supporting warm-water fishing similar to that found in warm-water lakes.

Anglers have access to a majority of the state's streams either over public lands or private lands under long-term perpetual easement as shown in the table following.

Trout Stream Access*

Type of Land Control	Miles
Federal lands	340
State lands	435
Easements (Private lands)	332
Easements (County tax-forfeited land)	132
	1,239

*Minnesota's trout program (1967) Dept. of Conservation Div. of Game and Fish, Section of Fisheries.

FISHING — The Status of Minnesota's Fish Species

The fish crop of Minnesota's lakes and streams is a renewable resource and one that, with proper management, can be expected to provide recreation for millions of people each year. About 30 kinds of sport fish species plus many commercial and other species are found in Minnesota's lakes and streams. Altogether, there are 164 different kinds of fish in Minnesota.

There are four major types of game fish lakes, each characterized by a particular group of fishes.

Lake trout lakes are mostly in the northeast. These are deep, rock-shored, clear and cold. They are well-suited to trout and associated cold-water species such as tullibee. These lakes provide quality fishing, but the total yield of trout per angler is quite low.

Walleye lakes are typically large (often over 5,000 acres), have extensive shoal areas of sand and gravel and wide expanses of water usually less than 50 feet deep. Here the walleye often is associated with northern pike and sometimes with muskellunge. The big lakes of the Mississippi headwaters are of this type. Soft-water walleye lakes are mostly of the northeast, while hard-water walleye lakes are largely in central and northern Minnesota.

Bass-panfish lakes generally are smaller than the typical walleye lakes with weedy bays and shorelines suited to nest-spawning bass, sunfish and crappie. They are typically hard-water (high in carbonates), fertile waters especially common in the north-central and west-central parts of Minnesota. Northern pike also are abundant in these lakes and walleyes are found in some. (Bass-panfish-walleye lakes are inter-grades between hard-water walleye lakes and bass-panfish lakes.)

Rough fish-panfish or bullhead-rough fish lakes include the many shallower lakes, especially in southern and western Minnesota. They supply bullhead and crappie fishing and also a resting and breeding area for migrating waterfowl.

Then there are the small lakes in the north from which unwanted kinds of fishes have been removed and which have been stocked with rainbow trout. There also are the shallow waters, often of considerable size on which Minnesota's wild rice crop is raised. Lakes differ greatly, with some more productive than others. Information from censused lakes scattered throughout the state shows an average yearly catch of about 32 fish, or 16 pounds per acre of surface water. Lake trout lakes in the northeast have the lowest yield, about 2 pounds per acre per year. Walleye lakes yield about 11 pounds of which 4 pounds are walleyes. The smaller northern pike, bass and panfish lakes yield an average annual catch of 27 pounds. The shallow, fertile lakes in our "corn country" yield about 38 pounds. Some Minnesota lakes have annually yielded as much as 75 pounds of sport fish per acre.

FACILITIES, WATER-BASED ACTIVITIES — Swimming

There are 575 swimming beaches and 117 pools available throughout the state, according to the 1967 survey. The survey shows 728,565 square feet of swimming pool and 15,032,494 square feet of swimming beach occupying 276,452 linear feet of shoreline. When combined, pools and beaches in the Twin City metropolitan area comprised 15 per cent of the state's total.

The inventory recorded the surface area of water and linear feet of beach shoreline for only designated beaches and outdoor swimming pools. It did not include swimming beaches associated with a large number of lakeshore homes (about 80,000) and other privately-owned shoreline swimming beaches.

IV. STANDARDS FOR OUTDOOR RECREATION AND CAPACITY CONVERSION FACTORS

Marion Clawson, the world famous recreation economist, states:

> *"No matter how well an outdoor recreation area is planned and maintained, and no matter how well people behave, there is nonetheless, some limit beyond which recreation use of a given area cannot be increased without direct loss of recreation quality."

It seems almost inescapable that popular areas must have use ceilings established and enforced when the resource is endangered. Once loss of quality begins, deterioration of recreation resource is swift and severe. For example, to calculate the number of recreation trips or activity occasions that a trail might accommodate annually, it is necessary to consider the length of season, capability of the resource, quality of the experience and many other factors.

With such factors in mind, capacity conversion factors were determined for the purpose of interpreting the supply of recreation areas in relation to the demand for their use. This is the key to determining the need, or surplus of recreation opportunities in Minnesota. In determining the capacity conversion factors, an attempt was made to estimate the amount of recreation activity that can be supplied by our present facilities and resources.

An important ingredient of outdoor recreation is quality. One factor affecting quality is the use of an area. In some areas of our state, our basic resources are in danger of being destroyed by over-use from an ever-growing population. A very important factor affecting quality is the number of people a facility can accommodate without detracting from the enjoyment inherent in the area. For example, how many people can a primitive trail support at one time and still retain a wilderness atmosphere? Questions like this must be answered for every facility or resource.

Capacity conversion factors in this Plan were determined for three major areas of the state. The northern and southern areas were divided on the basis of climatic and seasonal considerations. A third area of the state encompasses the seven-county metropolitan area known as Recreation Region 11. Because of the population density and land costs in this urban area, acquisition of additional recreational space will be difficult. It is also inevitable, because of the nature of urban living, that recreation facilities will continue to be heavily used.

Eleven major activities were chosen for disaggregation on an average Sunday. Capacity conversion factors for these activities are presented in this section as well as space standards when appropriate. Space standards only are included for a few activities. All space standards presented here were used for converting facilities to acres in order to determine the deficiencies presented in Chapter 6.

Capacity Conversion factors for additional activities may be found in Chapter 5, Part 3 of this Plan (published separately).

The following major factors were considered in determining the recreation capacity on an average Sunday during the warm weather season:

1. Number of Sundays per season.
2. Daily turnover.
3. Carrying capacity.

Daily Turnover

The turnover factor expresses the number of times a specific unit can be used by various individuals or groups in a day. Studies have shown that a recreation facility such as a picnic table or hiking trail may have several parties utilizing the facility in any one day.

Carrying Capacity

Carrying capacity is the number of people a facility can accommodate without direct loss of recreation quality for the user, or without deteriorating the facility or resource. Each facility has been inventoried in quantitative units of measurement. (The unit of measurement for play space was "acres"; for trails it was "miles" and for camping it was "sites").

Capacity conversion factors must be correlated with design standards in determining the carrying capacity of the site.

Three primary assumptions have been made in establishing the maximum carrying capacity. A recreation area or facility should:

1. Provide a non-congested recreational experience.
2. Restrict the recreational use so as to protect the environment.
3. Be developed in a feasible manner.

In cases applicable to Minnesota, space standards were taken from "Wisconsin Conservation Outdoor Recreation Plan" published in 1968, and from the "Outdoor Recreation Space Standards" published April, 1967 by the Department of Interior, Bureau of Outdoor Recreation.

Weather data was obtained from the following sources:

University of Minnesota—Agriculture Extension Station Technical Bulletin 248, 1965; "Cli-

*Marion Clawson and Jack L. Knetsch; Economics of Outdoor Recreation, the John Hopkins Press, Baltimore, Maryland; 1966; Page 176.

mate of Minnesota, Part III, Temperature and its Application"; by Donald G. Baker and Joseph H. Strub, Jr.

Technical Bulletin 254, 1967; "Climate of Minnesota Part V, Precipitation Facts, Normals and Extremes"; by Donald G. Baker, Donald A. Hanes and Joseph H. Strub, Jr.

The data used to calculate Minnesota's Carrying Capacities is felt to be the most reliable estimate pending further research in this field. "Judgment factors", based on years of observation and experience, often were used to modify the source material.

Listed below are capacity conversion factors and space standards for the major activities that can be measured and compared.

1. **Warm-water Fishing**

Facilities for fishing were inventoried in terms of acres of waters.

Capacity Conversion Factors

Component Factors	North	South	Region 11
Number of Sundays	36	40	40
Daily Turnover	1.6	1.6	1.6
Carrying Capacity ..... (persons per acre)	1/3.6	1/3.6	1/3.6

Space Standard

Each fishing boat requires 8 acres of water. An average of 2.25 persons per boat was used, resulting in 3.6 acres of water per person.

2. **Swimming**

Facilities for swimming were inventoried in terms of square feet of pool or designated beach water surface. Also measured were linear feet of beach shoreline.

Capacity Conversion Factors

Component Factors	North	South	Region 11
Number of Sundays	12.8	14	14
Daily Turnover	2	2	3
Carrying Capacity ..... (persons per sq. ft.)	1/65	1/65	1/38

Space Standard

Pool: Each pool swimmer requires 25 to 30 square feet of water. There are usually two swimmers on the pool deck for every one in the water. The deck area should be three times the water area.

Swimming Beaches: Each beach swimmer requires 50 to 100 square feet of water. There are usually three swimmers on the beach for every single swimmer in the water. For each beach it is desirable to have 10 square feet of supporting area per square foot of swimming water, for sunbathing, picnicking, parking and buffer zone.

3. **Boating**

Facilities for boating were inventoried in two ways—acres of water and number of car parking spaces at public access plus number of marina slips.

Capacity Conversion Factors for Parking Spaces

Component Factors	North	South	Region 11
Number of Sundays	17.1	18.5	18.5
Daily Turnover	1	1	1
Carrying Capacity ..... (persons per boat)	2	2.5	3

Capacity Conversion Factors for Water Acreage

Component Factors	North	South	Region 11
Number of Sundays	17.1	18.5	18.5
Daily Turnover	3	3	3.5
Carrying Capacity ..... (persons per acre)	1/7.5	1/7.5	1/7.5

Space Standard

An average of 15 acres of water is needed for each boat. An average of 2 persons per boat was used, resulting in 7.5 acres of water necessary per person. This figure was used to calculate boating capacity for all regions of the state. In the future it may be desirable and necessary because of heavy use, to use 10 acres per boat as a space standard.

4. **Canoeing**

Canoe trails were inventoried in miles.

Capacity Conversion Factors

Component Factors	North	South	Region 11
Number of Sundays	17.1	40	20
Daily Turnover	1	1	1
Carrying Capacity ..... (persons per mile)	4	8	16

Space Standard

In order to fully enjoy wilderness type canoeing, it was assumed that each party should be out of the sight and sound range of other canoeing parties. To achieve this quality, sufficient distance must be maintained between canoes, depending on the character of the stream. One canoe per half-mile of stream with two persons is recommended for wilderness type canoeing. This amounts to 30 canoes or 60 people using a **15 mile stretch** of river during a day.

In areas where use pressure is more intense and wilderness quality is not high, 60 to 120 canoes may use a 15-mile stretch of river. In the future it may be necessary to calculate capacity for parties of 2 or 3 canoes traveling together. Actually much river canoeing does occur in the form of groups of two to six canoes traveling together.

5. Water Skiing

Facilities for water skiing were inventoried in acres.

Capacity Conversion Factors

Component Factors	North	South	Region 11
Number of Sundays	12.8	14	14
Daily Turnover	1.3	1.3	1.3
Carrying Capacity ..... (Persons per acre)	1/5.7	1/5.7	1/5.7

Space Standard

An average of 20 acres of water is needed for each boat. An average of 3.5 persons occupy a boat making 5.7 acres of water necessary per person. Where possible, 30 to 40 acres per boat would be desirable.

6. Picnicking

Facilities for picnicking were inventoried in terms of number of tables and acres. The capacity was calculated for tables as it is an accurate indication of available facilities.

Capacity Conversion Factors

Component Factors	North	South	Region 11
Number of Sundays	18.6	20	20
Daily Turnover	1.5	1.5	2
Carrying Capacity ..... (persons per table)	4	4	4

Space Standard

Ten tables on each developed acre in Regions 1-10 and 20 tables on each developed acre in Region 11 with the exception of State Park & Highway facilities which will remain at 10 tables per acre. For each developed acre, another 20 acres of undeveloped areas should be provided for a buffer zone, supporting facilities and parking.

7. Camping

The majority of Minnesota campgrounds have facilities accommodating both trailer and tent campers. Areas used exclusively for tents are generally in wilderness or wild areas in the northern regions. The facilities were inventoried in terms of number of campsites and acres of campgrounds. The capacity conversion factor was calculated for sites rather than acres, as this is the most accurate indication of available facilities.

Capacity Conversion Factors

Component Factors	North	South	Region 11
Number of Sundays	18	18	18
Daily Turnover	1	1	1
Carrying Capacity ..... (persons per site)	4	4	4

Space Standard

For quality camping, standards used here provide for no more than six camping units on each developed acre. For each acre of developed land, an average of 20 acres of undeveloped zone is needed for supporting facilities, screens, buffer zone and nature trails.

8. Golf

Facilities for golf were inventoried in terms of number of holes.

Capacity Conversion Factors

Component Factors	North	South	Region 11
Number of Sundays	24	25.7	27.1
Daily Turnover	8	8	10
Carrying Capacity ..... (persons per hole)	4	4	4

Space Standard

For every hole of golf there should be 7-10 acres of supporting area. This area would indicate fairways, roughs, greens and tees. Also included would be parking area service roads, natural area and landscaping.

9. Horse Trails

Facilities for horseback riding were inventoried in miles. **Capacity Conversion Factors**—The deficiency or surplus for this activity was calculated in activity occasions. (See page 87 in Part 3 of the 1968 Minnesota Plan for Capacity Conversion Factors.)

Space Standard

Riders tend to travel in groups of 4 or 5. For a quality ride, no more than two groups should use a mile of trail at any one time. The width of the constructed trail should be 10 feet. For the purpose of this plan an overall width of two rods or 33 feet was used. This converts to four acres of land per mile of trail.

10. Snowmobile Trails

Facilities for snowmobiling were inventoried in miles. **Capacity Conversion Factors** — The deficiency or surplus for this activity was calculated in activity occasions. (See Page 87 in Part 3 of the 1968 Minnesota Plan for Capacity Conversion Factors). Snowmobiling is a new sport in Minnesota. There is limited research data to draw from at this time. However, it appears that eight snowmobiles can use a mile of trail at one time and give a quality experience. Rolling terrain is a desired feature. Available data shows that cross-country trails should be at least 15 miles long. The width of constructed trails should be 10 feet. As with horse trails, the overall width of two rods or 33 feet was used. This converts to four acres of land per mile of trail.

11. Boat Launching—Parking Spaces

Space Standard

For the purpose of this plan, a space standard of 10 parking spaces per acre of land was used.

CHAPTER 5 — OUTDOOR RECREATION DEMAND

I. INTRODUCTION

Recreation demand as defined here is the use created by persons participating in recreation activities. Outdoor recreation demand pertains to activities such as swimming, hiking, canoeing, boating, fishing, and camping, which often relate to natural resources.

There are two basic aspects of recreation demand. The first is a "functional aspect" which denotes a particular cause and effect, or motivation, and results in action, or participation. The second is the "latent demand" for recreation activities. This may be defined as that activity in which people would "like" to participate, given ample opportunity and adequate conditions. Such conditions include socio-economic factors, mobility, availability of the resources, etc. Should any of the conditions change, the latent demand, theoretically, could become functional. The latent demand is not measured in this plan because of the lack of adequate data. It is mentioned as a factor of future demand which may well have need for research and development.

For the purposes of this Plan, a user-demand technique was chosen to sample the amount of participation in 44 selected recreation activities, from July 1, 1966 through June 30, 1967. The details of procedures used may be found in Part 3. Participation rates may be found in Table 23. The per cent of the respondents (ages 6 and above) who took part in any of the 44 outdoor recreation activities is shown in Figures 22 and 23. A comparison of state participation rates with those found in the ORRRC surveys both for the north central states and the entire United States, is shown in Table 23. The amount of participation for each activity was developed into a demand figure in terms of activity occasions (participation in any activity for more than ½ hour in one day). This was then compared with the supply of facilities designed for that activity. The result was the determination of needs, or surplus for resources related to specific activities.

II. DEMAND ANALYSIS

The demand section is divided into two parts; A — Disaggregation* of Recreation Demand, and B — Demand by Activity.

Part A is a disaggregation of the metropolitan and tourist recreation demand. (The Midwest Research Institute did not consider these aspects in the development of the demand data found in Part 3). Tourism is a vital part of the overall economy in Minnesota, and the demand impact made by this element is substantial. Similarly, the metropolitan population, which comprises about half of the total state population, contributes greatly to the overall demand impact by migration into regions having high quality recreation resources. Distribution patterns of metropolitan recreation travel is shown in Figure 24.

Part B — Demand by Activity, relates the supply of facilities for various activities to the demand for each. The activities are arranged in three groups — Group No. 1, activities which could be disaggregated (those that related to facility acquisition and development); Group No. 2, activities that were not disaggregated but could be compared to the supply; Group No. 3, activities that were not disaggregated and could not be compared to the supply. This same grouping is followed in Chapter 6, Needs.

The recreation activities disaggregated in Part B. (Group No. 1) are those which relate to natural resources, and which have broad implications regarding land and water management aspects. The disaggregated activities are: boating, canoeing, fishing, swimming, waterskiing, camping, golfing, hunting and picnicking.

Group 2 will supplement the data presented by the Midwest Research Institute in Volume 3. This group deals with biking, horseback riding, nature walking, playing outdoor games (including tennis), and snowmobiling. It will be noted that some of the activities have less application in Minnesota because of limited resources. These will be dealt with on a limited basis. However, a comparison with supply will be made, as appropriate.

Group 3 deals with activities which do not lend themselves to a comparison with the supply. Although many of the activities have direct application to leisure pursuits of Minnesota citizens and visitors, no measure of supply is available at this time. (The information in this part also supplements Part 3 of the Plan.) The activities include sailing, attending outdoor plays and concerts, bird watching, driving for pleasure and sightseeing, hiking with gear, mountain climbing, nature photography, viewing outdoor games, visiting zoos, walking for pleasure, wild berry picking, ice sailing, trap and target shooting, ice skating and hockey, snow skiing and snowshoeing, sledding and tobogganing, flying for pleasure, and sky diving.

The following activities were included in the Midwest Research Institute survey but have been deemed insignificant for inclusion in this portion of the Plan: model plane and kite flying, relaxing outdoors, gardening for pleasure, and sailplane gliding.

*Disaggregation means the distribution of resident metropolitan and tourist population participating in recreational activities outside the metropolitan region.

FIGURE 22

PARTICIPATION IN RESOURCE ORIENTED ACTIVITIES

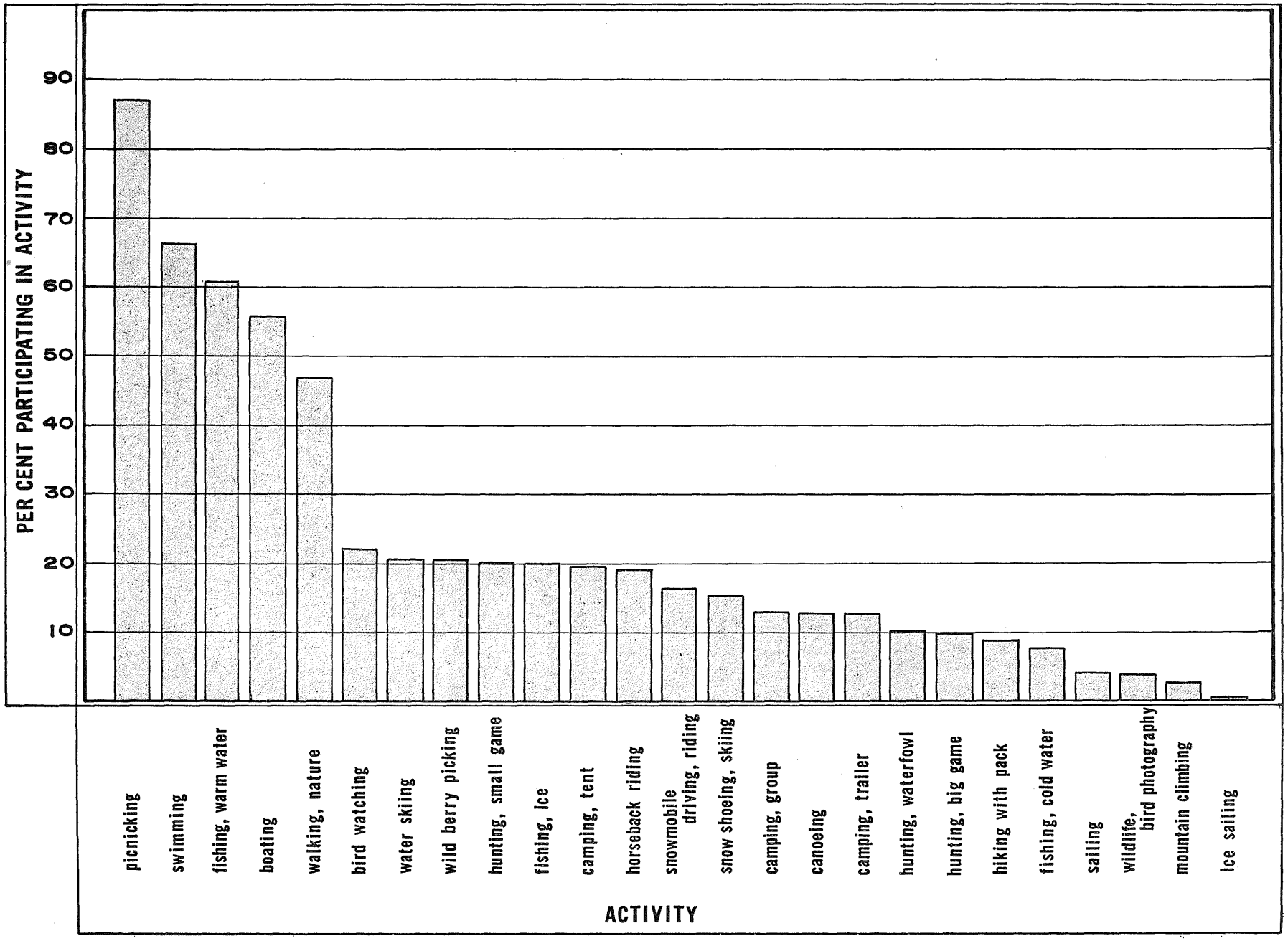
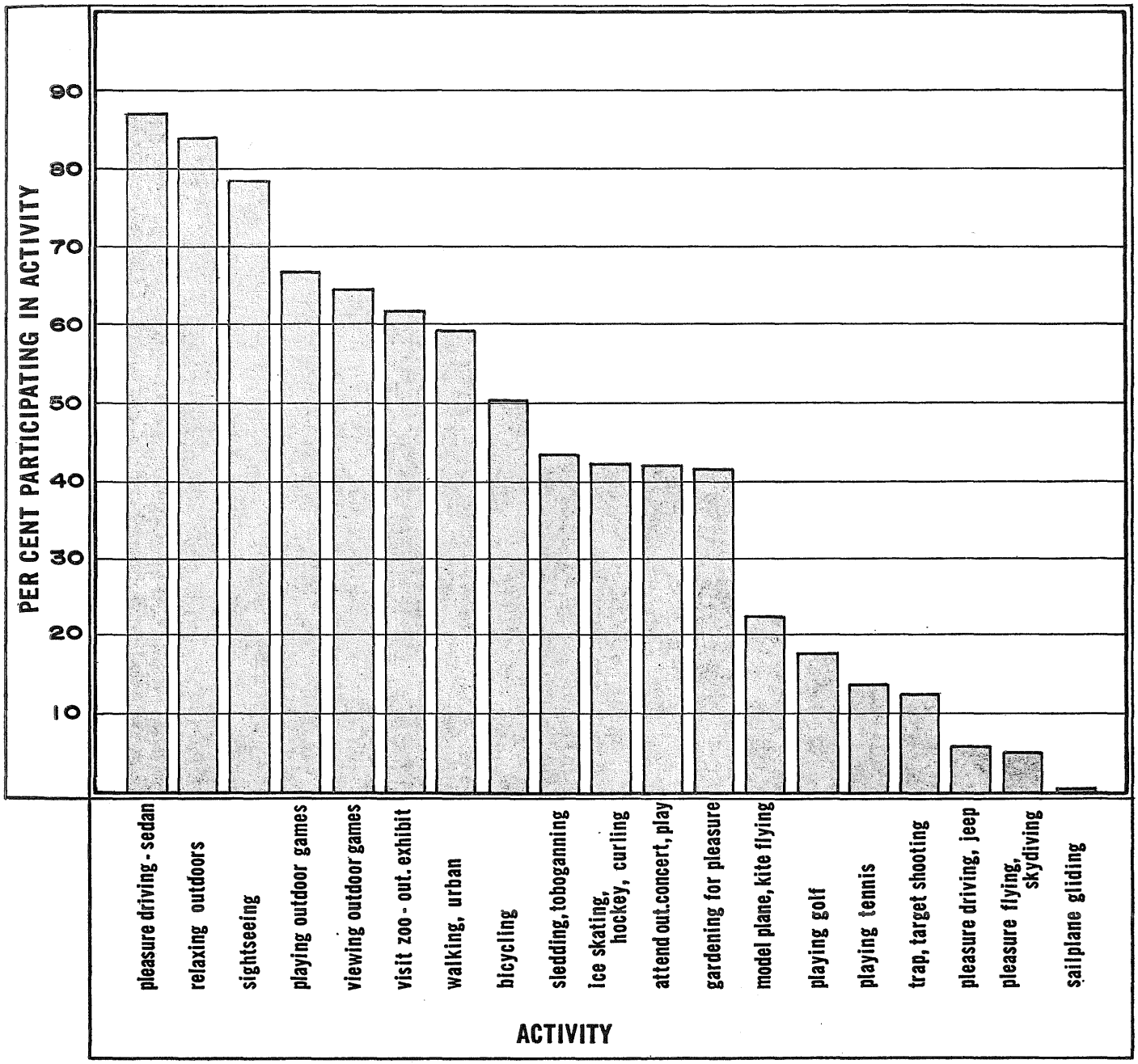


FIGURE 23

PARTICIPATION IN

NON RESOURCE ORIENTED ACTIVITIES



The charts and tables in this Chapter represent a numerical indication of demand for the years 1967, 1975, 1980, and 1985.

Many aspects of demand must be considered when determining demand projections. Such things as the economy of the nation and state, mobility of the population, future leisure patterns, the amount of available leisure time and the very complex relationships of man to his environment must be taken into consideration in any demand projection. The Midwest Research Institute utilized a number of these factors when they determined that by 1975, recreation activity per capita would increase by 140 per cent over 1967. By 1985, recreation activity per person in Minnesota should increase 175 per cent over that of 1967.

The predicted corresponding rate of increase for the Minnesota population, using 1967 as a base year, will be 9.4 per cent for 1975, 16.8 per cent for 1980, and a 32.5 per cent increase for 1985 over 1967. The indication is that the recreation activity will increase at a much faster rate than the population.

The data presented here refers to general demand for particular recreation activities on an average Sunday, during the normal season in which they occur. Even with the most advanced techniques, data and skills, such figures are no more than general estimates of what **may** happen. Thus, the indications of deficiencies or surplus for various recreation resources, as presented here, must be analyzed with this in mind. Adjust-

Table 23

PARTICIPATION RATE
(Per Capita)

Activity	Adults	Sub-Adults	Minn. '67 Weighted	North Central[2]	United States[2]
Coldwater Fishing	0.54	0.47	.503	—	—
Warmwater Fishing	7.26	7.41	7.297	4.01	4.19
Swimming[1]	6.26	37.90	15.721	5.34	6.47
Water Skiing	0.99	3.58	1.764	.27	.41
Canoeing	0.49	1.07	.663	—	—
Sailing	0.18	0.29	.213	—	—
Boating[1]	6.66	9.48	3.299	2.21	1.95
Waterfowl Hunting	0.61	0.38	.541	—	—
Bicycling[1]	4.91	108.94	36.036	4.98	5.15
Horseback Riding[1]	0.35	1.85	.798	1.08	1.25
Hiking with Gear	0.15	0.82	.350	.35	.43
Walking for Pleasure[1]	24.03	42.24	9.543	16.08	17.73
Bird Watching	21.96	10.42	18.483	—	—
Wildlife Photography	0.59	0.45	.547	—	—
Playing Outdoor Games[1]	11.00	101.36	38.028	11.68	12.71
Viewing Outdoor Games[1]	7.23	13.54	9.110	3.61	3.75
Attend. Concert, Plays	1.61	1.92	1.701	.34	.18
Playing Golf[1]	3.61	2.00	3.124	—	—
Playing Tennis	0.57	2.94	1.279	—	—
Mountain Climbing	0.08	0.08	.080	—	—
Picnicking[1]	11.29	14.19	12.145	3.64	3.53
Trailer Camping	1.48	1.69	—	—	—
Tent Camping	0.87	1.99	—	—	—
Total Camping	(2.35)	(3.68)	2.745	.65	.86
Group Camping	0.22	1.19	.510	—	—
Sightseeing	22.00	19.89	21.344	6.46	5.91
Driving for Pleasure	41.24	34.50	39.178	21.32	20.73
Driving (four-wheel)	1.05	3.11	1.655	—	—
Trap and Target Shoot	0.76	0.79	.768	—	—
Small Game Hunting	1.15	1.32	1.120	—	—
Big Game Hunting	0.75	0.24	.596	1.73	1.86
Visiting Zoo Exhibits	2.64	2.93	2.724	—	—
Wild Berry Picking	0.71	0.86	.754	—	—
Nature Walking	7.33	10.25	8.196	2.42	2.70
Snow Skiing, Snowshoe	0.45	2.36	1.021	—	—
Sledding, Tobogganing	1.84	23.70	8.380	.46	.51
Snowmobiling	1.62	2.61	1.914	—	—
Ice Skating, Hockey	1.39	20.55	7.122	.99	.55
Ice Fishing	1.70	1.05	1.504	—	—
Ice Sailing	0.00	0.02	.006	—	—
Flying for Pleasure	0.41	0.12	.323	—	—
Sailplane Gliding	0.00	0.01	.003	—	—
Model Plane and Kite Flying	0.38	1.99	.861	—	—
Relaxing Outdoors	67.42	63.62	66.209	—	—
Gardening for Pleasure	25.63	4.20	19.189	—	—
	291.41	560.32	347.347	87.62	90.87

[1]Adjusted (see Addendum to Participation Rates).
[2]O.R.R.R.C.—1962.

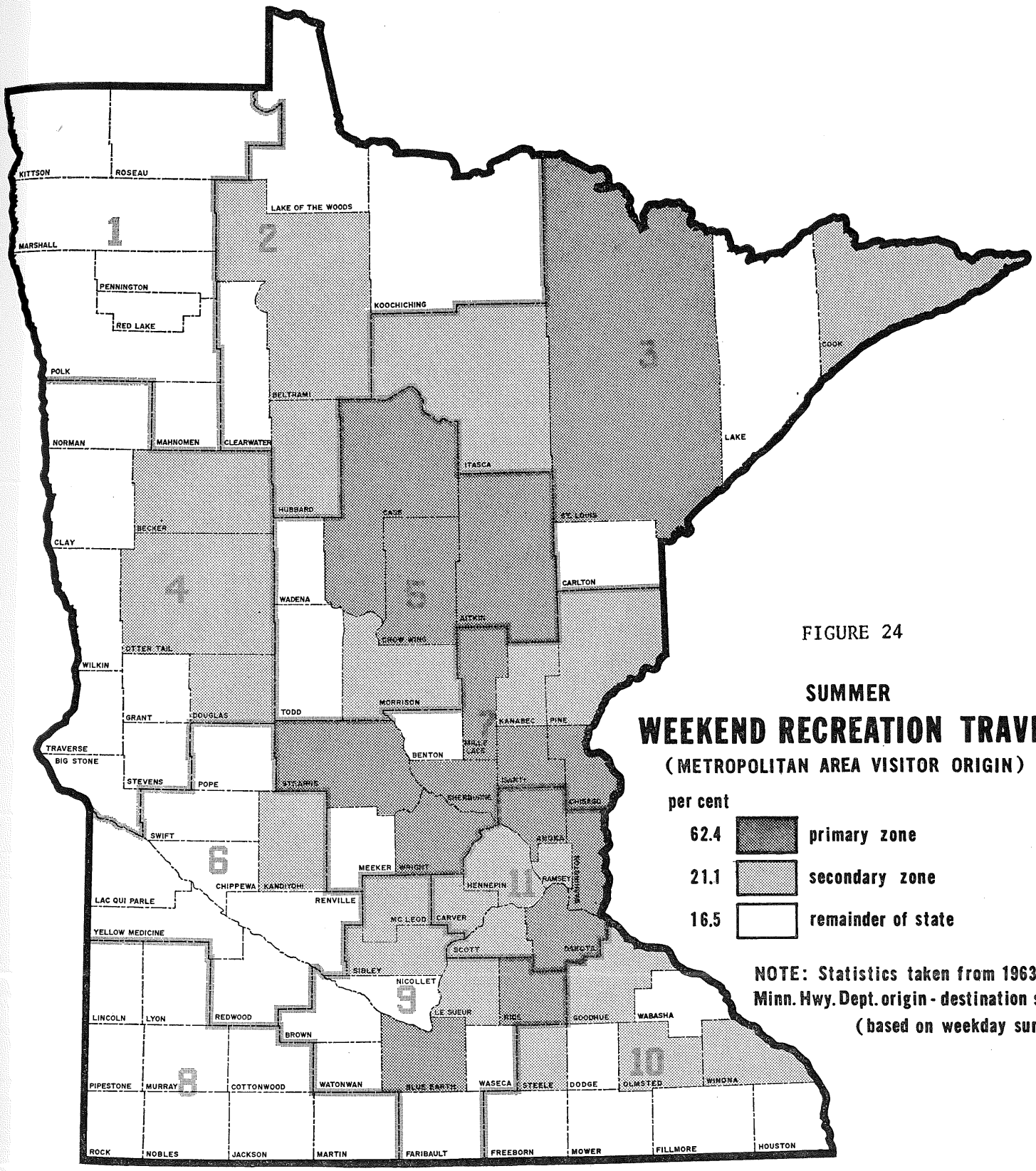


FIGURE 24

SUMMER

WEEKEND RECREATION TRAVE

(METROPOLITAN AREA VISITOR ORIGIN)

per cent

62.4 primary zone

21.1 secondary zone

16.5 remainder of state

NOTE: Statistics taken from 1963
Minn. Hwy. Dept. origin - destination s
(based on weekday sur

ments will be made with the availability of information.

A great deal of study and refinement of techniques and data is necessary before any agency can provide accurate forecasts. With this in mind, it is important that most recreation planning generally be short range, rather than long range, spanning 20 years or more. However, long term planning is also very necessary if we are to preserve resources for future recreation.

PART A — Disaggregation of Recreation Demand

Minnesota is an unusual state in that half of the total population is in Region 11, the seven-county Twin Cities Metropolitan Area. The outdoor recreation resources of the area are limited and the population tends to participate in its outdoor recreation activities outside of the metropolitan area. This, coupled with the fact that the tourist industry is the fourth largest industry in the state and is dispersed throughout the primary resource areas, creates a significant component of demand which must be considered.

For the above reason there were three major components which will be considered in estimating recreation demand in Minnesota: 1) the demands of the regional, or local population; 2) the demand produced by people from the Twin Cities Metropolitan Region, migrating into the various regions for recreational pursuits; and 3) the non-resident tourist demand distributed to the Regions.

The Midwest Research Institute study did not fully take into consideration the demand of the non-resident tourist or the demand of the metropolitan people who travel out of the metropolitan area for recreational pleasure. The data of MRI concentrated on the regional population demand. It was necessary, therefore, to make a determination of a volume of the out-migrating metropolitan and in-migrating tourist recreation demand and to pinpoint where such travel patterns took people for their recreation pursuits.

Summer activities chosen for disaggregation were boating, swimming, waterskiing, canoeing, fishing, camping, picnicking, and golf.

These activities also represent major recreation pursuits for which the study respondents indicated a willingness to travel.

For the fall season, big game hunting, small game hunting, and waterfowl hunting were chosen for metropolitan disaggregation. The tourist influx for these activities was not possible to measure because of a lack of adequate data. (The sale of non-resident hunting licenses indicates that this segment of hunters is relatively small.)

No winter or spring season activities were disaggregated because of a lack of adequate disaggregation data. Additional studies may be necessary to determine the feasibility of disaggregating other activities for all seasons.

It should be particularly noted that the disaggregation of Minnesota recreation demand is centered on the metropolitan Region 11 and the tourist aspects, and does not consider the disaggregation of the other regions. Time did not permit the extent of refinement necessary to accomplish the additional study.

Future studies should take into consideration the total travel patterns between all regions so that disaggregations of the total state recreation demand can be made.

Methodology

It is not the intent of this portion of the Demand Chapter to provide a detailed analysis of the methods used in the disaggregation of the metropolitan and tourist recreation demand. More detail may be found in the supplementary reports. However, a brief resume of the basic approach and data is in order.

Four primary sources of information were used to disaggregate the metropolitan and tourist recreation demand — the Minnesota Highway Department's 1966 Origin and Destination Study (O and D study) supplemented by car count data; the 1966 Minnesota State-wide Traveler Survey; Midwest Research Institute data concerning activity rates; and the Metropolitan Council's estimates of the per cent of total recreation activity to be allocated to the Metropolitan Area.

The **O and D study** provided information for determining the number and destination of metropolitan residents leaving the metropolitan area on an average summer weekend day. The data indicated that approximately 258,000 persons leave the metro-area on an average summer weekend day for recreation pursuits outside of the area. Of this number, 67,120 seek their recreation pleasures outside of the state of Minnesota, while 191,000 are destined for points in Minnesota.

The distribution pattern of the metropolitan population staying in the state was determined and provided destination data by township and county. This resulted in a calculated percentage of the metro-recreational population impact that applied to each Region.

The same data source, based on more than 450,000 contacts and procedures, was used to determine the tourist influx and its distribution.

The 1966 Minnesota State-wide Traveler Survey was developed by the Research Division of the Minnesota Department of Economic Development to provide some basic data regarding traveler expenditure, activities, trip purposes, lodging preferences, and other similar data. One-page questionnaires were distributed from the contact points used in the O and D study. Of over 40,000 questionnaires distributed there were about 17,000 usable responses to this survey. Fifty-four per

cent of the respondents were Minnesota residents. The information gathered from this study, together with the Highway Department Origin and Destination data, was used to disaggregate the state-wide camping demand.

The demand on an average summer Sunday for each of the eight activities was determined using per capita participation rates established by the Midwest Research Institute and the average per cent occurring on weekend days.

A weighted activity rate for each region was established and utilized in a factor which represented the amount of recreation activity occurring on the average Summer Sunday.

By determining the average Sunday demand and weighing it against the available supply, an estimation of the deficit or surplus of recreation resources may be made. The result is a determination of resource capability to meet the demand according to the established quality standards. Formulas for this process are as follows:

A — Total activity occasions/per activity/per region/ on average weekend day.

S — Standards of use measurement (design capacity)

T — Turnover rate

D — Demand — Average summer Sunday

R — Resource

$$\frac{A}{T \times S} = D$$

Then: R — D = Deficiency or Surplus

By comparing the demand for each activity during an average summer Sunday with the supply available for each activity, the deficit or surplus of the supply was determined. Thus, the resource (R) minus the Instant — average summer Sunday (D) for an average weekend day (R — D) equals the deficit (—) or surplus (+) for the disaggregated recreation activities, in 1967.

Projections for future regional demand were made by using the projected population estimates and the per cent of increase in activities as established by Midwest Research Institute.

The percentages of increase are as follows:

1975 — 140 per cent over 1967.

1980 — 160 per cent over 1967.

1985 — 175 per cent over 1967.

(These multipliers are exclusive of population changes and reflect other factors such as mobility, leisure time, availability, income, etc.)

DEMAND ASSUMPTIONS:

A. The demand for recreation activities and facilities, on an average summer Sunday, is a valid indicator of an average demand and a reasonable estimate upon which to develop needs, indicating deficiencies (—), or surpluses (+) for areas and facilities related to the most popular seasonal recreation activities.

B. Thirty per cent of the total week's recreation activity occurs on an average Sunday (see Appendix).

C. In Regions 1 through 10 the local demand for all of the 44 listed recreation activities is met within the region.

D. Much of the camping, hiking, fishing, boating, and other activities which require large land and water resources engaged in by metropolitan residents occurs outside of the metropolitan area. As a result, the portion of the metropolitan population seeking recreation activity outside of the metropolitan area has a major impact on recreation resources outside of the metro-area. (The portion of the metropolitan population leaving the metro-area for recreation purposes on an average Sunday is called the metro-exodus population.)

E. Participation rates for the metro-exodus population are the same regardless of where they recreate.

F. The per cent of people who participate in recreation activities in the metro-area is directly proportionate to the amount of resources available.

G. The tourist influx population recreates at the same rate as the metropolitan residents — regardless of where they recreate in Minnesota.

H. The Minnesota Highway Department's 1966 Origin and Destination Study, and the 1966 Minnesota Tourist Survey (a companion study to the Origin and Destination Study) provide valid data in the determination of recreation travel patterns, volume and objectives for tourists and the metropolitan exodus population, on an average Sunday as well as for an average weekday.

I. The Midwest Research Institute data, regarding population increases, per cent of recreation activity increase projections, and the per capita activity rates (both adjusted and unadjusted) is valid and within the guaranteed limits of error (see Part 3, "Minnesota Outdoor Recreation Plan").

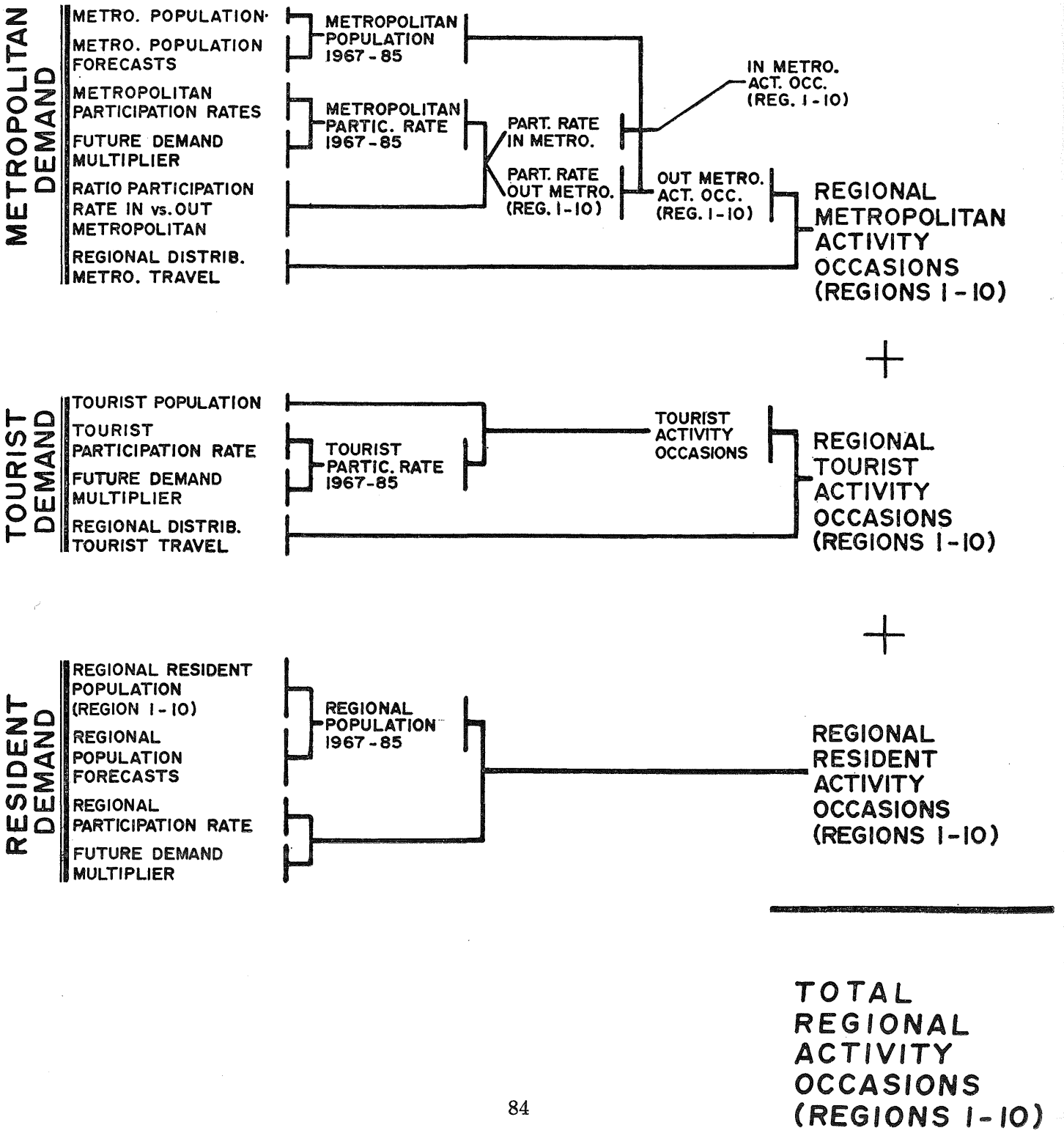
J. The Regional inventory of supply, though not complete, is sufficient to provide the basic data necessary for a reasonable determination of regional deficiencies or surpluses to meet regional demand.

K. The quality standards used (persons per acre; tables per acre; turnover rates, etc.) are reasonable and established according to high quality standards.

L. All camping sites, regardless of location, were deemed suitable for both tents and trailers.

FLOW CHART

METROPOLITAN AND TOURIST DEMAND DISAGGREGATION AND COMPUTATION OF REGIONAL DEMAND



M. The quality of Minnesota waters will be suitable to meet the demand projected for the years 1975, 1980, and 1985.

N. Minnesota recreation interests will remain constant for the projected years.

PART B — Demand and Deficiencies by Activity

This part of the Demand Chapter relates the supply of facilities for various activities to the average seasonal Sunday demand for each. The activities are arranged into three groups — Group Number 1, activities which have been disaggregated; Group Number 2, activities that were not disaggregated, but which could be compared to the supply; Group 3, activities that were not disaggregated and where it was not possible to compare the activity supply to the demand.

In the process of developing this Plan, it became apparent that because of insufficient data, the indicated quantitative deficiencies would not represent true needs. This was due, in part, to the lack of a complete inventory, insufficient information for a complete allocation of demand, and a lack of data regarding adequate capacities and design standards. Because of the apparent imbalance in deficiencies, some adjustments were necessary. These were made when other sources of information were judged to provide adequate cross-check data regarding regional data.

The Minnesota Outdoor Recreation Plan is based on a regional collection of data pertaining to the supply of facilities and demand for outdoor recreation activities. To follow this regional concept, the existing and future needs by type of facility are presented, for each of the 11 regions, for those activities in which such needs were expressed in terms of land and water.

Although needs are projected for 1975, 1980, and 1985 adjustments were made for the year 1980. This was because the action program of the plan was based on 1980 data and because projections beyond this time were considered to be somewhat unreliable in terms of the complexity and rate of changes experienced by our society.

It was thought that future studies and updating of the plan would provide new data upon which more accurate projection beyond 1980 might be made.

Adjustment determinations can be illustrated using canoeing as an example. The need indicated for canoeing assumed that all canoeing was done on inventoried canoe routes such as those found in the Boundary Waters Canoe Area. However, no determination was made of the proportion of canoeing done on lakes or non-inventoried streams. An adjustment must be made, therefore, to indicate these elements and their impact in the determination of canoeing needs. An excessive deficiency of canoeing streams may indicate canoeing activity on streams and lakes not presently accommodated on a developed canoe trail system.

The needs tables are shown in two forms. The first is an indication of the **unadjusted** data for the years 1967, 1975, 1980, 1985, before consideration is given to the factors of adjustment. The second table shows the **adjusted** needs, indicating the deficits (—) or surpluses (+) after the adjustment factors have been considered and applied. It is the adjusted figure upon which the Minnesota Outdoor Plan is developed.

GROUP NUMBER 1 — Disaggregated Activities

Water-Based

Boating
Canoeing
Fishing — warm water, cold-water and ice
Swimming
Water-skiing

Land-Based

Camping
Golf
Hunting — small game, big game, waterfowl
Picnicking

WATER-BASED ACTIVITIES — Boating

Boating activity as measured in this study is defined as driving or riding in boats for pleasure for at least one-half hour. Boating activity does not include water skiing, sailing, or canoeing, as these activities are considered special types of water uses and have been measured separately. However, it does include water travel to fishing areas, if the travel was one-half hour or longer.

Boating ranks fourth in the per cent of population participation, with an average of 56 per cent of Minnesota's people engaging in this activity. Of the adult population, 52 per cent participated in a boating activity while 60.9 per cent of the sub-adults participated in boating activity. The state average boating activity rates, according to the Midwest Research Institute, are 6 activity occasions per capita for adults and 8.6* activity occasions per capita for sub-adults. The Sunday regional demand of 223,585 occasions, and the Sunday tourist demand of 12,285 activity occasions, plus the metropolitan exodus demand of 138,086 activity occasions constitutes a total of 373,956 activity occasions for Minnesota boating demand on an average summer Sunday.

Projections of the boating demand indicate that Minnesota may expect a demand pressure of 578,742 activity occasions by 1975. By 1980 the Sunday activity occasion should be 890,371 and by 1985 the figure may reach 904,183.

*Adjusted rate

National surveys[1] indicate that in 1960, only nine per cent of the population participated in boating activities. By 1965, participation had increased to 16 per cent. Projections of boating activity indicate that by 1980, the demand will have increased 76 per cent over 1965. By the year 2000 boating demand is expected to have increased 215 per cent over 1965.

Boating demand was measured in two ways. The first was a calculation of demand to provide an indication of the availability of access to the water resources in the state. This was done by a determination of the demand for car-boat trailer parking spaces and marina slips, on an average summer Sunday. The second measurement compared boating needs in terms of water space, with water surface available.

In determining the demand for marina slips and parking spaces a calculation was made of the per cent of public versus private launchings occurring in each Region based on number of seasonal homes. This was derived from information supplied in Report Number 1 of the Minnesota Outdoor Recreation Resources Commission (MORRC), 1967. The per cent of launchings estimated to occur at public access sites was established according to broad regional areas as follows: North (Regions 1 through 5) 39 per cent; South (Regions 6 through 10) 37 per cent; and the Metropolitan (Region 11) 56 per cent. The rest of the demand for boating was attributed to launchings from private beaches, non-designated access points and resorts. The deficiencies found are indicated in Table 25.

Table 24 indicates surplus or deficiency for water surface acreage in Minnesota to meet the anticipated demand for boating in the years 1967, 1975, 1980, and 1985.

This table reveals water acreage deficiencies in some Regions as early as 1967. This deficiency is not found in the state overall total needs through 1980. It is an apparent reflection of misallocation of the demand since the availability of water for boating was not considered in allocating the metro and tourist demand for this activity. Even in the case of the deficiency shown for 1985, it is possible to meet the acreage requirement in lakes less than 150 acres in size, which were excluded from the supply. No determination of boating capacities of major rivers was made, but some of the deficiency will be met here.

In some regions new improvements designed and operated for recreational use may also help meet the need.

The deficiency of parking spaces was adjusted downward in Regions 1, 3, 4, 5, 6, 7, 9, 10, and 11 as shown in Table 26. This was necessary in the Regions where it was felt that the deficiency should be comparable to the increase in the demand for the period 1967-1980, thus discounting deficiencies indicated already for 1967.

In Region One there is a shortage of lakes eligible for public access. Regarding Region 11, the 1967 survey indicated about 50 per cent of the capacity was included in marinas and on this basis the deficiency to be met by access was reduced 50 per cent.

WATER-BASED ACTIVITIES — Canoeing

Canoeing is an important recreation activity in Minnesota. With a historical heritage rich in lore of the famed Voyageurs and Indians who made their way across the state in primitive canoes, the state comes by its canoeing interest naturally. Minnesota's Boundary Waters Canoe Area is internationally known and is a major attraction in the outdoor recreation resources of the nation. Much of the interest in the state's recreation and wilderness canoe travel is centered around this famous area.

There are two types of canoeing in Minnesota: lake, and stream canoeing. Much of the ca-

[1] Trends in Outdoor Rec., Dept. of the Interior, Bureau of Outdoor Rec., 1968.

Table 24

Deficiency (−) or Surplus (+) of

SURFACE WATERS TO MEET BOATING DEMANDS FOR 1967, 1975, 1980 AND 1985 BY REGION BOATING (Acres of Water)

Region	1967	1975	1980	1985
1	+ 12,206	− 1,109	− 7,692	− 6,137
2	+706,949	+691,261	+682,639	+671,739
3	+225,245	+150,032	+107,892	− 12,988
4	+157,482	+120,257	+ 99,822	+ 62,015
5	+327,236	+271,028	+235,986	+197,903
6	+ 10,260	− 5,673	− 13,853	− 22,224
7	− 44,297	−172,847	−250,507	−339,997
8	− 10,972	− 24,229	− 31,992	− 41,004
9	− 60,403	−106,233	−136,203	−178,013
10	− 8,363	− 69,102	−105,326	−161,648
11	+ 15,066	− 47,924	− 88,688	−140,108
Total	+1,329,909	+805,264	+492,078	+ 29,538

Table 25

BOAT PARKING SPACES AND MARINA SLIPS
Unadjusted—Needs by Region

Region	1967	1975	1980	1985
1	− 1,496	− 2,514	− 3,027	− 2,906
2	− 119	− 1,143	− 1,809	− 2,666
3	− 6,729	−11,992	−15,271	− 24,708
4	− 3,082	− 5,934	− 7,528	− 10,477
5	− 1,849	− 5,757	− 8,442	− 11,412
6	− 11	− 824	− 1,310	− 1,809
7	− 5,664	−13,090	−17,687	− 22,984
8	− 476	− 1,241	− 1,701	− 2,234
9	− 2,041	− 4,632	− 6,403	− 8,881
10	− 1,540	− 4,369	− 6,513	− 9,848
11	− 1,865	− 7,858	−12,122	− 17,508
Total	−24,872	−59,354	−84,529	−115,433

Table 26

1980 ADJUSTED PARKING SPACES AND MARINA SLIPS—NEEDS BY REGION

Region	1	2	3	4	5	6	7	8	9	10	11	Total
Unadjusted	−3,027	−1,809	−15,271	−7,528	−8,442	−1,310	−17,687	−1,701	−9,119	−6,513	−12,122	−84,529
Adjusted	− 700	−1,800	− 5,000	−3,100	−5,000	−1,150	− 6,500	−1,700	−2,400	−6,000	− 6,000	−39,350

noeing activity is **lake canoeing** with participation by cottage owners, campers, and others. The Metropolitan Area has a good share of the canoeing activity through the availability of rentals on many metropolitan lakes. Lake canoeing is also a major part of the canoeing experience in the Boundary Waters Canoe Area, where one may travel from lake to lake through interconnecting waterways and portages.

More than 4,000 miles of river trails exist in the state, but the utilization of these trails is just beginning to develop. (Along the St. Croix, and some of the better streams, canoeing is popular and canoes are available for rent.) The Conservation Department and many local interest groups are beginning to promote river and stream canoeing as an economic-recreation boost. It is anticipated that with the additional promotion, greater interest may be generated for this type of activity.

Total state-wide adult participation in canoeing activity is 0.5 per capita. Sub-adults participated at a per capita rate of 1.1 times. Only 6.6 per cent of Minnesota's adults canoed, while 21 per cent of the children (6-19 yrs.) participated in this activity. (The state average per cent of participation for all children is 12.7 per cent.)

Demand for canoeing in Minnesota on an average summer Sunday totaled 32,739 activity occasions for 1967. This included 11,273 occasions for the metropolitan exodus population, 1,209 occasions for tourists, and 20,257 occasions attributed to the local, regional residents.

Projections of the demand indicate a potential for canoeing to 51,898 occasions for 1975, 61,902 occasions for 1980, and 81,719 activity occasions on an average Sunday in 1985.

National studies indicate that only two per cent of the nation's population was engaged in canoeing activities in 1960. By 1965, four per cent of the population canoed, an increase of 115 per cent. Nationally, canoeing activity for the years 1980 and 2000 was not projected as being one of the 16 most popular activities. However, canoeing demand projections will closely approximate those of other activities of a similar orientation, such as boating. Thus, nationally, canoeing should show about a 99 per cent change from 1960 to 1980 and approximately 250 per cent of change from 1980 to 2000, with more than 16.8 million canoeing occasions.

Because of the limited supply of canoeable streams, it must be assumed that the deficiency in streams is probably being met by lakes, ponds and smaller streams. It will be assumed that the future deficiencies indicated in Table 27 will be similarly met on other waters if the quality established

Table 27

DEFICIENCY (−) OR SURPLUS (+) IN MILES OF CANOE STREAMS TO MEET CANOEING DEMAND FOR 1967, 1975, 1980, AND 1985 BY REGION

Region	1967	1975	1980	1985
1	+ 91	+ 47	+ 21	+ 5
2	− 88	− 226	− 301	− 562
3	− 43	− 738	− 671	−2,285
4	− 232	− 445	− 570	− 706
5	− 211	− 610	− 866	−1,181
6	+ 6	− 53	− 88	− 118
7	− 301	− 827	−1,157	−1,528
8	− 37	− 106	− 145	− 188
9	− 144	− 344	− 474	− 645
10	− 12	− 231	− 364	− 565
11	− 94	− 386	− 569	− 821
Total	−1,065	−3,919	−5,184	−8,594

here is to be maintained. Development of the existing canoe stream will be necessary to handle the capacity as assigned here, and in such a way as to insure the preservation of the resource.

The total deficiency for canoeing was expected to be cared for within each respective Region on existing waters.

As an example, in Region 3 the surplus was measured in miles of canoe route. In these cases there are a large number of lakes which can accommodate at least twice as many canoes as a river.

WATER-BASED ACTIVITIES — Fishing (includes warm-water, cold-water, and ice fishing)

Two major categories of fishing were considered in the demand study — cold-water and warm-water fishing. The former consists of the salmonid or trout fishing and the latter of fishing for other species such as northern pike, walleye, bass, panfish, and others. Most of the former type is provided by the cold, deep lakes in the extreme northeastern portion of the state, and spring-fed streams scattered throughout Minnesota. Warm-water fishing is provided in every region of the state, with the most generous distribution of lakes being in the central and northern regions.

Fishing occurs the year around in spite of the cold winters and ice cover. On an annual basis, warm-water fishing ranks as the most popular of the resource-oriented weekend outdoor recreation activities. Except for driving for pleasure and sightseeing (non-resource oriented) this sport's popularity was found to be similar in all 11 regions of the state. Of the sample in the survey, the following were the percentages participating in the various types of fishing:*

Per Cent of Sample Participating

Activity	Adults[1]	Sub-Adults[2]	Total
Cold-water Fishing	7.5	7.7	7.5
*Warm-water Fishing	51.0	72.8	60.7
Ice Fishing	18.1	22.3	19.8

[1]20 years and older.
[2]6-19 years.
*Of the most popular vacation activities, warm-water fishing ranks second behind sightseeing if all persons sampled are considered.

In Part 3 (Tables 33, 34, and 35) the activities are ranked by popularity for husbands, wives, and sub-adults. Here warm-water fishing ranks second with the husbands, fourth with the wives, and third with the sub-adults.

Spatial Needs for Fishing

In certain Regions there are instances where the carrying capacity of water was insufficient to support the fishing demand expected by 1980.

Although the needs call for additional waters, it was apparent that the resources in the case of fishing were limited to what is actually present and which, except for limited development of reservoirs, cannot be enlarged except through more intensive management. Because of the limited capabilities of our more northern resources and the fragile wilderness, it will be necessary to adopt a policy of maintaining the present needs and providing for the deficiencies in other regions where the resources are capable of such management.

Participation in fishing was matched with the acreage of water available for that purpose for both cold-water and warm-water fishing. According to the demand survey, the greatest demands are likely to occur in Region 7 (East Central) followed by Regions 3, 5, 9, and 11 in that order.

When activity occasions are related to water acreage requirements on a state-wide basis (using the design standards of 8 acres of surface water per boat, 2 persons per boat and a turnover of 1.6) a total of 397,497 surface acres would be required at any one time on an average Sunday. This is well within supply of approximately 2,600,000 acres of surface water available for fishing as well as boating, water skiing, swimming, sailing and other surface water activities.

The data relates to spatial requirements only and does not treat the need for the maintenance of the fishery stocks to maintain quality fishing. The latter needs are dependent on management of the fisheries through stocking, fish controls, maintenance of natural spawning and resting areas, fishing regulations and similar programs.

Due to the fact that the resources available for fishing were not considered in the Regional allocation of the demand, it is quite probable that the small deficiencies indicated are being met by waters in adjacent Regions.

Particular emphasis is needed to implement controls over incompatible shoreline development in areas essential for perpetuation of sport fish species. Likewise, sound use of environmental controls to curtail pollution, maintain water levels, etc., must be considered as necessary to preserve fishing quality.

Table 28 lists the spatial deficiency or surpluses for fishing acreage for 1967, 1975, 1980 and 1985, by Region.

Resource Needs for Cold-Water Fishing Waters

With respect to cold-water trout fishing, 7.6 per cent of the population took part in 1,602,047 fishing trips during the period of survey. Since no determination was made as to the number of these trips which were outside the state, it must be assumed that a portion of this did occur in Canada or in neighboring states.

With an estimated 122,000 acres of trout lakes and about 2,048 miles of trout stream, it is apparent that this resource is limited. In this survey, carrying capacities of one fishing trip per acre in

the northeast (Region 3) to 20 per acre in the remainder of the state were used. For the 2,048 miles of stream considered, carrying capacities of 100 to 1000 trips per mile were used to compare the supply with the demand.

The comparison of lake and stream water for cold-water fishing with demand in terms of fishing trips shows deficiency of 59,637 acres of lakes and 821 miles of streams, if we are to meet the existing resident demand within the state. By 1985 this need will have expanded nearly five times. (The following Table shows these needs by year.)

trout fishing, and will not be acceptable to the ardent trout fisherman. New developments in coho salmon and rainbow trout introductions into Lake Superior and its tributaries probably hold the most promise in meeting new demands of this sport.

It is not recommended that increases be made in productivity of the more sterile, pristine lakes of the border country in order to produce more fish. Here preservation of the natural, high quality waters will be of a greater value since this area is fragile and the unique landscape is of national importance.

Needs (−) or Surplus (+) Waters for Fishing (Minnesota Residents)

Activity	1967	1975	1980	1985
Cold-water Acres (Lakes)	− 59,637	−110,989	−154,561	−294,056
Cold-water Miles of Streams	− 821	− 1,522	− 2,113	− 3,934
Warm-water Acres of Lakes	1,298,059	844,179	495,011	240,040

Additional data on participation and demand projections will be found in Part 3 and Appendix I.

It is quite evident that the number of lakes capable of supporting trout fishing is now limited and in fact may be decreasing as certain lakes undergo "natural aging" and lose their trout production capacity. Demands in excess of that now accomodated will need to be met in one or more of the following ways:

1. Additional intensive management of reclaimed trout lakes.

2. Accepting fishing for other species in other lakes.

3. Successful introduction of salmonids into Lake Superior and tributaries.

Such intensive management as would be needed to raise production of trout waters is limited to smaller lakes and will not provide any large relief. Warm-water fishing is not a true substitute for

Resource Needs for Warm-Water Fishing Waters

In the 1967 survey, 61 per cent of the sample (51 per cent of adults 20 years and older and 73 per cent of sub-adults 6-19 years) stated that they fished at least one-half hour the previous year. According to participation rates given, an estimated 22,463,000 fishing trips were made for open water fishing.

An additional 4,623,000 fishing trips were estimated to have been taken by the 20 per cent of the sample who ice fished.

Of an estimated 2,654,000 non-resident tourists coming to Minnesota about 300,000 are licensed to fish. Assuming that each takes four fishing trips (mean length of stay 6.2 days) an additional 1,200,000 fishing activities would be recorded for non-residents.

This amounts to a 4.3 per cent increase in demand, and if converted to needs in terms of water acreage, would further reduce the surplus by

Table 28

SPATIAL DEFICIENCY OR SURPLUSES PROJECTIONS FOR FISHING ACREAGE; BY REGION

Regions	1967	1975	1980	1985
1	+ 44,120	+ 40,079	+ 37,865	+ 38,029
2	+ 817,353	+ 811,496	+ 808,132	+ 803,990
3	+ 476,223	+ 450,627	+ 435,678	+ 399,195
4	+ 276,880	+ 260,178	+ 251,203	+ 242,536
5	+ 360,003	+ 334,050	+ 318,270	+ 300,936
6	+ 38,388	+ 28,949	+ 23,673	+ 19,929
7	+ 68,955	+ 23,552	− 10,279	− 50,005
8	+ 42,796	+ 35,276	+ 31,012	+ 26,242
9	+ 13,473	− 8,856	− 23,440	− 42,570
10	+ 116,294	+ 95,081	+ 82,220	+ 62,838
11	+ 26,178	− 7,142	− 28,573	− 55,935
Total	+2,280,663	+2,063,290	+1,925,761	+1,745,185

about 150,000 acres (1,200,000÷8 trips per acre.[1]).

Certain standards[2] were used to relate fishing trips (activity occasions) to the lakes and streams. The carrying capacity for lakes varies between 50 and 200 per mile from northeast to southwest respectively.

On the basis of these carrying capacities, no additional needs for lake fishing were shown through 1985. Although increased needs for river fishing are shown, it is felt that this is largely due to an incomplete inventory of rivers available for fishing.

It should be noted that the carrying capacities used here are somewhat comparable to the actual fishing pressure found in the Minnesota Department of Conservation creel census work. It is based on fishing quality as now provided.

WATER-BASED ACTIVITIES — Swimming

When measured by the per cent of population participation, swimming ranks second to picnicking as the most popular summer weekend recreation activity, with 66 per cent of the state population participating. However, when measured by activity rates, swimming ranks first in Regions 1, 2, 3, 4, 8, 10, and 11; second in Regions 5 and 7; and third in Regions 6 and 9. In no Region is swimming in less than third place among the most popular summer weekend recreation activities.

Children participate in swimming activity at a rate six times greater than do adults. The statewide activity rate for children is 37.9 per capita while the adult rate is 6.3[3]. More than twice as many children (96.1 per cent) swim as do adults (44.7 per cent).

Swimming demand, on an average summer Sunday in 1967, was 1,119,598 activity occasions. This included 35,464 occasions for tourists, 253,637 occasions for the metro-disaggregated demand, plus the local, regional demand of 827,712 activity occasions. Demand figures indicate that by 1975, the demand may be as high as 1,750,698 occasions; by 1980, 2,197,072 occasions; and by 1985 the swimming demand may reach a high of 2,987,713 occasions, on an average summer Sunday.

National figures[4] for swimming demand show an increase in demand of 8 per cent from 1960 to 1965, with an increase in the per cent of population participating in swimming from 45 per cent to 48 per cent.

National projections of swimming demand indicate that from 1960 to 1980, a 95 per cent change may occur. By the year 2000 swimming may become the Number 1 recreation activity with a 344 per cent increase over 1960. There are indications that more of the latent demand for swimming (desire to participate in swimming activity) may become active depending upon the availability of adequate swimming resources, water quality, weather, and the various social and economic factors mentioned in Part 3 (published separately).

Perhaps more than any other factors related to swimming demand, weather and water quality have the most influence in swimming activity. If the weather is bad, swimming activity is curtailed. Similarly, if the water for swimming is polluted, or ridden with algae, swimming activity lessens. Swimming demand is also limited by a short season. By mid-August the activity is nearly finished.

The specific demand for pools or beaches is difficult to ascertain. However it may be stated that beach use is more directly related to the factors mentioned above than pool use. Pools are safer and may be more directly controlled than a relatively uncontrolled beach. However, more local study should be made before any final conclusions can be reached regarding beach or pool preference. In terms of the factors above, each Region must make its own determination of whether swimming demand is being met in pools or beaches.

Swimming demand is measured in numbers of square feet of designated public beach and pool surface. Beaches and pools were combined to provide a total swimming resource availability. (Private pools were not counted because of the lack of adequate means to do so. However, estimates by pool manufacturers and retailers indicate that the number of in-ground swimming pools might exceed 10,000 in Minnesota. No estimates could ever be made regarding smaller, above-ground, backyard pools. Comments made by various metropolitan retailers regarding these facilities indicated that sales were expected to triple by 1980.)

To compensate for the "backyard" swimming activity, and to provide a more reliable estimate of public beach and pool use, factors were developed from data supplied by the 1967 Minnesota Outdoor Recreation Review Commission, Report Number 1, regarding swimming and boating. The factors indicate the per cent of activity occurring on public facilities by a broad regional breakdown as follows: North (Regions 1 through 5) 39 per cent, South (Regions 6 through 10) 37 per cent; and the Metropolitan Region 11, 56 per cent.

The Regional Deficiencies and Surpluses for swimming are presented in Table 29. Caution should be used, however, in applying the deficiencies to any one specific locality since Regional summaries such as these do not consider the geographical location of beaches. Hence, it is imperative that swimming beach needs be related to evidence of local needs rather than Regional balances. No transfer of supply from Region to

[1]Part 3, Chapter 5

[2]Eight trips per acre was applied to The North Central Region of Minnesota where tourist fishing is a major activity.

[3]Adjusted rate

[4]Outdoor Recreation Trends; Dept. of the Interior, Bureau of Outdoor Recreation 1967.

Table 29

DEFICIENCIES OR SURPLUSES FOR SWIMMING BY REGION— IN SQUARE FEET SURFACE WATER 1967, 1975, 1980, AND 1985

Regions	1967	1975	1980	1985
1	− 144,700	− 288,683	− 371,874	− 324,837
2	+3,755,173	+3,800,311	+3,733,889	+ 3,681,921
3	+ 602,332	+ 402,547	− 43,175	− 791,572
4	+ 381,391	− 62,268	− 441,643	− 495,574
5	+ 474,201	+ 143,687	− 254,529	− 599,699
6	+ 82,785	+ 149,113	+ 3,684	− 73,329
7	− 979,989	−2,017,532	−3,020,074	− 3,589,958
8	+ 147,705	− 85,861	− 221,954	− 5,158,332
9	− 372,373	− 450,244	−1,171,217	− 1,157,307
10	− 914,833	−1,574,321	−2,057,044	− 2,775,545
11	+ 451,880	+ 339,673	− 650,895	− 1,874,992
State-wide	+3,483,572	+ 356,422	−4,494,832	−13,159,224

Region will be considered in meeting these needs. In the case of Region 3 swimming was adjusted to a deficiency of 522,720 sq. ft. of water.

WATER-BASED ACTIVITIES — Water Skiing

Water skiing is one of the fastest growing recreation activities in America. National trends indicate that increase in the activity from 1965 to 1968 was 121 per cent and may increase 362 per cent over 1965 by the year 2000[1]. Of the eight fastest growing water sports water skiing will rank number one by the year 2000. In spite of this only 6 to 8 per cent of the population is predicted to actively engage in the sport.

In Minnesota, an average of 21 per cent of the population water skiis, with 10.3 per cent of the adults and 34.9 per cent of the sub-adults participating in the activity. Per Capita rates of participation for these groups are adults, 1.0 and sub adults, 3.6. The resulting state-wide demand for water skiing on an average summer Sunday is 102,137 activity occasions including 4,330 occasions for the tourist influx; 47,909 occasions for the metropolitan exodus groups; and 65,143 occasions for the local, regional population.

[1]Trends in Outdoor Recreation, Dept. of the Interior, Bureau of Outdoor Recreation, 1967.

Projection of the water skiing demand in Minnesota indicates 185,964 occasions for 1975; 236,455 occasions for 1980; and 323,649 occasions on an average summer weekend Sunday in 1985. This represents a 45 per cent increase in the activity of water skiing from 1967 to 1975; 17.1 per cent from 1975 to 1980; and 26.9 per cent increase from 1980 to 1985.

Future water skiing demand will be directly dependent upon the quality of water. If the quality of Minnesota's lakes and major waterways continues to deteriorate at the present rate, water-oriented activities may very well diminish. All demand and need for water-oriented activity was predicted on the assumption that Minnesota's water will be suitable for the activity.

Table 30 shows the deficit (−) or surplus (+) of acres of water for water skiing, on an average summer Sunday, according to the 1967 demand and projection for the years 1975, 1980, and 1985.

The Table indicates a need for additional water skiing acreage in the Southern Regions. It is apparent that at the present time some of this deficiency is being met in the central or north Regions, since it must be assumed to be occurring somewhere. This points out the mis-allocation of the demand that can occur when the travel pat-

Table 30

DEFICIENCIES (−) AND SURPLUSES (+) IN WATER SURFACE ACRES FOR WATER SKIING 1967, 1975, 1980, AND 1985 BY REGIONS

Region	1967	1975	1980	1985
1	+ 29,621	+ 23,776	+ 20,513	+ 20,706
2	+ 724,839	+ 716,958	+ 712,342	+706,376
3	+ 212,412	+ 277,682	+ 256,964	+205,306
4	+ 192,158	+ 171,576	+ 159,821	+148,367
5	+ 367,364	+ 336,238	+ 316,524	+292,872
6	+ 24,843	+ 16,287	+ 11,202	− 3,312
7	+ 38,723	− 26,117	− 69,334	−121,807
8	− 3,156	− 11,643	− 16,693	− 22,479
9	− 23,446	− 48,778	− 65,778	− 88,094
10	+ 29,188	− 9,494	− 33,089	− 70,039
11	+ 36,227	− 11,975	− 79,112	− 82,515
Total	+1,628,773	+1,434,510	+1,213,360	+985,381

terns are not available for specific recreation activities, but rather those reflecting the composite pattern of travel.

The unmet demands revealed here no doubt will be met in other Regions, and on undeveloped as well as smaller lakes, much the same as boating. For this reason Regional deficiencies as shown here will not be considered to be met on a Regional basis except in those special instances pointed out later, in the chapter on needs.

LAND-BASED ACTIVITIES — Camping

Camping demand was determined in a different manner from that of the other activities. The Midwest Research Institute data (Addendum Participation Rates) indicates a need for more than 7,700 tent and trailer sites in Minnesota. This figure seemed unusually high in light of other data and camping studies. (This high rate partly could be attributed to the fact that the survey indicated all types of camping, including that occurring in undesignated camping areas, as well as unusually high participation rates for sub-adults.) It was decided, therefore, to utilize another method in the determination of camping demand, and a calculation of need.

The 1966 Minnesota Highway Department Origin and Destination (O and D study) and the 1967 Traveler Survey were utilized to determine camping demand. As mentioned earlier in this Chapter, the O and D study indicated the volume and destinations of metropolitan residents who leave the Region for recreation. From this data, the metropolitan and tourist activity was distributed throughout the Regions.

The 1967 Traveler Survey data was incorporated with the O and D study to determine more about the primary trip purposes and recreation activities engaged in while on the trip.

The Traveler Survey indicated that on an average weekday night approximately 15 per cent of the recreation-bound traveling public camp. Lacking similar data for weekend travelers, it was necessary to assume that the same percentage of travelers indicating a recreational trip purpose would apply to weekend travelers. The percentage was applied to the metropolitan exodus population, non-resident tourist population stopping in Minnesota, and regional resident population, to estimate the camping volume on an average Sunday (actually Saturday night). This indicated that approximately 75,100 persons camp on an average weekend day (or night).

Utilizing an average of four persons per camp unit, the site demand for an average weekend day in 1967 would be about 18,800 sites. A comparison with the supply of campsites (20,531) indicates that in 1967 Minnesota had 1,748 surplus sites.

Nineteen and four-tenths per cent of Minnesota's population participated in tent camping, and 12.5 per cent in trailer tent camping during 1967. On an annual basis, the per capita camping activity rate for adults was 2.4. Sub-adults indicated a per capita camping rate of 3.7 or almost one-third more than the adults. The additional camping activity was assumed to be "backyard" camping and independent camping by sub-adults in the upper age bracket who have access to transportation and finances. (It was judged that for the purposes of this survey, in determining facility needs, most sub-adult camping is done with adults.)

On a state-wide basis, camping activity ranks 14th in the top 15 most popular summer recreation activities. It ranks ninth in the most popular vacation activities category. However, camping activity in Minnesota appears to be on the increase. State park attendance figures indicate that from 1953 to 1968 there was a 165 per cent increase in camping activity. This amounts to an average annual increase of 11 per cent over the 15-year period. If this trend were to continue at the same rate of increase during the next 12 years, by 1980 camping activity would be expected to be 132 per cent higher than in 1968, or 143 per cent above that occurring in 1967.

According to the 1967 State Park Statistics, published by the National Conference on State Parks[1], the overnight visitors to state parks in the United States in 1946 totaled 97 million. In 1967, the overnight visitor total was 351 million, a 262 per cent increase over 1946.

Nationally, camping ranks as the 12th most popular outdoor recreation activity[2]. Estimates indicate that camping activity may become the second fastest growing outdoor recreation activity by 1980, and may continue showing this growth rate through the year 2000. By 1980, camping activity is expected to increase 78 per cent over that of 1965, nationally. By the year 2000, the increase is predicted at 238 per cent. In 1960, only eight per cent of the nation's public camped. By 1965, ten per cent of the population camped—a 35 per cent change. All indications are that camping activity will increase greatly.

Projections of Minnesota camping demand indicate that the camping trend in Minnesota will exceed the rate of increase predicted for the national trend.

Projections of the 1967 camping demand were made based on the population projections and activity increase multiplier for the years shown. Table 31 indicates the unadjusted needs for tent and trailer camping units, by Region, for the years 1967, 1975, 1980, and 1985.

[1]Trends in Parks and Recreation, National Conference on State Parks; Oct. 1968; Vol. 5 #4.

[2]Trends in Outdoor Recreation, Dept. of the Interior, Bureau of Outdoor Recreation 1967.

Table 31

UNADJUSTED REGIONAL CAMPING DEFICIENCIES OR SURPLUS BY SITES

Region	1967	1975	1980	1985
1	0	− 157	− 294	− 350
2	+1,791	+1,611	+ 1,458	+ 1,294
3	+2,567	+2,242	+ 1,649	+ 590
4	+1,050	+ 361	− 32	− 1,675
5	+ 907	+ 83	− 409	− 957
6	− 57	− 219	− 422	− 624
7	− 324	−2,262	− 3,446	− 4,643
8	− 355	− 600	− 838	− 1,073
9	−1,260	−1,980	− 2,611	− 3,224
10	− 581	− 920	− 1,555	− 2,341
11	−2,026	−3,179	− 3,980	− 4,885
State-wide	+1,748	−5,020	−10,480	−17,888

Adjustment of Camping Needs

A review of campsite needs by Region reveals substantial deficiencies in some of the southern and central Regions. The northern Regions indicate substantial surpluses.

The apparent imbalance that is indicated is due to the fact that Regional demand was assumed to have been met within the region. In actuality, this is not so. Regional residents travel to other Regions for their recreation in the same manner as metropolitan residents. Unfortunately, time and money did not permit a development of this part of the state's recreation travel dispersion. It may be assumed that the camping demand in the south and central Regions is being met in direct proportion to the availability of the camping resource.

Those tourists and metropolitan residents traveling to a Region would, in all probability, camp in direct proportion to the availability of camping resources. The net result is that more camping occurs in Regions where the camping resource is greater than in Regions where the resources are less. However, because of the limitations of the O and D Study the metropolitan activity rate was assigned to the traveling population.

It was decided that Regions 7 through 11 having the highest deficiency would be examined to determine the actual feasibility of meeting the needs, using existing land and new proposed areas. Following this, excess land needs from Regions 7, 9, and 11 were redistributed to Regions 2, 3, 4 and 5 according to the per cent inventoried campsites. Regions 1 and 6 were not assigned any additional campground land acreage needs on this basis.

The amount of acreage deducted from Regions 7, 9, and 11 totalled 530 acres. This was reassigned as follows:

Region 2—19% or 100 acres
Region 3—39% or 205 acres
Region 4—20% or 110 acres
Region 5—22% or 115 acres
Total 530 acres

In considering the supply and comparing the demand it was apparent that the northern Regions in which wilderness camping constitutes a major portion of this activity needed some additional and separate treatment. It was felt that some coverage of campsites must be provided in the wilderness area since it is most likely that campers cannot evenly distribute themselves according to the availability of campsites. Also, the attractiveness of the area and the knowledge of adequate and almost assured camping opportunities will be required to continue to draw tourists and provide the camping experiences.

For these above reasons it was thought necessary to follow the reasoning of the U. S. Forest Service in providing a 10 per cent overage of campsites to meet the above demands. Accordingly, 10 per cent of the total supply was considered as overage and not considered in terms of comparison with the demand for facilities. These adjustments may be found in Table 32.

Table 32

ADJUSTMENTS—1980 CAMPING FACILITIES—CAMPSITE SURPLUSES OR DEFICIENCIES

Regions	Non-Adjusted	Adjusted
1	− 294	− 294
2	+ 1,458	+ 840
3	+ 1,649	− 240
4	− 32	− 690
5	− 409	− 1,110
6	− 422	− 420
7	− 3,446	− 3,120
8	− 838	− 840
9	− 2,611	− 510
10	− 1,555	− 1,550
11	− 3,980	− 3,180
State-wide	−10,480	−11,114

One of the factors affecting camping is the development of new camping equipment. The development of camping trailers and other similar equipment has done much to revolutionize the camping attitude and activity. New innovations enable more persons to camp for longer periods, and later in the season.

According to surveys by the Mobile Homes Manufacturers Association, 52 per cent of the persons owning camping rigs previously used tents, and 93 per cent had previous camping experience. The surveys indicated that of the present tenters surveyed, 54 per cent expressed an interest in the purchase of a camping vehicle. Of the respondants owning camping trailers, 30 per cent expressed an interest in "trading up" to a travel trailer, or a pick-up coach.

The major use of the camping vehicles was for camping while on a hunting or fishing trip, (36 per cent of those surveyed). Sightseeing was the major use of the vehicle by 42 per cent of the respondents while 13 per cent indicated that they purchased the equipment to camp only. Camping **and** travel was the major use of the equipment for another six per cent of the respondents.

It also is notable that of those who indicated an interest in camping, 12 per cent wished to camp more often. More comfort in camping was a major desire of 36 per cent of the respondents, while 52 per cent indicated they wished to camp **more often in greater comfort.**

It is estimated that future sales of recreational vehicles can be expected to equal that of pleasure boats. The surveys indicate that the three major factors which determine the trend in recreational vehicle sales are the availability of money, time, and an interest in the out-of-doors.

The trend to camping vehicles has created a modification in thinking regarding campground planning. Campgrounds now are planned with full consideration given to the space and facility requirements of recreational vehicles. Many of these vehicles are self-contained; and sewage dumping stations are important in campground design and development. Similarly, since more comforts are available through the new equipment, more utilities are in demand. Electricity outlets, water taps, and sewer hookups now are a major part of camping. This affects the economics of campground development and may limit the availability of high quality areas because of the increased costs of development and operation. Such increased costs will be reflected in increased costs to the consumer and may affect the camping demand.

There are two types of "wilderness" camping which take place in the state. The first is that type found in the Boundary Waters Canoe Area and entails travel by canoe or boat into the more remote lakes. The traffic on popular routes is heavy and some lakes have comparatively heavy use. Thus, a question may arise as to the degree of "wilderness" encountered.

"Wilderness" camping may also be found in varying degrees in the state and federal forests. Again, it is a question of degree in determining the "wilderness" camping experience. The primary difference between the canoe country "wilderness" experience and that of the state and federal forests is in the mode of travel (whether one can reach a site by car) and availability of sites in relation to the camping equipment demand. The forests have developed roads, parking stalls, etc. with many of the convenience features. Thus "Wilderness" camping may more readily be called "camping in the wild", where such conditions exist.

Many of the over-use problems and "comfort" requirements found in trailer-oriented campgrounds exist also in many "wilderness" camping areas. In some of these areas, the demand for toilet facilities, wells, picnic tables, fireplaces, etc. has been great.

Group camp activities and facilities were not included in the overall camping demand and idle capacity, or needs, determinations. (A Group Camp may be defined as a specific facility developed for the housing and feeding of groups for recreational purposes. It contains a dining hall, cabins, dormitories, and other similar facilities.)

LAND-BASED ACTIVITIES — Golfing

Golfing is an activity in which an average of 18 per cent of the state population participates. The Midwest Research Institute data indicates that 16.9 per cent of the adult population golfs and 19.5 per cent of the sub-adults participate in the activity. The per capita activity rates for the state population show an adjusted golfing rate of 3.6 for adults and 2.0 for children.

Minnesota golfing activity on an average summer Sunday amounted to 194,835 activity occasions in 1967. A total of 15,550 of the occasions were attributed to the metropolitan exodus group; 19,234 to the state-wide tourist influx; and 172,044 activity occasions were attributed to regional residents.

Projection on the 1967 golfing demand in Minnesota indicates a demand of 322,325 occasions in 1975; 393,782 occasions in 1980; and 483,836 activity occasions on an average summer Sunday in 1985. The demand projection from 1967 to 1980 represent a 31.3 per cent increase. National figures[1] indicate that by the turn of the century, golfing demand may be 2.5 times greater than in 1964.

Golfing activity ranks as the eighth most popular recreation activity on a summer weekend in Minnesota. It also ranks ninth as far as its popularity on a summer weekday is concerned. However, when considering all regions and all activities for the entire year, golfing ranks in the top ten in only two Regions, in most popular recreation activity listings. In Region 5, it ranks tenth and in Region 8, it ranks fifth.

The following table indicates the need for more golf facilities for the years 1967, 1975, 1980, and

[1]Outdoor Recreation Trends, Dept. of the Interior; 1967

Table 33

GOLFING DEMAND DEFICIENCY OR SURPLUS
HOLES OF GOLF—BY REGIONS

Regions	1967	1975	1980	1985
1	− 35	− 102	− 135	− 105
2	+ 22	− 2	− 13	− 26
3	−128	− 276	− 356	− 663
4	− 2	− 94	− 143	− 175
5	+ 54	− 28	− 76	− 96
6	− 65	− 119	− 155	− 169
7	−178	− 346	− 466	− 550
8	− 93	− 181	− 226	− 269
9	− 79	− 188	− 265	− 364
10	+ 36	− 78	− 159	− 294
11	+312	− 279	− 633	−1,128
Total	−156	−1,693	−2,627	−3,839

1985. The size and number of golf courses needed should be a regional determination made as a result of additional study regarding local conditions and interest.

Table 34 indicates the greatest golfing needs in 1980 to be in Regions 3, 7, and 11. The needs of these Regions reflect a substantial tourist influx demand. Some of this demand may be dispersed to other Regions as more and better golfing facilities are made available to the general public.

Table 34

1980 DEMAND DEFICIENCY
HOLES OF GOLF AND NUMBER OF EIGHTEEN HOLE GOLF COURSES—BY REGION

Region	1	2	3	4	5	6	7	8	9	10	11	Total
Holes	−135	−13	−356	−143	−76	−155	−466	−226	−265	−159	−633	−2,627
Courses	8	1	20	8	4	9	26	13	15	9	35	146

LAND-BASED ACTIVITIES — Hunting

The 1967 recreation survey included participation in the three major forms of hunting—big game, small game and waterfowl. The participation rates, particularly those pertaining to small game and waterfowl, appeared excessive in lieu of the known number of licensed hunters involved.

Big Game

The M.R.I. survey indicated that 9.9 per cent of the Minnesota population hunted big game (chiefly white-tailed deer). This amounted to about 303,000 hunters in the fall of 1966 (previous to the survey). However, license sales in 1966 actually totaled 285,482. The difference, about 17,500, may be attributed to residents who hunted outside of Minnesota.

If the participation rate[1] (as adjusted to only big game hunters) is applied to the 285,482 licensed hunters, the result is a total of 1,740,000 hunting trips for the 1966 season in Minnesota.

The 1967 survey indicated a total of 6,494,034 acres of public or private corporation lands accessible to the public for hunting white-tailed deer. Applying the standards of carrying capacity, the difference in 1967 between the supply and demand was approximately 676,000 trips (3,999 total trips). This reflects the hunting on private lands that are available to this portion of the hunters.

During the period 1957-1966, licensed big game hunters increased from about 194,000 to more than 285,000, an average of 4.7 per cent per year. Nationally, this increase has been approximately 4.9 per cent per year.

Similar to the nation-wide trend, this increase was largest in the first 5 years (5.8 per cent during 1956-1961), and dropped during the last 5 years (2.85 per cent 1961-1966).

Slightly more than 8 per cent of the population hunted big game in Minnesota in 1967, whereas, in 1960, slightly under 7 per cent took part in this sport. It is predicted that the popularity of big game hunting will continue to increase at least to 1980 and that approximately 8 per cent of the population will seek to hunt big game by that year.

Thus, by 1980, we might expect nearly 340,000 big game hunters, an increase of about 22.6 per cent over the 14-year period (1966-1980). It also is assumed that during this period, big game hunters will spend an average of 6.7 days each year hunting.

The number of deer hunters can be accomodated with sound management of the deer herd, particularly its winter habitat, so that the existing public or corporate lands in the deer range will continue to serve the same proportion of hunters (61 per cent) as they are now.

Small Game

According to the 1965 nation-wide survey, small game hunters take about 12.2 hunting trips per year. However, Moyle[2] (1967) used 8 trips when determining recreation trips for all types of hunting. Since the latter includes big game (national average of 6.7 trips per year) and waterfowl (national average 8.2 trips per year) as well as small game, a figure of 12 would seem more realistic for Minnesota when considering small game hunting.

[1]1965 National Survey of Fishing and Hunting

[2]Moyle, John B.; "Some Statistics Related to Fishing and Hunting in Minnesota for the Ten-year Period 1955-1965." Minnesota Conservation Dept., Div. Game and Fish, Spec. Pub. 43; 1967.

By 1980, 324,000 small game hunters taking 12 trips each will generate about 4,080,000 hunting trips in Minnesota. These trips would occur throughout the state. A portion of this activity would take place on 9,420,128 acres of publicly-owned lands, or on large blocks of private timber companies.

In attempting to determine the actual requirements for land to meet the 1980 small game hunting demand, information is needed on the number of hunting trips that each acre can support. This relates to the annual harvestable crop that is produced by each acre. However, many species such as pheasant, ruffed grouse, sharptail grouse, Hungarian partridge, rabbits, squirrels, jacksnipe and woodcock are included here; each with different ranges and capabilities to support hunting pressure.

For this reason, individual needs for habitat acquisition and development need to be made for each species on the merits discussed below.

Moyle[1] indicated that the per cent of hunters in the metropolitan population was approximately half of the percentage in the non-metropolitan population. It was estimated in this report that the percentage of the metropolitan population that hunts has been declining from about 9 per cent in 1946 to about 7 per cent in 1960. Projections indicate this will be about 5 to 5.5 per cent by 1970.

Of the population in counties outside the metropolitan area, about 11 to 13 per cent have been licensed for small game hunting. Projections indicate that this may continue at about 12 per cent.

Using 5.5 per cent for the metropolitan small game hunting population, and 12 per cent for the outside county populations, some prediction of total licensed hunters can be made on the basis of future population projections. Two population projections (A & B) are offered here by the State Planning Agency and are shown in the table following.

cent of the number of small game hunters. These hunters do not make a significant contribution to the difference in the total of licensed small game hunters and those who indicated they hunted small game, according to the 1967 Minnesota survey.

Of those who hunt small game outside Minnesota, it is felt that only a small percentage do not hunt in this state as well. Therefore, this group could not account for any major part of the difference mentioned above.

Because the per cent of participation by M.R.I. was largely unaccountable, it was decided that only license sale data and information available from the Minnesota Division of Game and Fish and from the "National Survey of Hunting and Fishing" was usable.

Since 1958, the license sales for small game hunting have declined. During the period of 1956 through 1966, license sales fluctuated from a high of 279,667 in 1958 to a low of 233,156 in 1965. Over this ten-year period, the total number of licensed small game hunters has dropped about 19 per cent, or nearly 2 per cent per year. The drop in hunters is believed to be due to the fact that the hunting population is becoming more urbanized and because the accessibility to hunting lands is diminishing. Another important factor is that the restoration of small game habitat, particularly that of pheasants, has not kept pace with destruction, and hunting success has suffered.

The M.R.I. survey indicated that 20 per cent of the population hunted small game. This indicates a total of 635,000 hunters — which far exceeds the number of licensed small game hunters (280,-050 in 1966). Unlicensed hunters, including children, persons who hunt on their own land, "varmint" hunters, and those hunting outside of Minnesota account for at least part of the difference.

The number of hunters who hunt only on their own lands is unknown and is not significant for the purposes of this study.

POPULATION (1980—in Thousands)

Region	A Projection	B Projection	Small Game Hunters—Per Cent	Estimated Hunters (000's) A	B
Metropolitan	2,090.6	2,428.1	5.5	115	133.5
Other Regions	1,840.4	1,748.9	12.0	225	210.0
State	3,931.0	4,177.0		340	343.5

The above figure indicates a projected increase from 280,000 to 340,000 by 1980, or 60,000 more small game hunters than in 1966.

The nation-wide survey indicates that the number of "varmint" hunters amounts to about 26 per

[1]Moyle, John B.; "Some Statistics Related to Fishing and Hunting in Minnesota for the Ten-year Period 1955-1965." Minnesota Conservation Dept., Div. Game and Fish, Spec. Pub. 43; 1967.

Waterfowl

The 1967 demand study indicated that 10.2 per cent of the population, or about 312,000 persons hunted waterfowl in 1966. However, duck stamps sales totaled about 150,000. If only adults (20 years and over) are considered, the survey indicated a total of 178,000 duck hunters in this group alone.

Since the survey appears to have developed high participation rates, particularly for "children", it was necessary to look elsewhere for indications of the waterfowl hunting demand and its projections. Therefore, actual sales and the trend in sales of duck stamps, plus the trends in waterfowl populations were used to determine the demand.

Because of the limited waterfowl resource in the Mississippi Flyway, it is apparent that hunting participation will be restricted even though the desire to hunt remains. History of waterfowl hunting statistics shows that the duck kill was as high as 2.7 million in the late thirties and nearly that high in 1944, 1945, 1950, and 1952. Since 1952, the duck kill has not reached two million. In fact, it dropped by nearly half (1.38 million) in 1953. In 1962, slightly more than 400,000 ducks were taken during a short 25-day season, with severe species restrictions. Since that time, the duck kill has recovered to about 1,000,000 birds.

Duck stamps sales have declined from slightly more than 175,000 in 1946 to 139,000 in 1960. In 1961, sales dropped to about 85,000, but recovered to nearly 150,000 in 1966.

It is obvious that waterfowl hunting and harvest in Minnesota has declined drastically. Indications are that the cause for this decline is partly due to over-hunting and to the loss of production areas through draining and filling wetland areas in western Minnesota and the eastern Dakotas.

At the present time, waterfowl management plans point toward maintaining a population which can provide an annual harvest of approximately 1,000,000 ducks. This would provide for satisfactory continuation of this sport for around 150,000 duck hunters. Demands in excess of this will need to be met by other types of hunting, or by artificially supplying ducks at hunting preserves.

The Division of Game and Fish has established goals to meet the deficiencies for public hunting. These goals which are listed in Table 35 are expected to maintain the present hunting standards, and are calculated to replace lands that will be lost in the future through drainage or closure of private lands to hunting.

LAND-BASED ACTIVITIES — Picnicking

Picnicking is probably the most popular outdoor summertime activity related to Minnesota's recreational lands. It is often done in conjunction with other activities such as boating, swimming, hiking, sightseeing, etc. In 1967, 85 per cent of the adults and 90 per cent of the sub-adults, or an average of 87 per cent of the survey sample, participated in picnicking.

The state-wide per capita participation was 11.3 for adults and 14 for sub-adults annually. The 1967 average Sunday demand indicated by the activity rates was 578,916 occasions, with 19,234 occasions by tourists, 269,137 occasions by the metropolitan exodus group, and 290,545 occasions by regional residents. Projections of the 1967 average seasonal Sunday demand indicate that by 1975 picnic demand may be 908,573 occasions. By 1985 there may be 1,366,316 activity occasions for picnicking on an average Sunday. This is projected as an 82 per cent increase in picnicking activity occasions by 1980, and 57.6 per cent above 1967, by the year 1985.

National projections[1] estimate that by 1980, picnic demand will have increased 48 per cent over 1965. By 2000, it is estimated that picnic activity occasions will have increased 127 per cent over 1965. Across the nation, picnicking ranks sixth in rate of growth of popularity since 1960.

As a weekday as well as summer weekend activity picnicking ranked eighth in the survey. (See Appendix Tables 12 and 19).

[1]Trends in Outdoor Recreation, Dept. of the Interior, Bureau of Outdoor Recreation, 1967.

Table 35

WILDLIFE MANAGEMENT AREAS ACQUIRED (1968) GOALS FOR 1980 AND 2000 AND ADDITIONAL DEVELOPED LAND ACREAGE NEEDED TO MEET GOALS—BY REGION

NUMBER OF ACRES
Established Goals 1980 and 2000

Region	July 1, 1968	Total Acres By 1980	Additional Acres Needed By 1980	Total Acres By 2000	Additional Acres Needed By 2000
1	175,010	357,750	182,740	366,300	191,290
2	59,353	72,070	12,717	84,670	25,317
3	160	11,000	10,840	23,500	23,340
4	40,695	63,910	23,215	79,410	38,715
5	24,784	81,800	57,016	104,000	79,216
6	35,878	53,500	17,622	62,550	26,672
7	60,246	132,580	72,334	171,980	111,734
8	23,180	36,620	13,440	45,000	21,820
9	8,999	19,900	10,901	30,200	21,201
10	31,194	56,960	25,766	67,960	36,766
11	16,714	36,860	20,146	47,860	31,146
State-wide	476,213	922,950	446,737	1,083,430	607,217

Except for relaxing out-of-doors, picnicking was the most popular activity on the three summer holidays — Memorial Day, Independence Day and Labor Day. As a vacation type activity it ranked seventh; with husbands, wives, and children all quite similar in its ranking.

Projections of picnic demand, from the 1967 Minnesota Demand Survey, indicate an 82 per cent increase in picnic activity occasions by 1980. Nationally the increase in picnicking has been predicted to be 48 per cent from 1965 to 1980.[1]

Table 36 provides an indication of the unadjusted needs (deficit — or surplus +) for picnic tables, by Region, in the years 1967, 1975, 1980, and 1985.

Table 36

UNADJUSTED DEFICIENCIES (−) OR SURPLUSES (+) IN PICNIC FACILITIES BY NUMBER OF TABLES—AND REGIONS

Region	1967	1975	1980	1985
1	− 1,743	− 2,888	− 3,471	− 2,951
2	+ 16	− 527	− 863	− 534
3	− 5,880	− 9,521	− 11,527	− 18,040
4	− 5,048	− 7,698	− 9,072	− 9,741
5	− 3,222	− 5,504	− 6,883	− 8,026
6	− 357	− 1,429	− 2,114	− 2,380
7	− 8,075	− 14,184	− 17,877	− 21,174
8	− 2,492	− 4,007	− 4,851	− 5,498
9	− 4,764	− 7,455	− 9,406	− 11,782
10	− 9,000	− 14,343	− 17,675	− 22,675
11	−22,462	− 40,380	− 53,329	− 71,056
Total	−63,172	−107,936	−137,078	−173,857

The deficiency of picnic facilities for Regions 4, 5, 8, 9, 10 and 11 were adjusted downward as indicated in Table 37.

Table 37

1980 DEFICIENCIES OR SURPLUS ADJUSTED PICNIC FACILITY BY NUMBER OF TABLES AND REGION

Region	Unadjusted	Adjusted
1	− 3,471	− 3,500
2	− 863	− 900
3	− 11,527	−11,500
4	− 9,082	− 5,000
5	− 6,883	− 1,500
6	− 2,114	− 2,100
7	− 17,877	−18,000
8	− 4,851	− 1,700
9	− 9,406	− 1,400
10	− 17,675	− 8,800
11	− 53,329	−27,825
Total	−137,078	−82,225

This adjustment was necessary in order to bring the deficiency into realistic alignment with the demand. The adjustment was calculated by utilizing the actual per cent increase of the Demand from 1967 to 1980, and applying this same increase to the 1967 Supply to base year. This method of adjustment assumes that the 1967 Supply met the 1967 Demand and was used only in these Regions exhibiting abnormal deficiency considering the 1967-1980 Demand increase.

[1]Trends in Outdoor Recreation, Dept. of the Interior, Bureau of Outdoor Recreation; 1967.

GROUP NUMBER 2 — Non-disaggregated Activities, Demand Compared to Supply

Land-Based

Bicycling
Horsback Riding
Nature Walking
Playing Outdoor Games (includes tennis)

Snow-Based

Snowmobiling

LAND-BASED ACTIVITIES — Bicycling

The demand study for recreational bicycling showed that the participation rate of adults and children is vastly different. Although 90 per cent of the younger age group (6-19 years) reported taking part in this activity, only 22 per cent of the adults (20 years and older) listed bicycling as a recreational activity. Disregarding all regional rankings and leisure time categories, bicycling annually ranks second in popularity for sub-adults but below the top ten for adults.

According to the 1965 Bureau of Outdoor Recreation survey of summer time recreation activities, bicycling popularity has grown considerably since 1960. The 1965 participation rate was found to be 105 per cent above that of 1960.

The inventory of bicycle trails included only those paths where bicycling is permitted. Most bicycling is restricted to side streets and sidewalks. Only 351 miles of bike paths were found in the 1967 inventory.

The comparison of the demand to the supply was made for the adult biking since it was felt that the younger bikers normally pursue their sport in their neighborhood, while adults seek longer routes.

In 1967, there were 10,570,150 activity occasions of bicycling. This number is expected to grow to such an extent that by 1985, annual biking activity is expected to be 23,700,091 or more activity occasions.

Using adult demand alone, the need for over 5,800 miles of bicycle paths was apparent in 1967. This was projected to increase to nearly 12,000 miles by 1985.

Vacated right-of-ways have generally provided the best source of cross-country bicycle paths because of the level road bed, bridge crossings, etc. The occasional detouring of automobile traffic from parkways in favor of bicycling should be encouraged.

Table 38 lists needs for miles of bicycle paths for each region in 1967, 1975, 1980 and 1985.

Table 38

NEED FOR MILES OF BICYCLE TRAILS TO MEET ADULT DEMAND IN 1967, 1975, 1980, AND 1985—BY REGION AND STATE-WIDE

Region	1967	1975	1980	1985
1	270	382	449	396
2	139	184	214	241
3	401	586	716	1,136
4	753	990	1,153	1,221
5	154	209	232	231
6	487	653	774	800
7	764	1,130	1,327	1,419
8	324	436	516	575
9	545	750	902	1,157
10	1,319	1,936	2,286	2,891
11	706	1,192	1,473	1,876
State-wide	5,862	8,448	10,042	11,943

The greatest needs appear to exist in Regions 10, 11, 7, 4, 9 and 3 in this order. A major portion of the above need will continue to be met in roads, sidewalks and existing parks and parkways as transportation and recreation are often combined. Although cross-country bicycling should be incorporated in future trail systems, the majority of these needs would best be served near municipalities and preferably within a short bike trip from home.

The data survey indicates a need for biking trails in all Regions. However, no definite assessment of needs can be made because of the various types of biking involved. It is recommended that municipalities develop biking trails in municipal parks. They might also consider developing biking as connecting links between residential districts, recreation areas and other open space recreation areas. When streets are constructed or reconstructed, consideration should be given to design to meet biking needs.

LAND-BASED ACTIVITIES — Horseback Riding

In 1967, 5.2 per cent of the Minnesota adults and 39 per cent of the children (6-19 years) participated in horseback riding. Although not among the top activities in terms of participation, this sport is one that is steadily growing in popularity.

In Minnesota the individual participation rate for adults was 0.35 and for children 1.85. Applied to the population, the total state-wide demand was 3,886,736 activity occasions for the entire year 1967. Compared to the supply of trails (1,104 miles) which can accommodate 785,288 activity occasions, a deficit was found in 1967 of 3,049 miles (3,101,448 activity occasions).

Nationally, it ranked 13th among summer recreation activities and the number of individuals participating, annually, has jumped 44 per cent, or from 7,830,000 to 11,300,000 from 1960 to 1965. (Source — B.O.R. 1965 Outdoor Recreation Survey).

For the years 1967, 1975, 1980 and 1985, the needs indicated by this study may be 4,173, 4,795, 6,605 and 8,780 miles respectively.

Of the eleven Regions, the Metropolitan (Region 11), the Northeast (Region 3) and the Southeast (Region 10) show the greatest need for horseback riding trails. Trails in the metropolitan and southeastern part of the state will be in short supply without further development in these areas.

The large indicated needs listed in Table 39 infer that if the horseback riding activity was to occur on developed trails at the set standards, the indicated mileage would have to be provided. However, much horseback riding activity occurs on farm land, along country roads, and on logging trails. This is particularly true in Regions 1, 8, and 9. In Region 11, the riding activity was adjusted downwards because a portion of the activity is known to occur outside the Region (See Table 40).

Table 39

UNADJUSTED DEFICIENCY AND SURPLUS HORSE TRAILS

Region	1967	1975	1980	1985
1	− 179	− 213	− 253	− 221
2	+ 144	+ 176	+ 171	+ 166
3	− 132	− 198	− 280	− 604
4	− 73	− 102	− 122	− 131
5	+ 222	+ 192	+ 173	− 172
6	− 74	− 92	− 112	− 117
7	+ 88	+ 32	− 20	− 42
8	− 134	− 179	− 215	− 242
9	− 202	− 256	− 316	− 385
10	− 245	− 344	− 436	− 569
11	−1,206	−1,956	−2,703	−3,545
State-wide	−1,791	−2,940	−4,113	−5,518

LAND-BASED ACTIVITIES — Nature Walking

Nature walking involves walking when the objective is to study and observe the natural environment — trees, shrubs, wildflowers, wildlife, etc. Of the 6,279 adults in the sample, 40 per cent

Table 40

ADJUSTED 1980 DEFICIENCY OR SURPLUS HORSE TRAILS—IN MILES

Region	1	2	3	4	5	6	7	8	9	10	11	Total
Unadjusted	−253	+171	−280	−122	+173	−112	−20	−215	−316	−436	−2,703	−4,113
Adjusted	−125	+171	−280	−125	+173	−100	−20	−150	−150	−430	− 500	−1,536

participated in this activity during the survey year. Of the sub-adult group, (6-19 years), 56 per cent participated. Combining the two age groups, 47 per cent of the state population took at least one nature walk during the survey year.

Annual Participation rates are as follows:

A. Adults (20 years plus) 7 activity occasions

B. Sub-adults (6-19 years) 10 activity occasions

Nature walks were most popular as spring and fall weekend activities and in both instances, ranked tenth in popularity. The activity also ranked eighth in popularity among vacation activities with wives showing a slightly greater interest in this activity than their husbands or children.

According to the 1965 "Bureau of Outdoor Recreation Survey of Participation in Outdoor Recreation Activities" (summer only), 14 per cent of the population took part in nature walking at least once. This is somewhat lower than the 47 per cent in Minnesota, partly because spring and fall were excluded from the national survey. Perhaps another explanation could be related to the availability of the resources in this state. Natural environment in parks, forests, and wildlife areas make up a significant portion of the state land area and a significant portion of nature walking activity occurs in these areas.

Nationally, nature walking ranked 11th among the most popular summer time outdoor recreation activities. Predictions indicate that participation in nature walking is expected to jump 48 per cent between 1965 and 1980.

In Minnesota, the demand survey projections indicate an increase of 88 per cent in total annual participation in this pastime. In the Table shown on this page, the needs for miles of nature trails are shown comparing the supply of nature trails and the demand for nature walks. Needless to say, much nature walking occurs along backcountry, former logging trails and similar areas, as well as designated nature trails. Such opportunities are available throughout the state and are presently fulfilling a portion of the need indicated in the Table.

Special emphasis should be given to providing nature walking opportunities in parks, forests and wildlife areas particularly near the Twin Cities and other urban areas.

Table 41 lists the need in miles for Nature Trails for 1967, 1975, 1980, 1985. The highest needs are shown for Regions 11, 3, 10, 9, and 7 in this order. Except for Region 3, the Regions having greatest needs generally lie to the south or west of the public forest lands.

All regions indicate a need for nature walking trails. A considerable portion of the 1967 need is being met in existing recreation areas on undesignated trails. This will probably continue in the future. However, future need must be met impartially by designating trails in existing and proposed recreation areas, and should not require additional lands specifically for this purpose.

Table 41

MILES OF NATURE TRAILS NEEDED ACCORDING TO COMPARISON OF 1967 SUPPLY AND DEMAND FOR NATURE WALKS

Region	1967	1975	1980	1985
1	131	179	213	185
2	40	71	117	158
3	1,136	1,622	2,021	3,537
4	713	945	1,110	1,184
5	174	273	342	341
6	256	345	412	426
7	456	697	894	973
8	144	194	232	261
9	539	707	871	1,052
10	903	1,274	1,579	2,019
11	1,153	1,866	2,561	3,367
Total	5,645	8,173	10,352	13,503

LAND-BASED ACTIVITIES — Playing Outdoor Games

Playing games includes team sports and individual play emphasizing active participation (golf and tennis are excluded because they are measured separately). In the sample 46 per cent of adults and 95 per cent of sub-adults (6-19 years), or an average of 67 per cent of the population took part in this activity.

In terms of per capita annual participation rates, adults have a rate of 11 activity occasions per year (adjusted)[1] with sub-adults having a rate of 101 annual activity occasions. (adjusted)[1].

In 1967, playing outdoor games ranked fourth in popularity with husbands. It ranked first for sons, third for daughters, but was not among the first five most popular activities for wives. (See weekday Demand in Part 3 for further information relative to day use activities).

Playing outdoor games ranked sixth (Table 19, Part 3) among weekend recreation activities state-wide, with driving for pleasure, sightseeing, warm water fishing, relaxing outdoors and urban walking, preceding, in that order. In the metropolitan Region (Region 11) outdoor games ranked fifth.

Inquiries made to determine the respondent's preferences for weekday activities, if facilities were made available, showed playing games ranked second to swimming — the number one activity.

Among vacation activities, playing games did not appear to be a significant activity. However,

[1]Adjusted rates as provided by Midwest Research Institute following the treatment for excessive participation responses.

it is known that such activity is often an important part of the vacation experience.

Table 42 indicates the need for playfields, by Region, as a result of a comparison of the demand for playing games, and the supply of playfields. Table 43 shows adjustments which were made for Regions 9 and 11.

Table 42

DEFICIENCY OR SURPLUS NEED FOR PLAYFIELDS BY REGIONS IN ACRES

Region	1967	1975	1980	1985
1	− 84	− 151	− 237	− 167
2	+ 101	+ 91	+ 79	+ 67
3	− 709	−1,041	− 1,278	− 2,256
4	− 643	− 889	− 1,075	− 1,162
5	− 298	− 435	− 527	− 528
6	− 10	− 108	− 185	− 201
7	− 673	−1,032	− 1,309	− 1,422
8	− 182	− 302	− 387	− 450
9	− 442	− 670	− 866	− 1,096
10	− 537	− 840	− 1,196	− 1,710
11	−1,011	−3,101	− 5,569	− 8,291
Total	−4,488	−8,478	−12,550	−17,216

Needs for playfields are most apparent in Regions 11, 3, 10, 7, 4, 9 in that order. Because the inventory for school recreational facilities was incomplete, it is felt that the true needs are somewhat less than shown.

The survey indicated a deficiency for Region 11 of 5,500 acres. The deficiency was reduced to 2500 acres because it was found the participation rate used in the survey was five times higher than the O.R.R.R.C. rates which the Metropolitan Council adopted.

Table 43

ADJUSTED 1980 DEFICIENCIES OR SURPLUS FOR PLAYFIELDS—ACRES

Region	Unadjusted	Adjusted
1	− 237	− 240
2	+ 79	+ 79
3	− 1,278	−1,280
4	− 1,075	−1,075
5	− 527	− 500
6	− 185	− 185
7	− 1,309	−1,309
8	− 387	− 387
9	− 866	− 420
10	− 1,196	−1,200
11	− 5,569	−2,500
Total	−12,550	−9,017

Nationally, playing outdoor games and sports ranked fourth among summer outdoor recreation activities. Participation was found to have increased 96 per cent (exceeded only by bicycling) and is predicted to increase nationally by 72 per cent by 1980. The Minnesota survey predicts a 92 per cent increase from 1967 to 1980.

Tennis

Playing tennis is popular with about the same per cent of the population as canoeing, horseback riding, or skiing. Of the 10,834 people sampled, 5 per cent of the adults, 27 per cent of the young people (6-19 years) or, 14 per cent of all surveyed, played tennis.

In terms of participation rates, the sub-adult's rate of 3 activity occasions per year was about six times higher than that of the adults rate, of 0.6. In popularity, tennis was not among the top ten activities in any category although it most likely falls into a weekday and weekend type of participation.

An increased interest in playing tennis was shown in the fact that it was ranked fifth among those weekday activities in which respondents stated they **would** participate if the facilities were made available.

Annual activity occasions are predicted to increase from 3,925,000 in 1967 to 7,527,000 by 1980, or 81 per cent. Although national projections were not made separately for tennis, an increase of 72 per cent was forecast for playing outdoor games during the period 1965-1980.

SNOW-BASED ACTIVITIES — Snowmobiling

Snowmobiling is steadily growing in popularity and is bringing many people out of their homes for family fun. The machines are increasingly being used for joy-riding in the countryside or more extensive travel on forest and parkland trails, jaunts to winter fishing spots, visits to snowbound cabins, travel to hunting areas, or for special racing events and other activities.

In accordance with provisions of the 1967 snowmobile law, the Commissioner of Conservation has established regulations for the operation and use of snowmobiles.

A provision of the law was the registration of snowmobiles. From September, 1967, when state registration began to December, 1968, approximately 45,000 vehicles were licensed.

In 1967, snowmobiling ranked eighth in popularity for both a weekend and weekday activity. This indicates the popularity of the sport. The tremendous impact of snowmobile popularity may be seen when one considers the fact that the activity did not appear in the 1962 ORRRC survey as a recreation activity of consequence.

Estimated sales figures of Canada's largest snowmobile brands illustrate the growth of the market. In 1961, some 3,300 units were sold. In 1962, these figures jumped to 7,900 and in 1963, there were 14,200 units sold and probably not more than 5,000 were sold in the United States in 1962. In Minnesota, there were an estimated 90,000 snowmobiles in Minnesota by the winter of 1968.

In the 1967 demand survey, six per cent of the adults and 29 per cent of the children 6 to 10 years old participated in snowmobiling. The per capita participation rate for adults was two times a year and for children, three times a year. Applied to the state population, there was a total state-wide demand of 5,897,738 activity occasions for the entire year, 1967.

The total supply of trails (3,128 miles) can accommodate 2,349,770 activity occasions per season. As shown in Table 44, in 1967 there was a deficit of 3,860 miles of trails needed to accommodate an additional 3,547,968 activity occasions according to established quality standards.

Table 44

SNOWMOBILE DEMAND IN TERMS OF DEFICIENCIES AND SURPLUSES BY REGION (UNADJUSTED)

Region	1967	1975	1980	1985
1	− 740	− 973	−1,147	− 1,007
2	− 9	− 90	− 172	− 245
3	− 160	− 56	− 274	− 1,492
4	− 252	− 354	− 425	− 457
5	− 1	− 82	− 191	− 190
6	− 167	− 214	− 257	− 266
7	− 705	−1,091	−1,384	− 1,501
8	− 22	− 26	− 33	− 38
9	− 196	− 242	− 306	− 375
10	− 202	− 274	− 352	− 465
11	−1,728	−2,812	−3,825	− 4,989
State-wide	−3,860	−6,012	−8,366	−11,025

The greatest need for snowmobile trails is in the Metropolitan Region. However, it can be assumed that many of these activity occasions are satisfied in other Regions, primarily in the north and west. It is also apparent that activity occasions are satisfied on lakes, golf courses, open fields and roadsides and railroad right-of-ways throughout the state. For example, in the 7-county metropolitan area there are 130,410 acres of lakes alone that can be used for this sport.

The most rewarding snowmobile experience is likely to be on trails that offer a variety of scenery and challenge. It is also important from the safety standpoint to remove snowmobiles from hazardous areas to designated snowmobile trails. Considering these facts and assumptions, it will be necessary to provide more trails in portions of all the Regions, particularly in the Metropolitan and nearby Regions where the greatest needs are shown.

Deficiencies for snowmobile trails were adjusted downward in Regions 1, 3, 4, 6, 7, 8, 9, 10 and 11 as shown in Table 45. It was felt that the adjusted figure would give a more accurate indication of the miles of trail that should be developed.

The unadjusted deficiency was developed by assuming that all snowmobiling takes place on developed trails.

Table 45

ADJUSTED 1980 DEFICIENCY OR SURPLUS FOR SNOWMOBILE TRAILS BY REGION IN MILES

Regions	Unadjusted	Adjusted
1	−1,174	− 125
2	− 172	− 175
3	− 274	− 0
4	− 425	− 300
5	− 191	− 200
6	− 257	− 150
7	−1,384	− 480
8	− 33	− 0
9	− 306	− 0
10	− 352	− 0
11	−3,825	− 500
Total	−8,366	−1,930

Undoubtedly, this is not a correct assumption. However, it was made because there is little information available concerning snowmobile activity. Much of the snowmobile activity occurs on open farm land, lakes, and other open spaces, as well as on logging roads, horse trails, etc., which were not developed for snowmobile use. This is particularly true in those Regions which were adjusted.

GROUP 3 — Non-Disaggregated Activities, Demand Not Compared to Supply

Water-based

Sailing

Land-based

Attending Concerts and Plays
Bird Watching
Driving for Pleasure and Sightseeing (included 4-wheel drive)
Hiking with gear
Mountain Climbing
Nature Photography
Trap and Target Shooting
Viewing Outdoor Games
Visiting Zoos and Exhibits
Walking for Pleasure (urban)
Wild Berry Picking

Ice-based

Ice Sailing
Ice Skating and Hockey
Sledding and Tobogganing
Snow Skiing and Snowshoeing

Other

Flying for Pleasure and Skydiving
*Gardening for Pleasure
*Model Plane and Kite Flying
*Relaxing Outdoors
*Sailplane Gliding

The 44 activities listed in the Midwest Research Institute are broad in scope and cover a wide range

*Not discussed

of activities for all seasons of the year. Some have a direct relationship to outdoor recreation planning and the development of areas and facilities to meet the needs. Others have less need for specific areas and facilities.

The activities to be discussed in this part of the demand chapter represent those activities which have no measurable supply by which a determination of need can be made. Many of the activities are important to the overall outdoor recreation picture, but are not critical in the determination of acquisition and development programs. On the contrary, some of the activities have little to do with the broader aspects of outdoor recreation, but are important insofar as they relate to specific areas of participation and local demand. An example of this might be found in the idea that the Como Park Zoo is the only facility of its kind in the Twin Cities Metropolitan area, and people drive for miles to enjoy its facilities and values.

In addition to the information contained in this section of the report, additional data on participation, popularity, demand projection, etc., will be found in Part 3 and Appendix I.

WATER-BASED ACTIVITIES — Sailing

Sailing has long been an established recreation activity in Minnesota. The excellent water resources for sailing, plus the fact that climate and wind conditions are good, contribute to the popularity of the sport. The Midwest Research Institute survey indicated that four per cent of the state population participated in a sailing activity in 1967. Of the population, 2 per cent of the adults and 6 per cent of the sub-adults indicated an activity occasion for the sport. The per capita sailing activity rate for Minnesota's population is 0.2 for adults and 0.3 for sub-adults.

No data is available to determine trends for sailing in Minnesota. However, from boat sales information, it would appear that sailing is gaining in popularity and will become more important as a water-based recreation activity. If Minnesota follows the predicted national estimates of sailing activity, the state can expect at least a 74 per cent increase in sailing activity by 1980. From 1960 to 1965, sailing increased nationally by 50 per cent in terms of the number of times participants engaged in the activity. Two per cent of the national population engaged in sailing activity in 1960. By 1965, the per cent of the population engaging in the sport was 3 per cent, with an indicated per cent of change of 62 per cent.

LAND-BASED ACTIVITIES — Attending Concerts and Plays

Attending concerts and plays is an important adjunct to any leisure involvement. People drive for miles to enjoy pageants and performances of various sorts. Very often the participation in this activity is also a part of another activity, such as sightseeing or driving for pleasure.

Such things as "pop" concerts, where families may enjoy picnic lunches while listening to the performance, are very popular. In the Metropolitan Area, one may canoe or sail while listening to live performances and concerts beside Lake Harriet. The popularity of this form of activity is reflected in the national trends which rate the attendance at outdoor concerts and plays as the 16th most popular activity. Nine per cent of the national public participated in this activity in 1960. By 1965, the per cent of the population attending an outdoor concert or play rose to 11 per cent, for a 32 per cent change. By 1980, it is anticipated that the increase of this activity will be 78 per cent over 1965. By the year 2000, the increase is predicted to be 218 per cent over 1965.

LAND-BASED ACTIVITIES — Bird Watching

Nearly one fourth of Minnesota residents enjoy "bird watching". The activity varies from observation of back-yard bird feeders to a deliberate searching out and observation of various bird species in their natural habitat.

The 1967 survey shows that 23 per cent of Minnesota adults, and 21 per cent of the sub-adults participate in bird watching, for a state average of 22 per cent. The participation rate for adults was 22 per capita. For the younger generation, the activity rate, per capita, was 10.4 or less than half that of the adults.

As a winter weekday and weekend recreation activity, bird watching ranks tenth in popularity. When all seasons are considered, bird watching ranks sixth, state-wide.

The public is becoming more aware of its environment, and the interest in bird watching as a recreation activity may be increased.

LAND-BASED ACTIVITIES—Driving for Pleasure

Driving for pleasure is the most popular weekend outdoor recreation activity in Minnesota. The activity includes sedan driving, back-country driving in jeeps, and sightseeing. It is very often related to other activities such as picnicking, swimming, boating, camping, etc., in which the drive to the area, where the particular activity will take place, may constitute a drive for pleasure. Primarily, the driving activity denotes non-directed type of travel to "just see the country" or just "go for a drive". It is not auto racing or necessity driving such as errands or to work, etc.

The Minnesota survey indicates that in 1967, 89 per cent of the state's adult population participated in a driving for pleasure activity. Eighty-

four per cent of the sub-adults drove for pleasure, and the state population average for the activity was 87 per cent. The yearly per capita activity rate was 41 times for adults and 35 times for sub-adults.

Driving for pleasure ranks third in popularity as a vacation activity. For seasonal weekends (excluding relaxing outdoors and gardening for pleasure) it ranks in popularity as follows: fall 1, spring 1, winter 1, and summer number 3, behind swimming and warm-water fishing.

Nationally,[1] driving for pleasure was the number one outdoor recreation activity in 1960. By 1965, the activity indicated a mere 8 per cent increase over 1960, the same as the population increase. By 1980, driving for pleasure may show an increase of 63 per cent over 1960 and a 51 per cent increase since 1965. At the predicted rate of decline, driving for pleasure will fall to fourth place in popularity by 1980 and stay there to 2000, even with the possibility of a 146 per cent increase over 1960, and a 128 per cent increase over 1965. Driving for pleasure ranked as the third most popular outdoor recreation activity in 1967. The per cent of the nation's population driving for pleasure totaled 52 per cent in 1960 and 55 per cent in 1965, for a 14 per cent rate of change.

LAND-BASED ACTIVITIES — Hiking with Gear

"Hiking with gear" or "back-packing" as it is often called, is an activity which nationally[1] ranks eighth as a major summertime activity, having grown the fastest since 1960. Predictions of this growth rate indicate that it will be the second fastest growing activity in 1980 and 2000. By 1980, the per cent of increase in participation is estimated to be 78 per cent over that of 1965. By the year 2000, the predicted increase may be as high as 218 per cent. Six per cent of the nation's public participated in a back-packing experience in 1960. By 1965, the participation had increased to include 7 per cent of the population for a 26 per cent change.

Statistics for Minnesota indicate that in 1967, an average of 9 per cent of the state's population participated in a back-packing experience. The adult population did very little hiking with gear with only 2 per cent participating. The sub-adult per cent of participation was considerably higher with 18 per cent engaging in the activity. Adult activity rates indicate a per capita occasion of 0.2. Sub-adults participated at a rate of 0.8 occasions per capita.

See Part 3 and Appendix for further information on participation rates projections of demand.

[1]Outdoor Recreation Trends, Dept. of the Interior, Bureau of Outdoor Recreation; 1967.

LAND-BASED ACTIVITIES — Mountain Climbing

Mountain climbing is an activity which is limited in Minnesota because of the resources. There are some high cliffs to climb, but the ardent mountain climber will go westward for his pleasures.

Only 1.8 per cent of the adult population in Minnesota participated in mountain climbing. The sub-adult population data indicates a 3.4 per cent participation in mountain climbing making the average per cent of participation for the state 2.5 per cent. The mountain climbing activity rate for Minnesota adults was 0.1 occasions per capita with the same rate for children.

LAND - BASED ACTIVITIES — Nature Photography (including wildlife and bird photography)

In 1967 the demand survey indicated that 4 per cent of the adults and 3.5 per cent of the young people (6-19 years) in Minnesota were wildlife and bird photographers. The rate of participation was 0.6 times on the average for the sample adults and 0.5 for young people. The activity rate of many who indicated an interest in wildlife photography was very high, and the activity was listed as a major part of their recreation pattern.

No definite activity trends have been established for wildlife and bird photography. However, the interest that many people have for wildlife photography indicated the importance of maintaining wildlife for those who wish to hunt with a camera as well as for those who use a gun.

LAND-BASED ACTIVITIES — Trap and Target Shooting

Trap and target shooting is not a major outdoor recreation activity, in terms of the volume of people participating. Only 9.1 per cent of the adults and 17.3 per cent of the children indicated any participation in 1967. As a result, the per cent of participation for the total state population was 12.6 per cent. The activity occasion rates for adults was 0.8. For children, the rate was also 0.8.

LAND-BASED ACTIVITIES — Viewing Outdoor Games

From the tourist influx data of the Origin and Destination Study, it was indicated that 59 per cent of the tourist influx comes to the Metropolitan Twin Cities. The major attractions are the commercial and cultural aspects, and sporting events. Professional sports are a major industry in the state and provide a great deal of interest and drawing power for the resident as well as the tourist.

Fifty-seven per cent of the adults and 74 per cent of the children viewed some sort of outdoor game in 1967, for a state average of 64.5 per cent. Not all of the sporting events and games pertained

to the professional leagues. Little leagues, sand lot games, adult ball leagues, etc., all had their share of spectators. The adult viewing participation rate was 8.4 activity occasions. The youngsters watched at a rate of 15.7 activity occasions. Fall seems to be the big time for viewing outdoor games, placing the activity in seventh place in weekend popularity. For all seasons and all activities, Viewing Outdoor Games ranks ninth for adults and tenth for children.

Nationally, attending outdoor sports events ranks ninth on the popularity scale.[1] Twenty-four per cent of the population participated in the activity in 1960 and 30 per cent in 1965 for a 35 per cent change. Viewing sporting events ranks as the eighth major summertime activity which will grow fastest between now and 1980.

LAND-BASED ACTIVITIES — Visiting Zoos and Exhibits

Visiting zoos and exhibits is primarily an urban-oriented pastime. With the Como Park Zoo in St. Paul, the State Fairgrounds, and major statewide cultural aspects, the metropolitan area has become a mecca for this activity. However, this does not diminish the pleasure derived from rural participation in county fairs and various local exhibits.

Participation rates indicated that adults participated 2.6 times per capita and children participated 2.9 times. The average number of the population participating in activities such as visiting zoos and exhibits was 61.9 with 58.9 per cent of the adults participating and 66 per cent of the children.

State-wide, the popularity is very low because most of the respondents in the survey did not give visiting zoos and exhibits much consideration because these activities are not as prominent as swimming, camping, etc., and the participation is limited to those times and places that such opportunities are available.

LAND-BASED ACTIVITIES—Walking for Pleasure (Urban Walking)

Urban walking is the number one pastime of the American public. According to the Bureau of Outdoor Recreation*, walking for pleasure has increased in popularity faster than any other major outdoor recreation activity since 1960, surpassing "Driving for Pleasure", which was in the number one position for many years. However, projections indicate that pleasure walking will become our third most popular activity in both 1980 and 2000 just behind swimming and playing outdoor games and sports.

In 1960, 42 per cent of the public participated in a walking for pleasure activity. In 1965, the per cent rose to 48 per cent, for a 15 per cent change. By 1980, walking for pleasure may show a 172 per cent increase in activity occasions over 1960, and a 49 per cent increase over 1965. The increases may indicate a 365 per cent rise from 1960 to 2000 and a 151 per cent increase from 1965 to 2000.

In Minnesota, 60 per cent of the public participated in a walking for pleasure activity in 1967. Of this total, 55 per cent of the adults and 65 per cent of the children participated in the activity. On an annual basis, urban walking is ranked as the third most popular outdoor recreation activity for adults and fourth for children. Wives indicated that urban walking was their tenth most popular activity on vacations. For husbands, wives and children, urban walking was the tenth most popular activity for vacations. The activity ranks as the fifth most popular spring weekend activity, third for the fall weekend activity, sixth for winter weekends, and ninth for a summer weekend.

LAND-BASED ACTIVITIES — Wild Berry Picking

Berry picking is an outdoor recreation activity closely associated with other activities such as camping, picnicking and hiking. There are, however, many trips made to source areas for the primary purpose of gathering berries.

An average of 20 per cent of the population in Minnesota indicated activity occasions in wild berry picking. Seventeen per cent of the adult population and 25 per cent of the children indicated a participation in the activity. No indications have been given that the activity ranks high in total popularity for any season, weekends, weekdays or vacations. The activity is dependent upon many things. Foremost of these is the availability of the resource. Thus, demand for the activity varies from year to year, according to the supply of berries.

ICE-BASED ACTIVITIES — Ice Sailing

The sport of ice sailing seems to be gaining in popularity as indicated by the number of entries in regattas. The primary drawback to ice sailing is the cost of the boats, which can run to $20,000 or more for the larger types with their special trailers. In Minnesota an average of 0.2 per cent of the total population participated in an ice boating activity occasion in 1967. Of this, 0.1 per cent of the adults participated, and 0.4 per cent of the children indicated activity participation. The activity rates are .02 per capita for children and .10 per capita for adults. The average per cent of participation and activity occasion rates indicate the general popularity of ice sailing as a popular winter activity in Minnesota. However, it is generally thought that this activity may be a "sleeper" and could become more popular as costs are lowered, income rises, and more winter leisure time is available.

[1]Outdoor Recreation Trends, Department of Interior, Bureau of Outdoor Recreation, 1967.
*Outdoor Recreation Trends, Report of the Interior, Bureau of Outdoor Recreation; 1967.

SNOW AND ICE - BASED ACTIVITIES — Ice Skating and Hockey

Ice skating in Minnesota is a major recreation activity for children in winter. Eighty per cent of the children participated in ice skating or hockey in 1967. The percentage is almost six times as great as the 14 per cent of adults who indicated some participation in these activities. The state-wide percent of the total is 42 per cent of the population indicating participation in ice skating, hockey, or curling recreation activity for 1967.

On an annual basis, ice skating and hockey ranks eighth in popularity for children when all activities for all seasons are considered. The activities are less popular with adults, on an annual basis, and are not indicated in listing of the ten most popular activities.

Ice skating and hockey ranks as the third most popular activity for winter weekend activities for adults and children combined. The per capita rates for ice skating activity are 1.7 for adults and 20.6 for sub-adults.

Ice skating and hockey are directly related to a seasonal availability of resources. Though Minnesota has the climate and winter conditions to foster much ice skating activity, the resources for skating vary with conditions. Thaws, crusting ice, blowing snow, intense cold, all contribute to the demand and resource of ice skating facilities. Thus, projections of a demand and supply for ice skating is questionable. It may be assumed that the supply of ice skating facilities will be responsible to local demand.

SNOW-BASED ACTIVITIES — Sledding and Tobogganing

Sledding and tobogganing are activities which were enjoyed by an average of 43.4 per cent of the Minnesota population, in 1967. These are youth-oriented activities, for the most part, with 71.4 per cent of the children participating and only 23.1 per cent of the adults. The activity rate for adults is 1.8 per capita while the activity rate for children is 23.7 per capita.

On an annual basis, sledding and tobogganing ranks as the seventh most popular activity for Minnesota's children. It does not rank in the top ten for adults in popularity, but does rank as the second most popular winter weekend activity, after pleasure driving, for children and adults combined.

Nationally, 9 per cent of the public participated in a sledding or tobogganing activity in 1960. Through 1965, the per cent of participation rose to 13 per cent—a 55 per cent change. Projections were not made for these activities, but it may be assumed that the popularity will continue to grow as winter sports take on more importance and prestige.

ICE-BASED ACTIVITIES — Snow Shoeing and Skiing

Skiing and snow shoeing rank as the seventh most popular winter activities in Minnesota. The average of the state population participating in these activities was 15.3 per cent in 1967 (5.5 per cent of the adults and 29 per cent of the children). The participation rate for children was 2.4 per capita, and 0.5 per capita for adults.

Nationally, two per cent of the population participated in skiing and snow shoeing activities in 1960. By 1965, the per cent rose to 4 with a 115 per cent change. No projections were given for snow shoeing and skiing, but it may be assumed that the rate of increase in popularity will be directly proportionate to the availability of facilities, snow conditions, and equipment costs. Other considerations for demand are associated with transportation to the snow areas, and the social acceptance of the sports. "Skiing" is fast becoming the "thing to do" and many ski resorts can attest to the numbers of people who arrive for the social aspects of skiing.

OTHER ACTIVITIES — Flying for Pleasure and Skydiving

Flying for pleasure is an activity which is growing in popularity. Skydiving is also increasing in participation as new initiates take to the skies. The average state-wide participation for those who fly in planes, and those who skydive, is 5.2 per cent. Of the total Minnesota population, 5.1 per cent of the adults and 5.3 per cent of the children indicated participation in a flying activity. Activity rates for these air-oriented activities are 0.4 per capita for adults and 0.1 for children. (This would not include children under 16 years.)

III. QUALITY OF ENVIRONMENT — EFFECT OF DEMAND

The quality of the environment is one of the most fundamental aspects of outdoor recreation. The quality of the environment directly relates to the quality of recreation resources by providing the essence of the resource base. The quality of the environment also relates to recreation demand because, where the quality of the recreation environment is high, demand for recreation resources is also high.

The 1966 Minnesota Traveler Survey revealed that where the quality of the environment (and recreation resources) is high, Minnesota residents are quite willing to travel to them. The Origin and Destination study reinforced this fact by indicating that the majority of recreation destinations were for the areas considered to have high quality of environment.

The generally accepted connotation of a high quality environment is one which is free from undesirable man-made intrusions and influences, and which provides a good example of the dominant landscape. By this is meant that when one is in a forest setting, the quality of growth, landform, and water quality should portray the intrinsic values of the forest, and not be dampened by the influence of a honky-tonk, drive-in, cheap gas station, ramshackle building, etc., at every turn. It also means that roads through such areas are free from such obnoxious intrusions as billboards, power lines, etc., which tend to detract from the dominant character of the environment.

Quality of the environment and recreation resource must also be considered in urban areas, as well. Obnoxious structures, noise, odors, etc. provide a detraction from the character of the urban environment and produce a negative reaction in the viewer.

Where the quality of the urban environment is high, people tend to be drawn to it and the economy prospers. (An example of such a quality environmental attraction is the Nicollet Mall. The quality of the environment along portions of Nicollet Avenue was improved and made more relative to the human scale. As a result, business has improved, public reaction has been favorable, and crowds are attracted.)

Quality of the environment is not a luxury but an essential part of the natural character of man. Man's relationship to beauty is essential to his health and well-being while ugliness detracts from his well-being.

According to the Outdoor Recreation Resources Review Commission Report (Volume 22, page 244): "Health can best be understood as a characteristic of the interaction between an individual and the total physical and social environment in which he develops and lives." Many researchers believe that a person's mental and physical health can be directly related to the quality of the environment in which he lives. Thus, it may be said that what a man feels reflects the type of environment that affects his nature.

Numerous studies have been made which indicate that the urban dweller seeks much of his recreation in a high quality natural environment. Such an environment often provides a contrast to the urban scene in which he dwells.

Similarly, rural residents travel to the areas where the recreation resources and environmental quality are the highest. If the quality of environment and resources found in these areas could be instituted in other areas of the state having less resources and environmental quality, the demand for outdoor recreation resources will increase in direct proportion to the quality of environment and availability of resources developed in these areas. This means that if the high quality water and land resources found in the north could be developed in southern Minnesota, the demand for recreation in the south would be increased proportionately.

Quality of environment also includes values of the mini-landscape (the individual picnic site, camping area, boat launching site, etc.). For instance, if a camper finds that the area in which he is camping is crowded, dirty, poorly designed, inadequate, noisy, etc., the quality of his camping experience is lessened. Thus, the quality of facilities of the recreation resource and the environment in which they are found is directly related to the quality of the recreation values inherent in the area.

It is also indicative that the quality of the environment reflects the opinion that man and his society have of themselves. Man **can** provide quality in his environment—if he wants to. If society cares not that developers and speculators are "carving up the landscape" in an indiscriminate and obnoxious manner, the resulting environmental quality deficiencies will reflect this. However, if society feels that ill use of the landscape and environment is contrary to the development of high environmental quality, it can do something about it. The result is the utilization of tools, such as zoning and easements, etc., which effect a perpetuation and control of the quality of environment and recreation resources for the good of all society—if it wants to.

THE PLANNING PROCESS RELATING DEMAND TO SUPPLY — A COMPREHENSIVE LOOK

Translating the demand for a wide variety of outdoor recreational activities into land and water resources and use-facilities represents a major step in the planning process. The process has been

described in this section, and its application will follow. In the final analysis, it will not be completed—until it directly involves the local citizenry and public and private agencies. A series of logical steps to be followed will carry the data heretofore gathered into ultimate application in each case.

To more easily visualize the steps to be taken, any one of the Recreational Planning Regions may be chosen as an example. Up to this point, inventory of supply has included developed facilities such as campground, picnic grounds, summer cabins and resorts, playing fields, and golf courses; and such intensive resource use areas as trails and beaches, and gross resource use areas such as acres of water for boating and water skiing, miles of stream for canoeing, etc. In situations where construction and improvements to facilities are possible, the supply can be considered to be elastic. Generally speaking however, high value elements (scenic land forms, natural features, and historical attributes) of the basic land and water resources cannot be expanded and are inelastic.

The report provides a solid statistical basis of inventory of present developed facilities, and projects needs in 1985 (using stated assumptions of growth). Still to be obtained are inventories of the inelastic resource base. These must be related to the tenure and uses of the surrounding area and decisions made on how to secure these resources for future recreational needs.

Demand figures are related largely to recreational activities which can be supplied only in part by man-made facilities. Supply includes scenic, open space, landscape, and water-scape areas of high quality which cannot be entirely expressed in quantitive terms. Thus, a different approach must be taken in determining the extent of available supply.

This second step in Minnesota's inventory includes identification and classification of scenic, recreational, historic and related environmental resources. A discussion of the methods by which this could be undertaken in future recreation studies is found in the discussion of potential land and water to meet future recreation needs.

CHAPTER 6 — NEEDS (POLICIES, STANDARDS AND RECOMMENDATIONS)

I. INTRODUCTION

What is the overall situation in Minnesota's need for land and water? What opportunities do our lands and waters offer? How much use can they stand? At present, there are more than 3.5 million people in the state. The Bureau of Census predicts that there will be more than 4 million by 1980. If the trend continues, the majority will be living in and around the metropolitan area.

The most immediate recreation needs are to develop the existing opportunities of public areas and to set aside additional land and water for recreational purposes in and around the metropolitan areas, along the federal and state highway systems, and in more remote sections of the state. In all cases this involves the preservation of wilderness, natural features, scenery, and the preservation of significant historic sites and buildings.

The wide variety of opportunities within public recreation areas range from wilderness to highly developed recreation areas near the densely populated metropolitan area. There is a need to provide all segments of our present and future population with adequate outdoor recreation areas near enough to their homes for frequent day and weekend use, as well as more remote areas for vacation use.

Areas must be recognized not only for their recreational potential, but also for their natural environmental value. Their future potential requires that we act now to save what we have. Resources must be conserved outside designated recreation areas through measures of pollution control, zoning, land management, and restricted drainage measures to protect our marshes and wetlands.

In summary, one of the greatest opportunities we have is to encourage the best use of our land for the highest social and economic advantage to its residents. Recreation is an essential use of the land. Conservation of Minnesota's widely varying resources and preservation of the remaining scenic, historic and scientific attractions is both necessary and essential to the best interests of the state and its people. To accomplish this, we must plan now before the opportunity is lost.

II. APPROPRIATE ROLE AND RESPONSIBILITY OF FEDERAL, STATE, LOCAL, AND THE PRIVATE SECTOR IN OUTDOOR RECREATION

It is vital for those responsible for the acquisition, perpetuation, and management of outdoor recreation resources to acquire and manage the resources in a comprehensive and responsible manner so that this generation and future generations will have the opportunity to enjoy a variety of high quality leisure experiences.

This is no small task. Each management entity must assume a complementary role and full responsibility for the scope of its involvement. The decision makers — those governmental agencies and private land owners who have the responsibility for managing the resources — must work together. Cooperation must be the keynote; responsible management a mandate.

It is important that each of the managing entities fully understand their role as it pertains to the comprehensive management of the outdoor recreation resources in Minnesota. No single level of government should have full responsibility for recreation resource management.

Local units of government are important to the functioning of the state and provide local representation and implementation of the controls and regulations established by the state. Thus, the local units of government are dependent upon the state government for their authority and the state is dependent upon the local units of government to carry out its functions and responsibilities as they directly relate to the public at local levels. This chapter outlines the present roles and responsibilities of government to our outdoor recreation resources and how these roles and responsibilities interrelate.

Federal

The federal government has two major roles relating to outdoor recreation in Minnesota. The first is a **direct role** which sets aside and manages the outstanding natural, cultural and historic areas within the state which have **national significance** and **appeal.** Examples in Minnesota are the Pipestone and Grand Portage National monuments managed by the National Park Service and the superb Boundary Waters Canoe Area managed by the U.S. Forest Service.

The federal government also exercises its capabilities to perpetuate natural resources by providing flood control through stabilizing watersheds, etc., when it is determined to be in the best national and state interests. This capability includes the functions of resource management which provide for the best and highest use of the resource while safeguarding and enhancing its inherent qualities for the enjoyment and utilization by man. This is often referred to as "multiple use management" of the resource. Federal examples of this resource management concept in Minnesota can be found in the Superior and Chippewa National forests, managed by the United States Forest Service; the lands and waters managed

by the Corps of Engineers and the Bureau of Sports Fisheries and Wildlife.

The second major role of the federal government **indirectly** helps to set aside and manage the outdoor recreation resources of the state. This **indirect role** is implemented by providing financial and technical assistance to the private sector, and to the state and local units of government for the development and perpetuation of outdoor recreation resources.

The scope of the federal aid for outdoor recreation is broad and involves a great many agencies and programs. Federal aid for outdoor recreation ranges from the Small Business Administration's loans for private recreation development; to the Soil Conservation Service's Technical land use assistance in soils mapping, interpretation and land use management; to the recreation funding program of the Bureau of Outdoor Recreation.

The present federal aid funding programs provide a percentage of cost sharing with the state and local governments contributing a substantial portion of the funds. (See section on Financing.) Such funding aid provides opportunities for the state to implement more comprehensive recreation acquisition and development programs. A suggested program for coordinated governmental recreational services will be found in the Action Program of this report.

State

There are two aspects of the state's role in the management of outdoor recreation resources within its boundaries. The first is a **direct** responsibility to acquire and manage natural, cultural, and historical outdoor recreation resources which have outstanding, unique, and **state-wide** significance and value. Examples of the implementation of this role are the Itasca, Fort Snelling, and Tower-Soudan State parks as well as the state forest and wildlife management area lands. In view of its responsibility, the state has a key role in outdoor recreation and natural resource management.

The state may provide limited, primitive, high quality areas for **intensive** use such as camping, picnicking and swimming; trails or accesses for hiking, biking, snowmobiling and horseback riding; boat launching facilities; strategically located state wayside rest areas, and outstanding natural, cultural and historic areas such as might be protected in state parks. In addition, the state provides a variety of fishing and hunting opportunities according to the capabilities of the resources and good multiple use land management practices. This includes areas where private enterprise is unable, or unwilling to provide the scope and quality necessary to adequately serve public need and demand.

The other aspect of the state's role is an **indirect** responsibility to perpetuate and enhance local outdoor recreation values and heritage. This can partially be done through developing legislation which encourages local units of government to set aside and properly manage resources which are of local interest as well as state and regional significance. Statutes must provide for acquisition and development rights, scenic easements, zoning and other regulatory controls for the perpetuation and protection of these resources. They also should provide means for quality controls and enforcement, authorization to issue bonds, organizing districts for parks and outdoor recreation resource management and for adequate funding through equitable taxation for recreation and parks.

There is a strong need for combining the use of regulatory power, the power of eminent domain, the power to tax and the proprietary power so as to achieve the desired effect with a maximum degree of fairness and efficiency.

Minnesota already has established some of the necessary enabling legislation in Chapters 86, 297 and 398. The Laws periodically should be reviewed in light of changing times and conditions and be brought up-to-date as necessary. As a result, the laws will better serve the people of the state and perpetuate our environmental and outdoor recreation resources. (Suggested new legislation will be found in the Action portion of this Plan.)

It also is important for the state government to provide laws which protect the private property owner from undue liability claims when the recreation resources of his property are made available to the public free of charge. (This does not remove, nor limit, the reponsibilities of the property owner in providing a reasonably safe environment for the visitor.) The State of Minnesota has provided such protection as stated in the Laws of the State of Minnesota, Chapter 87.

Another major role of the state is to augment financial aids to local government units for the acquisition, development, and maintenance of their outdoor recreation resources where local funding is inadequate. The Minnesota Natural Resources Act (Minnesota Laws, Chapter 86) provides for cost sharing for recreation area acquisition and development. (The financial section of this Plan deals more specifically with this program.)

The state has an indirect responsibility to provide a comprehensive program of research, education, information, and technical assistance to local government and the private sector. Such a program should include information and guidance services concerning the establishment of quality recreation development; a continuing inventory of recreation trends and facilities; and the conservation of our outdoor recreation resources. The education of the people of the state as to what their recreation resources are and how they can best be utilized, perpetuated and managed, is a major key to the future success of any outdoor recreation resource programs in Minnesota.

County

The county is one of the primary elements in outdoor recreation resources and land use planning and management. It is the role of the county to exercise leadership in preserving those natural, cultural, and historic recreation resources which have **local and county significance** and which fulfill both urban and rural recreation needs.

County parks and recreation areas should be of high quality and provide facilities for intensive use such as boat launching sites, picnic areas, beaches, campgrounds, primitive trails for horseback riding, hiking, biking, snowmobiling, nature study, nature centers and an interpretive program, regional athletic areas, fairgrounds, museums, historic sites, art galleries, group camps, and other similar areas primarily serving county and regional needs.

The county should be a leader and coordinator of local recreation development and planning which is county-wide in scope. It must cooperate with all units of government including municipalities, metropolitan areas and the private sector in dealing with the comprehensive planning for recreation needs and demand. To provide continuity, Park Boards, Commissions, etc., will best serve the county if structured to eliminate frequent turnover of members and staggered appointments.

Controls are needed on the county level to protect environmental quality through the controls of billboards, junkyards, dumps, etc., with adequate and responsible zoning ordinances. It is also necessary that the county exercise its powers to control lakeshore development, establish pollution controls, and initiate sound planning practices such as lakeshore cluster development, setbacks and scenic easements.

In addition, the county should also control boating on lakes wherein conflicts in their use have arisen.

The growth of our cities and towns must be planned in an orderly fashion so that their "liveability" and various aesthetic and economic values can be developed and maintained. The county should provide the impetus and leadership in planning with cities and villages according to the total resource base and the needs of the people. In addition, the county should work cooperatively with the state and federal governments to establish sound planning principles. These should provide for coordination with the municipalities in the establishment of positive action programs and responsible design guidelines of parks and recreation areas within its jurisdiction, as well as the private sector.

Current laws delineate the responsibility of the county in planning for unincorporated areas. They also provide a means for cooperation with municipalities in planning. This cooperation is strongly urged as a means to provide a complete and comprehensive plan.

A major responsibility of county government, therefore, is to assess the values and scope of the outstanding resources in the county and prepare a comprehensive plan. Urban or metropolitan counties must coordinate their planning with regional planning agencies to consider the regional and area aspects.

The counties are a key to the sound management of non-urban public and private outdoor recreation resources on a local level. If the counties fail to live up to their responsibilities, the entire statewide recreation picture is affected. Therefore, it is important that a comprehensive approach be taken to all the facets of recreation in the counties. County government must provide responsible and professional leadership and control in the design, development, acquisition, and management of its environment and resources.

The counties and municipalities of the metropolitan area have a particular responsibility. In a metropolitan area, population pressures, demand for recreation areas, and environmental development problems are indigenous to all the counties and municipalities. The scope of the problems is great and the involvement complex. It is necessary, therefore, that each metropolitan county work closely with metropolitan government in trying to resolve mutual problems, establish comprehensive goals and objectives, and provide for the orderly expansion and development of the total area.

Municipal

It is at the local level that most of the fundamental needs for daily recreation and play space are met. The responsibility of municipal government in recreation is to provide public sites and facilities to accommodate the recreation needs of the local resident. These include such areas as sports fields, swimming pools and beaches, hockey and ice skating rinks, neighborhood parks, tot lots, playfields, golf courses, bicycle and pedestrian trails, community centers and other similar facilities, plus directed recreation programs. In many smaller communities, these facilities and programs should be tied into other municipal facilities, such as schools, public buildings and grounds, to provide for a better utilization of the total community resources.

The leisure and recreation resources of a municipality encompass a larger scope than parks, playgrounds, and programs. Attention must be given to the total environment of the community — in the form and quality of living space, street and highway design, quality of the business district, scenic and aesthetic qualities of the surrounding landscape, and the cultural, historical, and natural resources of the community. These elements, combined with other resources of the municipality,

can, if they are developed and managed well, provide a high degree of "liveability" for the citizens.

Recreation planning should be in terms of local need with both human values and available resources as major considerations. The municipality must work with the county and the state in preserving and enhancing both the local resources, and those outside the municipal limits which are influenced by local considerations and demand.

The local units of government should cooperate with the county in establishing zoning ordinances which regulate and control billboards, lake and river shoreline development, rubbish and trash disposal, junkyards, irresponsible housing development, incompatible private enterprise and poorly placed power and utility lines. These elements contribute to "environmental intrusions" and a possible reduction of the values of the resources in the community. Zoning should be positive in providing safeguards for recreational and environmental values through strong building codes which encourage aesthetics in the building and site, roadside regulations, and highway construction for good, safe, and beautiful roadways.

Zoning also should provide for the establishment of easements along scenic highways, lakes and streams. The flood plains should be zoned to safeguard lives and property; for the development of nature preserves; and for watershed protection and recreation.

Metropolitan Areas

The metropolitan role is growing in importance in Minnesota because of the complexity and magnitude of the growth of such areas as St. Paul-Minneapolis, Fargo-Moorhead, and Duluth-Superior. One-half of Minnesota's population lives in a seven-county "Twin Cities" area.

This poses some particular problems and concerns dealing with the orderly expansion and growth of the area. It also affects the ability of the counties and local municipalities within the metropolitan area to provide for the increased need for recreation areas, facilities and environmental controls.

The metropolitan role should be to coordinate and implement the preservation and utilization of the recreation resources of the greater metropolitan area, based on metropolitan needs and demand. All significant matters pertaining to local metropolitan recreation resources, such as the acquisition, development, and administration of lands for parks and recreation areas, must be reviewed and evaluated by the Metropolitan Council acting in a coordinating, administrative, and advisory capacity.

More attention is needed to bring about promotion of environmental quality in the fast-growing metropolitan area. A liveable, aesthetically pleasing environment is essential to the welfare of man. The recreation areas and facilities he utilizes must reflect this. It is important, therefore, that the metropolitan governing faction provide the leadership to plan for the orderly and systematic development of the total area in terms of functionality, aesthetic beauty, and liveability.

Examples of such factors are neighborhoods with well-planned streets, open space which provides relief from the bricks and mortar of urban sprawl, well-kept and inviting shopping centers and business establishments, and a minimum of environmental intrusions such as utility lines, billboards, junkyards, railroads, and business and manufacturing plants incompatible with pleasing aesthetics.

The development of metropolitan-oriented recreation areas and facilities should be geared primarily to day-use activities. They should include such facilities as beaches, boat launching sites and water access areas where needed; and picnic areas, hiking, biking, canoeing, snowmobiling and horseback riding. Also included are metropolitan nature centers and areas which can provide comprehensive programs for public and school use, forest preserves, arboretums, large multiple use parks, museums, zoos, planetariums, aquariums, sports centers, theaters, and other similar areas and facilities. Such facilities should be established within a radius of from one-half to one and one-half hours driving time from the population being served.

The governing bodies of the metropolitan area have a responsibility to inventory and assess the scope and quality of the resources within its jurisdiction. Utilizing this data, a plan should be prepared which provides for both short-range development and long-range planning of outdoor recreation sites and facilities as part of an overall land use plan.

To successfully implement the duties and responsibilities at the metropolitan level, regarding recreation resources, complete cooperation is vital on the part of all governmental agencies at every level. The state must cooperate by providing adequate legislation enabling the metropolitan government to act within the framework of its jurisdiction. The county and municipal governments will be the "working units" needed to promote and achieve the common goals and objectives of metropolitan government. They must fully understand where the needs of the metropolitan area transcend local interests and where the metropolitan needs must occasionally take precedence in the best interests of the public.

As a coordinator and implementor of the recreation resources potential of the metropolitan area, the metropolitan government should acknowledge potential responsibilities.

One of these is to provide and coordinate financial aids to the governmental units within the

metropolitan area for the acquisition, design, development, and administration of metropolitan oriented recreation resources.

A major responsibility of the metropolitan area government is to act as a liaison between the state and local governments in the metropolitan area for the preservation and utilization of metropolitan recreation resources having regional significance. In this regard, it will become increasingly important that complete agreement is reached between all units of government as to the standards for the acquisition and utilization of metropolitan recreation resources. The metropolitan government should provide leadership toward establishing necessary standards to insure that the highest quality environment and recreation resources are maintained throughout the metropolitan area.

Quasi-Public Organizations and Agencies

Quasi-public organizations and agencies are nonprofit, tax exempt groups such as the Boy Scouts of America, Campfire Girls, Y.M.C.A., Y.W.C.A., etc., and those sponsored by various churches, service clubs, and several United Fund agencies.

The role of these groups, for the most part, is to involve the participant in a variety of social and general recreation experiences which tend to build character and leadership qualities in the individual, and to teach the values of life and an appreciation of our environment. For the most part, the organizations do an outstanding job in conservation education, teaching recreation skills and providing an understanding of our environment. They have done much to influence positive and constructive thinking in the use of the natural resources of the state.

Governmental units may assist the work of quasi-public organizations and groups by providing lands and facilities for group use at nominal cost on a first-come-first-serve basis. At no time should the demands and needs of the organizations be allowed to infringe upon, or detract from, the inherent and intrinsic values of the outdoor recreation resources.

Another type of quasi-public organization is the special interest, non-profit, foundation, cooperative, corporation or service organization which provides private impetus for the promotion, acquisition, and management of various recreation facilities and preserves for the public good. Organizations such as the Wilder Foundation, Nature Conservancy, American Legion, Lions Club, Izaak Walton League, sportsman's clubs, and others, have done much to finance and manage natural resources and recreation areas and facilities as a public service. They are a vital part in the overall recreation resource picture and should be encouraged. These groups have a responsibility to cooperate fully with all levels of government to establish good conservation practices on their lands.

Private Sector

Privately owned resources are vitally important to the overall picture and to preserving natural resources of the state. This is especially true when the owner permits recreational or aesthetic values to exist as a primary or secondary function along with other primary uses of his land.

On a broad scale, "recreation business" contributes substantially to the economy of the state and, under the name of "Tourism", constitutes the fourth largest industry in Minnesota. Its many forms range from private resorts and public accommodations to a host of recreation-oriented enterprises, services, activities, facilities, and goods used for recreation purposes and the enjoyment of leisure time. Some forms play an indirect role in the recreation economy while others contribute directly.

The involvement of private enterprise in recreation facilities and services varies according to a number of factors, including proximity to population centers, length of seasonal use, access, quality of the resource base, and the patterns of leisure-time use. In northern Minnesota, with its vast forest lands and high quality lakes and streams, private recreation includes facilities and services such as resorts, private cottages, private campgrounds, bait shops, boat liveries, and other facilities and services which are related to the natural resources of the area.

In the vicinity of the Twin Cities metropolitan area, where the natural recreation resource base is more limited and the population and use pressures much greater, private enterprise is involved in providing intensive types of outdoor recreation facilities and services such as golf courses, picnic areas, driving ranges, swimming pools, amusement parks, marinas, and similar facilities.

Recreation should be the concern of government when it deals with the perpetuation of those outstanding, broad scale, natural, historical, and cultural recreation resources which are irreplaceable and comprise the vast raw materials for the tourism industrial base. **It should be the concern of government to only supply recreation facilities and services when they are in the best interests of the public and cannot be adequately or economically provided by private enterprise.** The guiding principle for government participation in outdoor recreation activities should be to provide "the greatest good for the greatest number in the long run". Even so, it is not the responsibility of government to provide areas and facilities for all recreation activities, or to supply all the needs and demand.

Recreation is the concern of private enterprise when it can adequately and profitably fulfill public needs and demand. Such things as deluxe campgrounds, motels, hotels, resorts, food and mer-

chandise sales are a few of the involvements of private enterprise in supplying outdoor recreation needs and demands.

The private sector has a mandate to work with government in creating responsible, comprehensive state legislation and local controls which will safeguard the resource base upon which the tourist industry rests and the heritage of the state exists.

Summary

The roles of all government levels, as they pertain to outdoor recreation, deal with the perpetuation and enhancement of our natural, cultural and historical heritage. For the most part, the roles overlap. The higher levels of government provide ways and means to assist the lower levels to effect their responsibilities relating to the local, statewide and national recreation picture.

Table 46

RECOMMENDED ROLES AND RESPONSIBILITY IN PROVIDING OUTDOOR RECREATION FACILITIES

BY AGENCY—BY CLASS OF RESPONSIBILITY

The letters A, B, C, and X indicate the type and degree of responsibilities by agencies.
A. Primary responsibility.
B. Shared responsibility in permitting the use of public land under lease or permit.
C. Primary responsibility may exist under certain justifying conditions.
X. No responsibility indicated.

Occupancy Use Sites	Federal	State	County	Municipal	Quasi-Public	Private
1. Picnic, Municipal	X	X	B	A	C	X
2. Picnic, Wayside	B	A	A	A	X	X
3. Picnic, Rural	B	C	A	C	X	C
4. Neighborhood Playground	X	X	B	A	C	X
5. Community Playfield	X	X	C	A	C	X
6. Sports field, Semi and Professional	X	X	B	B	A	A
7. Golf w/o Membership	X	X	C	A	C	A
8. Golf w/Membership	X	X	X	X	C	A
9. Swimming, Natural	C	C	A	A	C	C
10. Swimming, Pools	X	X	C	A	A	A
11. Ski Areas, Amateur	B	B	A	A	C	X
Ski Areas, Commercial	B	B	B	X	X	A
12. Access; Boat, Canoe	A	A	A	A	C	C
13. Marinas	X	B	B	C	C	A
14. Camping; Primitive, w/o Road	A	A	C	X	C	X
15. Camping; Primitive, with Road	A	A	C	X	C	X
16. Camping, Group—Tent	A	A	A	X	A	X
17. Camping, Wayside	B	A	A	B	X	X
18. Camping, Deluxe	X	X	X	X	C	A
19. Camping; Group, Deluxe	X	X	X	X	A	A
20. Cabins, Vacation	X	X	X	X	C	A
21. Zoos	X	C	A	A	X	C
22. Trap Shooting	X	C	C	C	A	C
23. Rifle Ranges	X	C	C	X	A	C
24. Skating Rinks, Public	X	X	B	A	X	X
25. Hockey Rinks, Amateur	X	X	B	A	C	X
26. Arboretums	X	A	B	B	X	X

AGENCY—BY CLASS OF RESPONSIBILITY

Dispersed Use Sites	Federal	State	County	Municipal	Quasi-Public	Private
1. Natural Areas	A	A	A	A	C	X
2. Parks	A	A	A	A	X	X
3. Forests	A	A	A	C	X	A
4. Waters	A	A	A	A	C	C
5. Wildlife Areas	A	A	C	X	X	C
6. Scenic Areas	A	A	A	A	C	C
7. Roads, Access	A	A	A	C	C	C
8. Parkways	A	A	A	A	X	X
9. Trails, Foot	A	A	A	A	C	C
10. Trails, Horse	A	A	A	A	C	C
11. Trails, Bicycle	X	C	A	A	X	X
12. Trails, Snowmobile	A	A	A	C	C	C

III. STATE GOALS, POLICIES, AND STANDARDS

The purpose of this section is to set forth broad goals and objectives to serve as guidelines for the future recreational development of open space for outdoor recreation in Minnesota. These goals are established for purposes of all state-wide comprehensive planning as they might be related to outdoor recreation, particularly in planning for water and land resource development.

Five basic functions of open space are defined by Ann Louise Strong.[1]

1. Provision of recreation areas.
2. Protection of natural resources.
3. Preservation of distinctive architectural, historical, geological and botanical sites.
4. Creation of breathing spaces in densely settled areas.
5. Shaping urban growth and the preservation of natural beauty near urban and suburban development.

In Minnesota all the above functions are applicable; some chiefly to the Twin Cities metropolitan seven-county area.

Perhaps the primary goal of this Outdoor Recreation Plan is to maintain and improve the welfare of its residents through protection of natural resources, preservation of scenic, historical and other aesthetic values within proper open space setting and development of compatible recreational facilities to provide the public with the fullest benefits.

The welfare of our residents includes psychological and spiritual gains. The policy shall be to assign responsibility to the lowest level of government (or, where a profitable business can be employed, the private sector) capable of providing for outdoor recreation lands, waters and facilities. Higher levels of government should assist where capabilities do not.

[1]"Open Space for the Penjerdel Region: Now or Never;" Ann Louise Strong; Philadelphia, 1961.

Responsibilities in providing for certain types of facilities for outdoor recreation are described in Part II of this Chapter. Normally, the state's responsibility will be providing large areas (1,000 acres or larger) for hunting, fishing, camping and other low to medium intensive forms of recreation, in addition to preservation and conservation of large tracts of land in order to provide for their best use and management.

The Division of Parks and Recreation has developed the following criteria for evaluating areas proposed for inclusion in State Park System.

State Parks will be comprised of areas of outstanding scenic, scientific, historical, archeological or other recreation and aesthetic significance of state-wide importance. They will be of sufficient uniqueness and quality to attract visitors from a large section of the state. The park system as a whole should (1) conserve and interpret outstanding examples of the states outdoor natural and cultural resources for the inspiration and benefit of the public, and (2) provide those non-urban recreation opportunities, for the state's citizens and visitors, that are normally beyond the responsibility of the state's political subdivisions or the private sector.

Medium-sized natural, wooded areas (40-100 acres) should be provided by the county along with more intensively developed areas including parks with facilities for picnicking, swimming, boating, golfing, etc. Metropolitan government would assist in certain larger areas of metropolitan significance.

Municipalities normally provide for the smaller recreation areas such as neighborhood parks, playgrounds and tot lots.

Federal responsibility will normally lie in providing significant areas either by agency management or by financial assistance. The higher levels of government should assist where lower units are incapable to provide natural or wilderness settings.

IV. RECOMMENDED LEVEL OF NEED TO BE MET BY FEDERAL, STATE, COUNTY, METROPOLITAN, MUNICIPAL, QUASI-PUBLIC, AND THE PRIVATE SECTOR

Land and water used for outdoor recreation serves different functions and possesses many forms at the various levels of government. It is difficult to present a statewide assessment of the adequacy of open space in meeting local or regional demands. This is due to differences in attitudes of the people and complexity of analyzing such needs in sufficient depth.

This Section is intended to provide the guidelines to be used in the assignment of needs to the federal, state, county, municipal, quasi-public and private sectors. Such a split in the responsibility of each level is not a clear-cut division but rather a recommended division based on feasibility of management, current availability of lands, and historic trends which have led to existing levels of responsibility.

In making any guidelines for this purpose existing standards, as related to 1) acreage per population; 2) minimum per cent of land area assigned

for recreation or open space purposes; as well as 3) land and water acreages to meet facility needs, must be considered. The 1965 Outdoor Recreation Plan considered acreage per thousand population standards using 10 acres municipal, 15 acres county, and 45 acres state as standards which were based on National Park Service statistics approved by the Nation-wide O.R.R.R.C. study. Neither minimum land acreage, nor acreages needed to meet facility needs were determined at that time.

1. **Acreage per population standards.**

In 1967 the Bureau of Outdoor Recreation compiled recreation area and facility space standards in the report **Outdoor Recreation Space Standards, April, 1967.** Such standards vary considerably mainly because of land availability and definition of functions provided by different types of areas.

In the above report acreage per thousand population for municipal parks, including neighborhood and large city parks, ranged from 2 to 25 with the most common acreage being 10. Metropolitan or county parks ranged in acreage from 2 to 20, with 15 acres being most commonly indicated. Regional or statewide recreation areas including state parks, recreation areas and recreational forests ranged from 20 to 80 acres per thousand population depending on whether state-county and state-federal funds are included.

In Minnesota there are about 10,900,000 acres of lands administered wholly or in part for recreation. The breakdown by level of government is shown in Table 47.

Table 47

TOTAL ACREAGE MAINTAINED AS RECREATION LANDS IN MINNESOTA, 1967

	Acres	Per Cent
Federal	3,414,486	31.5
State	5,435,281	50.0
County	1,049,140	9.7
Local	46,659	0.4
Quasi-Public	4,838	tr
Private	904,969	8.3
Total	10,854,373	99.9

The 1967 population was estimated to be 3,582,000. Using the above acreage would show an excessive area per population because it included mostly undeveloped forest lands in county, state and federal forests.

Since most of the standards mentioned above are no doubt related to developed recreation areas rather than publicly owned space, the developed acreage was compiled for the state on the basis of 8 major activities for which acreage was inventoried in 1967.

Table 49 contains the acres and percentage of the total state developed land areas for each of the selected activities according to the level of government administering such lands. This shows the state and private sectors followed by city, federal and county, in that order, as providing the largest segments of recreation lands.

The federal government supplies 3.6 per cent of the total developed lands most of which is used for campgrounds. For this activity alone they supply 25 per cent of total developed campground acreage in the state. However, of the campground acreage about 875 acres are undeveloped lands used for wilderness camping. The remaining 1,274 acres are developed camping lands which made up 25 per cent of all developed campground land acreage.

The state developed lands are largely trails in state forests and state parks and comprise most of all trail acreage inventoried. The state provided 40 per cent of all public access land, 17 per cent of all campground acreage, and 10 per cent of all picnic grounds inventoried in this survey.

The counties are supplying developed lands largely for picnic areas with slightly lesser amounts for public boat launching, camping and playfields.

Municipalities are supplying the majority of the playgrounds (77 per cent of total), with a major share of **public** golf courses (70 per cent), and 45 per cent of the picnic area state-wide. Of the swimming beach area, 37 per cent of that inventoried and in **public** ownership is municipal. Cities and villages appear to have been supplying the bulk of public water skiing areas (64 per cent) and a fair share of **all** boat launching areas (19 per cent).

Schools, although not completely inventoried, do play a significant role in supplying playfields as is normally the case. When combined with other local government facilities, 84 per cent of the total playfields are provided by schools.

Quasi-public organizations were found to supply more golf course area than for any other activity.

Private landowners, including private timber companies, provide the majority of the ski slopes (78 per cent), 66 per cent of all lands used for golfing, 39 per cent of the lands for camping, 41 per cent of the beach acreage and a significant amount of lands for picnicking, trails and boat launching sites.

State-wide and for all eight types of facilities a total developed acreage of 54,616 acres was included in the 1967 inventory. Of this, the following breakdown by level of government resulted:

Federal	3.6
State	26.3
County	4.4
Municipal and School	23.7
Private	37.9
Other[1]	4.0

[1]Quasi-public and other local

If acres of developed lands are considered against populations, this results in a total of 15.5 acres per 1,000 population. If private lands are excluded, this would be reduced by about one-third.

To arrive at the upper limits of the standards commonly used, the 10 acres of developed public recreation lands would be accompanied by 90 acres of undeveloped lands, or a total of at least 100 acres of both developed and undeveloped acres of public lands per 1,000 population.

Guidelines can be set for acreage standards by looking at current trends in providing developed lands for recreation and general standards based on both developed and undeveloped land. It will be important to consider the acreage needs as required for developed facilities rather than based on general standards on a regional basis, keeping in mind the availability of public lands, particularly those administered by higher levels of government.

These standards in terms of acres of land (developed and undeveloped) per thousand population along with acreage to match the predicted 1980 population (4,223,200) are shown in Table 48.

A problem can be seen in using the general standards in acres per 1,000 population if one examines the large land acreage already administered in whole or in part for recreation as seen earlier in Table 47. This primarily is in the federal, state, and county land holdings. The problem is due to the fact that the lands administered by these higher levels of government are largely undeveloped forest lands on which only the backwoods type recreation is provided. However, the standards in terms of acres per thousand are based on intensively developed recreation areas such as are provided in urban areas.

For the above reasons most of the needs, at least those to be considered the function of the federal, state and county (or metropolitan), will need to be based on land acreage needs for developed facilities.

To extrapolate the total acreage needs, the ratio of developed lands to undeveloped lands will need to be considered.

Table 48

SUGGESTED GENERAL STANDARDS IN ACRES PER POPULATION—BY LEVEL OF GOVERNMENT

	Acres per 1000	Per Cent Devel.	Total Acreage for 1980 Pop.	Devel. Acreage for 1980
Federal	20	2	85,000	17,000
State	80	5	340,000	17,000
County	15	15	63,000	9,500
Municipal and School	15	30	63,000	19,000
Private	7	100	30,000	30,000
Total	137		581,000	92,500

Table 49

DEVELOPED LAND AREA FOR SELECTED RECREATION ACTIVITIES, 1967
Acres of Facilities by Level of Government (Per Cent in Parentheses)

	Federal	State	County	Municipal	Other Local	Quasi-Public	School	Private	Total
Picnicking	137	619	785	2,883	74	79	2	1,814	6,393
	(2)	(10)	(12)	(45)	(1)	(1)	—	(28)	
Camping	1,274[1]	876	385	430	67	148	10	1,998	5,188
	(25)	(17)	(7)	(8)	(1)	(3)	—	(39)	
Swimming Beaches	145	219	108	328	32	50	tr	601	1,483
	(10)	(15)	(7)	(22)	(2)	(3)	—	(41)	
Ski Slopes	12	36	160	383	7	5	—	2,158	2,761
	—	(1)	(6)	(14)	—	—	—	(78)	
Playfields	1	64	255	4,232	66	35	331	507	5,491
	—	(1)	(5)	(77)	(1)	(1)	(6)	(9)	
Golfing	0	45	303	3,399	646	654	—	10,014	15,061
	—	—	(2)	(23)	(4)	(4)	—	(66)	
Trails	240	11,244	56	268	160	20	28	3,040	15,056
	(2)	(75)	—	(2)	(1)	—	—	(20)	
Public Accesses	168	1,261	377	1,616	61	87	1	612	3,183
	(5)	(40)	(12)	(19)	(2)	(3)	—	(19)	
	1,977	14,364	2,429	12,539	1,113	1,078	372	20,744	54,616
	3.6	26.3	4.4	23.0	2.0	2.0	0.7	37.9	99.6

[1]Federal campground acreage includes approximately 875 additional acres of undeveloped campgrounds not included here.

2. Per Cent of Land Area Assigned to Recreation

Minnesota, with its large public land holdings in the northeast and privately owned agricultural lands in the southwest, presents a great divergence in Regional percentage of public and privately owned lands. Geographers indicate that the press for open space in the future will be most critical in the southeastern portion of the state (Regions 9, 10, 11) and in particular the Twin Cities Metropolitan Area where the greatest population increases are expected.

Utilizing the general standards cited, where it is suggested that about 137 acres per thousand people be set aside as open space, it would be necessary to have approximately 580,000 acres of recreation lands state-wide. With about 10,800,000 acres (21 per cent of state land area) of developed and undeveloped recreational lands and approximately 2,000,000 additional acres of tax forfeited land, there appears to be adequate open space (using standards as adopted by some more populus states.)

New Jersey, with a predicted population of 20 million in a state having a total land area of about 4.5 million acres, found that acreage per unit of population standards break down beyond a certain level of population density. They found limitations in the system when applied to highly-developed areas. Such communities would not be able to maintain the 10 acres per thousand recommended because of the exorbitant percentage of land required, thus forcing other essential functions also competing for space to move elsewhere.

To provide for balanced land use, it is necessary to establish criteria based on the per cent of lands assigned for open space and recreation. Such criteria should be used as a general guide to provide necessary recreation lands regardless of population density.

Using criteria established by New Jersey's Comprehensive Outdoor Recreation Plan[1] and as applicable to highly urbanized areas, a minimum of 10 per cent of developable land should be allotted for open space and recreation in highly developed areas of this state.

Statewide it is recommended that a minimum of twice this amount or 20 per cent of total land area be allotted for open space and recreation purposes. For Minnesota this would require that about 10.8 million acres be established statewide as open space lands.

This is exceeded by a wide margin if all agricultural and other private open space land holdings, exclusive of recreation areas, are included. For example, the Soil and Water Conservation Needs Inventory[1] shows approximately 46 million acres in cropland, pasture-range, forest-woodland and other land. Add to this another 2.6 million acres of water and 3.4 million acres of federal-owned lands (not included in the above 46 million acres) and the sum total of open space is about 52 million acres.

With the total state land and water area of 53.8 million acres and 52 million acres in open space, the remaining 1.6 million acres is assumed to be urban and built-up lands. This would indicate that approximately 3 per cent of the total land area might be other than open space now.

Such a land use criteria is best used when applied to specific areas where full development is foreseen. As can be seen from the discussion above the application of the criteria statewide is rather meaningless at this time with the preponderance of undeveloped land.

3. Land and Water Acreage Standards to Meet Facility Needs

In addition to overall acreage of recreation lands per thousand population and a balanced land use pattern, the determination of the level of need to be met by various levels of government will depend on the type of facility needs. Any level of government may be more capable of supplying certain types of facilities than others because of available lands, financial capability or because historically they have performed such function and are well qualified for it.

In determining the role of each sector, such factors as cited above should be considered for each of the major recreation activities requiring land and water facilities. The major recreational activities should also be considered individually in each Region of the state due to the varying locations of the resource base.

If current developed land acreages for picnic grounds, campgrounds, swimming beaches, ski slopes, playfields, golf, trails and public boat launching sites are considered, a general pattern of level of responsibility can be seen. Table 49 shows that the role of each sector is different, depending upon the type of facility.

Picnic grounds, playgrounds and swimming beaches have generally been provided mostly by lower levels of government. Ski areas and golf courses are provided mostly by the private sector or the municipalities.

On the other hand, public boat launching sites, trails and campgrounds are provided to a large extent by the higher levels of government, with the exception of a portion provided by the private sector.

[1]New Jersey Comprehensive Outdoor Recreation Plan, Report 9, Needs — Outdoor Recreation Resources, State of New Jersey.

[1]Anon. 1962 — Minnesota Soil and Water Conservation Needs Inventory, Minnesota Conservation Needs Committee.

Based on current data, the following percentages of land needs (Table 50) will be applied to pro-rate such needs among the various levels of government and the private sector. The levels depend upon regional differences, future economic conditions as they affect the private entrepreneur and, in some cases, program changes.

Summary

In making determinations of what level of government can best satisfy land acreage requirements for outdoor recreation facilities, three general criteria will be used. To guide the overall land acreage needs the standards of acreage per thousand population will be used. As a second criteria, applicable to specific locations only, the balanced land use or per cent of total lands will be considered.

The third and most important criteria will be determined on the basis of past history in providing land-based activities and as modified by program changes. All three criteria will be important and all will be considered in light of regional difference.

Table 50

RECOMMENDED PER CENT OF OUTDOOR RECREATION LAND ACREAGE NEEDS TO BE MET BY VARIOUS LEVELS OF GOVERNMENT AND THE PRIVATE SECTOR

Facility	Federal	State	County	Municipal	Private
Picnic	2	10	15	45	28
Campgrounds[1]	20	20	5	0	55
Swimming Beaches	10	15	15	25	35
Ski Areas	—	—	10	15	75
Play Fields	—	—	5	90	5
Golf	—	—	10	30	60
Trails[2]	10	70	15	5	—
Boat Launch	5	50	15	10	20

[1]Does not include group campgrounds.
[2]Horseback riding, snowmobiling trails.

V. REQUIREMENTS BY FACILITY AND REGIONS — FOR THE YEAR 1980

This section encompasses the purpose of the plan. That is, it determines the deficiencies to be met by each agency of the state and the private sector. This determination is recorded in acres of land and by region to meet the existing deficiencies.

For the purpose of this Plan, the needs and action are projected to 1980. The deficiencies for 1985 were determined and may be found in the Appendix. The 1985 figures did not seem to be true indications of deficiencies because population projections did not seem reliable for that year. For this reason, more emphasis has been placed on the 1975 and 1980 projections.

Water-based facilities, with the exception of swimming* are not discussed here. On a statewide basis there is ample water for boating, water skiing, fishing and canoeing. In our mobile society and because of the indicated willingness to travel, ample water is available some place in the state. (For further information on water and land requirements for each facility studied, see Chapter 5, "Demands.")

For the purpose of determining land deficiencies, the land-based facilities have been converted to acres of land needed to support the deficiencies. The following space standards were used:

Facility	Standard
Swimming	A ratio of 10 units of land for beach and supporting facilities to 1 unit of water
Camping	6 campsites per acre of land
Golfing	10 acres of land for each hole of golf
Picnicking	10 tables per acre in Regions 1-10, and 20 tables per acre for Region 11
Boat Launch (Parking Spaces)	10 parking spaces per acre of land
Trails	4 acres of land per mile of trail

*Boating is considered both for water needs in the form of surface water and needs for land for boat launching, although water oriented.

In this section, the following recreational activities have a common requirement of land acreage to be met by 1980.

GROUP 1 (Disaggregated)	GROUP 2 (Non-disaggregated (Compared with supply)
Land-based Facilities	**Land-based Facilities**
Swimming**	Horseback riding
Camping	Playing outdoor games (includes tennis)
Golf	
Hunting	**Snow-based Facilities**
Picnicking	Snowmobiling

*Swimming is discussed as a land based requirement in this section.

**Swimming is considered needs for land since needs are in terms of acres of beach and supporting area.

Group 3—Group 3 activities are not included here because the supply and demand for facilities could not be measured. General statements of need are found in the Demand Chapter.

REGION 1—(Kittson, Mahnomen, Marshall, Pennington, Polk, Red Lake and Roseau Counties)

1. Swimming — Determined Deficiency to be met by 1980: 90 acres of land

The need for swimming was converted from square feet of water to acres of land. The study indicated a deficiency of approximately nine acres of water, or 90 acres of land, for beach and supporting facilities in the region. This need could be met, in part, by new indoor-outdoor pools, which are preferable because of the short swimming season in northern Minnesota.

It is assumed that the above swimming deficiencies will be met as described below. These are only approximations and depending upon the location of such needs may need to be altered to fit the situation as it may exist.

Agency	Per cent	Acres
State	5	4
County	20	18
Municipality	35	32
Private	40	36
Total	100	90

2. Camping — Determined Deficiency to be met by 1980: 294 sites on 50 acres

Some of these sites should be developed on the Red Lake River, which is now designated as a State Canoeing and Boating River. Other camping will probably be heaviest along the major highway route between Winnipeg and the Twin Cities.

To determine approximate land needs it is assumed that the above camping deficiencies will be met in the following manner:

Agency	Per cent	Number of Sites	Acres of Land
State	40	118	20.0
County	5	15	2.5
Municipality	5	15	2.5
Private	50	146	25.0
Total	100	294	50.0

3. Golf — Determined Deficiency to be met by 1980: Eight—18 hole golf courses or 1,440 acres of land

It is assumed that the above golfing deficiencies will be met in the following manner:

Agency	Per cent	Courses	Acres
County	10	1	180
Municipality	30	2	360
Private	60	5	900
Total	100	8	1440

4. Hunting — Determined Deficiency to be met by 1980: 182,740 acres

It is assumed that this need will be met by the state.

5. Picnicking — Determined Deficiency to be met by 1980: 3500 tables on 350 acres of land

It is suggested that the above need for picnic facilities will be met in the following manner:

Agency	Per cent	Tables	Acres
State	15	540	54
County	15	540	54
Municipality	45	1565	156
Private	25	855	86
Total	100	3500	350

6. Horseback Riding — Determined Deficiency to be met by 1980: 125 miles or 500 acres of land

It is suggested that the above need for picnic trail need be met in the following manner:

Agency	Per cent	Miles	Acres
State	70	88	350
County	15	19	76
Municipality	5	6	24
Private	10	12	50
Total	100	125	500

7. Snowmobiling — Determined Deficiency to be met by 1980: 125 miles or 500 acres

To provide Region 1 with the 125 miles of snowmobile trails by 1980, it is assumed that the need will be met in the following manner:

Agency	Per cent	Miles	Acres
State	70	88	350
County	15	19	76
Municipality	5	6	24
Private	10	12	50
Total	100	125	500

8. Playing Outdoor Games — Determined Deficiency to be met by 1980: 240 acres

It is assumed that this need will be met in the following manner:

Agency	Per cent	Acres
County	5	12
Municipality	90	216
Private	5	12
Total	100	240

9. Boat Launching — Determined Deficiency to be met by 1980: 700 spaces on 70 acres

It is assumed that the above boat launching space needs will be met in the following manner:

Agency	Per cent	Spaces	Acres
State	50	350	35
County	20	140	14
Municipality	10	70	7
Private	20	140	14
Total	100	700	70

REGION 2 (Beltrami, Clearwater, Hubbard, Koochiching, and Lake of the Woods Counties)

1. **Swimming** — The survey indicates no deficiency for outdoor swimming pools through 1985.

2. **Camping** — There is no determined deficiency to be met by 1980. There may, however, be a need for locating campgrounds on newly developed routes now lacking sites. Emphasis should also be placed on maintaining the aesthetics and developing existing campgrounds for better site protection and sanitary facilities for better water quality protection.

3. **Golf — Determined deficiency to be met by 1980: one 18-hole course on 180 acres of land to be supplied by Private enterprise.**

4. **Hunting — Determined deficiency to be met by 1980: 12,717 acres. It is assumed the deficiency will be met by the State of Minnesota.**

5. **Picnicking — Determined deficiency to be met by 1980: 900 tables or 90 acres of land.**

It is assumed that deficiencies for picnicking will be met in the following manner:

Agency	Per cent	Tables	Acres
State	20	180	18
County	15	140	14
Municipality	30	280	28
Private	35	300	30
Total	100	900	90

6. **Horseback Riding** — No additional need for horseback trails was found in this Region. However, the location of existing trails may not provide adequate distribution.

7. **Snowmobiling — Determined deficiency to be met by 1980: 175 miles or 700 acres of land.**

It is assumed that the deficiency for Snowmobile trails will be met in the following manner:

Agency	Per cent	Miles	Acres
State	70	120	480
County	20	35	140
Private	10	20	80
Total	100	175	700

Needs in surrounding regions that lack public and private lands, may be fulfilled in regions such as this when a considerable amount of land is available.

8. **Playing Outdoor Games** — The 1967 survey indicates adequate play field space through 1985.

9. **Boat launching (Access, Parking Spaces and Marinas) — Determined deficiency to be met by 1980: 1,800 parking spaces on 180 acres of land.**

It is assumed that the deficiency for boat launching spaces will be met in the following manner:

Agency	Per cent	Parking Spaces	Acres
State	55	990	99
County	15	270	27
Municipality	10	180	18
Private	20	360	36
Total	100	1,800	180

REGION 3 — Carlton, Cook, Itasca, Lake, and St. Louis Counties

1. **Swimming — Determined deficiency to be met by 1980: 120 acres of land.**

It is suggested the deficiencies be met in the following manner:

Agency	Per cent	Acres
Federal	10	12
State	25	30
County	30	36
Municipal	25	30
Private	10	12
Total	100	120

2. **Camping — Determined deficiency to be met by 1980: 240 campsites on 40 acres of land.**

It is suggested the deficiency be met in the following manner:

Agency	Per cent	Sites	Acres
Federal	35	84	14
State	35	84	14
County	5	12	2
Municipal	5	12	2
Private	20	48	8
Total	100	240	40

3. **Golf — Determined deficiency to be met by 1980: 20 18-hole golf courses on 3600 acres of land.**

It is assumed that the deficiency for golf will be met in the following manner:

Agency	Per cent	Courses	Acres
County	10	2	360
Municipality	30	6	1,080
Private	60	12	2,160
Total	100	20	3,600

4. **Hunting — The determined deficiency to be met by 1980: 10,840 acres of land.**
It is assumed that the deficiency will be met by the State of Minnesota.

5. **Picnicking — Determined deficiency to be met by 1980: 11,500 tables on 1,150 acres of land.**

It is assumed that the deficiency for picnic facilities will be met in the following manner:

Agency	Per cent	Tables	Acres
Federal	15	1,725	172
State	15	1,725	173
County	20	2,300	230
Municipality	30	3,450	345
Private	20	2,300	230
Total	100	11,500	1,150

6. Horseback Riding — Determined deficiencies to be met by 1980: 280 miles or 1,120 acres of land.

It is assumed that the deficiency for horse trails could be met in the following manner:

Agency	Per cent	Miles	Acres
Federal	10	28	112
State	60	168	672
County	15	42	168
Municipal	5	14	56
Private	10	28	112
Total	100	280	1,120

7. Snowmobiling — There is no apparent deficiency for snowmobile trails because snowmobile activity demand can be met by the 280 miles of horse trails mentioned above.

8. Playing Outdoor Games — Determined deficiency to be met by 1980: 1,280 acres of land.

It is suggested that this deficiency be met in the following manner:

Agency	Per cent	Acres
County	5	64
Municipalities and Schools	90	1,152
Private	5	64
Total	100	1,280

9. Boat Launching (access boating spaces and Marina slips) — Determined deficiency to be met by 1980: 5,000 parking spaces or 500 acres of land.

It is suggested that the deficiency be met in the following manner:

Agency	Per cent	Parking Spaces	Acres
Federal	15	750	75
State	45	2,250	225
County	15	750	75
Municipalities	10	500	50
Private	15	750	75
Total	100	5,000	500

REGION 4 — Becker, Big Stone, Clay, Douglas, Grant, Norman, Otter Tail, Stevens, Traverse, Wilkin Counties

1. Swimming — Determined deficiencies to be met by 1980: 100 acres of land.

It is suggested the deficiency be met in the following manner:

Agency	Per cent	Acres
State	10	10
County	20	20
Municipal	40	40
Private	30	30
Total	100	100

2. Camping — Determined deficiency to be met by 1980: 115 acres of land.

It is suggested the deficiency be met in the following manner:

Agency	Per cent	Sites	Acres
State	5	30	5
County	5	30	5
Municipal	10	70	11
Private	80	560	94
Total	100	690	115

3. Golf — Determined deficiency to be met by 1980: Eight 18-hole golf courses on 1,440 acres.

It is suggested the deficiency be met in the following manner:

Agency	Per cent	Courses	Acres
County	10	1	180
Municipal	30	2	360
Private	60	5	900
Total	100	8	1,440

4. Hunting — Determined deficiency to be met by 1980: 3,215 acres of land.

It is assumed that this need will be met by the State of Minnesota.

5. Picnicking — Determined deficiency to be met by 1980: 5,000 tables on 500 acres of land.

It is suggested the deficiency be met in the following manner;

Agency	Per cent	Tables	Acres
Federal	2	100	10
State	10	500	50
County	40	2,000	200
Municipal	23	1,150	115
Private	25	1,250	125
Total	100	5,000	500

6. Horseback Riding — Determined deficiency to be met by 1980: 125 miles of trail, or 500 acres of land.

It is suggested that deficiency be met in the following manner:

Agency	Per cent	Miles	Acres
State	10	12	48
County	15	19	76
Municipalities	45	56	224
Private	30	38	152
Total	100	125	500

7. Snowmobiling — Determined deficiency to be met by 1980: 300 miles or 1200 acres.

It is suggested that the deficiency be met by the combined effort of the state, counties, municipalities and easement on private lands in the following manner:

Agency	Per cent	Miles	Acres
State	36	108	432
County	15	45	180
Municipalities	5	15	60
Private	44	132	528
Total	100	300	1,200

8. Playing Outdoor Games — Determined deficiency to be met by 1980: 1,075 acres of land.

It is suggested that the deficiency be met in the following manner:

Agency	Per cent	Acres
County	5	54
Municipalities and schools	90	967
Private	5	54
Total	100	1,075

9. Boat Launching (Access, Parking Spaces and Marina Slips) — Determined deficiency to be met by 1980: 3100 parking spaces on 310 acres of land.

It is suggested the deficiencies be met in the following manner:

Agency	Per cent	Parking Spaces	Acres
Federal	5	155	15
State	50	1,550	155
County	15	465	47
Municipalities and Quasi-public	10	310	31
Private	20	620	62
Total	100	3,100	310

REGION 5 — Aitkin, Cass, Crow Wing, Morrison, Todd and Wadena Counties

1. Swimming — Determined deficiency to be met by 1980: 55 acres of land.

It is suggested that additional beaches or pools be provided in the following manner:

Agency	Per cent	Acres
Federal	5	3
State	30	17
County	15	8
Municipalities Quasi-Public	30	17
Private	20	10
Total	100	55

2. Camping — Determined deficiency to be met by 1980: 1,110 campsites or 185 acres of land.

It is suggested the agencies and private sector fulfill this deficiency as follows:

Agency	Per cent	Sites	Acres
Federal	20	222	37
State	15	168	27
County	10	110	19
Municipalities	5	54	9
Private	50	556	93
Total	100	1,110	185

3. Golf — Determined deficiency to be met by 1980: Four 18-hole golf courses or 720 acres of land.

It is assumed that the 1980 deficiencies will be met as follows:

Agency	Per cent	Courses	Land Acres
County	25	1	180
Municipalities	25	1	180
Private	50	2	360
Total	100	4	720

4. Hunting — Determined deficiency to be met by 1980: 57,016 acres of land.

It is assumed this deficiency will be met by the State of Minnesota.

5. Picnicking — Determined deficiency to be met by 1980: 1,500 picnic tables or 150 acres of land.

It is suggested that the deficiencies be met in the following manner:

Agency	Per cent	Tables	Acres
Federal	10	150	15
State	10	150	15
County	15	225	22
Municipalities	35	525	53
Private	30	450	45
Total	100	1,500	150

6. Horseback riding — The 1967 survey indicates there is ample supply of horse trails through 1985. The trails in this region may help meet the needs of other regions, particularly region 7 to the south.

7. Snowmobiling — Determined deficiencies to be met by 1980: 200 miles or 800 acres.

It is suggested that the deficiency be met by the cooperative effort of the federal, state, county, municipal governments and by easements on private lands in the following manner:

Agency	Per cent	Miles	Acres
Federal	30	60	240
State	35	70	280
County	20	40	160
Municipalities	5	10	40
Private	10	20	80
Total	100	200	800

8. Playing Outdoor Games — Determined deficiencies to be met by 1980: 530 acres of land.

It is suggested that the deficiencies be met in the following manner:

Agency	Per cent	Acres
County	5	27
Municipalities	90	476
Private	5	27
Total	100	530

9. Boat Launching (access, parking spaces and Marina slips) Determined deficiencies to be met by 1980: 5,000 parking spaces or 500 acres of land.

It is suggested that the deficiencies be met in the following manner:

Agency	Per cent	Parking Spaces	Acres
Federal	5	250	25
State	50	2,500	250
County	15	750	75
Municipalities			
Quasi-Public	10	500	50
Private	20	1,000	100
Total	100	5,000	500

REGION 6—Chippewa, Kandiyohi, Lac qui Parle, Pope, Redwood, Renville, and Swift Counties

1. **Swimming** — Existing swimming beaches along with those programmed by 1975, will provide adequate facilities through 1980. However, the location of these facilities to population centers and the maintenance of good water quality will be essential to maintain the capabilities of these swimming areas.

2. **Camping — Determined deficiencies to be met by 1980: 420 Camp Sites or 70 acres.**

It is assumed that the deficiencies will be met in the following manner:

Agency	Per cent	Sites	Acres
State	20	84	14
County	15	63	10
Municipalities	15	63	11
Private	50	210	35
Total	100	420	70

3. **Golf — Determined deficiency to be met by 1980: Nine 18-hole golf courses on 1620 acres of land.**

It is assumed the deficiencies of golf courses will be met in the following manner:

Agency	Per cent	Courses	Acres
County	10	1	180
Municipalities	30	3	540
Private	60	5	900
Total	100	9	1,620

4. **Hunting — Determined deficiency to be met by 1980: 17,622 Acres**

It is assumed this deficiency will be met by the state.

5. **Picnicking — Determined deficiencies to be met by 1980: 2,100 tables on 210 acres of land.**

It is assumed the deficiency for picnic tables will be met in the following manner:

Agency	Per cent	Tables	Acres
State	30	630	63
County	15	320	32
Municipalities	40	840	84
Private	15	310	31
Total	100	2,100	210

6. **Horseback Riding—Determined deficiencies to be met by 1980: 100 miles on 400 acres of land.**

It is suggested the deficiency be met in the following manner:

Agency	Per cent	Miles	Acres
State	20	20	80
County	10	10	40
Private	70	70	280
Total	100	100	400

7. **Snowmobiling — Determined deficiencies to be met in 1980: 150 miles on 600 acres of land.**

Much of this trail mileage will need to be provided by cooperative efforts of the state and counties and by easements over private lands. The flood plains of the Minnesota River and other river bottomlands may provide a substantial resource for the linear trail routes needed.

It is assumed the need will be met in the following manner:

Agency	Per cent	Miles	Acres
State	5	8	32
County	10	15	60
Private	85	127	508
Total	100	150	600

8. **Playing Outdoor Games — Determined deficiencies to be met in 1980: 185 acres.**

It is assumed the deficiency in playfields will be met in the following manner:

Agency	Per cent	Acres
County	5	10
Municipalities	90	165
Private	5	10
Total	100	185

9. **Boating launching (access, parking and marina slips) Determined deficiencies to be met by 1980: 1,150 parking spaces or 115 acres of land.**

It is suggested the deficiency for parking spaces will be met in the following manner:

Agency	Per cent	Parking spaces	Acres
Federal	5	57	6
State	50	575	57
County	15	173	17
Municipalities	10	115	12
Private	20	230	23
Total	100	1,150	115

REGION 7 (Benton, Chisago, Isanti, Kanabec, Meeker, Mille Lacs, Pine, Sherburne, Stearns and Wright Counties)

1. **Swimming — Determined Deficiency to be met by 1980: 700 acres of land.**

To meet the needs, the following breakdown by agencies is assumed:

Agency	Per cent	Acres
State	10	70
County	20	130
Municipal	35	250
Private	35	250
Total	100	700

2. **Camping — Determined Deficiency to be met by 1980: 3,120 sites on 520 acres of land.**

Agency	Per cent	Sites	Acres
Federal	10	312	52
State	20	624	104
County	5	156	26
Municipal	5	156	26
Private	60	1,872	312
Total	100	3,120	520

3. Golfing — Determined Deficiency to be met by 1980: 26 golf courses on 4,680 acres of land.

To meet this deficiency the following level of responsibility will be assumed:

Agency	Per cent	Golf Courses	Acres
County	20	5	900
Municipal	20	5	900
Private	60	16	2,880
Total	100	26	4,680

4. Hunting — Determined Deficiency to be met by 1980: 72,334 acres of land.

It is assumed this deficiency will be met by the State of Minnesota.

5. Picnicking — Determined Deficiency to be met by 1980: 18,000 tables or 1,800 acres.

It is suggested the deficiencies be met in the following manner:

Agency	Per cent	Tables	Acres
State	5	900	90
County	15	2,700	270
Municipal	45	8,110	810
Private	35	6,300	630
Total	100	18,000	1,800

6. Horse Trails — Determined Deficiency to be met by 1980: 20 miles of trail or 80 acres of land.

The survey indicates a deficiency of 20 miles of trail by 1980. This could be met by the state in state parks or state forests.

7. Snowmobile Trails — Determined Deficiency to be met by 1980: 480 miles or 1,920 acres.

It is suggested that a goal for 1980 of approximately 480 additional miles of multi-purpose trails be sought for this Region in the following manner:

Agency	Per cent	Miles	Acres
State	60	280	1,120
County	15	75	300
Municipal	5	25	100
Private	20	100	400
Total	100	480	1,920

8. Playfields — Determined Deficiency to be met by 1980: 1,300 acres.

It is suggested that these deficiencies be met in the following manner:

Agency	Per cent	Acres
County	5	75
Municipal and School	90	1,150
Private	5	75
Total	100	1,300

8. Boating (Launching Sites and Marinas) — Determined Deficiency to be met by 1980: 6,500 parking spaces or 650 acres of land.

Region 7, with the heaviest boating demand of any Region in the state, will need additional accesses and marinas as well as more capacity at existing launch sites and marina facilities. This deficiency could be met in the following manner:

Agency	Per cent	Spaces*	Acres
Federal	5	325	35
State	50	3,250	325
County	15	975	95
Municipal	10	650	65
Private	20	1,300	130
Total	100	6,500	650

*Including approximately 500 marina slips.

REGION 8 (Cottonwood, Jackson, Lincoln, Lyon, Martin, Murray, Nobles, Pipestone, Rock Counties)

1. Swimming — Determined Deficiency to be met by 1980: 50 acres of land.

The existing supply of pools and beaches appears to meet the 1967 need. However, the survey indicates that by 1980 there will be a need for approximately five acres of water. If this need were to be met by beaches, 50 acres of land would be required for beach and supporting facilities. To meet the deficiencies the following breakdown by agencies is suggested:

Agency	Per cent	Acres of Beach
State	25	13
County	15	7
Municipal	25	12
Private	35	18
Total	100	50

2. Camping — Determined Deficiency to be met by 1980: 840 campsites or 140 acres of land.

It is assumed that the deficiency will be met in the following manner:

Agency	Per cent	Sites	Campground Acres
State	5	42	6
County	15	126	21
Municipal and Quasi public	20	168	28
Private	60	504	85
Total	100	840	140

3. Golfing — Determined Deficiency to be met by 1980: Thirteen 18-hole golf courses or 2,340 acres of land.

To meet this deficiency the following breakdown by agencies is suggested:

Agency	Per cent	Golf Courses	Acres
County	20	3	540
Municipal	20	3	540
Private	60	7	1,260
Total	100	13	2,340

4. Hunting — Determined Deficiency to be met by 1980: 13,440 acres of land.

It is assumed this deficiency will be met by the State of Minnesota.

5. Picnicking — Determined Deficiency to be met by 1980: 1,700 tables or 170 acres of land.

It is suggested the deficiency be met in the following manner:

Agency	Per cent	Tables	Acres
State	5	825	8
County	25	425	43
Municipal	50	850	85
Private	20	340	34
Total	100	1,700	170

6. Horseback Riding — Determined Deficiency to be met by 1980: 150 miles of trail or 600 acres of land.

It is suggested that the deficiencies be met as a cooperative effort between various agencies and the private sector in the following manner:

Agency	Per cent	Miles	Acres
State	30	45	180
County	10	15	60
Municipal	10	15	60
Private	50	75	300
Total	100	150	600

7. Snowmobiling.

The 1967 survey indicates a need in 1967 of 22 miles. By 1980, the need is expected to grow to 33 miles. It is assumed that no trail construction will be required as the horse trail mileage mentioned above can be used to meet the snowmobiling need.

8. Playing Outdoor Games — Determined Deficiency to be met by 1980: 387 acres of land.

It is assumed this deficiency will be met in the following manner:

Agency	Per cent	Acres
County	5	20
Municipal and School	90	347
Private	5	20
Total	100	387

9. Boating (Boat Launching Sites and Marina Slips)— Determined Deficiency to be met by 1980: 170 acres of land, 1700 spaces.

It is suggested the deficiency will be met in the following manner:

Agency	Per cent	Spaces	Acres
State	30	510	51
County	30	510	51
Municipal	28	480	48
Private	12	200	20
Total	100	1,700	170

REGION 9. (Blue Earth, Brown, Faribault, Le Sueur, McLeod, Nicollet, Sibley, Waseca and Watonwan Counties)

1. Swimming — Determined Deficiency to be met by 1980: 270 acres of land.

It is suggested these deficiencies be met in the following manner:

Agency	Per cent	Acres
State	5	13
County	30	81
Municipal*	45	121
Private	20	55
Total	100	270

*Includes school and Quasi-public

2. Camping — Determined Deficiency to be met by 1980: 510 campsites or 85 acres of land.

It is expected that the deficiencies for 1980 can be met in the following manner:

Agency	Per cent	Sites	Acres
State	10	54	9
County	5	24	4
Municipal	5	24	4
Private	80	408	68
Total	100	510	85

3. Golfing — Determined Deficiency to be met by 1980: Fifteen 18-hole courses or 2,700 acres of land.

It is suggested the deficiency be met in the following manner:

Agency	Per cent	Courses	Acres
County	10	2	360
Municipal	30	5	900
Private	60	8	1,440
Total	100	15	2,700

4. Hunting — Determined Deficiency to be met by 1980: 10,901 acres of land.

It is assumed this deficiency will be met by the State of Minnesota.

5. Picnicking — Determined Deficiency to be met by 1980: 1,400 tables on 140 acres of land.

It is felt that much of the picnicking is now on private or quasi-public lands, but that such areas will be limited or even less available in the future. Picnicking facilities for highway travelers will also need to be approved in greater quantity. Therefore, it is assumed that the deficiencies will be met in the following manner:

Agency	Per cent	Tables	Acres
State	20	280	28
County	15	210	21
Municipal	45	630	63
Private	20	280	28
Total	100	1400	140

6. Horseback Riding — Determined Deficiency to be met by 1980: 150 miles or 600 acres of land.

It is suggested the deficiency be met in the following manner:

Agency	Per cent	Miles	Acres
State	25	38	152
County	30	45	180
Municipal	—	—	—
Private	45	67	268
Total	100	150	600

7. **Snowmobiling.** — If the above 150 miles of public and private trails are constructed, it is felt that much of the needs for additional snowmobile trails by 1980 will be met.

8. **Playing Outdoor Games — Determined Deficiency to be met by 1980: 420 acres of land.**

It is suggested the deficiencies be met in the following manner:

Agency	Per cent	Acres
County	5	20
Municipal	90	380
Private	5	20
Total	100	420

9. **Boat Launching — Determined Deficiency to be met by 1980: 2,400 parking spaces or 240 acres of land.**

It is suggested the deficiency be met in the following manner:

Agency	Per cent	Spaces	Acres
State	30	720	72
County or Metro.	30	720	72
Municipal	10	240	24
Private	30	720	72
Total	100	2400	240

REGION 10. (Dodge, Fillmore, Freeborn, Goodhue, Houston, Mower, Olmsted, Steele, Wabasha and Winona Counties.)

1. **Swimming — Determined Deficiency to be met by 1980: 470 acres of land.**

It is suggested that the deficiency be met in the following manner:

Agency	Per cent	Acres
Federal	10	45
State	5	25
County	15	70
Municipality	50	230
Private	20	100
Total	100	470

2. **Camping — Determined Deficiency to be met by 1980: 1550 camp sites or 260 acres of land.**

It is suggested that the deficiency be met in the following manner:

Agency	Per cent	Sites	Acres
Federal	10	155	26
State	30	465	79
Counties	10	155	25
Municipality	10	155	25
Private	40	620	105
Total	100	1550	260

3. **Golf — Determined Deficiency to be met by 1980: Nine 18-hole golf courses or 1,620 acres of land.**

It is assumed that these deficiencies will be met as follows:

Agency	Per cent	Golf course	Acres
County	10	1	180
Municipal & Quasi-public	30	3	540
Private	60	5	900
Total	100	9	1,620

4. **Hunting — Determined Deficiency to be met by 1980: 25,766 acres of land.**

It is assumed that this deficiency will be met by the State of Minnesota.

5. **Picnicking — Determined Deficiency to be met by 1980: 8,800 tables or 880 acres of land.**

It is assumed that the deficiencies will be approximately met as follows:

Agency	Per cent	Tables	Acres
Federal	5	440	44
State	10	880	88
County	20	1,800	180
Municipal	50	4,400	440
Private	15	1,280	128
Total	100	8,800	880

6. **Horseback Riding — Determined Deficiency to be met by 1980: 430 miles or 1,720 acres of land.**

It is suggested that this deficiency be met in the following manner:

Agency	Per cent	Miles	Acres
Federal	10	43	170
State	40	172	690
County	15	65	260
Municipal	10	43	170
Private	25	107	430
Total	100	430	1,720

7. **Snowmobiling** — There will be no deficiency of snowmobile trails if the trails provided for horseback riding are multi-purpose trails.

8. **Playing Outdoor Games — Determined Deficiency to be met by 1980: 1,200 acres.**

This deficiency could be met in the following manner:

Agency	Per cent	Acres
County	5	60
Municipal & School	90	1080
Private	5	60
Total	100	1200

9. **Boat Launching (Parking Spaces and Marinas)—Determined Deficiency to be met by 1980: 6,000 spaces or 600 acres.**

It is suggested that the deficiency be met in the following manner:

Agency	Per cent	Spaces	Acres
Federal	40	2,400	240
State	10	600	60
County	10	600	60
Municipal and Quasi-public	25	1,500	150
Private (Marinas)	15	900	90
Total	100	6,000	600

REGION 11. (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington Counties.)

1. Swimming — Determined Deficiency to be met by 1980: 150 acres.

It is suggested that the deficiency be met in the following manner:

Agency	Per cent	Acres
State	20	30
County or Metropolitan	20	30*
Municipalities	50	75*
Private	10	15*
Total	100	150*

2. Camping — Determined Deficiency to be met by 1980: 3,180 camp sites or 530 acres of land.

It is suggested that the deficiency will be met in the following manner:

Agency	Per cent	Sites	Acres
State	10	318	53
County or Metropolitan	15	480*	80*
Private	75	2,382*	397*
Total	100	3,180*	530*

3. Golf — Determined Deficiency to be met by 1980: 35 courses or 6,300 acres.

It is suggested that the deficiencies be met in the following manner:

Agency	Per cent	Courses	Acres
County or Metropolitan	45	16*	2,880*
Municipalities	25	9*	1,620*
Private	30	10*	1,800*
Total	100	35*	6,300*

4. Hunting — Determined Deficiency to be met by 1980: 20,146 acres of land.

It is assumed the deficiency will be met by the State of Minnesota.

*Subject to revision upon completion of Metropolitan Open Space Plan

5. Picnicking — Determined Deficiency to be met by 1980: 27,825 tables or 1,390 acres of land.

It is suggested that the deficiency be met in the following manner:

Agency	Per cent	Tables	Acres
State	5	2,650*	130
County or Metropolitan	25	6,625*	330*
City	50	13,250*	660*
Private	20	5,300*	270*
Total	100	27,825*	1,390*

6. Horseback Riding — Determined Deficiency to be met by 1980: 500 miles or 2,000 acres.

It is assumed that the deficiencies will be met in the following manner:

Agency	Per cent	Miles	Acres
State	5	25*	100
County or Metropolitan	15	75*	300*
Municipalities	10	50*	200*
Private	70	350*	1,400*
Total	100	500*	2,000*

7. Snowmobiling—Determined Deficiency to be met by 1980: 500 miles or 2,000 acres of land.

It is assumed that the deficiency will be met in the following manner:

Agency	Per cent	Miles	Acres
State	5	25*	100*
County or Metropolitan	15	75*	300*
Municipalities	10	50*	200*
Private	70	350*	1,400*
Total	100	500*	2,000*

8. Playing Outdoor Games — Determined Deficiency to be met by 1980: 2,500 acres.

It is suggested that this deficiency be met by municipalities in cooperation with schools.

9. Boat Launching (Parking Spaces and Mooring Slips) — Determined Deficiency to be met by 1980: 6,000 parking spaces, or 600 acres of land.

It is assumed that the deficiency will be met in the following manner:

Agency	Per cent	Spaces	Acres
State	50	1,500*	150*
County or Metropolitan	30	3,300*	330*
Municipalities	10	600*	60*
Private	10	600*	60*
Total	100	6,000*	600*

VI. SPECIAL PROBLEMS AND FUTURE OPPORTUNITIES

Part I, Special Problems

One of the major problems in meeting outdoor recreation demand is the fact that there are inequities in the distribution of our population in relation to our recreation resources. In comparing the resources available to urban centers it becomes evident that resources are lacking in areas where the need is the greatest.

This fact is brought out in the recreation studies conducted in the Upper Mississippi River Comprehensive Basin Study[1] where 60 per cent of

[1]Appendix K — Recreation — Prepared under the supervision of the Upper Mississippi River Basin Coordinating Committee, 1961.

the unmet demand is located around the Chicago SMSA (Standard Metropolitan Statistical Area). As brought out in this study, the "factor of resource availability has fostered policies which have favored the development of resource-oriented areas instead of user-oriented areas near urban need centers. Inadequate financing and the lack of public support for recreation programs have, until recently, made it unfeasible for management agencies to carry on large scale user-oriented programs. These agencies have concentrated their acquisition and development on relatively cheap lands away from urban centers as opposed to competing for expensive lands which would be more accessible to mass use."

For example, the resource potential of the river valley bisecting the Twin Cities Metropolitan Area offers excellent recreational opportunities. Proper land use and desirability of the landscape for recreational purposes dictate the use of such areas to bring about a better balance of user-oriented resources.

As future patterns of travel will be affected by highway development, we can envision an additional influx of visitors to Minnesota. The completion of the interstate highways coming into the state from the Chicago area and the area to the south will undoubtedly bring more tourists to Minnesota.

This additional demand will create an increased drain on the resources of the southern and southeastern regions of the state—the regions which are already predicted to experience the greatest economic and population growth in the near future.

Land Use Controls

Development patterns of the state also have a great influence on the availability of natural resources for recreation. Control of these development patterns will become increasingly necessary, if we are to insure the availability of future lands for recreation. This can be accomplished by utilizing the best land use patterns and preserving the types of landscape which offer the greatest potential for recreation.

As an example, the greatest future regional growth outside the Twin Cities Metropolitan area is predicted to be in southeastern Minnesota. Much of this Region, particularly that bordering the Mississippi River Valley, is characterized by steep topography and is of a driftless origin. Land use controls in this area will supplement public programs to acquire key tracts of land and could control residential or other developments in prime recreation resource areas.

Such areas as the Memorial Hardwood Forest, wildlife management areas, state parks, county parks, and land under highway scenic easements can be instrumental in determining land use patterns. However, such land areas are naturally limited and we must depend on controls such as land use zoning, less than fee interests, etc., to protect flood plains, steep and erodable topography, and key natural, scenic, historic and scientific areas.

Design on City Neighborhoods

The President's Council on Recreation and Natural Beauty recommends that "local governments through their plans and subdivision regulations encourage better design of new neighborhoods, including consideration of cluster development and other planned unit development, design innovations and variations in the siting of buildings and design and location of streets. Federal agencies providing financial or technical assistance to subdivision developers and local governments should encourage improved neighborhood design in all possible ways."[1]

The above recommendation resulted from studies which show the relationship between attractive, well-ordered neighborhoods and quality of living. Over-run parks with worn out equipment are not fully used because of concern over personal safety, unattractive design and often lack of supervised recreation.

Since space is a problem in cities because of the high price of lands, smaller areas in the form of "vest pocket" parks may have to suffice. Better lighting, landscaping and financing of proper equipment, together with supervision, can increase the utility of existing neighborhood parks. Cooperative efforts between school and city administrators is needed to realize the greatest potential of existing recreation facilities whether in or around our schools or in a park.

The Council also proposed federal policies reflecting the need for resident involvement in improvement and redevelopment projects in old neighborhoods. Neighborhood requirements of open space for recreation should continue to be met in response to community demand. State and local governments must require developers or residential subdivisions to set aside adequate and appropriately located areas of open space within each development, or provide funds for the purchase of suitable open land elsewhere in the general area.

Historic Site Preservation

Although there is some support from the state legislature to the Minnesota Historical Society, the major share of financial support for state and county historical site preservation and interpretation is dependent on private funds. The public interest in preserving large buildings in urban areas presents an acute financial problem as well as one of divided interest where sites are extremely valuable for other uses.

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[1]From Sea to Shining Sea. The President's Council on Recreation and Natural Beauty, Washington, D.C.; 1968

The historic sites program in Minnesota was studied in detail by the Minnesota Outdoor Recreation Resources Commission (now Minnesota Resources Commission). This legislative body recommended certain changes in Minnesota Statutes to clarify areas of responsibility, definition and designation of certain monuments, and coordination arrangements between the Commissioner of Conservation and the Historical Society Director. It also suggested appropriation for accelerated land purchase, archaeological work, interpretation and capital improvement.

Although more than 1,100 known archaeological sites have been inventoried, less than 200 have been tested or excavated. The Historical Society has undertaken the responsibility for historic sites archaeology and interpretation. Such information enhances the recreational and educational aspects of many state parks in which the sites are protected.

Environmental Pollution

Air pollution is visible to anyone who flies over any metropolitan area in the nation. Smoke from industrial smokestacks and dump fires are major stationary sources of pollution, except for Los Angeles, where a 20-year campaign has generally controlled this problem.

Los Angeles, on the other hand, like many metropolitan areas, still has a serious air pollution problem caused primarily by automobiles. Another mobile source is the jet aircraft which, according to the Federal Aviation Administration, daily spews 35 tons of pollutants over the Nation's Capitol area in landing and taking off from Washington's National Airport.

The expanding population will require more production from agriculture and industry. Each will produce more waste and yet require more clean water. With new and complex compounds in today's wastes, pollution will be more difficult to detect and treat.

Significant strides have been made to attack water pollution. The 1965 Water Quality Act required establishment and enforcement of water quality standards on interstate waters. Minnesota has submitted such standards which, with a few exceptions, were accepted by former Secretary of the Interior, Stewart L. Udall, on June 15, 1968. Additional intra-state water standards are being set, utilizing much of the criteria established through investigation of the recreation needs for Minnesota's lakes and streams.

Solid waste is increasing in volume with the increased accumulation of non-reusable containers presenting a difficult problem with which to cope. The trend toward non-returnable bottles, aluminum containers and new types of disposable paper products adds to the problem.

Public lands used for recreation are often abused by the discarding of litter. Considerable expense is required in picking up and disposing of such material.

Future landfill sites should be limited to appropriate areas and must not encroach upon or diminish the value of recreation lands or other areas of natural beauty.

Mineral Lands

Giant mining operations for iron ore and, to the lesser extent, gravel and other minerals have changed the original landscape drastically in some areas of the state. Attempts are being made to heal the scars of the mine dumps and to provide additional use of the mine area for recreation wherever possible. Efforts should continue to explore possible ways of enhancing the landscape with pre-planning and research on means of renovating the landscape.

Utilities and the Environment

Utility distribution lines carry energy and communications into homes, stores and industrial plants. When constructed, overhead power and communications lines affect the natural beauty of an area wherever they are seen. Utility companies are constructing a growing percentage of these lines underground, especially in new residential subdivisions and redevelopment areas.

The conversion of the millions of miles of existing overhead distribution lines underground is a vast, complicated matter. The cost of such undergrounding would be enormous, perhaps in the neighborhood of $150,000,000,000. It may be assumed that at some future date, federal funds may be available, and if it is decided at a federal policy level that this is a worthy area for expenditure in the interest of environmental enhancement, governmental assistance would greatly expedite progress.

The cooperation of utility companies is essential if progress is to be made in improving the quality of our environment. Underground placement of overhead distribution lines, particularly in urban and suburban areas, appears to be developing as a significant part of an emerging national policy to improve the quality of the environment. Indications are that the distribution lines into new residential areas will normally be undergrounded by 1980. However, if this can be expedited with additional financial assistance, a target date of 1975 is realistic. Following this date, no new overhead distributional lines should be constructed in new residential subdivisions.

Siting of proposed nuclear plants at the earliest possible time is of utmost importance. Such planning can alleviate many problems posed by air or water pollution and would have a beneficial effect on reducing the number of long distance transmission lines.

River and Flood Plain Management

Rivers and flood plains serve as focal points of natural beauty and should be preserved through any planning or programming for water resource development. The Water Resources Planning Act of 1965 established a policy of encouraging the conservation, development, and utilization of water and related land resources on a comprehensive and coordinated basis by the Federal, State and Local Government, along with private enterprise.

Flood plains provide natural, open, undeveloped spaces that offer opportunities for wildlife and recreational development. In some cases, water development projects are designed and built in such a way that some of the natural area is destroyed. It is proposed that federal flood control and other water resource development programs and projects seek to retain and restore natural channels, vegetation, and fish and wildlife habitats on rivers, streams and creeks. Many of our natural streams serve as corridors of our wild and scenic areas. The states should establish necessary controls for the lands adjoining wild and scenic areas to protect their natural beauty and prevent those land uses which would damage their quality, both natural and man made. Controls should also be established for a state-wide system of river protection to complement the proposed nationwide scenic and wild river system.

Lakeshore and Stream Bank Protection

The protection of Minnesota's 15,000 natural lakes deserves special attention. Many of these bodies of water are losing their natural and recreational qualities due to building developments and eutrophication (rapid growth and decay of water plants and organisms caused by the prevelance of plant nutrients and other pollution, including sedimentation). Solution to these problems will mean establishing quality standards to lower the current nutrient levels in land runoffs or stream inflows. Accelerated research is needed in order to find ways to dissipate existing high levels of nutrients and, in effect, slow down the natural "aging" or filling process of lakes and streams.

Wetlands

Thousands of small prairie "potholes" in the western part of the state and flooded river bottom lands and swamps make up a large segment of midwest lands which provide environment for migrating birds as well as fish and other wildlife. They provide a buffer between runoff and the natural drainage systems which are sometimes over-taxed with water drainage.

The nation's wetlands are disappearing. The original 127,000,000 acres present during early settlement has now been shrunk to less than 75,000,000 acres and losses continue. Between 1859 and 1966, in North Dakota, South Dakota and Minnesota, an average of nearly 138,000 acres of wetland were drained each year for agriculture purposes.

Much wetland destruction is brought about by sedimentation and filling with dredging material from wetland bottoms. In some cases the same areas are additionally fouled by oil products and other pollutants.

A substantial number of wetland areas, kept in their natural state, are needed in order to protect the balance of nature. Ultimately, it will be necessary for the state and the nation to determine how much wetland acreage must be preserved and to provide for its permanent protection. In the meantime, Minnesota should end needless destruction of wetlands and guarantee that any conversion of wetland areas to other purposes will be carefully regulated.

Islands

Each year, additional natural lakeshore in Minnesota is subject to development. In some cases the only remaining natural areas and shorelines are isolated on islands in natural lakes and rivers. In preserving the natural shorelines of lakes, these islands serve a particularly important function and should be protected. Zoning controls or acquisition of undeveloped islands should receive high priority.

Natural Areas

Although natural areas are primarily for research and education, many also possess rare natural and scenic beauty. Often they represent unique samples of specific geologic formations, plants, animals, or aquatic communities, and because of these unique qualities, should be preserved. Sometimes they are too small or fragile to provide extensive use by the general public. Within public areas, naturalists may well provide interpretation and conservation education messages.

The state needs to provide for the designation, acquisition, or otherwise arrange for protection of such natural areas as parts of a system representative of this state's natural landscape, and geologic history. A system of natural areas must be incorporated into existing institutional arrangements whereby legislation, financing and administration can insure their preservation.

Highway Routing and Design

A standing policy of the Bureau of Public Roads specifies that in highway design and location full consideration be given to the impact of highways on recreation, aesthetics and conservation. Through a cooperative agreement between the state departments of Highways and Conservation, considerable attention is now being given to the placement and design of the state's highways. This consideration must be continued, particularly at the county or regional level.

Because much of the planning for new routing and design of highways is carried out at a region-

al or county level, there is a need for more coordination at field level by both departments.

Roadside development and scenic easement acquisition also should be coordinated between the two departments, because of the large land ownership involved and the fact that the two departments can complement each other.

A study should be made to determine the responsibility of the Conservation Department (its Division of Parks and Recreation, in particular) in providing overnight rest and camp facilities for road travelers. There is a need for providing more attractive highway settings to encourage travelers to appreciate and enjoy the opportunities provided by Minnesota's resources.

Air Transportation

Aviation has not only created an impact on the environment through noise and other inter-related problems affecting environmental quality, but has provided for the ability of people to reach Minnesota with increasing ease from all parts of the world. Tourist promotion must be sufficiently broad to give people from European and other countries an insight into the opportunities available in this state. Increasing the capabilities of certain key tourist-oriented airports is needed to bring travelers more directly to their destination and avoid time-consuming airline transfers.

Pools and Navigable River Channels

Included in Minnesota's supply of water resources are many pools and navigable river channels created by obsolete hydro-electric dams. The power companies currently are abandoning these facilities, many of which are in critical disrepair. Rehabilitation or replacement of these dams is expensive. One of these was Nevers Dam on the St. Croix river which was finally washed out in the spring of 1950. This lowered the river 8 feet, and a pool extending past the Sunrise River was lost.

Because of the high expense of rehabilitation and the combination of public and private interests affected by these dams, special consideration must be given to assisting agencies assuming the responsibility for their maintenance. Contemporary grant programs cannot supply the funds required and additional assistance is needed.

POTENTIAL LANDS AND WATERS AND OTHER OPPORTUNITIES TO MEET RECREATIONAL NEEDS

Part II — Future Opportunities

This section deals with the recreational potential of Minnesota's landscape, forests, and waterways. Some areas such as the St. Croix National Scenic Waterway and the Boundary Waters Canoe Area have already been determined to be of sufficient quality for federal acquisition and management. The dedication of Itasca and other state parks indicates the relative role of the state in identifying and acquiring these areas.

However, a new and comprehensive inventory of all environmental resources should be incorporated in active land use planning and made an important part of the next updating of Minnesota's Outdoor Recreation Plan.

The inventory will show what priorities for new state acquisition and classifications may be needed—the Kettle River as a wild river, for example. It also will point to certain other actions required.

In this portion of the plan, discussion will dwell on the potential of state lands and waters to meet the recreation needs and then treat other separate actions which complement acquisition and management of such areas.

Potential Lands in State Forests

It is the policy of the Division of Lands and Forestry to protect, develop and administer Minnesota's state forests so that a combination of uses will best meet the needs of Minnesota citizens.

The Division administers 2,996,659 acres of state forest land. The opportunities for future outdoor recreation these lands possess is very significant to the total recreation picture. A number of uses may be compatible on each individual tract of land.

It is not practical, however, for all of the possible uses to be developed for each tract. Primary uses, secondary uses and additional uses have been selected in accordance with public needs and capabilities of the land to meet these needs.

The 1967 demand survey indicated 40 per cent of the metropolitan residents are willing to travel over three hours for weekend outdoor recreation. It is assumed an undetermined number of these travelers would use recreation facilities closer to the metropolitan Region, if they were available.

The Division of Lands and Forestry administers approximately 7,000 acres within an hour's drive of the Metropolitan Center (Region 11), 100,000 acres between one hour and two hours, and 280,000 acres between two hours and three hour's drive. This total of 387,000 forest acres will be particularly important in helping the state fulfill its obligation to the recreation demand.

All state forest lands contribute to the hunting base. A variety of primitive or backwoods camping facilities, picnicking, and accesses to lakes for boating, canoeing, fishing and water skiing are enjoyed in all state forests. Perhaps the largest potential of these lands is for state forest trails. Snowmobiling, horseback riding and cross country hiking trails are compatible with other state forest land uses.

The Division of Lands and Forestry has estimated their potential development for these activities to be 7,364 acres of land by 1980 as shown in Table 51.

Table 51

POTENTIAL DEVELOPMENT OF EXISTING STATE FOREST LANDS (ACRES)

Region	Total	Camping	Picnicking	Trails	Acc. to Lakes
1	239.0	2	1	236	—
2	2,593.5	15	12	2,560	6.5
3	3,253.0	73	12	3,160	8.0
4	173.0	—	1	172	—
5	400.0	6	1	392	1.0
6	1.0	—	1	—	—
7	482.0	20	2	456	4.0
8	—	—	—	—	—
9	—	—	—	—	—
10	222.5	13	1	208	0.5
11	—	—	—	—	—
Statewide	7,364.0	129	31	7,184	20.0

No comprehensive inventory of potential recreation sites is available for all state forest lands.

Potential Land in Minnesota's State Parks

Potential for new state parks and the potential developments of existing state park lands will help to meet the recreational needs as shown in this Plan. It will provide lands for additional facilities for such activities as sight-seeing, fishing, swimming, driving for pleasure, relaxing out-of-doors, boating, canoeing, horseback riding, nature walks, bird watching, camping, and picnicking. All these activities rank high according to the priorities set by Minnesota citizens and out-of-state users.

The Minnesota Division of Parks and Recreation has determined the acres of land available for development in existing parks and on new park sites to be as indicated in Table 52 and Figure 25.

New developments in existing state parks lands and potential areas which meet the criteria for state parks, monuments, recreation areas, or waysides will do much to meet future needs as outlined in this Plan. However, a new and comprehensive inventory of all environmental resources should be incorporated in future land use planning.

Historic Sites

Additional major historic sites need preservation. Present sites, including museums, need expansion and interpretation. An adequate, uniform marking system is also needed.

Table 52

POTENTIAL ACRES FOR DEVELOPMENT IN STATE PARKS
EXISTING AND FUTURE PURCHASES (ACRES)

(ACRES)

Region	Total	Camping	Picnicking	Trails	Acc. to Lakes
1	257.0	36	31	180	10.0
2	291.5	47	17	220	7.5
3	540.0	20	115	380	25.0
4	156.5	13	16	120	7.5
5	234.5	19	8	200	7.5
6	81.5	13	6	60	2.5
7	1,050.5	73	70	880	27.5
8	58.5	10	6	40	2.5
9	298.0	13	120	160	5.0
10	545.0	40	40	460	5.0
11	1,117.0	42	80	960	35.0
State	4,630.0	326	509	3,660	135.0

Minnesota's program of preserving and marking historic sites needs to be intensified. Tourists as well as the state's own people should be informed about the rich heritage of Minnesota. Historic sites and historical markers are needed and can be among the most effective means of tourist promotion.

Historic sites offer an enriching opportunity to better understand our heritage. Some can be developed to provide a broad range of activities as well as serving their historic site function. For example, Fort Snelling State Park provides natur-

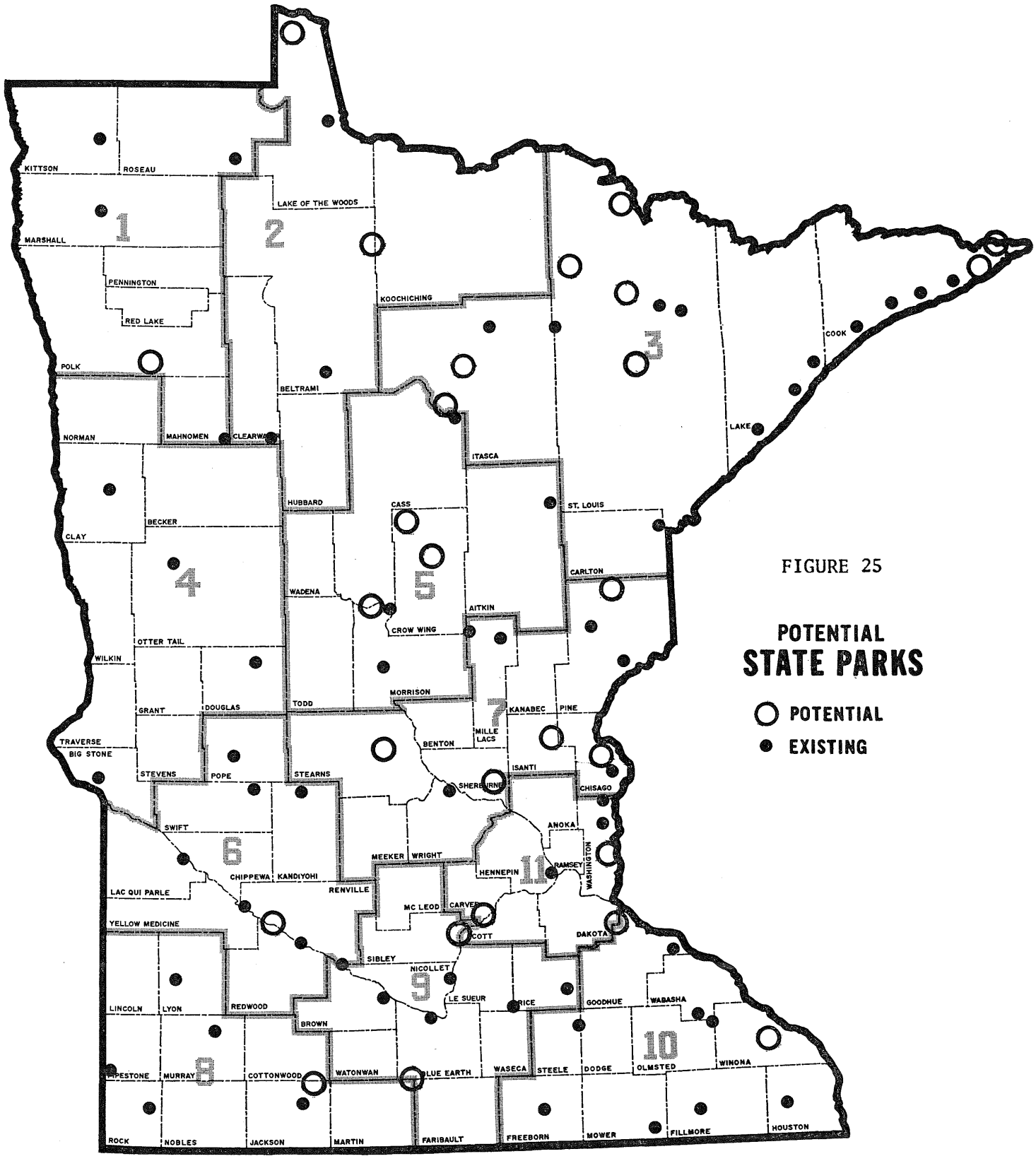

FIGURE 25

POTENTIAL STATE PARKS

○ POTENTIAL

● EXISTING

alist services and hiking trails and is being developed to provide an even broader range of activities.

Historic sites strengthen the state's appeal to tourists. The traveling public has found that such sites add purpose to their vacation. Historic sites are among the points of interest visited most often by those out for a pleasure drive.

Comprehensive studies are needed to determine the total historic site visitation in Minnesota. Five sites demonstrate the pulling power of the Minnesota heritage: more than 1,000,000 persons visit the source of the Mississippi River at Itasca State Park annually; the Pipestone, and Grand Portage National monuments each attract more than 100,000 visitors; Old Fort Snelling receives 125,000 visitors each year; and the new Mille Lacs Indian Museum is host to more than 100,000 people annually.

Recommendations For Future Inventory and Classification

Minnesota has made a major start in a first-phase inventory of its recreational, scenic, historic, and related environmental resources through participation in the Upper Mississippi Comprehensive Basin Study.

All of the Minnesota lands and waters in this basin have been included in the Environmental Resource Inventory—Regional Design For Human Impact. This inventory maps the location of a wide variety of landscape, resource, and cultural features which can guide in the choices of areas needed to supply recreational opportunities. The process of selection and giving priority rating to each area is necessarily a subjective one, but objectivity is possible by making comparisons between areas. The scarcity value of an Itasca Park, Taylors Falls on the St. Croix, or the North Shore of Lake Superior leaves little doubt that these scenic wonders hold great attractions which deserve the highest priorities. Scanning of the maps and inventories must be supplemented by on-the-ground field inspection of each area and priorities assigned according to their intrinsic quality. The system developed by the Wisconsin Department of Natural Resources, which satisfactorily summarizes priority areas for each county, can be adapted to this purpose for Minnesota.

Since recreational resources do not exist separately but rather are intermingled with others, their special characteristics must first be identified and then rated as to quality. The Wisconsin system of priority classes does provide one method for lifting out those tracts deserving special consideration for public use. A next step for Minnesota will be to complete the inventory of those tracts which deserve consideration for public acquisition, giving each a priority rating. Tabular presentation and location on maps will be the procedure followed.

Upon completion of this step, and to lay the basis for future recreational use and facility development, the ORRRC-BOR system of classification will be followed. This system provides for six distinct use classes:

Class I — High Density Recreation Areas
Class II — General Outdoor Recreation Areas
Class III — Natural Environment Areas
Class IV — Outstanding Natural Areas
Class V — Primitive and Wilderness Areas
Class VI — Historic and Cultural Sites

Tenure and Administration

Once this inventory of environmental resources is completed and shown on maps, the next step will be to indicate the desirable future tenure and administrative status. Some areas such as the St. Croix Wild River and the Boundary Waters Canoe Area have already been determined to be of sufficient quality for federal acquisition and management. The decision for Itasca and other state parks indicates the relative role of the state in some areas. The inventory will show what priorities for new state acquisitions may be needed (the Kettle River as a wild river). It will also point to certain other actions required. For example, bluff areas along the Mississippi, the wetlands of central Minnesota or portions of the North Shore of Lake Superior may call for state easements in addition to present acquisition programs to assure continuity of present uses.

County land use zoning will be called for in flood plains, lake shorelines and perhaps primary and secondary scenic highway areas to preserve continuity of scenic values. For private lands with high-quality recreational uses—hunting, fishing, camping and trails—another form of tenure arrangements may still be needed. This Wisconsin rating system for quality of sites could be adapted to Minnesota conditions.

Planning Recreational Development in a Region

This report has shown that a great deal of outdoor recreation is already going on in Minnesota. Therefore, any planning must carefully and realistically relate itself to present activities and projections into the future based upon present facts. Planning involves a number of steps;

1. Use of inventory and classification of areas for recreation and scenic purposes.
2. Fitting recreation land use plans into the over-all country land use planning and zoning effort.
3. Securing areas into stable tenure patterns; i.e., public acquisition, easements or zoning—determination based partly on quality of area.
4. Using demand data previously gathered or in preparation of development plans for facilities, private or public, as appropriate. This requires

agency and local participation and coordination.

All of the foregoing steps, once the basic information is available, will require participation by key civic groups and leaders, local government and federal and state agencies. Impossible as this may seem, it is an essential step to fitting all the pieces into a working mosaic. Local participation in the decision-making process can take place at the point where the professional staff studies are clearly set forth on maps, simply stated, summarized statistically, and alternative choices stated. State and regional demand data used in Step 4 would be refined to those projected figures which apply to the sub-region as local planning areas. From the tables of Estimated Acreage Needs by Regions, such resource base supply factors as acres of water and miles of stream must be related to the inventory of these resources actually present in the planning area. In addition, acres of high scenic or open space quality must be included even though the demand figures do not show an immediate or near term need.

The steps previously set forth spelled out in more detail would be followed in this manner:

1. **Use of inventories for classification of areas for recreation and scenic preservation:** Overlay maps of topography, land use and cover, plus environmental (or landscape) inventories used in conjunction with field evaluations can be the basis for identifying and locating traces of high recreational and scenic potential.

2. **Fitting recreational land use plans into over-all land planning.** The acres identified for high-quality recreation will be on a variety of ownership (county, individual, corporation, and state ownership); and land uses (timber production, intensive recreation, farm and wild). County zoning ordinances will apply to some areas, others will be part of management units, others hold only for re-sale. Federal and State agencies will have on-going programs. All of these influences having a bearing on the high-quality recreation tracts should be set forth on overlay maps and described in report form.

At this point, consideration of the several public agency programs will be needed. A specialist from the State Department of Conservation or State Planning Agency can perform this role. An inter-agency coordinating committee would be the logical device here, and would include the representatives of the county board, the several state agencies involved in the area (game and fish, forestry, highways, economic development and planning) and such federal agencies as Forest Service, Soil Conservation Service, Bureau of Outdoor Recreation, Fish and Wildlife, etc. The product of this effort would be the allocation of recreational tracts toward a more stable land tenure system. Some of highest quality would go into state parks and forests; some would require scenic easements (lakeshores, vistas, etc.); and for others, zoning according to best use would be applied (some lakeshores and river flood plains).

3. **Securing Stable Tenure Patterns.** Once decided as to which recreational lands would be secured by specific techniques, a program of direct acquisition of land by public agencies, of acquiring scenic and other easements and of zoning should be developed. Estimates of funding for each activity would be required based upon costs and institutional arrangements worked out. If new legislation for flood plains and lakeshore zoning and easement acquisition were needed, the details should be clearly set forth in recommendations. A budget projected over ten years for each phase would accompany program proposals.

4. **Preparation of Development Plans** — Using the demand data for recreational activities, projections of needed facilities should be fitted into the land and water areas previously identified. Here a conflict between public agency planning and local people could develop unless an effort is made to provide for local participation. The coordinating committee machinery established in Step 2 should be expanded at this time to include local governing bodies and representatives of recreational groups and interests.

Using the BOR-ORRRC classification system for those lands and areas classified previously for recreational uses, the development plan should schedule the location, design and kind of man-made facilities in their proper places for the whole area — projected into 1985. Here the demand data would be converted into a schedule, showing number and acres or miles of campsites, trails, golf courses, playing fields, service facilities, etc. They would be scheduled at regular increments in time. Every effort should be made to allocate to the private sector such commercial and intensive use facilities as deluxe campgrounds, golf courses or commercial service facilities, partly because these are logical private functions except in remote areas, and partly because of the necessity to keep natural areas uncluttered.

5. **Execution of the Tenure and Development Plans.** Previously the role of each participant in the over-all plan would have been defined. Continuity of consistency in implementation would be required to keep each in place; therefore, the original coordinating committee should continue to serve as a joint program committee to keep all groups currently informed and involved with the progress. It is difficult to spell out the details at this point since there is little experience to date. The key to the effort would be continued State agency chairmanship, regular progress reports and accounting of results at intervals.

Private Land Recreational Opportunities

In addition to the developed recreational facilities which would be provided by private enter-

prise — campgrounds, service stores, summer resorts, etc., there are many large areas of private land and water usable for such activities as hunting, fishing, hiking and overnight camping (especially along rivers) not currently available. Their unavailability is emphasized by "No Trespassing" signs and the absence of a systematic means of responsible public use acceptable to private owners. A review of the problem and solutions developed elsewhere is set forth in the Appendix.

Future Opportunities — An Informed Public

Plans and programs calling for the expenditure of public funds cannot develop beyond the planning stages without public support! This support can only come through an effective information and education program. There must be good communications between the people of Minnesota and state, federal, county and municipal personnel responsible for carrying out the various programs.

One of the primary strengths of professional conservationists and recreation managers in Minnesota is that most of our citizens have some basic interest in what happens to the out-of-doors. What concerns the resources, concerns most of us.

Minnesota cannot expect to move forward in the resource field until it has a conservation information program capable of reaching every one of its citizens regularly through the mass media — television, radio and newspapers. There must be an abundance of special publications that are attractive and interesting, as well as educational. This requires staff, equipment, and most of all, fresh, new, aggressive ideas. The most important thing the public and the professionals in Minnesota can do at this time is to unite in an all-out effort to develop a broad, new conservation information program. Until this is accomplished, the state that our resources are in will be altered very little by either the professional or by lay conservation groups.

Influencing the minds of our children is the only thing we can do which is more important than influencing the laws of our nation. The generation to come will have infinitely greater powers than we have, and their attitude toward their environment must be better than ours.

Our great obligation is to teach our children to understand, appreciate and love their natural environment. This should be done in schools, but it is making slow progress there. The school administrators who are attempting to do the job should be given every possible encouragement and support.

It should be emphasized that all of society is determining the fate of our resources and the future opportunities we will have — not just the professional conservationist and recreation planners. The professionals only speed up, slow down, or perhaps slightly alter the courses established by society.

Future Opportunities — Senior Citizens and the Handicapped

In order to provide suitable recreation for everyone in every season, we cannot overlook groups with special requirements such as our senior citizens, the handicapped and the underprivileged.

The estimated population in Minnesota in 1961 of people 65 and older was 358,816 or nine per cent of the total. By 1970, there will be more than 400,000 senior citizens in this age bracket. Special tours, or special periods in parks set aside for their use are considerations. We also need recreation facilities geared to the requirements of the handicapped and provisions for the underprivileged.

Minnesota has a legal responsibility and a moral obligation to provide facilities for all citizens, including those with physical handicaps. The opportunity to use public recreation facilities in many cases is prohibited by designs that do not consider these individuals.

There has been an increasing concern to improve outdoor recreation for the handicapped. Harold Russell, chairman of the President's Committee on Employment of the Handicapped states:

> "The handicapped traveler should be able to plan his travels with confidence and assurance. He should also be entitled to enjoy the grandeur of our natural resources without facing the embarrassment of being rejected at the end of his journey."

There is a need for a better understanding of the fact that handicapped people have the right to be included in all phases of our affluent society.

The handicapped are often overlooked because they are not always understood. A non-handicapped person generally is not aware that a handicapped person is normal except for the restricting area of the body, and that he has the same basic needs, desires, and interests. They have the need to participate as regular members of the community, not as isolated groups of persons who have the same type of handicap.

Architectural barriers cause many of the handicapped to stay at home, and are oftentimes the limiting factors that prohibit participation in outdoor recreation. Communities can make their strongest contribution by eliminating architectural barriers.

A publication by the National Society for Crippled Children and Adults, Inc. states:

> "Approximately one out of seven people in our nation has a permanent disability. The most common design and construction of buildings and facilities cause problems for the physically handicapped that lessen the social and economic gains now evident in the rehabilitation of these individuals. These architectural barriers make it very difficult to project the physically handi-

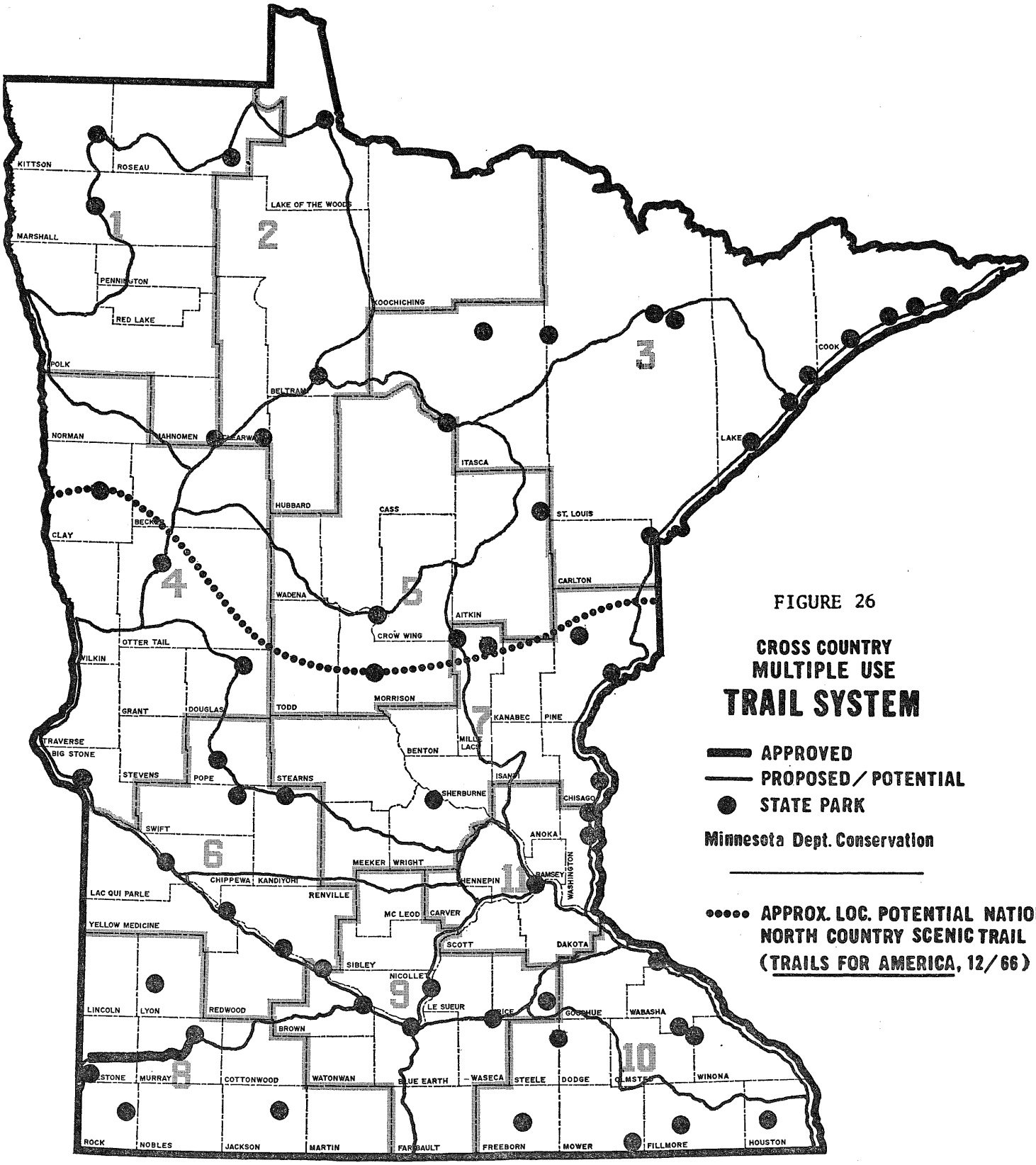

FIGURE 26

CROSS COUNTRY MULTIPLE USE TRAIL SYSTEM

APPROVED

PROPOSED / POTENTIAL

STATE PARK

Minnesota Dept. Conservation

APPROX. LOC. POTENTIAL NATIONAL NORTH COUNTRY SCENIC TRAIL (TRAILS FOR AMERICA, 12/66)

capped into normal situations of education, recreation and employment."

Facilities not often designed for the handicapped are:

Flights of stairs
Revolving doors
Narrow doorways
Unusable restrooms
Out-of-reach drinking fountains
Inaccessible elevators
Grading at abnormal levels
Parking too distant

There is a growing awareness and increased understanding of the problem.

Legislation was passed by the 1963 Minnesota Legislature and amended by the 1965 Legislature which requires that buildings financed by public monies be constructed or remodeled so as to be accessible and usable for handicapped and aged persons.

Provisions for the handicapped in outdoor recreation is generally a concern when constructing facilities, and should be made a part of the training of those employed in the design of outdoor recreation facilities.

Communities can do their part by eliminating existing barriers and designing facilities that are accessible and usable by the handicapped.

In a recent study conducted in 12 different communities across the United States it was found that resources, staff, and funds were available to enable handicapped persons to utilize community recreation resources.

Helpful information on Building Standards are available from the following sources:

Governor's Commission on Employment of the Handicapped
1745 University Avenue
St. Paul, Minnesota

The Society for Crippled Children and Adults
2004 Lyndale Avenue South
Minneapolis, Minnesota

Ways in which all types of recreational sites and facilities can be made accessible to the aging and disabled are discussed in the manual "Planning Areas and Facilities for Health, Physical Education and Recreation"; $5.00; Athletic Institute, Merchandise Mart, Chicago, Illinois 60634.

All levels of government should recognize that the public service they provide must be designed to benefit all citizens. A harmonious effort will open up new worlds for thousands of people.

FUTURE OPPORTUNITIES — State-Wide Trail System

The Minnesota Department of Conservation is planning a state-wide network of recreation trails which would weave for more than 3,000 miles through the state. The location of these trails is indicated in Figure 25.

The plans include trails for hiking, horseback riding, bicycling, cross-country skiing, snowmobiling, and boating and canoeing.

The canoe and boating trails are authorized on 16 rivers by the State Legislature. In 1968, the state posted informational signs, such as access points, portages, and danger areas along most of the 2,000 miles or more of the river network. Campsites will be developed for canoeists on certain selected streams.

Expenses involved in elaborating the 16-river system include campgrounds, accesses, signing and gaging. The rest of the trail system, which could take 30 years or more to develop, will be a more expensive matter.

The Department of Conservation has recommended that money be appropriated to begin land acquisition and development of a multiple-use trail along the Minnesota River Valley from the Twin Cities to LeSueur. This would be used for riding, snowmobiling, and hiking.

Another trail now in the planning state would run along the North Shore and the Minnesota-Wisconsin boundary, twisting through primitive land, much of it in a near-natural state, and a good portion through state-owned land. This trail would be multiple use.

Some of the proposed trails would be over terrain that would lend itself to only one type of recreation. Other trails could have multiple uses. Horseback trails with wide sweeping turns generally would be ideal for cross country skiing in the winter and horseback riding in the summer.

The Department also is recommending that money be funded to develop a biking trail which would connect at LaCrescent with a 32-mile biking trail developed in neighboring Wisconsin. This trail would wind its way north toward the Twin Cities.

Most biking trails would be along low-traffic volume county roads. Surfaced roads could be used in some areas. Other stretches could be graded and surfaced, but costs limit the extent to which this can be done.

There is a growing demand for snowmobile trails. These trails must be developed to provide the opportunities for winter enjoyment without the problems encountered in use of private or other lands for this activity.

Some types of trails such as hiking trails, would need only a minimum of development — clearing brush, building primitive bridges. Other types such as bike trails on roadside banks, would require considerable money.

Much of the trail system will be across state-owned land. This, of course, will cut down ex-

penses. The system will provide recreational opportunities to a wide spectrum of Minnesota residents, would be a boon to tourism and would take some of the intense pressure from the state park system.

Potential Trails — State Significance

The Department of Conservation, Division of Parks and Recreation is classifying the state trail types as — hiking, horseback and snowmobile; bike and snowmobile; boating and canoeing.

Fifteen trails are proposed by the Division of Parks and Recreation and are part of a state-wide system. Some of these could be incorporated with a national system.

(There is also potential in developing a system of **urban trails** — see county plans: St. Louis, Itasca and Ramsey counties. The state's role in developing an urban trail system and the establishment of such a system is to encourage the lesser units of government to take the most active part in providing these trails.

Priority will be given to trails in the order listed below:

1. Trails on state administered lands that will fit into long distance trails.
2. Trails located near high population centers where the demand is high.
3. Trails which will not intrude on other uses of an area such as nature trails, sliding hills, wildlife sanctuaries, wilderness areas, etc.
4. Trails which are new to the region.
5. Trails which may have other use possibilities such as hunting, horseback riding, hiking, firefighting, etc.
6. Trails in which the costs might be shared because of multiple use possibilities such as a fire access road, and/or because of aid from a private organization.

Long Distance trail segments to be developed as money and conditions permit. (Proposed 1969 Legislature, 70-71 biennium.)

1. Twin City area to Taylors Falls area.
2. Taylors Falls to St. Croix State Park trail center using NSP lands.
3. St. Croix Trail center to Jay Cooke State Park visitors center (River Inn).
4. Tower to Grand Rapids (Ely-Tower segment now in existence.)
5. Casey Jones Trail.
6. Lower Minnesota River (Carver Trail).
7. Brainerd Area.
8. Whitewater Valley or Hiawatha Valley.
9. River Bend — Minnesota Valley.
10. Mississippi Trail — Grand Rapids Area.
11. Sibley to Lake Carlos.
12. Lower North Shore (Lower old dog trail).
13. Detroit Lakes to Bemidji.
14. Northwest — Lake Bronson to Hayes Lake.
15. Red Lake River Trail — Crookston to Thief River Falls.

Trails — National Significance

Trails in Minnesota with national significance are the Height of Land Trail, the Mississippi Trail, the St. Croix Trail, and the North Shore Trail.

Both the Height of Land and the St. Croix River trails would connect to the North Country Trail, proposed by the National Trails System Act of 1968. It would extend some 3,170 miles between the Appalachian Trail and the badlands of western North Dakota, where it would meet the Lewis and Clark Trail.

The North Country Trail would wind through northern Michigan, skirting the south shore of Lake Superior, and through Wisconsin and Minnesota. Portions would trace land routes and watercourses used by early French trappers and voyageurs.

The Height of Land Trail would follow the divide of three watersheds: the Superior-Mississippi, the Superior-Hudson Bay, and Hudson Bay-Mississippi. The total length involves 735 miles of hiking over rugged topography of northern Minnesota and would be a connecting part of the North Country Trail. Requirements for its establishment include access to lands (much of the land is already in state and federal forests), and a well-planned publicity program.

A number of small trails could be extended as feeders to the major trail. There are numerous wayside recreation areas, parks, forests, lookout towers, and other points of interest within hiking distance of the main trail. If the trail were extended along the international Pigeon River flowage, the Grand Portage Indian Reservation and Grand Portage National Monument would be included.

The Mississippi River Valley Hiking, Bicycling and Horseback Trail could tie together scenic views, historic sites, parks, forests and other interesting areas along the river. Along certain stretches of the river and possibly its entire 332 mile length, special trails should be provided for biking. Hiking trails could be the same as bike trails except where a steep climb might take the hiker to a historic site, a cool spring or camping spot.

A North Shore Parkway Hiking Trail also is proposed. The State of Minnesota administers 13 state parks and two state forests along the route from Duluth to the Canadian Border. Publicly-owned shoreline amounts to 19 miles, roughly 10 per cent of Minnesota's mainland and islands of the Lake Superior shoreline. There is a great opportunity for developing a system of trails along the entire North Shore in conjunction with existing trails.

The St. Croix River Trail would be tied in with the St. Croix River which was given national Wild

River status by Congress. The planned trail would connect with the North Country Trail at right angles.

FUTURE OPPORTUNITIES—Wildlife and Hunting

The first and foremost approach in developing the potential wildlife of Minnesota is through public education. The educated conservationist is well-informed on wildlife conservation and is concerned with basic conservation problems.

Such a person realizes that there are no easy solutions and that methods and programs that had popular appeal back in the 30's and 40's may be of little or no value today.

Preserving Key Wildlife Tracts

The most practical solution to the future of wildlife is provided by restoration and preservation of wildlife habitat.

To meet the goals in the time available, wildlife lands must be preserved on a less than fee title basis in the form of easement.

In addition to the wetlands and adjoining uplands, banks of streams can be added. These may have little potential for agricultural uses, but provide vital elements necessary for game. Then there are the many shallow lakes in southern Minnesota which are now of little value either for fish or game, but have good potential.

Other Positive Approaches

The 1967 Legislature gave its stamp of approval for a program aimed at helping wildlife on private lands — the new program of Private Lands Development. Funds were set aside for the Conservation Department to encourage habitat development on private lands. Cost-sharing and planning assistance for such beneficial wildlife projects as nesting cover, food plots, woody cover planting and wetland improvement are available to the owner from the Conservation Department.

The State and County highway departments are delaying mowing so that most roadsides are mowed after July 1, preferably July 15. Extension of similar agreements from township governments is needed to offer substantial benefits.

Forest Management and Big Game

The harvest of mature timber by forestry agencies provides the most practical and inexpensive deer habitat improvement program. Most critical, however, is the wintering range of the whitetail where plant succession, if allowed to progress into mature or dominant species, will delimit the deer population in forested northern Minnesota.

The white-tailed deer is the most important big game animal in the State and in the Nation. With an estimated value of $100 per head, a harvest of 100,000 animals in Minnesota is worth ten million dollars annually. To date most work has been concerned with regulating the yearly harvest to conform with the productivity of the habitat available.

To maintain or to increase the present population, it is imperative that a major management effort be expended in preventing serious winter losses such as occur periodically.

Aspen is the most abundant tree species in the northern forest, making up one-third of the forest cover or 5,400,000 acres. How aspen is managed will largely determine the future of deer habitat in Minnesota. It will also have important influences on ruffed grouse.

In addition to a maturing forest, we are also faced with natural plant succession toward a spruce-fir forest in many of the northern counties. Spruce-fir, the climax forest in this region, is poor habitat for deer. It is gradually replacing many of the former aspen-birch areas.

The overall objective of a deer management program is to provide a harvest of surplus animals commensurate with the carrying capacity of the range and, secondly, to provide the maximum amount of recreation for the public.

It is likely that we can continue to harvest approximately 100,000 deer annually over the next ten years. A deer management program should be aimed at improving winter cover and winter food supplies. The actual number of acres to be improved on an annual basis in order to provide benefits remains unknown at the present time. It will depend upon the total acreage of winter concentration area needing management (determined by the aerial and ground surveys), the amount of cutting actually taking place at present, and its distribution.

Studies in Michigan have shown that maintaining a population of 21 to 30 deer per square mile requires cutting on approximately 40 acres per section every three to five years.

Broadening the Hunting Base

Hunters depend so much on hunting Minnesota's "Big Four" — pheasants, grouse, ducks and deer — that most have overlooked the potential of the state's lesser-known species.

It is likely that hunting the lesser-known birds such as the woodcock, jacksnipe, and rail along with small mammals (squirrels and rabbits in particular), will increase if populations of pheasants and ducks continue to decline. The state should look toward publicizing these species and the potential they offer.

Although not presently a legal game bird in Minnesota, it seems only appropriate that some consideration be given to the mourning dove. Because of its preference for grains and weed seed, it is one of the few bird species that has actually increased its numbers in intensely farmed areas.

Although about two million hunters in 31 states

take about 40 million doves each year, their numbers seem unaffected.

The black bear has a great potential as an added bonus to the big game hunter if given big game status and a regular season. The state is missing one of its greatest opportunities by not recognizing the potential of this fine animal.

They are protected in a large portion of the Arrowhead Country and Cass County, but may be hunted in both areas during the deer season; there are no bag limits. Elsewhere, black bear are unprotected. They may be killed at any time and bought, sold and possessed in any quantity.

A limited season on the moose has been proposed by the Conservation Department's Game and Fish Division. It is hoped that Minnesota sportsmen will be rewarded with an extra dividend and a limited hunt provided for this mighty animal.

Endangered Species

The state should strive to protect all forms of wildlife classed as rare or endangered.

The largest concentration of the timber wolf in the United States (except Alaska) inhabits the border lakes region in Minnesota. In view of the fact that the timber wolf is on the Department of the Interior's listing of rare and endangered species, Minnesota should take particular care to preserve this animal.

New Concepts and Realignments in Fishing Opportunities

The growing number of fishermen, increased uses of our fishing waters for other purposes and the expansion of lakeshore developments are bound to affect fishing in Minnesota. Approaches to insure opportunities for fishing must be bold and imaginative, yet should be steadfast and progressive to meet the challenges of changing conditions.

Before discussing new concepts of realignments, we should be aware of two important problems.

1. **Our fish resources are presently very heavily utilized.** To cope with the problem of over-use, efforts of fisheries should be intensified to prevent or arrest the decline of fish habitat. A modest increase in funds and personnel in the Division of Game and Fish would allow acceleration of the fish habitat acquisition program which involves the purchase of marsh areas adjacent to important fishing lakes. The acquisition of stream banks for access and habitat improvement should be accelerated, particularly on trout streams with heavy usage. Other types of acquisition needs include sites for the construction of permanent carp trapping areas and access to larger waterfowl and wild rice lakes for the purpose of carrying on northern pike rescue and transfer operation.

A modest increase in personnel is necessary to more intensively manage the increasing number of natural spawning and rearing areas for northern pike. In order to obtain maximum production, these areas must be watched closely; water levels must be controlled and brood stock on spawning runs watched and controlled. Water temperatures and oxygen content must be checked regularly and rearing areas drained to avoid loss of fish due to high temperature and loss of oxygen.

2. **The opportunities for expansion of our fishing resources (new waters, lighter used waters) are very limited.** This is primarily because our flat topography precludes construction of new reservoirs. (The rugged topography of Southeastern Minnesota subjects reservoirs in this area to silt discharge and shortens the lives of these lakes and their fish habitat.) Also, reclamation of senescent lake basins through dredging is still not economically feasible. It involves a fantastic amount of money with modest results. (The cost per yard is from fifty cents to one dollar.)

Warm-water streams are subjected to other uses besides fishing. They carry away wastes, both industrial and domestic, and have a limited amount of tolerance and flow flux. This limits the amount of habitat and they are not as productive as our lakes. Flowing water does not produce plankton, a basic substance in the diet of many of our most desirable fish species.

There are several courses of action to new concepts and re-alignments in the fisheries picture in Minnesota, presently outlined by the Division of Game and Fish.

Positive Approaches

1. **Intensify efforts to prevent illegal drainage and tampering with the water levels.** Legislation is currently being sought to zone lakeshore lands against over-development and the development of marginal residential property. This would be a big step forward in helping to save northern pike spawning areas and natural shorelines and would reduce the rate of enrichment of our fishing waters from shoreline residential developments.

2. **Intensify fish population control efforts.** Fish populations should be structured to channel more of lake productivity to species that are of interest to sport fishermen. Most waters have from 20 to 30 different species of fish, of which only about six are of interest to anglers, and a few more relate beneficially to game fish as a food source. The objective is to eliminate unwanted fish and to make more "living space" for sport fish.

3. **Experiment further with exotic species in hopes of finding fish capable of occupying niches which are presently unoccupied.** This approach offers potential for developing a higher yield to fishermen per given area of fishing water. Fisheries personnel are seeking to develop fish that are more tolerant of greater population densities;

are faster growing and have a more rapid population turnover; greater tolerance to adverse conditions (turbidity, low oxygen tension, higher temperatures); wider ranges of spawning conditions; and ability to feed at lower levels on the food chain. Experiments to find exotic species of trout which will spawn in lakes also are being carried out.

4. **Anglers pass up fine fishing opportunities by not recognizing the potential of species such as the burbot, perch, white bass and bullhead.** Efforts should be made to help the angler realize the sport fishing opportunities of species besides the heavily favored walleye, and northern. All bite on hook and line, are good eating and are abundant in their habitats.

5. **Intensified efforts in selective breeding.** Selective breeding can be an effective means of improving fishing in waters where the fish population is maintained through stocking. Intensified efforts should be made to develop strains of fish with desirable characteristics such as faster growth rate and an attractive appearance for trophy values.

6. **Intensified efforts in developing lake trout fishing.** Minnesota has more lake trout waters than any state in the United States. Not only is the lake trout highly regarded by summer anglers, it is also a fine winter fish. It is well-adapted to our waters in the northern part of the state. In fact, it is the best adapted species of cold-water fish to both northern inland lakes and Lake Superior. During the next two years, the Division of Game and Fish will be treating lakes in Cook County with toxicants, restocking and managing these lakes solely for lake trout. A bright spot in the lake trout program is "fintrol", a fish toxicant recently developed by the Wisconsin Alumni Association, which is very effective in small concentrations in soft water lakes of the northeast. Fintrol de-toxifies rapidly. Thus lakes can be restocked at a much faster rate than was possible with other toxicants.

Of great interest in the fishing picture is the Coho Salmon. A program is underway to establish this fish in selected North Shore areas of Lake Superior and inland lakes of the northeastern counties. While it is not expected that salmon will reproduce well in that region, a capacity for artificial propagation is being established. The coho will grow fast, are easily caught, and live in marginal trout waters.

Other Approaches

A big movement will be in connection with population control, rehabilitation of warm-water lakes and streams, and stocking productive species in combinations and rates suitable to successful propagation. Remarkable fishing has resulted from the rehabilitation of lakes in local areas which were once prime fishing waters, but have for various reasons lost their fishing values.

With increased manpower and equipment, roads can be developed or improved to provide access to more areas of the wild rice and waterfowl lakes which generally are ideal for northern pike production. Rescue activities, including the installation of special traps during summer and fall and the construction of channels and operation of pumps to attract fish into the traps before they suffocate from lack of oxygen, are other areas which should be expanded.

It can be expected that federal aid will be allocated to finance additional habitat improvement work on the lower reaches of the North Shore streams to provide more and better trout spawning and fishing areas. Additional state funds should be made available as matching funds to enable other on-going programs to continue in order to make use of this type of federal aid.

Summary

We continue to have good fishing in Minnesota because we have been slower in altering the conditions of our water resources than we have our land resources. However, we are rapidly filling our lakes with silt, enriching them with wastes, filling their shallows and "landscaping" their shorelines.

The primary changes we have experienced in fishing are a gradual reduction in the average size of the fish in heavily fished lakes, and a shift from game species to panfish and rough fish in the polluted lakes. Along with this, we share the catch with more people than we might like, and encounter more people who are using the lakes for other purposes.

Fortunately, there will be an abundance of fishing waters in Minnesota for as long as we can predict. We will continue to ruin some of them, especially those we use the most. Our tastes will gradually shift away from walleyes, bass, northerns, muskies and lake trout, but there will be enough of these left to maintain our national reputation. Fisheries management programs will succeed in delaying undesirable changes in fishing in most of our lakes, and will maintain some type of fishing even in our most heavily used and abused lakes.

FUTURE OPPORTUNITIES — Boating

The inventory of waters for power boating was based on lakes of 150 acres or more in size with cabins or permanent home developments. (In the Boundary Waters Canoe Area, lakes where there was no development, but where motors were allowed, were also included in the inventory.)

This criteria was quite strict — there is a significant segment of our water supply which was

not included in the inventory and most of this undoubtedly holds potential for boating.

For instance, many lakes of 150 acres or more without homesite developments are also potential boating waters. There is also significant opportunity for boating on lakes of less than 150 acres and as the demand for boating waters increases, the smaller lakes probably will be used.

Another opportunity for boaters which is relatively unused is that of our larger rivers. However, with the exception of Lake St. Croix and Lake Pepin, they were not included in the boating inventory.

An important consideration is that as our waters become more crowded, it will become increasingly necessary to regulate the use to provide safe boating and to insure compatibility between the various uses of our waters.

New discoveries on the boating market must also be considered in discussing the potential of our waters for boating. For instance, in the past two years, a small watercraft, propelled by a water jet, capable of traveling in shallow water has appeared on the market. This could have a significant influence on the utilization of water areas that are not now considered boating waters.

Minnesota's River System — A Great Recreational Opportunity

Much of Minnesota's interlacing of rivers and streams is ideal for canoeing and recreational boating; some are not suitable for on-the-water recreation, yet because of their wild and scenic qualities should remain as they are and guarded against man-made intrusions.

Recognizing that much potential lies within our 25,000-mile system of rivers and streams, the 1963 Legislature designated the St. Croix, Little Fork, Big Fork and the Minnesota Rivers as official canoe route rivers (Sec. 97.48). This law gave the Commissioner of Conservation the authority to mark these routes and to enter into agreements with agencies and private landowners along the routes for campsite development. The Commissioner also has the authority under this law to establish public access to these rivers. Then in 1965, the Legislature authorized a study of 24 rivers (2,544 miles) to determine their potential as part of a State Recreational River System.

The study was conducted during the summer of 1966 by the United States Geological Survey and Midwest Planning and Research, Inc. in cooperation with the Conservation Department. The 24 rivers selected for study are as follows:

Basswood
Big Fork
Brule
Cannon
Cloquet
Cottonwood
Crow Wing
Kettle
Little Fork
Minnesota
Mississippi
North Fork Crow
Otter Tail
Pigeon
Pine
Rainy
Red Lake
Root
Rum
Snake
St. Croix
St. Louis
Vermilion
Willow

From the vast network of outstanding rivers and streams studied, authority was given to the Commissioner of Conservation by the 1967 Legislature to mark canoe and boating routes on 16 rivers which have historic and scenic values. The Commissioner now has the authority to mark appropriate points of interest, portages, campsites, and all dams, rapids, waterfalls, whirlpools and other points which may be dangerous to canoe and watercraft travelers. Development will be programmed according to available funds on the rivers listed below by the Conservation Department in cooperation with local units of government, private individuals and groups.

Although there are probably other rivers and some of perhaps even greater beauty and possibility, these rivers will give a "starting point" to open the door to the ultimate in pleasure offered by Minnesota's waterways. The rivers chosen as part of the Recreation Boating System are:

Big Fork
Cannon
Cloquet
Crow
Crow Wing
Des Moines
Kettle
Little Fork
Minnesota
Mississippi
Red Lake
Root
Rum
Snake
St. Croix
St. Louis

Steps To An Effective Recreational River System

The one department within the structure of the state government which currently has the resources and experience for planning, constructing and maintaining the Recreational River System is the Conservation Department.

Coordination of policies, design engineering and standards to be followed have been delegated to the Division of Parks and Recreation whose primary responsibility is serving recreation other than fishing or hunting.

Four Divisions—Parks and Recreation; Waters, Soils and Minerals; Lands and Forestry; Game and Fish—will have jurisdiction over lands adjacent to designated recreational streams. Operations would be most effectively handled through the organization now managing such lands providing that the Department direct the over-all policies. Funding for acquisition, leasing and development might require transfer of funds to the operating agency from a canoe system fund if provided.

The immediate responsibility of the Department of Conservation was to comply with the mandate

of the Legislature as recommended in MORRC Report No. 9, "Recreational Use of Rivers and Streams in Minnesota". The immediate task of the Conservation Department was to recommend to the Legislature (in cooperation with the State Planning Agency), standards for designated rivers and streams as "State Canoe Routes". This included approved proposals for the development of rivers and detailed recommendations on responsibilities of various units of government, state, local and the private segment.

Determining the problems that may result from the increasing use of the rivers for recreational purposes is another responsibility of the state. Proposals to preserve and protect the waters through judicious management is a vital part of planning the Recreational River System. Is some measure of regulation necessary? What do we propose for legislative action to accomplish adequate control, protection, and preservation?

Legislation

The following recommendations are offered in regard to further management of a state-wide Wild and Canoe River System.

1. Designation of a Wilderness River System by the Legislature.

2. The standards for designating Wilderness Rivers should be set by the Commissioner of Conservation.

3. Standards for designating State Recreational Rivers should be set by the Commissioner.

4. Regulation and control of the State Wilderness and State Recreational River System to provide for adequate control should be authorized.

5. Acquisition or other control of land necessary for streamside control on rivers in existing or adjusted boundaries of state forests and parks should be provided.

6. A state citizens committee to advise the Commissioner of Conservation in administration, regulation and control of Wilderness and Canoe River System should be provided.

Classification System

Preservation of the wilderness atmosphere is a state responsibility along the rivers in the system. This essential environmental element must not be destroyed as canoe routes are opened. Preservation of wilderness qualities can be achieved in part by land acquisition along portions within established state forests, parks and wildlife management areas and by encouraging the adoption of local zoning laws designed to conserve the natural amenities, or of the purchase of development rights on remaining sections.

It is recommended that the state officially take steps which will preserve the wilderness characteristics of the rivers in the system and adopt a criteria for classifying certain rivers as wilderness rivers.

This classification system and administration of the State Recreational Rivers Systems is needed and should be formulated by the Department of Conservation.

Wilderness Rivers Group

Experiencing a wilderness atmosphere is a pleasure many people regard as a highly valued experience and to assure its availability now and for the future, requires careful conservation. Consideration should be given by the state to establish a policy determining the precise wilderness area to be preserved and the method for so doing.

Ten of the 24 rivers surveyed in 1967 have characteristics which would qualify each to be designated as a wilderness river. These characteristics include natural and scenic settings of statewide significance, significant portions of the river which currently have little or no cultural developments, significant amounts of land within the water influence zone under federal, state or other public ownership; and justifiable multiple use.

The designation of certain rivers as wilderness rivers would include the designation of the water influence zone (a minimum distance of approximately 400-600 feet each side of the channel) and the management of such areas to preserve the wilderness atmosphere.

Such rivers and their water influence zones should be managed for multiple use purposes. Retention of the characteristics listed above as they relate to providing a wilderness setting for recreation will be the primary purpose in management. Use for canoeing, camping, boating, and hiking will be secondary in that such use will not be permitted to jeopardize the wilderness characteristics. Developments must be of the wilderness type, not invading the waterfront zone. The developments will provide only for the bare necessities of the users, the prime consideration in development is the protection of the waterfront zone itself.

The following are the rivers as recommended for wilderness classification:

Big Fork	Cloquet
Little Fork	(above Island Lake)
St. Croix	Kettle
(above Taylors Falls)	Red Lake
St. Louis	Brule
Pigeon	
Vermilion	
(St. Louis County)	

The Boundary Water Canoe Area would be a natural adjunct to this system as this area includes the outstanding canoe waters of national fame and should have state designation even though the area is under federal jurisdiction.

State Canoe River Group

Rivers in this classification would normally have the following characteristics:

1. Rivers normally having canoeable waters during the summer season (May 1—September 10).

2. Rivers that provide canoeing experience for novices as well as for experienced and expert canoeists.

3. Rivers having canoeing characteristics compatible with the demand of discerning canoeists (may also include rivers classified as wilderness rivers).

4. Rivers in this classification must have those attractive qualities which will justify their being recommended for use by residents state-wide and by tourists.

It is recommended that the Commissioner of Conservation be authorized to designate such rivers with minimum developments to provide needed access, camping and the safety of the user.

The State Canoe River System should include portions of the following streams capable of providing high quality canoeing:

Big Fork
Little Fork
St. Croix
(above Stillwater)
St. Louis
Cloquet
(above Island Lake)
Kettle
Red Lake
(upper reaches only)
Pigeon (upper portion)
Mississippi (upper)
Crow Wing
Rum

Boating Rivers

1. Rivers or reaches of rivers on which diversified boating should be provided.
Minnesota (below Mankato)
Mississippi (below Grand Rapids)
Rainy
St. Croix (below Stillwater)

Regional Canoe River System

This is defined as those rivers having certain qualities as canoe rivers, but because of uncertainty of water flow during the canoe season, May 1-September 10, they are periodically not navigable by canoe.

Otter Tail
Pine
Root
Snake
Des Moines
Cannon
Crow
Minnesota
(above Mankato)
Mississippi
(above Grand Rapids)

Development

It is possible to launch a canoe and enjoy wilderness and fishing without any administration and development of a river system. However, increased use of wilderness areas requires that decisions be made regarding usable roads, parking, campsites, points of put in and take out, and where fires shall be made.

Compounded individual decisions without guidance and control can quickly destroy the atmosphere that made a location desirable. It is imperative that standards of development and methods of administration be developed for the system.

In observing the various rivers as to various types of use, the frequency of use and the type of individual on the river, it was obvious that there is correlation between these factors and the intensity of development facilities for solving some of the problems. Portions of rivers within the corporate limits of communities having 2,500 people or more tend to receive attention by the city or the efforts of private enterprise in providing boat landings or swimming beaches.

Often the dams are located within this portion of the river and create pools which are sufficient to accommodate power boats. Where this is true, it is customary to find an improved boat launching ramp. Within the corporate limits of municipalities are numerous instances of river bank abuses such as dumps, the remains of old piers, erosion problems and sanitary and storm water pipes discharging various degrees of polluted water. State enabling legislation permits all communities to adopt zoning regulations. (Floodplain zonings would tend to prevent many of the abuses although the majority of the communities have not followed this opportunity.)

The Pollution Control Agency has recently become concerned over the use of the rivers as a method of disposing waste water and material; this concern should have an upgrading effect. Conditions are serious enough that the state should study the possibility of adopting state-wide flood plain zoning which would establish minimum standards for communities. If communities adopt an ordinance which incorporates the minimum state standards, they could in turn administer the zoning ordinance. Otherwise, it could be administered at the state level.

Standards for Consideration

The recreational use of the river requires public access. The desirability of the river requires a natural setting. The conservation of the river requires development control and the popularity of the river appears to require local acceptance. As a means of accomplishing these various goals, it is recommended that the following procedures be given study for adoption.

a. The state assume the responsibility of acquiring necessary access points as part of the public access program.

b. The state assume responsibility for preserving the wilderness characteristics of certain rivers.

c. The state assume the responsibility for regulating cultural development within the water in-

fluence zone such as dams, power lines, timber cutting, fencing, sewage disposal plants, dumping, and highway locations.

d. The state adopt a water influence zone along those rivers in the system of at least 660 feet.

e. The state accept the responsibility for providing safety improvements, such as developing portages; marking dams, rapids and channels through marshland; reducing snags to maintain useable acceptable conditions; and preparing recreational guide maps for rivers.

f. The state adopt a policy of matching dollars with local Community Associations for the development of the access points or campsites where the local associations would be given financial credit for (a) producing a river recreational brochure, (b) conducting publicity, (c) taking care of trash from the campsites, (d) providing police protection, and (e) assuring that outfitters will be in operation in the area with a program to solve the security of automobiles.

Further background information can be found in the report, "Selected Rivers of Minnesota," prepared by Midwest Research and Planning and the U. S. Geological Survey.

OTHER OPPORTUNITIES — Proposed Voyageurs National Park

The area of the proposed Voyageurs National Park was first suggested as a national park by the State of Minnesota in 1891. The proposed Voyageurs National Park offers an unexcelled opportunity for many recreation activities and would give Minnesota national recognition.

The 164,000 acres in the proposal include about 60,000 acres of lakes, large and small, with interconnecting waterways ideally suited for boating. It also would encompass one of the most important segments of the "voyageurs highway"—the route used by the fur traders for 150 years to transport men and supplies to the West and furs to the East.

The major scenic and natural body of land of the proposed park is Kabetogama Peninsula, a heavily forested area consisting of about 75,000 acres, nearly surrounded by three major lakes—Rainy, Namakan, and Kabetogama. Most of this peninsula is relatively undeveloped and would remain roadless, the principal access to be by water. Smooth, glaciated rocks, ideal for camping and picnicking, lie at the water's edge along the shores with beautiful lakes reachable only by hikers.

Thirty-six per cent of the land in the proposed park is publicly-owned with the remaining 64 per cent privately owned—46 per cent by Boise Cascade Corporation, and 18 per cent by private individuals. The boundaries are drawn to allow most of the 52 resorts in the immediate vicinity to continue their service to the public. The establishment of a park is expected to stimulate tourist industry.

Economists estimate that within five years the park annually would attract nearly 1.5 million visitors, and that within 10 years, visitor expenditures would exceed $4 million per year in nearby resorts. According to the master plan prepared by the U.S. Department of the Interior, National Park Service, the objective would be to allow a large volume of visitors to use the area without destroying its charm by "dispersion" of the developed areas. Such areas are planned at Rainy Lake, east of International Falls, and would include the proposed park headquarters; Peterson Bay on the west end of Kabetogama Lake; Lost Bay, south-central Kabetogama Peninsula; and Sullivan Bay between Kabetogama and Namakan Lakes. In addition, numerous primitive campsites are planned for the islands and along the peninsula.

Boats to a great extent would replace automobiles in the proposed park, and there would be ample room for activities such as camping, hiking, and nature study; and winter activities such as snowmobiling.

OTHER OPPORTUNITIES — Upper Mississippi Valley Recreation Area

The Upper Mississippi Valley Recreation Area as proposed in the 90th Congress would authorize the Department of the Interior to study the feasibility and desirability of developing this river area. The recreation area involves 600 miles of the Mississippi River from Alton, Illinois to Minneapolis (271,000 acres of land and water are already in federal ownership).

OTHER OPPORTUNITIES — St. Croix National Scenic Riverway

The National Wild and Scenic Rivers System (S.119) was enacted into law by the 90th Congress in July, 1968. Included in the System were 200 miles of the upper St. Croix River including 75 miles adjoining Minnesota's eastern border above Taylors Falls.

This federal law will provide for preservation of the river corridor and additional facilities for canoeing, hiking, and many other outdoor activities. State action in the development of trails and supporting facilities in the limited development zone (approximately 400 feet to ⅓-mile from river) will complement the canoe trails.

Two existing state forests, an existing state park and a proposed new state park will add state support for the protection of this beautiful stretch of interstate waters. Additional protection of endangered species such as the bald eagle will also be enhanced by this action.

The river provides excellent fishing for walleye, smallmouth bass, muskies and northern pike.

Population of ruffed grouse and white-tailed deer provides some of the abundant wildlife for the visitor.

OTHER FUTURE OPPORTUNITIES:

(1) Snow Skiing and Other Winter Sports

With so much invested in public and private recreation areas, there is a great need for year round use particularly with the relatively short summer season.

The opportunities for winter activity are relatively unexplored and unpublicized. For the state to assume its "total" recreation role, it is necessary to develop its potential as the winter-fun capital of the Midwest.

(2) Scuba Diving

Skin and scuba diving are growing activities in Minnesota's waters. For full enjoyment, clear water is essential. Visitors from other states come to Minnesota seeking suitable, good quality water for skin and scuba diving. In certain lakes, these activities often are in conflict with boaters, water skiers, and fishermen. (For optimum safety and enjoyment at lakes receiving heavy skin and scuba use, it appears zoning of certain parts of these lakes will become necessary.)

(3) Bird Watching and Nature Study

This Plan recognizes the need for a coordinated effort among recreational, educational and scientific interests to preserve natural areas for study and enjoyment. The need is also recognized for additional nature interpretation programs.

There are increasing numbers who appreciate contact with nature and who enjoy and appreciate the landscape as it was at the time of our forefathers. An example of expanding public interest in learning about our natural environment is the widespread acceptance of the nature interpretation service in state parks. Park officials recognize the need for additional interpretative programs, trails, hikes, evening programs, car caravans, and campfire talks and additional self-guiding trails and museums.

(4) Natural Areas

The landscape of Minnesota is becoming greatly altered by modern man. Unless special plans are developed to preserve some portions in essentially undisturbed condition, natural values will be destroyed before there is time to appraise them. The present distribution and protection of natural areas should be expanded to meet the scientific and recreational needs.

Major concern thus far has been for larger areas which merit preservation due to their outstanding recreational and natural values. Many small areas just as desirable from a natural standpoint have fallen by the wayside. Many of the smaller areas provide homes for living things that would otherwise be destroyed in the shuffle of civilization. Some of these invaluable relics of our natural terrain should be preserved now. The Academy of Science recommends at least one representative of each habitat type in each county.

A few areas which warrant consideration in the selection of natural areas include the following:

Wild Rice Areas—Wild rice harvesting is not only an important industry in northern Minnesota, but for many people the harvesting is becoming a special type of recreation. In addition, these stands are valuable as waterfowl habitat. We should create wild rice stands and improve existing stands where possible.

Wild Fruits—Many people enjoy picking wild berries, especially blueberries, raspberries, and blackberries. There are many off-site forest areas that could be managed for such wild fruits without a great deal of trouble or expense. The province of Newfoundland has a program whereby certain areas are burned for blueberries and it has produced a considerably improved crop.

Wild Flower Seeding Areas—In some states such as California, wild flowers provide considerable public recreation and enjoyment. In South Africa the government has set up wild flower reserves and nurseries. The development of wild flower seeding areas would be of value in Minnesota. We have need for such on the Anoka sand plain on which the wild flowers are rapidly disappearing and in certain bogs and marshes, especially those which contain Minnesota's state flower, the pink and white lady's slipper, and other plants that the public seldom sees. Such an area could be set up on a remnant of prairie land in southwestern Minnesota and another in hardwood forest areas. This type of area would require extensive management protection in order to preserve its natural character.

Small River Valleys—Valleys and strips of adjacent uplands should be preserved along certain especially scenic streams. The North Branch Creek and the lower portion of South Branch Creek in Fillmore County are prime examples. These are beautiful small valleys in rocky country and have fine small trout streams originating in caves.

(5) Driving for Pleasure

Further steps are needed to cope with the rising number of persons engaged in the nation's number one activity—driving for pleasure. The Highway Department, in cooperation with other federal, state and local agencies, has determined that a minimum of 2,710 miles of scenic roads and parkways is needed.

Zoning control is needed to protect the scenic reaches and to provide blending of construction

and landscape. Taking the North Shore Drive as an example—industrial, commercial and residential developments have consumed more than one-third of the shoreline.

To protect and supply existing features, expansion of existing public areas along scenic routes is needed.

Since the enactment of the 1965 Outdoor Advertising Control Law, 706 miles have been established for the purpose of accentuated control of outdoor advertising.

Expansion of public holdings around scenic features is needed to provide buffers against conflicting uses and to furnish space for developing additional camping and picnicking areas, trails, scenic overlooks and other areas. The need exists for a uniform system of marking and a public information program including welcome stations and information centers.

Decisions on routes depend upon further studies at both the state and federal levels. Highways as travelways for the outdoor recreation seeker must be considered at the federal, state and local levels. Now and in the future with more and more people out for a drive, it becomes apparent that highways need to be constructed both for speed and scenic value.

CHAPTER 7 — ACTION PROGRAM — STATE

I. INTRODUCTION

This chapter describes the important types of action to be undertaken by the state to meet the needs as outlined earlier. It does not include all of the recommendations as might pertain to the other public agencies or the private sector which can be found in Chapter 6, Needs.

Most of this action program is related to the needs as forecast for 1980, a year for which future projection was felt to be more reliable. This Action Program covers the period July 1969 to June 1974.

II. MINNESOTA'S ENVIRONMENTAL RESOURCES

A. Shoreland protection

1. Need — To prevent undesirable types of development on shore lands of rivers and lakes where such encroachments will increase pollution of the water, cause soil erosion, or destroy natural, plant, fish and wildlife habitat, or aesthetic values.

2. Action

a. Legislation — Adopt state laws for shoreland management whereby regulatory authorities of local units of government can be utilized consistent with statewide guidelines and standards, model zoning ordinances provided, and inducement by the state is made possible.

b. Programs — Extend existing program of acquisition of natural fish spawning areas to include acquiring selected undeveloped shorelands determined to be areas best suited for conservation purposes such as fish and wildlife habitat, protection of highly erodable soils, and protection of lands of prime scenic quality. Timing is important as many of these lands will not be available after 1975.

c. Coordination — Review of local land use plans as affecting shorelands, review and approval of shoreland plats of new development, and establishment of a lake by lake shoreland management plan is needed. Conservation Department field personnel can make such reviews as necessary.

d. Research — Additional research is needed to complete evaluation of key shoreland tracts as currently under study by the University. Such study should determine methods for identification of fish and wildlife habitat needs for each lake, methods for determining soil conservation or shoreland needs and establishment of criteria for selecting sites for aesthetic values. Additional knowledge of factors contributing to the entrophication of lakes and reservoirs through basic hydrobiological research will be sought.

e. Financing — Most of the cost in providing model ordinances and assistance for shoreland zoning would be incorporated in the proposed increase in staff of the Department of Conservation, Division of Waters, Soils and Minerals. Cost of extending existing shoreland acquisition programs has not been established because of the need for identifying the amounts of such shorelands needed. These estimates could be made following completion of the lakeshore development study now in progress. This program would likely require a state bonding to accomplish objectives in the time available.

f. Allocation of federal funds for outdoor recreation administered by state — Federal aid provided for restoration of fish (Dingell-Johnson) and wildlife (Pittman-Robertson) would be available for acquisition of fish and wildlife habitat. Land and Water Conservation monies would be available for acquiring scenic or recreational areas.

g. Action relating to quality of environment — The state must adopt rigid policies and encourage local governments to do likewise, in protecting state-owned lands bordering recreational lakes or streams from encroachments of power lines, roads, dumping grounds, timber cutting, etc., and from degradation of water quality of adjacent water bodies. Classification of flood plains will be high priority in land use classification.

B. Protection and preservation of key scenic, natural, historical, and aesthetic environment.

1. Need — Minnesota has many sites of outstanding scenic beauty such as seen on the rocky shores of Lake Superior, or the bluffs along the Mississippi River Valley, or waterfalls of unique attractive quality such as the Pigeon River Falls on the Minnesota-Canadian border. These are samples of the natural landscape, its geology, and plants and wildlife that need to be preserved. With rich Indian, explorer and pioneer history the most unique sites must be preserved if the memorials are to be recognized now and in the future.

2. Action

a. Legislation—Legislative designation of state historic sites, monuments, state parks, should be continued. Wild and scenic portions of lakes and rivers including public islands should be included in legislative designation where state action is needed to protect and preserve the aesthetic qualities of such waters. State action is needed to provide for acquiring public domain islands as may be declared available by the federal government.

b. Programs — A statewide inventory of all scenic, historic, cultural, natural and otherwise aesthetically valuable lands and waters should be undertaken immediately. Such inventory should be utilized in the planning of future acquisition and management for state parks, state forests and other conservation units, state historic sites, public shorelands (see 1. above), and in the coordination of project planning of highway construction, water resource development projects, urban development, etc. This will be incorporated in future land use classification studies.

Protection of rare and endangered species of plants, wildlife and fish through acquiring lands or regulating the take for recreational or other purposes should be considered as part of the natural area preservation program.

Promotion of conservation curricula in public schools will be vital to promote the principles upon which the protection of our human environment depends, and the relationship of natural environment protection to our human environment and its quality.

The state will seek such research as needed and assist the mining industry in the reclamation of mining pits and tailings dumps for the purpose of enhancing the scenic and recreational qualities, and utility of the areas.

c. Coordination and planning — Such inventory and land use classification should be utilized in the updating of the state-wide recreation plan, in future historic site programs and in regional and local planning. Such inventory should be accomplished by the Conservation Department, the Historical Society, and the University of Minnesota and all other agencies and private industrial landowners involved.

Continuation of topographic and mineral mapping is planned to provide a proper basis for the land use classification and the recreational utilization of lands.

d. Research—Necessary exploration of natural and archaeological sites, historic sites, and the events related to them is needed. Identification of remaining specimens of original landscape will be made with assistance from academic sources.

e. Financing — The survey can be financed using Land and Water Conservation Fund monies matching regular appropriations to the agencies involved. Total cost is to be determined.

f. Allocation of federal funds — Land and Water Conservation Fund money should be used to supplement planning funds of the Department of Conservation.

C. Resource protection by the private sector.

1. Needs — A significant amount of the natural values, particularly wildlife, are currently under the control of private landowners. Pressure from developers in some cases and increasing need for agriculture production in other cases are examples of those trends which cause the loss of these resources.

2. Action — Assistance both legal and financial is needed to give private landowners incentive to retain needed open space lands and to protect those environmental habitat needs as required for preservation of natural and recreational values, particularly for wildlife.

a. Legislation — There is a dire need for tax deferment incentives to retain those open space lands in private ownership in intensively developed urban areas. Establishment of a federal "Water Bank" similar to the Soil Bank program of the past should be firmly supported. Establishment of an extension service program specifically for wildlife habitat improvement is needed.

b. Programs — The state private landowner assistance program should be expanded. The state should seek ways and means to utilize private landholdings for conservation management through cooperative agreements whenever possible.

c. Allocation of federal funds — Agricultural Conservation program and state game funds should continue to be made available to provide the incentives necessary for private development of habitat for wildlife.

D. Lake and reservoir dam protection.

1. Need — Many old dams impounding additional water in natural lakes or reservoirs are in danger of being lost. Along with the loss of the dam the loss of recreational bodies of water is often the case. As these dams become obsolete for the purposes for which they were built, recreational and aesthetic values are often placed in jeopardy. There is a definite need to establish the role and responsibility of the dam owners, the local, state and federal governments for the reconstruction and maintenance of such dams.

2. Action

a. Legislative — The state must assist in legal establishment of the level of responsibility for such obsolete dams. It must also seek federal assistance where needed.

b. Financing — The state should provide a portion of the funds for repair and restoration of dams declared to be a state responsibility. Federal aid is also considered proper since many dams were instigated through federal action.

E. Water quality as related to recreation.

1. Needs — Recreational values of our lakes and streams depends heavily upon their water quality. There is a definite need to control water quality to the extent of protecting our waters for their key resource value.

2. Action

a. Legislation — Modification of state pollution control laws to strengthen local enforcement, to require immediate notification of accidental pollution spills or losses, to require permits for waste treatment for certain industrial buildings and extension of liability beyond health concerns to that of fish or other natural resources will be sought.

b. Financing — State assistance through a 20 million dollar revolving fund is recommended to fill the deficit between federal and local grant funds available.

III. RECREATION FACILITIES — LAND AND WATER REQUIREMENTS

A. Statewide needs to be met by State government.

1. Needs — The main thrust by State government will be concentrated on the development of existing lands to promote needed recreation while preserving the resource. When necessary the state will acquire and develop new lands.

Use pressures will be increasingly evident particularly in Regions 7, 10, and 11. Greater utilization of all state lands through multiple use will be a necessity in the future. New ideas and concepts are needed to further implement this method of management.

Land use plans for each management unit should be prepared. This will require a determination of the highest or best use of each portion or segment of the total managed area. An effort should be made to incorporate as many uses as practical and still maintain the desired character of the land segment. It will also be necessary and desirable to limit some segments to a single purpose.

New trends are evident making it necessary to adjust some of our present management policies.

The trend toward increased winter recreation is evident. Consideration should be given to winterizing additional state recreational facilities needed for winter use.

Lineal patterns of recreation areas along rivers and valleys are prompted by necessity as well as desirability. These areas in a number of cases have been left untouched by progressive development. Fortunately many of our scenic and historic areas are found on these ribbons of land, oftentimes along waterways. Proper development of overland and canoe trails as well as selected motor access roads can establish a means for the enjoyment of these areas and yet preserve the resource.

Development of recreation areas should be compatible with existing open space patterns and standards particularly in the Metropolitan Region. Better utilization of each recreation area can be realized if proper interpretation of the values of each area are clearly understood by the visitor.

2. Action — To meet the needs for such facilities which are considered the state's responsibility, the state action will consist of three categories:

— Development of existing public lands when available.

— Completion of acquisition needs within existing or proposed statutory boundaries

— Acquisition and development of new parks, forests, accesses, etc.

Regions 7, 10 and 11 have the greatest needs statewide, and needs in these Regions should be given priority.

By 1975, 44,360 acres of new park land should be purchased. These are largely Bureau of Outdoor Recreation Class III or IV lands to be used for buffer or dispersed use activities and future development. Of the total BOR Class III or IV lands, approximately 2,713 acres will be developed for special purposes such as swimming, camping, picnicking, access and trails. This is BOR Class II or developed land.

In addition to the above there is a need for the purchase of an additional 28,882 acres of land by 1975 within or adjacent to existing State Parks. The majority of this purchased will be used as BOR Class III or IV lands. After such acquisition, approximately 18,000 acres of land would remain in private hands within existing State Park boundaries.

A number of existing parks are capable of further development without more land acquisition. The survey indicates 5,363 acres of these lands should be developed by 1975 as BOR Class II lands.

By 1975, new forest land for primitive type campgrounds should be purchased in the Memorial Hardwood Forest (Region 10). A total of 5,000 acres is required as BOR Class III or IV lands. Of this amount, 260 acres would be developed into campgrounds or other facilities (Class II lands).

The total deficiency for new public access acreage by 1980 outside of State Parks and Forests is 913 acres of land. By 1975, purchase of 690 acres should be completed and 450 of these acres should be developed by providing parking spaces, boat ramps, and sanitary facilities.

By 1975, easement or acquisition should be completed on approximately 1,200 miles of new trails on private lands. Insofar as possible these trails will be connected with new and existing trails in state parks and state and federal forests. To support this mileage, 4,000 acres of land would be required (33′ wide right of way). Development should be completed on approximately 750 miles by 1975.

Development of recreation facilities including campsites, swimming beaches, boat launching sites, picnic areas and land and water trails should generally be one-half completed by 1975. State camping facilities should be of various types, primarily of the primitive type. Construction of more deluxe campgrounds will primarily be relegated to the private sector. Emphasis will be placed on providing the most varied and satisfying types of recreation experiences compatible with the available resources and facilities.

By 1975, a total of 190 acres of land should be acquired for wayside rest and picnic spots along Minnesota highways. Of this total, 119 acres should be developed by 1975. Establishment of transient campgrounds by the private sector will be encouraged near major tourist travel routes.

To meet the needs for wildlife management area land development for 1980, an estimated 233,080 acres should be developed by 1975. Some of the

development is possible on existing county, state or federal lands. Some can be developed on private lands through cooperative agreements with industry and other private landowners and some will require acquisition of new lands through exchange, gift, easement or fee purchase.

a. Legislation

Legislation is needed in order to establish cross-country trails along the Upper St. Croix, Lower Minnesota and other state trails as needed.

New parks are needed to fulfill the deficiencies that will occur by 1975. Legislation will be necessary for their establishment.

The State statutes should be amended to allow transfer of federal reimbursements on acquisition for use in parks lacking funds.

In order to secure adequate lands for state park purposes in the metropolitan area, it may be necessary to have the power of eminent domain for 50 per cent of the lands to be acquired.

Legislation is needed enabling the State to assist in establishing boating routes, and cost sharing on safety markings on lakes and connecting waterways, as well as harbors of refuge on large lakes such as Lake Superior.

b. Programs

Consideration should be given to the state responsibilities in providing recreational navigation facilities including markers, channels, harbors of refuge, etc., perhaps through grants to local governments. Some centralization of responsibility for recreational boating, its promotion, safety, and safeguarding against adverse water developments should be strengthened.

Additional emphasis will be placed on natural resource interpretation through nature trails, nature centers or other facilities in parks, forests and in the large wildlife areas.

Preservation of a few lakes having outstanding clarity and used intensively for underwater sports is needed. Establishment of an **Underwater State Park** should be considered in the future. Control of elements likely to change the natural lake clarity or bottom landscape should be established.

State wilderness areas and wild or scenic rivers should be identified for future resource protection and management.

c. Coordination and Planning

Acquisition should be related to areas having concentrations of outstanding scenic, historic, and natural features.

There must be a constant review and close coordination between federal and state water development projects when recreational features are planned.

When planning all new parks, forests, access sites or other state recreation areas, high quality standards will be used. All land acquisition proposed in the Department of Conservation should be reviewed and approved by the Commissioner or his deputy.

d. Research Needs

The Department of Conservation should gather sufficient use data on their state parks, forests, and public access sites to determine priority use for future development or expansion. Such information should be designed to indicate user satisfaction in relation to facility design and availability.

Information is needed periodically on the origin and destination of in-state and out-of-state resident travelers to update recreation plans. A combined study will be planned with the Highway Department and other interested agencies in an attempt to make the 1970 Origin and Destination Study most useful.

B. Five-year Action Program — Direct Programs (State) by Region.

Wherever possible outdoor recreation facilities will be developed on existing public lands. Where this is not possible, such acquisition will be by fee purchase, by easement, by gift or as the situation warrants. These acquisition requirements do not include lands for which acquisition will be assumed to be the responsibility of the federal, county, municipal governmental agencies; schools and quasi-public organizations, or private enterprise.

Tables 55 through 66 indicate, by Region, the estimated land acres required for development by 1980 and the recommended acres of development by 1975. Acreage figures found under the heading Facility Needs by 1980 and Development by 1975 include only that area which is needed to provide the major recreation facilities and the immediate buffer zone or additional land. They do not represent a management unit nor do they include developments such as roads, headquarters, service area, etc. The land required to complete or create management units may be found under the heading Acquisition by 1975 (Developed and Undeveloped Lands).

The land required by 1980 is considerable. Acquisition should be well on the way by 1975. It is hoped that all lands to fill out key existing parks in areas of price escalation will be completed entirely by 1975.

Wildlife areas are included to the extent of indicating land acreage needs for wildlife management purposes. The acquisition of such lands where necessary will be by exchange, easement, gift or fee purchase as the situation dictates.

It is beyond the scope of this Plan to indicate the method of acquisition and the extent to which it will be employed in any of the foregoing programs.

FINANCING

Financing the 1968 Outdoor Recreation Plan will be the responsibility of the people of the

state with the help of available federal assistance. In the past the Department of Conservation has received money from dedicated funds, the Natural Resource Fund, and general revenue. This section will attempt to show how each of these funds can be used to implement the Action Program shown here.

Development Financing

The money currently provided will be inadequate for the proposed development of parks, forest, public access and wildlife management areas. It appears that new means of financing are needed to meet the development* schedule as outlined in this Action Program.

Table 53 indicates the financial needs in this Outdoor Recreation Plan. The Division of Parks and Recreation will require a total of $4,437,000 for development by 1975.

These funds are the anticipated costs for the development of campgrounds, swimming beaches, picnic areas, trails and boat launching sites. It does not include funds for roads, headquarters, service building or park maintenance costs.

The Division of Lands and Forestry will require approximately $920,000 for recreational development* as outlined in this Plan by 1975.

It is difficult to determine the money utilized in the past for these specific development activities as a portion of it is accomplished by force account. However, funds as requested during the 1969-71 biennium if appropriated and continued during the period 1969-75, likely would be sufficient.

It is estimated that the Division of Enforcement and Field Services will require approximately $843,000 for public access development outlined in this Plan. Of this amount $272,000 is needed for expansion of facilities on existing sites and $571,000 for new site development. If expected funds from new programs (increased maximum gasoline tax refund and Natural Resource Fund) are approved by the 1969 Legislature this level of development is possible.

Acquisition Financing

Land costs have been increasing steadily year by year. The time has come when a primary effort must be placed on land acquisition for the majority of the 1980 needs by 1975. This effort will require new programs and an increase in money from established programs.

TABLE 53

Development costs for swimming beaches, campgrounds, picnic areas, trails over private land, and lake access: by Divisions of the Conservation Department; by 1975.

Division	Total Costs
Division of Parks and Recreation	$4,437,000
Division of Lands and Forestry	920,000
Division of Enforcement and Field Service	843,000
Total Development Costs	$6,200,000

Table 54 indicates the acres of land required for state parks. The 1969 Legislature is considering a bonding program to finance the purchase of land within existing park boundaries and land for the establishment of new parks in or near the metropolitan Region.

It is estimated that an additional $4,726,000 will be required to purchase new park lands in other Regions of the state, not cited above, as well as trail easements over private lands. It seems very likely that these funds can be obtained through Federal LAWCON and HUD grants in addition to a special trail fund (new program) as might be provided by the state.

The Division of Lands and Forestry will require approximately 5,000 acres of land in Region 10 as a setting for campgrounds. This land will be in the Memorial Hardwood Forest and should be acquired with the normal land acquisition schedule.

It is recommended the Division of Enforcement and Field Services acquire 690 acres of land by 1975.

A new source of funds for the purchase of a portion of these lands must be found.

The Division of Game and Fish has a goal for an additional 233,000 acres of managed wildlife land, by 1975. A portion of this land may be acquired by fee or land exchange where specialized land is required. Land currently in public ownership that lends itself to game management will

Table 54

ACRES AND ESTIMATED COST OF LANDS TO BE ACQUIRED: BY DIVISIONS OF THE CONSERVATION DEPARTMENT, BY 1975

Division	Acres	Total Costs	Planned Financing	Need From Other Sources
Parks and Recreation	73,242	15,000,000	15,000,000	None
Lands and Forestry	5,000	250,000	250,000	None
Enforcement and Field Service	690	345,000	300,000	45,000
Game and Fish	233,000	to be determined		

*Swimming beaches, campground, picnic areas, trails, public access to lakes.

make up the remainder. No estimate of total costs is available until more detailed plans are available on the type of acquisition needed.

In summary, new funds must be raised for new development as well as land acquisition. It appears it will be easier to meet the financial need for land acquisition than for development cost, because federal funding is more readily available for land acquisition.

1970-75 Action Program for Region 1 — Kittson, Mahnomen, Marshall, Pennington, Polk, Red Lake and Roseau counties. (Table 56)

Acquisition

This is primarily an agricultural region containing sizeable tracts of timber and marginal land. Land prices have remained relatively stable. Wildlife areas are threatened by drainage in this Region.

Development

Development to meet one-half of the 1980 needs by 1975 is recommended. Priority should be given to picnic areas, trails, campground, and development of boat launching and swimming beaches.

1970-75 Action Program for Region 2 — Beltrami, Clearwater, Hubbard, Koochiching and Lake of the Woods. (Table 57)

Acquisition

Acquisition will be limited to areas which are needed to complete the purchase of established recreational areas or to acquire shoreline or outstanding natural features when it is necessary and urgent. Special priority should be given to acquisition of lakeshore in lake areas where most of the frontage of a recreation area is in private ownership.

Development

Generally speaking, this area has an abundant supply of public lands that should be developed where practical. Special attention should be given to the development of facilities that would complement the private entrepreneur who is expected to play a major role in meeting the needs. These will be projects broadening the scope of activities for the tourist and projects encouraging tourism in the off-season.

1970-75 Action Program for Region 3 — Cottonwood, Cook, Itasca, Lake and St. Louis counties. (Table 58)

Acquisition

Acquisition in this area should be confined to filling out the boundaries of existing parks, and procurement of public shoreline where there is an acute shortage.

Development

The majority of the land in this Region is in public ownership. Priority will be given to development of facilities on existing public lands with special emphasis upon primitive type camping facilities, public access roads, wayside rest areas and facilities such as trails and diversified facilities that will complement the private entrepreneur.

1970-75 Action Program for Region 4 — Becker, Big Stone, Clay, Douglas, Grant, Norman, Otter Tail, Stevens, and Traverse. (Table 59)

Acquisition

Acquisition of land to meet 1980 needs should be completed by 1975. This is primarily an agricultural region that contains some of the state's best lake area. Priority should be given to acquisition of quality public lakeshore as shoreline prices are escalating at a rapid rate. Wildlife areas are also in imminent danger of being lost in this Region because of drainage.

Development

Development adequate to meet one-half of the 1980 needs by 1975 is recommended. Priority should be given to the development of picnic areas, trails, and the completion of the facilities of existing parks.

1970-75 Action Program for Region 5 — Aitkin, Cass, Crow Wing, Morrison, Todd and Wadena. (Table 60)

Acquisition

Top priority should be given to purchase of needed lake frontage and public access properties in this area. Fifty per cent of the needed acquisition for 1980 should be accomplished by 1975.

Development

Priority should be given to the completion of the development of existing parks and development of primitive campsites, boat accesses, trails and picnic areas on existing public land.

1970-75 Action Program for Region 6—Chippewa, Kandiyohi, Lac qui Parle, Pope, Redwood, Renville, Swift and Yellow Medicine counties. (Table 61)

Acquisition

Priority should be given to the acquisition of needed lakeshore, public access, and property needed to complete the acquisition within existing parks. Special emphasis should be given to the acquisition of wildlife areas as they are in imminent danger of being lost.

Development

Development of existing parks should be given priority. Emphasis should be placed on picnicking, boat accesses, campgrounds and trails.

1970-75 Action Program for Region 7 — Benton, Chisago, Isanti, Kanabec, Meeker, Mille Lacs, Pine, Sherburne, Stearns, Wright counties. (Table 62)

Acquisition

Priority should be given to the acquisition of all lands needed by 1980 because of land price escalation and the need for lake and stream shorelands for public boat launching sites and park frontage before private development completely encircles such waters. The major portion of such acquisition should be undertaken in the form of

state parks with priority on a new park as part of the St. Croix National Scenic Waterway and expansion of existing state parks and forests to facilitate the master plan for this river. Financial limitations may require that acquisition of wildlife lands be spread over more than five years.

Development

Development to meet one-half of the 1980 requirements is recommended. Priority should be given rustic campgrounds incorporated in trail developments, picnic areas in parks, forests and waysides, and ample parking, launching and sanitary facilities on public accesses.

1970-75 Action Program for Region 8 — Cottonwood, Jackson, Lincoln, Lyon, Martin, Murray, Nobles, Pipestone and Rock counties. (Table 63)

Acquisition

Priority should be given to the purchase of wildlife areas which are in danger of being destroyed. This is an agricultural region possessing some of the richest farm land in the state. Fifty per cent of the lands needed by 1980 should be acquired by 1975.

Development

Priority will be given to the completion of development within existing areas. Fifty per cent of the developed land needed by 1980 should be developed by 1975.

1970-75 Action Program for Region 9 — Brown, Faribault, LeSueur, McLeod, Nicollet, Rice, Sibley, Waseca, Blue Earth and Watonwan counties. (Table 64)

Acquisition

Priority should be given to the acquisition of all lands needed by 1980 because of land price escalation. The major portion of such acquisition is within existing park boundaries. Acquisition of rights-of-ways for a trail in the Minnesota River Valley together with lands needed to provide trail camping areas, trail centers and other such facilities, should receive priority. Wildlife land acquisition may need to be spread over the entire ten-year period because of financial limitations.

Development

Priority should be given to developments to meet one-half of the 1980 needs. Priority should be given to those developments lacking in existing parks and in the Minnesota River Valley trail system. Those selected areas having sufficient environmental protection by soil conservation practices and local zoning controls should receive priority. Investigation of the recreational potential of flood plain lands would lead to the utilization of such areas best suited for recreation.

1970-75 Action Program for Region 10 — Dodge, Fillmore, Freeborn, Goodhue, Houston, Mower, Olmsted, Steele, Wabasha, and Winona counties. (Table 65)

Acquisition

Priority should be given to the acquisition of all lands needed to provide the developed acreage needs for 1980. Land price escalation is the dominant factor. Priority should be given to acquisition of lands where such acquisition fits into a land use plan. Additional lands within the Memorial Hardwood State Forest should be given priority where such lands provide developed recreation facilities needed or the scenic areas providing the key attraction to recreationists.

Overlooks, bluff tops, cliffs and tributary valleys should receive top priority. Wildlife land acquisition will be spread over the ten-year period because of the cost. Coordination between acquisition planning for parks, forest development, wildlife areas and highways is critical in this Region. Planning must be coordinated with federal project planning.

Development

Priority is recommended for the development to the extent that by 1975 one-half of the lands acquired are developed with at least basic facilities. Completion of the development needed on existing state park, forest and public access lands is also of high priority in this Region. All selected areas should have protection from non-compatible land uses through local zoning protection.

1970-75 Action Program for Region 11 — Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties. (Table 66)

Acquisition

State action priorities should be given to acquiring all lands needed by 1980. The majority should be acquired by 1975, because of land escalation. Completion of existing parks acquisition is of the highest priority. Acquisition of rights-of-ways for trails through easement or fee purchase is recommended for cross-country trails outside of the existing parks along the St. Croix, Mississippi and Minnesota River Valley. Bicycle trails should be considered high priority in the vicinity of municipalities. Acreage needs for trails requiring easement rights for crossing private lands are included in the private category.

Acquisition in this Region should be interrelated with future county or metropolitan parks to provide linear patterns for parkway and trail development. Conforming to a land use plan will be essential in view of the rapid development occurring within the Region. Use of flood plains and other lands needed for open space are of highest priority for dispersed types of recreation activities.

Development

The development of existing park lands needs is of high priority. One-half of the development of lands needs by 1980 is recommended for completion by 1975. Much of the land for rights-of-ways for trails will require easements on private lands and although shown here assigned to the private category, public programs and financing are essential.

Table 55

DEVELOPED LAND ACREAGE REQUIRED TO MEET NEEDS FOR OUTDOOR RECREATION FACILITIES BY 1980

Acreage Shown for Campground and Picnic Area includes both Developed Site Acreage and Buffer Acreage at a Ratio of 1 to 20.

State Wide Total

Agency and Category of Recreation Area	Regional Totals	State Only		Wildlife Areas	Swimming Beaches	Camp-grounds	Golf Courses	Picnic Areas	Trails	Play-fields	Boat Launching Sites
		Within Existing Boundaries	In New Areas								
State Wide Total											
State Parks	15,959	10,531*	5,428		182	5,260		7,580	2,798		139
Forests	4,246	3,986	260		30	1,360		480	2,348		28
Public Access	1,312	399	913								1,312
Waysides	237							237			
Sub Total	21,754				212	6,620		8,297	5,146		1,479
Wildlife Areas	446,737			446,737							
Federal	8,378				60	2,580		4,820	522		396
County	42,620				400	4,120	5,940	28,140	2,376	781	863
Municipal*	76,239				807	2,140	7,020	56,780	1,158	7,819	515
Private	78,438				526	24,440	13,680	32,740	6,038	332	682
Unassigned	77							77			
Total	674,243			446,737	2,005	39,900	26,640	130,854	15,240	8,932	3,935

*Includes Schools and Quasi-Public Agencies.

STATE ACREAGE TOTALS: ACQUISITION AND DEVELOPMENT PRIORITY

	Facility Needs— 1980 Acres	Acquisition— 1975 Developed and Undeveloped Lands Acres	Developed 1975 Acres
Parks			
Existing	10,531*	28,882	5,363
New	5,428	44,360***	2,713
State Forest			
Existing	3,986	0	2,082
New (Memorial Hardware Forest)	260	5,000	130
Public Access			
Existing	399	0	272
New	913	690	457
Waysides	237	191	119
Wildlife Areas	0	233,080**	0
Trails****	6,038 (1,510 mi.)	4,978 (1,245 mi.)	3,029 (757 mi.)
State Totals	27,792	317,181	14,165

*Includes lands already owned or to be acquired within existing boundaries to complete park.

**Includes all of 10 year quota of Region 11 but only approximately one-half of Regions 1 through 10.

***Estimated lands to provide ratio of from 1:5 to 1:87 developed vs. undeveloped lands, depending upon the Region.

****To be acquired by easement or fee as right-of-way.

Table 56

DEVELOPED LAND ACREAGE REQUIRED TO MEET NEEDS FOR OUTDOOR RECREATION FACILITIES BY 1980

Acreage Shown for Campground and Picnic Area includes both Developed Site Acreage and Buffer Acreage at a Ratio of 1 to 20.

Region 1—Kittson, Mahnomen, Marshall, Pennington, Polk, Red Lake, and Roseau counties

Agency and Category of Recreation Area	Regional Totals	State Only		Wildlife Areas	Swimming Beaches	Camp-grounds	Golf Courses	Picnic Areas	Trails	Play-fields	Boat Launching Sites
		Within Existing Boundaries	In New Areas								
Region I											
State Parks	1,244	938	306		4	360		620	250		10
Forests	510					40		20	450		
Public Access	25	20	5								25
Waysides	22							22			
Sub Total	1,801				4	400		662	700		35
Wildlife Areas	182,740			182,740							
Federal	0										
County	1,516				18	60	180	1,080	152	12	14
Municipal*	3,823				32	40	360	3,120	48	216	7
Private	3,282				36	500	900	1,720	100	12	14
Unassigned	0										
Total	193,162			182,740	90	1,000	1,440	6,582	1,000	240	70

*Includes Schools and Quasi-Public Agencies.

Summary: Acquisition and Development Priority 1970-75—Region 1

Category	Facility Needs—1980 (Acres) (Developed Lands)	Acquisition—1975 (Acres) (Developed and Undeveloped Lands)	Development—1975 (Acres)
Parks			
Existing Parks	938*	2,856	469
New Parks	306	3,060**	153
Forestry	510	0	255
Public Access			
Existing Sites	20	0	10
New Sites	5	5	5
Waysides	22	11	11
Wildlife Areas	0	91,370	0
Trails***	100 (25 miles)	50 (12.5 miles)	50 (12.5 miles)
Total	1,901	97,352	953

*Includes lands already owned or to be acquired within existing boundaries to complete park.

**Estimated lands to provide ratio of 1:10 developed vs. undeveloped lands.

***To be acquired by easement or fee as right-of-way.

Table 57

DEVELOPED LAND ACREAGE REQUIRED TO MEET NEEDS FOR OUTDOOR RECREATION FACILITIES BY 1980
Acreage Shown for Campground and Picnic Area includes both Developed Site Acreage and Buffer Acreage at a Ratio of 1 to 20.
Region 2—Beltrami, Clearwater, Hubbard, Koochiching, and Lake of the Woods Counties

Agency and Category of Recreation Area	Regional Totals	State Only: Within Existing Boundaries	State Only: In New Areas	Wildlife Areas	Swimming Beaches	Camp-grounds	Golf Courses	Picnic Areas	Trails	Play-fields	Boat Launching Sites
Region 2											
State Parks	348	285	63					80	260		8
Forests	307							80	220		7
Public Access	84	18	66								84
Waysides	10							10			
Sub Total	749							170	480		99
Wildlife Areas	12,717			12,717							
Federal	0										
County	447							280	140		27
Municipal*	578							560			18
Private	896						180	600	80		36
Unassigned	0										
Total	15,387			12,717			180	1,610	700		180

*Includes Schools and Quasi-Public Agencies.

Summary: Acquisition and Development Priority 1970-75—Region 2

Category	Facility Needs—1980 (Acres) (Developed Lands)	Acquisition—1975 (Acres) (Developed and Undeveloped Lands)	Development—1975 (Acres)
Parks			
Existing Parks	285*	435	242
New Parks	63	3,150**	31
Forestry	307	—	153
Public Access			
Existing Sites	18	0	9
New Sites	66	33	33
Waysides	10	5	5
Wildlife Areas	0	6,000	0
Trails***	80 (20 miles)	40 (10 miles)	40 (10 miles)
Total	829	9,663	513

*Includes lands already owned or to be acquired within existing boundaries to complete park.
**Estimated lands to provide ratio of 1:50 developed vs. undeveloped lands.
***To be acquired by easement or fee as right-of-way.

Table 58

DEVELOPED LAND ACREAGES REQUIRED TO MEET NEEDS FOR OUTDOOR RECREATION FACILITIES BY 1980
Acreage Shown for Campground and Picnic Area includes both Developed Site Acreage and Buffer Acreage at a Ratio of 1 to 20.
Region 3—Cottonwood, Cook, Itasca, Lake, and St. Louis Counties

Agency and Category of Recreation Area	Regional Totals	State Only: Within Existing Boundaries	State Only: In New Areas	Wildlife Areas	Swimming Beaches	Camp-grounds	Golf Courses	Picnic Areas	Trails	Play-fields	Boat Launching Sites
Region 3											
State Parks	2,125	2,105	20		20			2,000	80		25
Forests	1,138				10	280		240	592		16
Public Access	184	70	114								184
Waysides	20							20			
Sub Total	3,467				30	280		2,260	672		225
Wildlife Areas	10,840			10,840							
Federal	3,919				12	280		3,440	112		75
County	5,343				36	40	360	4,600	168	64	75
Municipal*	9,308				30	40	1,080	6,900	56	1,152	50
Private	7,183				12	160	2,160	4,600	112	64	75
Unassigned	41							41			
Total	40,101			10,840	120	800	3,600	21,841	1,120	1,280	500

*Includes Schools and Quasi-Public Agencies.

Summary: Acquisition and Development Priority
1970-75—Region 3

Category	Facility Needs—1980 (Acres) (Developed Lands)	Acquisition—1975 (Acres) (Developed and Undeveloped Lands)	Development—1975 (Acres)
Parks			
Existing Parks	2,105*	4,410	1,052
New Parks	20	1,000**	10
Forestry	1,138	0	659
Public Access			
Existing Sites	70	0	35
New Sites	114	60	57
Waysides	20	10	10
Wildlife Areas	0	5,420	0
Trails***	112 (30 miles)	60 (15 miles)	60 (15 miles)
Total	3,579	10,960	1,883

*Includes lands already owned or to be acquired within existing boundaries to complete park.
**Estimated lands to provide ratio of 1:50 developed vs. undeveloped lands.
***To be acquired by easement or fee as right-of-way.

Table 59

DEVELOPED LAND ACREAGE REQUIRED TO MEET NEEDS FOR OUTDOOR RECREATION FACILITIES BY 1980

Region 4—Becker, Big Stone, Clay, Douglas, Grant, Norman, Otter Tail, Stevens, and Traverse Counties

Acreage Shown for Campground and Picnic Area includes both Developed Site Acreage and Buffer Acreage at a Ratio of 1 to 20.

Agency and Category of Recreation Area	Regional Totals	State Only		Wildlife Areas	Swimming Beaches	Camp-grounds	Golf Courses	Picnic Areas	Trails	Play-fields	Boat Launching Sites
		Within Existing Boundaries	In New Areas								
Region 4											
State Parks	598	598			10	100		400	80		8
Forests	420							20	400		
Public Access	147	53	94								147
Waysides	29							29			
Sub Total	1,194				10	100		449	480		155
Wildlife Areas	23,215			23,215							
Federal	215							200			15
County	4,657				20	100	180	4,000	256	54	47
Municipal*	4,202				40	220	360	2,300	284	967	31
Private	6,106				30	1,880	900	2,500	680	54	62
Unassigned	0										
Total	39,589			23,215	100	2,300	1,440	9,449	1,700	1,075	310

*Includes Schools and Quasi-Public Agencies.

Summary: Acquisition and Development Priority 1970-75—Region 4

Category	Facility Needs—1980 (Acres) (Developed Lands)	Acquisition—1975 (Acres) (Developed and Undeveloped Lands)	Development—1975 (Acres)
Parks			
Existing Parks	598*	4,280	299
New Parks	0	0	0
Forestry	420	0	210
Public Access			
Existing Sites	53	0	26
New Sites	94	47	47
Waysides	29	15	15
Wildlife Areas	0	11,602	0
Trails***	680 (165 miles)	340 (85 miles)	340 (85 miles)
Total	1,874	16,284	937

*Includes lands already owned or to be acquired within existing boundaries to complete park.

***To be acquired by easement or fee as right-of-way.

Table 60

DEVELOPED LAND ACREAGE REQUIRED TO MEET NEEDS FOR OUTDOOR RECREATION FACILITIES BY 1980

Region 5—Aitkin, Cass, Crow Wing, Morrison, Todd, and Wadena Counties

Acreage Shown for Campground and Picnic Area Includes Both Developed Site Acreage and Buffer Acreage at a Ratio of 1 to 20.

Agency and Category of Recreation Area	Regional Totals	State Only		Wildlife Areas	Swimming Beaches	Campgrounds	Golf Courses	Picnic Areas	Trails	Playfields	Boat Launching Sites
		Within Existing Boundaries	In New Areas								
Region 5											
State Parks	735	392	343		7	420		160	140		8
Forests	291	63	178		10	120		20	140		1
Public Access	241										241
Waysides	6							6			
Sub Total	1,273				17	540		186	280		250
Wildlife Areas	57,016			57,016							
Federal	1,308				3	740		300	240		25
County	1,490				8	380	180	660	160	476	75
Municipal*	2,057				17	180	180	1,060	40	27	50
Private	3,337				10	1,860	360	900	80	27	100
Unassigned	0										
Total	66,427			57,016	55	3,700	720	3,106	800	530	500

*Includes Schools and Quasi-Public Agencies.

Summary: Acquisition and Development Priority 1970-75—Region 5

Category	Facility Needs—1980 (Acres) (Developed Lands)	Acquisition—1975 (Acres) (Developed and Undeveloped Lands)	Development—1975 (Acres)
Parks			
Existing Parks	392*	1,323	196
New Parks	343	29,841**	171
Forestry	291	0	145
Public Access			
Existing Sites	63	0	31
New Sites	178	89	89
Waysides	6	3	3
Wildlife Areas	0	28,508	0
Trails***	80 (20 miles)	40 (10 miles)	40 (10 miles)
Total	1,353	59,804	675

*Includes lands already owned or to be acquired within existing boundaries to complete parks.

**Estimated lands to provide ratio of 1:87 developed vs. undeveloped lands. There are no plans for additional land purchase. Development may be carried out in existing parks and state forests. Further study is needed before a final determination can be made as to which division should develop the needed facilities.

***To be acquired by easement or fee as right-of-way.

Table 61

DEVELOPED LAND ACREAGE REQUIRED TO MEET NEEDS FOR OUTDOOR RECREATION FACILITIES BY 1980

Acreage Shown for Campground and Picnic Area includes both Developed Site Acreage and Buffer Acreage at a Ratio of 1 to 20.

Region 6—Chippewa, Kandiyohi, Lac qui Parle, Pope, Redwood, Renville, Swift, and Yellow Medicine Counties

Agency and Category of Recreation Area	Regional Totals	State Only		Wildlife Areas	Swimming Beaches	Camp-grounds	Golf Courses	Picnic Areas	Trails	Play-fields	Boat Launching Sites
		Within Existing Boundaries	In New Areas								
Region 6											
State Parks	795	795				280		400	112		3
Forests	20							20			
Public Access	54	14	40								54
Waysides	6							6			
Sub Total	875					280		426	112		57
Wildlife Areas	17,622			17,622							
Federal	6										6
County	1,356					409	180	640	100	10	17
Municipal*	2,408					11	540	1,680		165	12
Private	3,041					700	900	620	788	10	23
Unassigned	36							36			
Total	25,344			17,622		1,400	1,620	3,402	1,000	185	115

*Includes Schools and Quasi-Public Agencies.

Summary: Acquisition and Development Priority 1970-75—Region 6

Category	Facility Needs—1980 (Acres) (Developed Lands)	Acquisition—1975 (Acres) (Developed and Undeveloped Lands)	Development—1975 (Acres)
Parks			
Existing Parks	795*	2,808	397
New Parks	0	0	0
Forestry	20	0	10
Public Access			
Existing Sites	14	0	7
New Sites	40	40	20
Waysides	6	3	3
Wildlife Areas	0	8,811	0
Trails**	788 (197 miles)	400 (100 miles)	400 (100 miles)
Total	1,663	12,062	837

*Includes lands already owned or to be acquired within existing boundaries to complete park.

**To be acquired by easement or fee as right-of-way.

Table 62

DEVELOPED LAND ACREAGE REQUIRED TO MEET NEEDS FOR OUTDOOR RECREATION FACILITIES BY 1980

Acreage Shown for Campground and Picnic Area includes both Developed Site Acreage and Buffer Acreage at a Ratio of 1 to 20.

Region 7—Benton, Chisago, Isanti, Kanabec, Meeker, Mille Lacs, Pine, Sherburne, Stearns, and Wright Counties

Agency and Category of Recreation Area	Regional Totals	State Only: Within Existing Boundaries	State Only: In New Areas	Wildlife Areas	Swimming Beaches	Camp-grounds	Golf Courses	Picnic Areas	Trails	Play-fields	Boat Launching Sites
Region 7											
State Parks	3,512	1,698	1,814		60	1,680		1,000	744		28
Forests	910				10	400		40	456		4
Public Access	293	49	244								293
Waysides	38							38			
Sub Total	4,753				70	2,080		1,078	1,200		325
Wildlife Areas	72,334			72,334							
Federal	1,075					1,040					35
County	7,420				130	520	900	5,400	300	75	95
Municipal*	19,185				250	520	900	16,200	100	1,150	65
Private	22,575				250	6,240	2,880	12,600	400	75	130
Unassigned	0										
Total	127,342			72,334	700	10,400	4,680	35,278	2,000	1,300	650

*Includes Schools and Quasi-Public Agencies.

Summary: Acquisition and Development Priority 1970-75—Region 7

Category	Facility Needs—1980 (Acres) (Developed Lands)	Acquisition—1975 (Acres) (Developed and Undeveloped Lands)	Development—1975 (Acres)
Parks			
Existing Parks	1,698*	3,663	849
New Parks	1,814	18,140**	907
Forestry	910	0	455
Public Access			
Existing Sites	49	0	49
New Sites	244	244	120
Waysides	38	38	19
Wildlife Areas	0	36,170	0
Trails***	400 (100 miles)	400 (100 miles)	200 (50 miles)
Total	5,153	58,655	2,599

*Includes lands already owned or to be acquired within existing boundaries to complete park.

**Estimated lands to provide ratio of 1:10 developed vs. undeveloped lands. (Some of this acreage may not be required. Further study is needed to determine if a portion of the needed developed land (1814) may not be developed in existing state forests along canoe routes or trails.)

***To be acquired by easement or fee as right-of-way.

Table 63

DEVELOPED LAND ACREAGE REQUIRED TO MEET NEEDS FOR OUTDOOR RECREATION FACILITIES BY 1980

Acreage Shown for Campground and Picnic Area includes both Developed Site Acreage and Buffer Acreage at a Ratio of 1 to 20.

Region 8—Cottonwood, Jackson, Lincoln, Lyon, Martin, Murray, Nobles, Pipestone, and Rock Counties

Agency and Category of Recreation Area	Regional Totals	State Only		Wildlife Areas	Swimming Beaches	Camp-grounds	Golf Courses	Picnic Areas	Trails	Play-fields	Boat Launching Sites
		Within Existing Boundaries	In New Areas								
Region 8											
State Parks	476	386	90		13	120		160	180		3
Forests	0										
Public Access	48	14	34								48
Waysides	0										
Sub Total	524				13	120		160	180		51
Wildlife Areas	13,440			13,440							
Federal	0										
County	1,958				7	420	540	860	60	20	51
Municipal*	3,267				12	560	540	1,700	60	347	48
Private	3,998				18	1,700	1,260	680	300	20	20
Unassigned	0										
Total	23,187			13,440	50	2,800	2,340	3,400	600	387	170

*Includes Schools and Quasi-Public Agencies.

Summary: Acquisition and Development Priority
1970-75—Region 8

Category	Facility Needs—1980 (Acres) (Developed Lands)	Acquisition—1975 (Acres) (Developed and Undeveloped Lands)	Development—1975 (Acres)
Parks			
Existing Parks	386*	2,044	193
New Parks	90	900**	45
Forestry	0	0	0
Public Access			
Existing Sites	14	0	7
New Sites	34	34	17
Waysides	0	0	0
Wildlife Areas	0	6,720	0
Trails***	300 (75 miles)	150 (37 miles)	150 (37 miles)
Total	824	9,848	412

*Includes lands already owned or to be acquired within existing boundaries to complete park.
**Estimated lands to provide ratio of 1:10 developed vs. undeveloped lands.
***To be acquired by easement or fee as right-of-way.

Table 64

DEVELOPED LAND ACREAGE REQUIRED TO MEET NEEDS FOR OUTDOOR RECREATION FACILITIES BY 1980

Acreage Shown for Campground and Picnic Area includes both Developed Site Acreage and Buffer Acreage at a Ratio of 1 to 20.

Region 9—Blue Earth, Brown, Faribault, LeSueur, McLeod, Nicollet, Sibley, Waseca, and Watonwan Counties

Agency and Category of Recreation Area	Regional Totals	State Only: Within Existing Boundaries	State Only: In New Areas	Wildlife Areas	Swimming Beaches	Campgrounds	Golf Courses	Picnic Areas	Trails	Playfields	Boat Launching Sites
Region 9											
State Parks	710	648	62		13	180		360	152		5
Forests	0										
Public Access	67	26	41								67
Waysides	10							10			
Sub Total	787				13	180		370	152		72
Wildlife Areas	10,901			10,901							
Federal	0										
County	1,213				81	80	360	420	180	20	72
Municipal*	2,765				121	80	900	1,260		380	24
Private	3,775				55	1,360	1,440	560	268	20	72
Unassigned	0										
Total	19,441			10,901	270	1,700	2,700	2,610	600	420	240

*Includes Schools and Quasi-Public Agencies.

Summary: Acquisition and Development Priority 1970-75—Region 9

Category	Facility Needs—1980 (Acres) (Developed Lands)	Acquisition—1975 (Acres) (Developed and Undeveloped Lands)	Development—1975 (Acres)
Parks			
Existing Parks	648*	1,547	324
New Parks	62	310**	31
Forests	0	0	0
Public Accesses			
Existing Access	26	0	26
New Access	41	41	20
Waysides	10	10	5
Wildlife Areas	0	5,450	0
Trails***	268 (67 miles)	268 (67 miles)	134 (34 miles)
Total	1,055	7,626	540

*Includes lands already owned and to be acquired within existing boundaries to complete park.

**Estimated lands to provide ratio of 1:5 developed vs. undeveloped lands.

***To be acquired by easement or fee as right-of-way.

Table 65

DEVELOPED LAND ACREAGE REQUIRED TO MEET NEEDS FOR OUTDOOR RECREATION FACILITIES BY 1980

Acreage Shown for Campground and Picnic Area includes both Developed Site Acreage and Buffer Acreage at a Ratio of 1 to 20.

Region 10—Dodge, Fillmore, Freeborn, Goodhue, Houston, Mower, Olmsted, Steel, Wabasha, and Winona Counties

Agency and Category of Recreation Area	Regional Totals	State Only		Wildlife Areas	Swimming Beaches	Campgrounds	Golf Courses	Picnic Areas	Trails	Playfields	Boat Launching Sites
		Within Existing Boundaries	In New Areas								
Region 10											
State Parks	2,491	1,661	830		25	1,060		800	600		6
Forests	650					520		40	90		
Public Access	54	10	44								54
Waysides	46							46			
Sub Total	3,241				25	1,580		886	690		60
Wildlife Areas	25,766			25,766							
Federal	1,855				45	520		880	170		240
County	4,730				70	500	180	3,600	260	60	60
Municipal*	11,470				230	500	540	8,800	170	1,080	150
Private	6,240				100	2,100	900	2,560	430	60	90
Unassigned	0										
Total	53,302			25,766	470	5,200	1,620	16,726	1,720	1,200	600

*Includes Schools and Quasi-Public Agencies.

Summary: Acquisition and Development Priority 1970-75—Region 10

Category	Facility Needs—1980 (Acres) (Developed Lands)	Acquisition—1975 (Acres) (Developed and Undeveloped Lands)	Development—1975 (Acres)
Parks			
Existing Parks	1,661*	5,476	830
New Parks	830	8,300**	415
Forestry			
Existing Land	390	0	195
New Land	260	5,000	130
Public Access			
Existing Sites	10	0	10
New Sites	44	44	22
Waysides	46	46	23
Wildlife Areas	0	12,883	0
Trails***	430 (108 miles)	430 (108 miles)	215 (54 miles)
Total	3,671	32,179	1,840

*Includes lands already owned or to be acquired within existing boundaries to complete park.
**Estimated lands to provide ratio of 1:10 developed vs. undeveloped lands.
***To be acquired by easement or fee as right-of-way.

Table 66

DEVELOPED LAND ACREAGE REQUIRED TO MEET NEEDS FOR OUTDOOR RECREATION FACILITIES BY 1980
Acreage Shown for Campground and Picnic Area includes both Developed Site Acreage and Buffer Acreage at a Ratio of 1 to 20.
Region 11—Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington Counties

Agency and Category of Recreation Area	Regional Totals	State Only: Within Existing Boundaries	State Only: In New Areas	Wildlife Areas	Swimming Beaches	Campgrounds	Golf Courses	Picnic Areas	Trails	Playfields	Boat Launching Sites
Region 11											
State Parks	2,925	1,025	1,900		30	1,060		1,600	200		35
Forests	0										
Public Access	115	62	53								115
Wayside	50							50			
Sub Total	3,090				30	1,060		1,650	200		150
Wildlife Areas	20,146			20,146							
Federal	0										
County	12,040				30	1,600	2,880	6,600	600		330
Municipal*	17,855				75		1,620	13,200	400	2,500	60
Private	18,015				15	7,940	1,800	5,400	2,800		60
Unassigned	0										
Total	71,146			20,146	150	10,600	6,300	26,850	4,000	2,500	600

*Includes Schools and Quasi-Public Agencies.

Summary: Acquisition and Development Priority
1970-75—Region 11

Category	Facility Needs—1980 (Acres) (Developed Lands)	Acquisition—1975 (Acres) (Developed and Undeveloped Lands)	Development—1975 (Acres)
State Parks			
Existing Parks	625*	40	512
New Parks	1,500	9,500**	950
State Forests	0	0	0
Public Access			
Existing Sites	62	0	62
New Sites	53	53	27
Waysides	25	25	12
Wildlife Areas	0	20,146	0
Trails***	2,800 (700 miles)	2,800	1,400
Total	5,065	32,564	2,963

*Includes development needs on lands either already owned or to be acquired within existing park boundaries.
**Estimated land acreage based on 1:5 ratio developed vs. undeveloped land.
***Needs to be provided by easement or fee purchase of right-of-way over private lands.

IV. RELATIONSHIP WITH OTHER AGENCIES IN PROGRAM OR PROJECT PLANNING FOR RECREATION

1. **Establish a state "clearing house" for project planning in which the state is expected to sponsor, approve or otherwise participate.** The State Planning Agency is most capable of this function and could control timing and coordination with other planning and establish the manner in which state participation would best be incorporated in the project plans.

2. Additional competent staff and related expenses should be provided to **initiate more state leadership in the water resource planning** under way on the Upper Mississippi River, the Great Lakes, the Souris-Red-Rainy and the Missouri River Basins. The impact of such planning on recreation will be important in many areas of the state. Adequate state input is needed to establish water resource developments that are most important to meeting the state's need for water recreation.

3. **Land Use Planning**

Provide adequate staff and funds for coordination of planning for recreation with overall land use. (Classification studies will soon be under way). To implement this Plan at all levels of government there will be a need to work on a common base — that of land use pattern established following inventory, classification of land, and establishment of long-range needs of such lands for the various uses which will be required.

4. **Regional Planning**

Planning for recreational needs requires certain regional planning in which the state can implement land use plans, including those for recreation. **Staff and funding are required to participate to the extent necessary to bring state planning to fruition at the local level where most implementation will be accomplished.**

Technical assistance must be afforded the county or regional authorities to properly guide the planning effort to the extent that it meets the overall recreational needs.

5. **Coordination with Current Federal Programs**

a. Voyageurs National Park — The state has supported establishment of the national park as proposed in the H.R. 18791 of the 90th Congress. **Studies should be completed on aspects of land exchange, in lieu of tax payments or revenue sharing, as well as proposed wildlife management and vegetative management.**

b. Upper Mississippi River Valley National Recreation Area — The state should become involved with federal feasibility studies now underway to determine beneficial aspects of such a recreation area and to establish a base for the state's position.

c. St. Croix National Scenic Waterway — The state, together with Wisconsin, the National Park Service, and local governments adjoining the Riverway, **should provide a Commission or Committee to implement the recommendations of the master plan to be presented to Congress to establish this Riverway.**

d. National historic sites and landmarks — **The State Historical Society should continue its planning as prescribed by the National Historic Sites Act of 1966,** in anticipation of financial means of implementing state actions. In the interim, continued close cooperation between the Department of Conservation and the Historical Society can assist in the preservation of lands identified as historic sites.

e. **The Federal Water Quality Act of 1965 and the establishment of water quality standards on both inter- and intra-state waters should continue to recognize the major impact that water quality has on recreation and on Minnesota's tourist attraction. When establishing water quality standards, body contact recreation criteria should apply on all but a few rivers or lakes.**

f. Federal Water Project Recreation Act (P.L. 89-72) — The state will cooperate with federal agencies in the development of recreation plans where such are feasible on water resource development projects. Coordination could be improved if early planning schedules are "cleared" through a state "clearing" agency.

g. Relationship with industry — Full support in the form of technical assistance or, in the event of lands available for public use, joint development of recreation facilities should be encouraged. Full recognition of private support should be given.

h. Federal Department of Transportation Act — Review and identification of the effects of highways and airports on parks, recreation areas, wildlife and waterfowl management areas or historic sites will be made by the Conservation Department in cooperation with the Highway Department. In all instances of conflict in land use, alternative solutions will be sought.

i. Federal Resource, Conservation and Development Program — The state will cooperate with R.C. & D. programs in planning resource development projects to the extent that such projects conform to state programs. By the same token, federal assistance should be available to provide necessary staff assistance.

j. Economic assistance programs (federal) — The state will investigate opportunities for any federal assistance and aid in selecting priorities and programming projects for outdoor recreation.

k. Proposed Mississippi River 12-foot navigation channel — Minnesota must participate in all planning relative to the proposed deepening of the

Mississippi River below the Twin Cities. Dredged spoil disposal will affect existing fish spawning and resting areas. It also may create a means for expansion of recreation facilities where properly placed. Higher impoundments will affect waterfowl in some cases, fish in others.

IV. ALLOCATION OF FEDERAL ASSISTANCE FUNDS

a. Every effort will be made to keep apprised of the current policies and potentials of the Housing and Urban Development Open Space Program. This will be necessary to wisely administer the LAWCON and Natural Resource Program and give technical advice to units of government seeking it. It will be desirable to channel LAWCON funds into areas not covered by HUD.

b. The Legislature determines the division of LAWCON funds between the state and local units of government. The local unit of government share will be apportioned by the Bureau of Planning in compliance with the current laws and according to the priority accorded the individual proposal.

c. The State Planning Agency and the Conservation Department's Bureau of Planning will keep advised as to the current status of other Federal Funds available for Outdoor Recreation use such as the Cropland Adjustment Program. It will be the duty of these agencies to advise local units of government of the various funds applicable to their projects.

d. The priority accorded will be based upon the criteria outlined in the following Guidelines; the urgency of the project; and the need as demonstrated in the state and local plans. The General State Criteria as contained in the State Rules and Regulations, CONSERVATION 31 and 32, are given below:

The following acquisition and development projects shall receive priority over other projects.

(1) Projects identified in a county or municipal plan which has been approved by a county or an established regional authority and incorporated in an action program of the county or regional authority which approved the project application.

(2) Those types of outdoor recreation facilities and functions for which the applying agency normally is responsible to supply.

(3) Proposed projects which cannot be funded from other grants-in-aid programs (i. e., Open Space, P. L. 566, etc.).

(4) Projects having regional or statewide significance when applicants adequately demonstrate their inability to finance the project without federal LAWCON assistance.

(5) Projects promoting an environment of natural beauty as compared to those having unsightly conditions (environmental intrusions) or reservations in the title which may create such intrusions.

(6) Local projects having regional significance, and state projects having statewide significance.

If a proposal satisfactorily meets the State Criteria, it then is classified and matched against the General Priorities. These are given below:

(1) Acquisition Projects Classification

Acquisition projects will be classified as follows:

(aa) Areas which will provide multipurpose sites for needed mass use type of recreational activity to meet the needs of urban and local populations.

(bb) Areas having a combination of outstanding natural, scientific, cultural, historical, educational and recreational values, particularly those providing habitat for rare and endangered species of plants and animals; and those preserving scarce ecological associations, historic and cultural features, or unique geological formations which will, when acquired and developed, be open to public recreation use.

(cc) Areas which will provide sites for only a single purpose or tenancy type of recreational use.

(dd) Areas which will provide for dispersed recreation uses, including but not limited to: public access, scenic areas, fish and wildlife habitat areas and roadside, trail side and waterfront zones.

(2) General Acquisition Project Priorities

(aa) The priority of specific acquisition projects within any one classification will be determined by the state criteria, provided each project complies with Minnesota Statutes 1967, Section 86.71, Subdivision 4. "Compatibility" as used therein shall mean in agreement with the currently accepted State Outdoor Recreation Plan promulgated in accordance with Minnesota Statutes 1967, Section 86.71, Subdivision 3.

(bb) Projects having the highest priority will be programmed as defined within the limits of allocations available to the state and in conformity with the distribution of the funds provided in Minnesota Statutes.

(cc) Projects having a low priority will **not** be programmed for funding when funds are limited.

(3) Development Projects Classification

For purposes of priority evaluation, outdoor recreation development projects will be classified as follows:

(aa) Projects which are essential to the protection and perpetuation of the site and its environment, providing the site is of unique character and of public interest.

(bb) Projects which are essential for protecting the health and safety of the user.

(cc) Projects essential to provide access to dispersed use areas including, but not limited to: water access sites, hiking, horseback, snowmobile and other trails.

(dd) Projects which are essential to meet the need for facilities within an area to provide multipurpose recreational opportunities to the general public, rather than a segment of the public, and which provide for mass use needs and have combinations of facilities including, but not limited to: Picnic grounds, playgrounds, launching ramps, swimming beaches, ski areas, playing fields. Consideration should be given to the needs of handicapped, aged and underprivileged groups.

(ee) Projects which are essential in providing tenancy for outdoor recreation users such as campgrounds, where such facilities are not of sufficient capacity to meet the present needs.

(ff) Single purpose projects which are essential in providing for mass use including, but not limited to: picnic areas, playgrounds, playing fields, swimming pools and beaches, ski areas or ball fields.

(4) General Development Project Priorities

(aa) The priority of specific development projects within any one classification will first be judged for the quality of the site itself and its suitability for the planned purposes as defined in the acquisition development priority schedule of the currently approved State Outdoor Recreation Plan.

(bb) Secondly, the priority of said projects will be determined in accordance with the state criteria provided each project complies with Minnesota Statutes 1967, Section 86.71, Subdivision 4. "Compatibility" as used therein shall mean in agreement with the currently accepted State Outdoor Recreation Plan promulgated in accordance with Minnesota Statutes 1967, Section 86.71, Subdivision 3.

(cc) Projects having sufficient priority will be programmed within the limits of the allocation available to the state and in conformity with the distribution of the fund as provided in Minnesota Statutes 1967, Section 86.71, or any amendment or superseding statute thereto.

(dd) Projects having a low priority rating will **not** be programmed for funding when funds are limited.

Special priorities will be assigned the classifications given above in relation to the criteria and general priorities. These will be based upon the current needs reflected in the state and local plans.

The proposals receiving the highest priority will be programmed for the funds currently available. The proposals not programmed will be returned to the applicant as unactionable.

V. MAINTENANCE OF THE PLAN

The Minnesota Outdoor Recreation Plan must be maintained in order to be a useful document. Planning is a continuous process, and at the base of every plan there is a "plan for planning".

In the years ahead, constant attention must be given to maintaining the inventory of supply. This will call for a system of cataloging and retrieving inventory information. Thought and effort will be immediately placed on this phase of the operation.

The schedule of plan maintenance may be found in the following Table. It includes planning activities for inventory, demand, needs, action, special studies and compilation of the state plan.

The inventory mapping will be carried out in the Bureau of Planning office. Work has started on this and will be completed by the end of September, 1969. An updating is scheduled in the last half of 1971 and the first quarter of 1972. Inventory mapping will provide a quick reference for recreation area location and a listing of its major facilities.

Field updating of the maps and other needed information will be carried out by personnel of the Conservation Department in the 4th quarter of 1969, 1st quarter of 1970, and the 2nd and 3rd quarters of 1972. This information will be useful in preparing the annual Action Program. It will also serve as the basis for the summary and analysis of all state recreation areas.

The summary and analysis of the inventory will be worked on during the 4th quarter of 1972 and the 1st and 2nd quarter of 1973, by personnel of the Bureau of Planning.

The demand requirements will be maintained by use surveys, household surveys, demand analysis, and demand projections. The use surveys will be carried out by the Divisions of the Conservation Department on the facilities in cooperation with the Bureau of Planning. User surveys by other governmental agencies and the private sector will be solicited. These surveys will be scheduled each year to include summer and winter activities. This information will be used to determine user needs by activities.

A household survey will be conducted the 4th quarter of 1972 in cooperation with the State Planning Agency. This information will help to determine trends and establish user and latent demand.

The demand analysis and projections will be carried out by personnel of the Bureau of Planning in the 1st and 2nd quarter of 1973. This analysis will be used in the compilation of the state plan.

MAINTENANCE OF THE MINNESOTA OUTDOOR RECREATION PLAN

	1969				1970				1971				1972				1973				1974				1975			
Planning Activities	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Inventory																												
Mapping—Office			X								X	X	X															
Field Updating				X	X									X	X													
Summary																X	X											
Analysis																		X										
Demand																												
Use Surveys			X	X	X	X	X			X	X	X	X	X	X			X	X	X	X	X	X			X	X	X
Household Survey																X												
Demand Analysis																	X	X										
Demand Projections																			X									
Needs																												
User needs by activities					X				X				X				X				X				X			
Resource						X				X				X				X				X				X		
Action Program (Annual)																												
Federal		X			X				X				X				X				X				X			
State		X			X				X				X				X				X				X			
Local			X			X				X				X				X				X				X		
Private			X			X				X				X				X				X				X		
Special Studies																												
Invent., Potent., Rec., Res.						X	X	X	X	X																		
Origin and Destination			X			X	X																					
Design Load Factor Anal.					X	X							X	X														
Compilation—State Plan																		X	X	X	X							

User needs by activities will be determined from the user survey. Personnel of the Bureau of Planning will analyze the user survey data the 1st quarter of each year. This information will be utilized in the annual Action Program and in compiling the 1974 Outdoor Recreation Plan.

A review of the resource needs will be made the 2nd quarter of 1970 through 1975 by personnel of the Bureau of Planning. This information will be useful in determining the annual Action Program and in compiling the 1974 State Outdoor Recreation Plan.

The annual Action Program (Schedule of Acquisition and Development) for federal, state, and local agencies and private enterprises will be written by personnel of the Bureau of Planning in the 2nd and 3rd quarter of each year. The first plan will be completed by September, 1969. This plan will set priorities for acquisitions and development.

Special studies will be conducted by the Bureau of Planning in cooperation with other agencies. The inventory of potential recreation resources will be carried out by the personnel of the Conservation Department in cooperation with local government agencies and interested citizens. This survey will be conducted during the 2nd, 3rd, and 4th quarters of 1970 and the 1st and 2nd quarter of 1971. It will provide new information on the extent and types of potential recreation areas. It will also furnish information on areas that should be given special protection and management.

An Origin and Destination study will be carried out by the Department of Highways in cooperation with the Bureau of Planning. The initial study will be conducted during the 3rd quarter of 1969. Personnel of the Highway Beautification Division of the Department of Highways will conduct this survey. It will provide needed information on the origin, destination and activities of the traveling public.

In the 2nd and 3rd quarter of 1970 a full scale Origin and Destination Study will be carried out by personnel of the Highway Department. Questions pertinent to outdoor recreation will be added to this. This information will give answers concerning the who, what, when, where and why of Minnesota and out-of-state residents. It will be useful in locating the demand and areas of need throughout the state.

Design load factors analysis will be carried out in conjunction with the use survey mentioned above. The data received will be analyzed in the office of personnel of the Bureau of Planning during the 1st and 2nd quarters of 1970 and 1972. This information will be used to test the standards currently being used.

The compilation of the 1974 Minnesota Recreation Plan will be started in the second quarter of 1973 and completed by the end of the first quarter of 1974 by personnel of the Bureau of Planning.

The analysis of the supply and demand will be completed during the second quarter of 1973 and the comparison of supply and demand started. During the 3rd quarter of 1973 the above comparison as well as the demand and need projections will be completed. The writing will be done during the 4th quarter of 1973 and 1st quarter of 1974. The completed plan will be submitted to the Bureau of Outdoor Recreation by March 1, 1974.

A departmental effort and the comprehensive involvement of other interested agencies and the private sector is the answer to a successful future for the State Outdoor Recreation Plan.

CHAPTER 8 — APPENDICES

I. Glossary

II. Bibliography

III. Demand Study—Metropolitan and Tourist Recreation Activity Disaggregation

Minnesota Population Statistics (Table 67)

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1975 Supply, Demand and Deficiency—Campgrounds (Table 74)

1980 Supply, Demand and Deficiency—Campgrounds (Table 75)

1985 Supply, Demand and Deficiency—Campgrounds (Table 76)

I. GLOSSARY

Action Program:
The implementation phase of planning.

Activity Occasion:
The participation of one person, six years or older, in any one of the 44 outdoor recreation activities surveyed for at least one-half hour in one day, regardless of where the participation took place.

Adjusted Activity Rate:
Activity rates which were abnormally skewed to the left and right, and which were adjusted toward more reasonable percentiles.

Adults:
Persons 20 years of age and older.

Attending Outdoor Concerts:
Attendance at musical, dramatic, artistic, or other non-sporting, passive outdoor events. Drive-in-movie attendance was excluded.

Average Weekend Day — (Average Summer Sunday):
That activity which occurs on an average summer Sunday — 30 per cent of the total recreation activity during an average summer week.

Biking:
Any type of bicycling for recreation. Bicycling for transportation was not included.

Bird Watching:
Watching birds or wildlife outdoors. Bird watching from inside a building was excluded.

Boat Launch Area — (road, launching ramp and parking for boat access.):
The number of car parking spaces available was counted.

Boating:
All types of boating on water other than canoeing or sailing.

Canoeing:
Riding or paddling a canoe on water.

Carrying Capacity:
The carrying capacity of an outdoor recreation resource or facility is the number of activity occasions the resource or facility provides to persons six years or older for a specified time, e.g. day, season. Carrying capacity is calculated on the basis of resource or facility unit of measurement (acres, square feet, number of sites, etc.); the length of the season it is in use, (except for instantaneous capacity); and the daily turnover.

Children:
Persons 6 to 19 years of age, inclusive.

County:
The 87 counties in Minnesota were the basis for both the demand and supply surveys. The county block principle was maintained throughout the planning process because most of the statistical information available from governmental and private sources is based on county data.

Deficiency:
Areas and facilities lacking to accommodate demand. (Often referred to as "needs").

Demand:
Demand for outdoor recreation is identified herewith by participation in any of the 44 recreation activities listed during the period from July 1, 1966, through June 30, 1967.

Demand Projection Multiplier:
Demand for outdoor recreation opportunities generally increases over the years. In this study, fixed projection multipliers were used to determine the future demand for outdoor recreation activities and opportunities. The participation rate of the Minnesota population in 1966-67 was accepted at 100%.

Demand Projections:
Estimate of the recreation activity demand and a comparison of supply and demand for 1975, 1980, and 1985. To calculate demand for future years, the following fixed projection multipliers of the base year were used: 1972=125%, 1975=140%, 1980=160%, and 1985=175%.

Disaggregation: (or distribution)
A distribution of the metropolitan and tourist population throughout the state — on an average Sunday.

Driving for Pleasure:
Driving and riding for pleasure in a regular passenger car without fixed destination.

Driving for Pleasure, Four-Wheel Drive:
Driving a four-wheel drive vehicle on a rough road in order to see more of the outdoors or to pursue game and fish. Riding motorcycles on rough roads was also included.

Easements:
Purchase of certain rights on the land without transfer of title.

Extensive Recreation Use:
Activities which deal with large land or water areas in order that the quality of the experience can be maintained. Dispersed activities such as hunting, hiking, fishing, etc.

Fishing — Cold Water:
Fishing for trout or salmon.

Fishing — Warm Water:
Fishing for fish except trout or salmon.

Flying for Pleasure:
Piloting or riding in an airplane for pleasure. Skydiving was also included. Flying on commercial airlines was not included in this category.

Gardening for Pleasure:
General gardening of plants in which the person is actively doing something outdoors.

Golf Courses:
Golf course area was measured both in acres and yards. Regular 9 or 18-hole golf courses, putting ranges, or driving ranges were included.

Group Camping:
Organized camping by a public organization, such as Boy Scouts and Girl Scouts. It could be in a barracks type building or in a hotel or motel, not necessarily a tent.

Hiking:
Hiking with gear or pack in natural areas.

Hunting — Big Game:
Big game included deer and bear.

Hunting — Small Game:
Small game included rabbits, pheasants, grouse, quail, fox, or any other game so designated by state game laws.

Ice Skating Area:
Ice skating areas were measured in tenths of acres. Includes hockey, curling, and general skating rinks.

In-Migration Demand:
Tourists or metropolitan exodus population coming into a particular Region for recreation activity.

Instant Demand:
That demand occurring at any given time on an average Sunday.

Intensive Recreation: (Use-Area)
Activities generally considered to be a mass-use type of activity such as swimming, camping, picnicking, etc. Areas designated for such use usually require a heavy investment in facilities and supporting service.

Marina:
Docking; mooring slips and storage for boats measured in number of slips.

Model Plane and Kite Flying:
This category included helping children with flying model planes or kites.

Nature Walking:
Walking outside urban areas for pleasure.

Needs:
Total requirements in terms of facilities (sites, tables, parking spaces, etc.) or in terms of land or water acreage necessary to accommodate the outdoor recreation demand for such facilities on land or water acres.

Out-Migration — Metropolitan Demand:
That portion of the metropolitan population which leaves the metropolitan area for recreation purposes, each Sunday (same as metro-exodus population).

Ownership:
The ownership of a recreation area was classified as federal, state, county, city, other local government, quasi-public, school board, parochial school, or private.

Participation Rate:
The demand for each of the 44 outdoor recreation opportunities was expressed in activity occasions. One activity occasion is one person participating in any one of the 44 activities for at least one-half hour any one day. The total participation of all the sampled persons (ranging from zero to 999 activity occasions per year) divided by the number of persons in the sample provides the participation rate for each of the 44 outdoor recreation activities.

Per Capita:
For each person in universe.

Picnic Area:
Areas having picnic sites were measured in acres.

Picnicking:
An outdoor activity away from home, the primary purpose of which was the preparation or eating of a meal outdoors.

Planning:
The organized assessment, evaluation, and implementation of goals and objectives of management programs.

Playfield:
An area designated and/or developed for different kinds of outdoor games, such as baseball, football, and soccer, measured in acres.

Playing Golf:
Included playing golf on a regular 9 or 18-hole golf course or driving range, or putting on a miniature course.

Playing Outdoor Games:
Team play and individual play with emphasis on active participation. Golf and tennis were excluded.

Population:
The total state population, by county as of July 1, 1966, as reported by the Section of Vital Statistics of the Minnesota Department of Health. The 1967 population figures for both adults and children have been given for each county, region, and the state as a whole. Projected population figures for 1972, 1975, 1980 and 1985 have also been given.

Potential Recreation Area:
Potential recreation areas were identified in the supply inventory as those that are presently planned or under construction and will be open to the public by December 31, 1972.

Preferential Assessment:
A means of assessing land by which land owners are provided tax breaks when allowing certain public privileges to be associated with their lands. Such privileges may be in the form of public access, the establishment of scenic, or natural preserves, etc. without public access, or other concessions in the public interest. (If the land is altered from the purposes of the preferential assessment, the owner forfeits his rights to the preferential assessment and must pay back taxes, as necessary, or stipulated by law.)

Private Recreation Area:
A developed recreational facility that is administered by an individual or group of individuals as a private enterprise for profit.

Public Recreation Area:
A developed recreational establishment, with different resources or facilities, that is administered by federal, state, county, or city governments or another type of political subdivision.

Recreation Activity:
Any recreation activity, either active or passive, in which individuals participated for enjoyment, particularly those 44 activities in the demand and supply functions. The 44 activities were grouped into five categories: land-based, water-based, snow and ice-based, air sports, and general recreation.

Recreation Area:
A recreation area is a unit of land and water used for recreation enterprise, public or private, that is administered for outdoor recreation.

Recreation Facilities:
A recreation facility is a man-made recreation structure, trail, or other development that provides outdoor recreation opportunities for visitors to an area. Different methods of measurement were used for the various facilities. Some facilities were measured in square feet, acres, or miles, and others were simply counted or measured in terms of capacity.

Recreation Resources:
A recreation resource is any natural or man-made object that provides recreation opportunities. The primary recreation resources are land and water. All the other resources—air, timber, scenery, etc., are subject to or a direct function of the two primary resources.

Region (Recreation):
The 87 counties in Minnesota were grouped into 11 recreation regions based on the high degree of similarity among the recreation and economic resources in the county.

Relaxing Outdoors:
This category is similar to gardening for pleasure, but it is a more passive form of outdoor recreation.

Sailplane Gliding:
Riding or piloting a glider or sailplane for pleasure.

Sailing:
Riding or sailing a sailboat on water.

Sample Unit:
In the demand function of the Minnesota Recreation Survey, a sample unit was one household within the state where a family or non-family unit resided. There were 3,334 sample units with 10,834 persons in the demand survey.

Sightseeing:
Visiting interesting sights, either scenic areas or man-made objects, outdoors.

Ski Slope:
The running area of the ski hills open for skiing, measured in acres.

Socio-Economic Factors:
Seven socio-economic factors were surveyed and used throughout the study: Age, education, employment, income, length of residency, occupation and wife's employment.

Standards:
Standards are the key to converting recreation facilities and resources into annual carrying capacities expressed in activity occasions so that the

facilities or resources may be compared with demand. Standards were developed as the best attainable goals for resource management and facility development.

State Outdoor Recreation Comprehensive Plan:
This Plan is required by the Land and Water Conservation Fund Act, 1965, P. L. 88-578. In order to receive or to be eligible for federal funds, each state must prepare a plan that determines the recreation needs of the counties and regions of the state. The plan must also contain an action program.

Statistical Summary:
The Statistical Summary, in three volumes, contains supplementary data from the Minnesota Recreation Survey, 1967. Data on the supply and demand functions and on the comparisons to determine the need for or idle capacity of major recreation facilities and resources are in the Statistical Summary. The analysis is organized into 11 recreation regions, six tourist regions, three super-regions, 87 counties, and the state as a whole. Appendix I contains the data on regional and state demand and the comparisons. Appendix II-1 and Appendix II-2 contain the data on the county supply.

Super Region:
The State of Minnesota was divided into three super regions—North, South, and Region 11. The North Region includes recreation regions 1 through 5; the South Region includes recreation regions 6 through 10; and Region 11 is synonymous with the seven-county Twin Cities metropolitan area.

Supply:
Supply is expressed in terms of the number of activity occasions that a particular recreation resource or facility is able to provide optimally within one year. Supply represents the total carrying capacities of the resources, opportunities, and facilities in public and private recreation areas that were identified in the Minnesota supply inventory. Supply is given for county, regional, and state levels.

Supply Inventory:
The supply inventory is that part of the Minnesota Recreation Survey, 1967, that inventoried public and private outdoor recreation areas in Minnesota. The supply inventory includes all existing recreation areas in Minnesota as of June 30, 1967.

Swimming Beach — Land Area:
The sand or grass area adjacent to a designated swimming beach that is used by sunbathers and others not actively engaged in swimming. This area was measured in tenths of acres.

Swimming Beach — Water Area:
A designated area of a natural lake, reservoir, or river that is safe and available for public swimming. The designated water surface was measured in square feet.

Swimming and Wading Pool:
Any type of pool construction open to the public. The area was measured in square feet.

Tent Camping:
Living outdoors in a shelter with a bedroll or sleeping bag, or in a partially open hut. A tent camper had to carry his bedding equipment and food with him.

Tent Camping Area:
An area designated and developed for tent camping was measured in acres.

Tourist Influx:
Tourist population coming to Minnesota for recreation on an average Sunday.

Tourism Impact Survey, 1967:
The Minnesota Tourism Survey, 1967, was part of the demand survey designed by Midwest Research Institute with the cooperation of the State Planning Agency, the Research Division of the Department of Economic Development, and the Minnesota Department of Conservation. This survey measured activity opportunities demanded by people on vacation holidays, weekends, and weekdays. The survey also obtained data on recreation expenditures for capital goods and variable recreation-related expenses. In addition, opinions were gathered on many recreation-related issues.

Trails — Horse:
Designated trails or routes that are generally used for horseback riding.

Trails — Canoe:
Designated canoe routes or trails on rivers or lakes that are used and maintained as such.

Trails — Snowmobile:
Designated trails or those known to be used for snowmobiling. Rough road mileage may be included here.

Trails — Nature and Foot:
Designated and maintained trails only.

Trails — Bike:
Only those trails developed exclusively for bicycling.

Trailer Camping:
Camping outdoors with trailer (house trailer, pickup camper, or camper-trailer) for recreation. Regular living in a trailer home area was not included.

Trailer Camping Area:
An area designated and developed for tent camping was measured in acres.

Trap Shooting, Target Shooting:
Trap and target shooting for pleasure.

Type of Recreation Area:
There were four types of recreation areas: existing, 10 acres or less; existing, 11 acres or more; potential expansion of existing area; and potential new development.

Universe Population:
The population of the universe refers to the total population of the State of Minnesota as of July 1, 1967. Data collected from the sample units were extended to counties, to the different Regions, and to the state as a whole (the universe).

Viewing Outdoor Games:
Attending baseball, football, soccer, and similar games outdoors. A passive recreation activity included because of the location.

Visiting Zoos and Outdoor Exhibits:
Visiting zoos or zoo-type facilities, county and state fairs, outdoor art shows, and watching parades.

Visitor Day (M.R.I. Study):
A visitor day represents either a full day or part of a day spent in a recreation area by one visitor; it implies participation in at least one activity. A visitor day usually includes several activity occasions; therefore, the concept is not sufficiently accurate for planning purposes.

Walking for Pleasure:
Walking for pleasure inside urban areas.

Waterfowl Hunting:
Hunting wild duck, geese, or any other migratory waterfowl on land or water.

Water Skiing:
Skiing on water skis being pulled by a motorboat or any other means.

Weighted Activity Rate:
The adult activity rate and the activity rate for children, averaged by taking each against the corresponding population, adding them together, then dividing by the total population.

Wild Berry Picking:
Gathering of non-cultivated berries.

Zoning:
Police power to control acres of land. Designation of specific type of land use for given areas.

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#17 — Land Exchange in Minnesota.
#19 — Legislation and Appropriation Recommendations.

III. DEMAND STUDY

Metropolitan and Tourist Recreation Activity Disaggregation

Steps:

1. Determine: Amount of metropolitan residents leaving the metropolitan area on an average weekend day to points in Minnesota.
Information known:

A.	Average weekday recreation traffic exodus	18,578 trips
B.	Average weekend traffic volume increase on weekends	150%
C.	Per cent which the average weekend day **recreation** traffic volume is of total weekend traffic	85%
D.	Per cent which the average weekday **recreation** traffic volume is of the total weekday traffic	36.7%
E.	Per cent of total weekday recreation traffic volume to out-of-state points	26.5%

Using formula:

$$C\left(\frac{A \times B}{D}\right) - E \times C\left(\frac{A \times B}{D}\right) = X$$

(Average net recreation trips on a summer weekend to points in Minnesota.)

$$.85\left(\frac{18{,}578 \times 1.5}{.367}\right) - .26 \times .85 \left(\frac{18{,}578) 1.5}{36.7}\right) = X$$

$$.85\ (50{,}621 \times 1.5) - .26 \times .85\ (50{,}621 \times 1.5) = X$$

$$.85\ (75{,}931) - .26 \times .85\ (75{,}931) = X$$

$$64{,}541 - .26\ (64{,}541) = X$$

$$64{,}541 - 16{,}780 = X$$

X — 47,761 recreation trips average summer weekend day to points in Minnesota.

Conversion to persons:
multiply by four persons per car trip
16,780 x 4 = 67,120 metropolitan persons average weekend day out of Minnesota
47,761 x 4 = 191,044 metropolitan persons average weekend day exodus to Minnesota points

Explanation of Procedure:

1. Divide the average weekday recreation traffic exodus (A) by the per cent such traffic is of the total traffic (36.7%) to get the total weekday traffic average metropolitan exodus.

2. This figure (50,621) is then multiplied by the per cent of traffic volume increase on an average weekend day (1.50 x 50,621). The result (75,931) is the metropolitan traffic volume exodus occurring on an average weekend day.

3. The weekend day average traffic volume is now multiplied by the estimated recreation traffic volume on an average weekend day (.85). The result is the average total weekend day recreation traffic volume from the metropolitan area (64,541).

4. 26% of the volume is now subtracted from the volume of traffic. (This is the amount of traffic leaving Minnesota for recreation on an average weekend day as determined from the Highway Department O & D Study).

5. By multiplying the resulting two figures (16,780 trips leaving the state, and 47,761 trips to Minnesota points) by an average of 4 persons per car as indicated by camping surveys, the average number of metropolitan residents leaving the metropolitan area for a weekend recreation trip is obtained (67,120 to

points out-of-state, and 191,044 persons to Minnesota points); 258,164 persons total metro exodus.

2. Determine the amount of recreation activity occurring on an average weekend day, by the metropolitan residents, as compared with that occurring during the average week.

Procedure:

1. Multiply the average daily recreation trip exodus (18,578) times 5 — the number of days in the week, to get the total 5-day average (92,890 trips).

2. Multiply the average weekend day metropolitan recreation traffic exodus by 2 (the number of days in the weekend) — 129,082.

3. Find the per cent the average weekend is of the average week total. 92,890+129,082= 221,972 trips for average week:

$$\frac{.581}{129{,}082.00}$$

Divide 221,972 / 129,082.00 or, approximately 60% recreation trips occurring on an average weekend with approximately 30% of the total weekly recreation occurring on the average weekend day.

3. Determine the tourist volume on an average weekend day.

Information known:

A. Recreation traffic influx to Minnesota point per average day (7,246.34 trips).

B. Per cent average weekday recreation traffic is of total daily traffic (36.7%).

C. Per cent increase of traffic on weekend (150%).

D. Per cent average weekend recreation traffic is of total daily traffic (85%).

Formula:

$D\left(\frac{A}{B} \times C\right) - T$ (Tourist trip impact average weekend day)

$.85\left(\frac{7{,}246.34}{.367} \times 1.5\right) = T$

$.85\ (19{,}746 \times 1.5) = T$

$.85\ (29{,}618) = T$

$25{,}175 = T$

To convert to persons, multiply by 4—the average number persons per car trip.

25,175 x 4 = 100,700—tourists on average weekend day.

4. Distribution of metropolitan exodus and tourist influx by County and Region=Distribution by per cent according to origin and destination data.

Table 67

MINNESOTA—POPULATION BY AGE GROUPS AND NUMBER OF FAMILIES (IN THOUSANDS)

	1967			
	Total Population 000's	6-19 Years	20 Years and Over	Number of Families
Region 1—Northwest	92.9	28.35	50.85	26.64
Kittson	7.4	2.07	4.44	2.20
Mahnomen	6.3	1.89	3.40	1.61
Marshall	14.2	3.83	8.38	4.05
Pennington	11.9	3.09	7.02	3.58
Polk	35.6	9.26	21.00	10.34
Red Lake	6.3	1.83	3.47	1.68
Roseau	11.2	6.38	3.14	3.18
Region 2—North	62.3	18.83	35.42	18.06
Beltrami	23.0	7.82	12.88	6.57
Clearwater	8.1	2.19	4.78	2.38
Hubbard	9.8	2.65	5.88	3.01
Koochiching	17.9	5.19	9.85	5.05
Lake of the Woods	3.5	.98	2.03	1.05
Region 3—Northeast	297.3	76.25	176.13	91.25
Carlton	27.2	6.80	16.05	7.81
Cook	4.0	1.04	2.36	1.23
Itasca	34.6	9.69	19.38	9.94
Lake	12.4	3.97	6.94	3.62
St. Louis	219.0	54.75	131.40	60.65
Region 4—West	195.0	51.19	114.96	56.55
Becker	25.8	6.97	14.71	7.32
Big Stone	8.3	2.24	4.90	2.42
Clay	40.6	10.96	22.74	11.40
Douglas	21.9	5.69	13.14	6.57
Grant	9.0	2.25	5.49	2.67
Norman	11.3	2.83	7.01	3.45
Otter Tail	49.4	12.35	30.63	14.70
Stevens	11.5	3.22	6.59	3.15
Traverse	7.1	1.85	4.19	2.08
Wilkin	10.1	2.83	5.66	2.79
Region 5—No. Central	125.1	33.92	72.73	36.74
Aitkin	11.6	2.90	7.08	3.64
Cass	16.9	4.73	10.48	5.18
Crow Wing	33.1	8.61	19.53	10.15
Morrison	26.7	7.74	14.42	7.08
Todd	24.1	6.51	13.98	7.04
Wadena	12.7	3.43	7.24	3.65
Region 6—West Central	141.8	36.15	84.59	41.86
Chippewa	16.1	4.19	9.66	4.87
Kandiyohi	29.6	7.10	18.06	8.80
Lac qui Parle	12.9	3.23	7.87	3.83
Pope	11.9	3.09	7.14	3.54
Redwood	21.2	5.51	12.30	6.19
Renville	21.4	5.56	12.63	6.16
Swift	14.6	3.94	8.47	4.24
Yellow Medicine	14.1	3.53	8.46	4.23
Region 7—Central	245.9	67.56	140.32	68.02
Benton	19.2	5.38	10.37	4.98
Chisago	13.9	3.48	8.62	4.26
Isanti	15.2	4.10	9.27	4.64
Kanabec	9.2	2.48	5.52	2.71
Meeker	18.4	4.78	10.86	5.34
Mille Lacs	16.0	4.16	9.44	4.84
Pine	16.8	4.37	10.25	5.01
Sherburne	15.7	4.24	9.11	4.37
Stearns	88.3	25.61	47.68	22.52
Wright	33.2	8.96	19.20	9.35

Table 67—Continued

MINNESOTA—POPULATION BY AGE GROUPS AND NUMBER OF FAMILIES (IN THOUSANDS)

	1967			
	Total Population 000's	6-19 Years	20 Years and Over	Number of Families
Region 8—Southwest	147.7	39.62	85.57	42.99
Cottonwood	15.5	4.03	9.30	4.68
Jackson	13.3	3.46	7.85	3.95
Lincoln	10.1	2.63	6.06	3.03
Lyon	22.2	5.99	12.88	6.34
Martin	25.3	6.58	14.93	7.64
Murray	14.0	4.06	7.56	3.77
Nobles	23.7	6.40	13.51	6.73
Pipestone	13.2	3.56	7.66	3.92
Rock	10.4	2.91	5.82	2.93
Region 9—So. Central	254.2	65.48	151.63	75.18
Blue Earth	47.0	12.22	27.73	14.15
Brown	28.7	7.18	16.93	8.49
Faribault	21.9	5.69	12.92	6.53
Le Sueur	20.4	5.10	12.24	6.05
McLeod	26.2	6.55	15.98	7.77
Nicollet	23.9	5.98	14.58	6.73
Rice	41.0	11.48	24.19	12.31
Sibley	16.5	4.13	9.90	4.68
Waseca	15.4	3.85	9.24	4.56
Watonwan	13.2	3.30	7.92	3.91
Region 10—Southwest	324.5	83.45	191.35	96.03
Dodge	12.7	3.43	7.37	3.64
Fillmore	22.4	5.60	13.66	6.72
Freeborn	37.1	9.65	21.89	10.94
Goodhue	33.5	8.38	20.44	10.30
Houston	16.3	4.56	9.45	4.52
Mower	44.9	12.57	25.14	12.82
Olmsted	72.7	17.45	42.89	21.70
Steele	27.3	6.83	16.11	8.17
Wabasha	16.1	4.19	9.50	4.65
Winona	41.5	10.79	24.90	12.57
Region 11—Metropolitan	1,755.6	419.97	1,049.13	529.90
Anoka	132.9	34.55	67.78	33.48
Carver	26.0	6.76	15.08	7.14
Dakota	11.52	29.95	63.36	30.80
Hennepin	924.3	212.59	573.07	292.50
Ramsey	453.0	108.72	271.80	138.11
Scott	31.2	8.42	17.16	8.19
Washington	73.0	18.98	40.88	19.68
Minnesota	3,642.3	920.77	2,152.68	1,083.22

Table 68

PER CAPITA WEIGHTED ACTIVITY OCCASIONS—BY REGION[1]

Selected Recreational Activities

Region No.	1	2	3	4	5	6	7	8	9	10	11
Canoeing	.1	.9	1.0	.3	.2	.3	.8	.4	.5	.5	.8
Boating	8.4	11.3	12.2	9.8	8.3	5.8	9.0	3.8	6.8	9.9	7.5
Golf	5.5	2.9	3.6	3.9	8.3	3.9	5.8	4.6	3.3	3.4	2.3
Picnicking	12.6	7.6	10.4	13.1	9.6	8.6	13.2	10.8	9.8	15.7	12.7
Camping (including Tent and Trailer)	3.1	2.0	2.2	2.4	1.2	1.3	1.6	1.4	1.4	2.3	2.8
Swimming	14.3	16.2	18.1	18.1	18.3	17.1	16.8	14.5	10.7	18.3	16.8
Fishing (Warm Water)	4.4	6.1	6.1	7.9	8.6	7.9	7.7	4.9	6.8	5.2	8.1
Water Skiing	1.3	1.6	1.6	1.8	1.3	1.0	1.8	1.0	1.1	2.2	2.0
Big Game Hunting	.7	1.4	1.3	.7	.1	.1	1.0	.8	.5	.4	.4
Small Game Hunting	1.8	1.1	1.1	1.9	.9	1.2	1.3	1.0	1.6	2.1	.9
Waterfowl Hunting	1.1	.4	.3	1.5	.6	.3	.7	.5	1.0	.6	.6

[1]Average frequency of participation during a year by persons over age 6.

Table 69

1967 SUPPLY, DEMAND AND DEFICIENCY ON AN AVERAGE SUMMER SUNDAY FOR BOATING, CANOEING, FISHING, GOLF, PICNICKING, SWIMMING, AND WATER SKIING
(Demand, Supply and Deficiency or Surplus Measured in Terms of Facilities)
By Regions

	Region	Total Act. Occ. Average Sunday	Demand Average Sunday	Supply	Deficiency (−) or Surplus (+)
Boating			(Pking. Sps. or Marina Slips)	(Pking. Sps. or Marina Slips)	
North	1	12,372	2,413	917	1,496 (−)
	2	13,736	2,679	2,560	119 (−)
	3	62,702	12,227	5,498	6,729 (−)
	4	31,893	6,219	3,137	3,082 (−)
	5	36,762	7,169	5,320	1,849 (−)
South	6	12,788	1,893	1,882	11 (−)
	7	73,785	10,920	5,256	5,664 (−)
	8	9,921	1,468	992	476 (−)
	9	33,358	4,940	2,899	2,041 (−)
	10	45,548	6,741	5,201	1,540 (−)
Metro	11	41,901	9,204	7,339	1,865 (−)
Total		373,956	65,873	41,001	24,872 (−)
Swimming			(Sq. ft. Water)	(Sq. ft. Water)	
North	1	30,409	382,545	237,845	3.3 (−)
	2	16,794	211,286	3,966,459	86.2 (+)
	3	139,758	1,758,157	2,360,489	13.8 (+)
	4	88,285	1,106,255	1,487,646	8.8 (+)
	5	89,702	1,128,451	1,602,652	10.9 (+)
South	6	51,750	617,895	700,680	1.9 (+)
	7	168,078	2,006,851	1,026,862	22.5 (−)
	8	47,094	562,302	710,007	3.4 (+)
	9	77,955	930,783	558,410	8.5 (−)
	10	134,674	1,608,008	693,175	21.0 (−)
Metro	11	275,099	1,955,954	2,407,834	10.4 (+)
Total		1,119,598	12,268,478	15,752,059	80.0 (+)
Fishing			(Acres–Water)	(Acres–Water)	
North	1	3,889	8,750	52,870	44,120 (+)
	2	5,132	11,547	828,900	817,353 (+)
	3	21,634	48,677	524,900	476,223 (+)
	4	15,431	34,720	311,600	276,880 (+)
	5	19,554	43,997	404,000	360,003 (+)
South	6	1,961	20,612	59,000	38,388 (+)
	7	37,309	88,445	157,400	68,955 (+)
	8	6,713	15,104	57,900	42,796 (+)
	9	18,634	41,927	55,400	13,473 (+)
	10	16,865	37,946	154,240	116,294 (+)
Metro	11	20,454	46,022	72,200	26,178 (+)
Total		167,576	397,747	2,678,410	2,280,663 (+)
Canoeing			(Miles of Stream)	(Miles of Stream)	
North	1	320	80	171	91 (+)
	2	1,258	315	227	88 (−)
	3	5,982	1,496	1,453	43 (−)
	4	1,591	398	166	232 (−)
	5	2,371	593	382	211 (−)
South	6	932	117	123	6 (+)
	7	6,625	828	527	301 (−)
	8	1,098	137	100	37 (−)
	9	2,979	372	228	144 (−)
	10	3,222	403	391	12 (−)
Metro	11	6,352	400	306	94 (−)
Total		32,730	5,139	4,074	1,065 (−)
Water Skiing			(Acres–Water)	(Acres–Water)	
North	1	3,044	13,515	43,136	29,621 (+)
	2	3,705	16,450	741,289	724,839 (+)
	3	15,673	169,588	382,000	212,412 (+)
	4	10,148	45,057	237,215	192,158 (+)
	5	11,442	50,802	418,166	367,364 (+)

Table 69—Continued

1967 SUPPLY, DEMAND AND DEFICIENCY ON AN AVERAGE SUMMER SUNDAY FOR BOATING, CANOEING, FISHING, GOLF, PICNICKING, SWIMMING AND WATER SKIING
(Demand, Supply and Deficiency or Surplus Measured in Terms of Facilities)

By Regions

	Region	Total Act. Occ. Average Sunday	Demand Average Sunday	Supply	Deficiency (−) or Surplus (+)
Water Skiing			(Acres–Water)	(Acres–Water)	
South	6	3,916	17,387	42,230	24,843 (+)
	7	22,735	100,943	139,666	38,723 (+)
	8	3,826	16,987	13,831	3,156 (−)
	9	10,459	46,438	22,992	23,446 (−)
	10	17,189	76,319	105,507	29,188 (+)
Metro	11	15,245	66,773	103,000	36,227 (+)
Total		117,382	620,259	2,249,032	1,628,773 (+)
Picnicking			(Picnic Tables)	(Picnic Tables)	
North	1	17,359	2,882	1,039	1,843 (−)
	2	9,222	1,531	1,515	16 (−)
	3	51,523	8,553	2,673	5,880 (−)
	4	40,558	6,733	1,685	5,048 (−)
	5	28,476	4,727	1,505	3,222 (−)
South	6	17,771	2,950	2,593	357 (−)
	7	66,360	11,016	2,941	8,075 (−)
	8	22,817	3,788	1,296	2,492 (−)
	9	39,768	6,601	1,837	4,764 (−)
	10	72,175	11,981	2,965	9,016 (−)
Metro	11	212,887	26,611	4,149	22,462 (−)
Total		578,916	87,373	24,198	63,175 (−)
Golf			(Holes)	(Holes)	
North	1	5,595	175	140	35 (−)
	2	2,181	68	90	22 (−)
	3	12,155	380	252	128 (−)
	4	8,507	266	264	2 (−)
	5	8,056	252	306	54 (−)
South	6	5,755	180	115	65 (−)
	7	13,773	430	252	178 (−)
	8	7,006	219	126	93 (−)
	9	9,152	286	207	79 (−)
	10	9,495	297	333	36 (−)
Metro	11	31,082	777	1,089	312 (−)
Total		112,757	3,330	3,174	156 (−)

Table 70

1975 SUPPLY, DEMAND AND DEFICIENCY ON AN AVERAGE SUMMER SUNDAY FOR BOATING, CANOEING, FISHING, GOLF, PICNICKING, SWIMMING AND WATER SKIING
(Demand, Supply and Deficiency or Surplus Measured in Terms of Facilities)

By Regions

	Region	Total Act. Occ. Average Sunday	Demand Average Sunday	Supply	Deficiency (−) or Surplus (+)
Boating			(Pking. Sps. or Marina Slips)	(Pking. Sps. or Marina Slips)	
North	1	17,698	3,451	937	2,514 (−)
	2	20,011	3,902	2,759	1,143 (−)
	3	92,787	18,093	6,101	11,992 (−)
	4	46,783	9,123	3,189	5,934 (−)
	5	59,015	11,525	5,768	5,757 (−)
South	6	19,161	2,836	2,012	824 (−)
	7	125,005	18,501	5,411	13,090 (−)
	8	15,224	2,253	1,012	1,241 (−)
	9	51,690	7,650	3,018	4,632 (−)
	10	69,843	10,337	5,968	4,369 (−)
Metro	11	70,525	15,797	7,939	7,858 (−)
Total		587,742	103,468	44,114	59,354 (−)
Swimming			(Sq. ft. Water)	(Sq. ft. Water)	
North	1	43,158	542,928	254,245	6.6 (−)
	2	25,786	324,388	4,124,699	87.3 (+)
	3	204,404	2,571,402	2,973,949	9.2 (+)
	4	126,583	1,592,414	1,530,146	1.4 (−)
	5	138,347	1,740,405	1,884,092	3.3 (+)
South	6	74,524	889,817	1,038,930	3.4 (+)
	7	271,306	3,239,394	1,221,862	46.3 (−)
	8	68,306	815,573	729,676	2.0 (−)
	9	118,187	1,411,153	960,909	10.3 (−)
	10	202,395	2,416,596	842,275	36.1 (−)
Metro	11	477,162	338,785	3,678,458	76.7 (+)
Total		1,750,158	15,882,855	19,230,241	76.9 (+)
Fishing			(Acres–Water)	(Acres–Water)	
North	1	5,685	12,791	52,870	40,079 (+)
	2	7,735	17,404	828,900	811,496 (+)
	3	33,010	74,273	524,900	450,627 (+)
	4	22,854	51,422	311,600	260,178 (+)
	5	31,089	69,950	404,000	334,050 (+)
South	6	13,356	30,051	59,000	28,949 (+)
	7	59,488	133,848	157,400	23,552 (+)
	8	10,055	22,624	57,900	35,276 (+)
	9	28,558	64,256	55,400	8,856 (−)
	10	26,293	59,159	154,240	95,081 (+)
Metro	11	35,263	79,342	72,200	7,142 (−)
Total		273,386	615,120	2,678,410	2,063,290 (+)
Canoeing			(Miles of Stream)	(Miles of Stream)	
North	1	495	124	171	47 (+)
	2	1,813	453	227	226 (−)
	3	8,765	2,191	1,453	738 (−)
	4	2,443	611	166	445 (−)
	5	3,968	992	382	610 (−)
South	6	1,409	176	123	53 (−)
	7	10,829	1,354	527	827 (−)
	8	1,646	206	100	106 (−)
	9	4,575	572	228	344 (−)
	10	4,979	622	391	231 (−)
Metro	11	10,976	692	306	386 (−)
Total		51,898	7,993	4,074	3,919 (−)
Water Skiing			(Acres–Water)	(Acres–Water)	
North	1	4,420	19,360	43,136	23,776 (+)
	2	5,555	24,331	741,289	716,958 (+)
	3	23,817	104,318	382,000	277,682 (+)
	4	14,986	65,639	237,215	171,576 (+)
	5	18,705	81,928	418,166	336,238 (+)

Table 70—Continued

1975 SUPPLY, DEMAND AND DEFICIENCY ON AN AVERAGE SUMMER SUNDAY FOR BOATING, CANOEING, FISHING, GOLF, PICNICKING, SWIMMING AND WATER SKIING
(Demand, Supply and Deficiency or Surplus Measured in Terms of Facilities)

By Regions

	Region	Total Act. Occ. Average Sunday	Demand Average Sunday	Supply	Deficiency (−) or Surplus (+)
Water Skiing			(Acres–Water)	(Acres–Water)	
South	6	5,923	25,943	42,230	16,287 (+)
	7	37,850	165,783	139,666	26,117 (−)
	8	5,816	25,474	13,831	11,643 (−)
	9	16,386	71,770	22,992	48,778 (−)
	10	26,256	115,001	105,507	9,494 (−)
Metro	11	26,250	114,975	103,000	11,975 (−)
Total		185,964	814,522	2,249,032	1,434,510 (+)
Picnicking			(Picnic Tables)	(Picnic Tables)	
North	1	24,269	4,029	1,141	2,888 (−)
	2	13,122	2,178	1,651	527 (−)
	3	74,214	12,320	2,799	9,521 (−)
	4	57,072	9,474	1,776	7,698 (−)
	5	43,079	7,151	1,647	5,504 (−)
South	6	25,337	4,206	2,777	1,429 (−)
	7	103,589	17,196	3,012	14,184 (−)
	8	32,579	5,408	1,401	4,007 (−)
	9	57,924	9,615	2,160	7,455 (−)
	10	107,172	17,791	3,448	14,343 (−)
Metro	11	370,216	46,277	5,897	40,380 (−)
Total		908,573	135,645	27,709	107,936 (−)
Golf			(Holes)	(Holes)	
North	1	7,744	242	140	102 (−)
	2	2,945	92	90	2 (−)
	3	16,900	528	252	276 (−)
	4	11,750	367	273	94 (−)
	5	11,252	352	324	28 (−)
South	6	8,062	252	133	119 (−)
	7	20,586	643	297	346 (−)
	8	9,837	307	126	181 (−)
	9	12,938	404	216	188 (−)
	10	14,022	438	360	78 (−)
Metro	11	55,082	1,377	1,098	279 (−)
Total		171,118	5,002	3,309	1,693 (−)

Table 71

1980 SUPPLY, DEMAND AND DEFICIENCY ON AN AVERAGE SUMMER SUNDAY FOR BOATING, CANOEING, FISHING, GOLF, PICNICKING, SWIMMING AND WATER SKIING
(Demand, Supply and Deficiency or Surplus in Terms of Facilities)
By Regions

Region		Total Act. Occ. Average Sunday	Demand Average Sunday	Supply	Deficiency (−) or Surplus (+)	1980 Adjusted Deficiency (−) or Surplus (+)
Boating			(Pking. Spc. or) (Marina Slips)	(Pking. Spc. or) (Marina Slips)		
North	1	20,328	3,964	937	3,027 (−)	700 (−)
	2	23,424	4,568	2,759	1,809 (−)	1,800 (−)
	3	109,607	21,372	6,101	15,271 (−)	5,000 (−)
	4	54,957	10,717	3,189	7,528 (−)	3,100 (−)
	5	72,872	14,210	5,768	8,442 (−)	5,000 (−)
South	6	22,433	3,322	2,012	1,310 (−)	1,150 (−)
	7	156,069	23,098	5,411	17,687 (−)	6,500 (−)
	8	18,329	2,713	1,012	1,701 (−)	1,700 (−)
	9	63,678	9,421	3,018	6,403 (−)	2,400 (−)
	10	84,333	12,481	5,968	6,513 (−)	6,000 (−)
Metro	11	89,574	20,061	7,939	12,122 (−)	6,000 (−)
Total		715,604	125,927	44,114	81,813 (−)	339,350 (−)
Swimming			(Sq. ft. Water)	(Sq. ft. Water)		
North	1	49,771	626,119	254,245	371,874 (−)	371,874 (−)
	2	31,066	390,810	4,124,699	3,733,889 (+)	3,733,889 (+)
	3	239,835	3,017,124	2,973,949	43,175 (−)	522,720 (−)
	4	156,740	1,971,789	1,530,146	441,643 (−)	441,643 (−)
	5	166,822	2,098,621	1,844,092	254,529 (−)	254,529 (−)
South	6	86,704	1,035,246	1,038,930	3,684 (+)	3,684 (+)
	7	355,271	4,241,936	1,221,862	3,020,074 (−)	3,020,074 (−)
	8	79,701	951,630	729,676	221,954 (−)	221,954 (−)
	9	178,570	2,132,126	960,909	1,171,217 (−)	1,171,217 (−)
	10	242,824	2,899,319	842,275	2,057,044 (−)	2,057,044 (−)
Metro	11	609,768	4,329,353	3,678,458	650,895 (−)	250,895 (−)
Total		2,197,072	23,694,073	19,199,241	14,494,832 (−)	4,386,107 (−)
Fishing			(Acres)	(Acres)		
North	1	6,669	15,005	52,870	37,865 (+)	No
	2	9,230	20,768	828,900	808,132 (+)	Adjustment
	3	39,654	89,222	524,900	435,678 (+)	Necessary
	4	26,843	60,397	311,600	251,203 (+)	"
	5	38,102	85,730	404,000	318,270 (+)	"
South	6	15,701	35,327	59,000	23,673 (+)	"
	7	74,524	167,679	157,400	10,279 (−)	"
	8	11,950	26,888	57,900	31,012 (+)	"
	9	35,040	78,840	55,400	23,440 (−)	"
	10	32,009	72,020	154,240	82,220 (+)	"
Metro	11	44,788	100,773	72,200	28,573 (−)	"
Total		334,510	752,649	2,678,410	1,925,761 (+)	
Canoeing			(Miles of Stream)	(Miles of Stream)		
North	1	599	150	171	21 (+)	No
	2	2,110	528	227	301 (−)	Adjustment
	3	8,496	2,124	1,453	671 (−)	Necessary
	4	2,943	736	166	570 (−)	"
	5	4,991	1,248	382	866 (−)	"
South	6	1,685	211	123	88 (−)	"
	7	13,470	1,684	527	1,157 (−)	"
	8	1,957	245	100	145 (−)	"
	9	5,618	702	228	474 (−)	"
	10	6,036	755	391	364 (−)	"
Metro	11	13,997	875	306	569 (−)	"
Total		61,902	9,258	4,074	5,184 (−)	

Table 71—Continued

1980 SUPPLY, DEMAND AND DEFICIENCY ON AN AVERAGE SUMMER SUNDAY FOR BOATING, CANOEING, FISHING, GOLF, PICNICKING, SWIMMING AND WATER SKIING
(Demand, Supply and Deficiency or Surplus in Terms of Facilities)

By Regions

	Region	Total Act. Occ. Average Sunday	Demand Average Sunday	Supply	Deficiency (−) or Surplus (+)	1980 Adjusted Deficiency (−) or Surplus (+)
Water Skiing			(Acres—Water)	(Acres—Water)		
North	1	5,165	22,623	43,136	20,513 (+)	No
	2	6,609	28,947	741,289	712,342 (+)	Adjustment
	3	28,547	125,036	382,000	256,964 (+)	Necessary
	4	17,670	77,394	237,215	159,821 (+)	"
	5	23,206	101,642	418,166	316,524 (+)	"
South	6	7,084	31,028	42,230	11,202 (+)	"
	7	47,717	209,000	139,666	69,334 (−)	"
	8	6,969	30,524	13,831	16,693 (−)	"
	9	20,267	88,770	22,992	65,778 (−)	"
	10	31,643	138,596	105,507	33,089 (−)	"
Metro	11	41,578	182,112	103,000	79,112 (−)	"
Total		236,855	1,035,672	2,249,032	1,213,360 (+)	
Picnicking			(Picnic Tables)	(Picnic Tables)		
North	1	27,786	4,612	1,141	3,471 (−)	3,500 (−)
	2	15,142	2,514	1,651	863 (−)	900 (−)
	3	86,303	14,326	2,799	11,527 (−)	11,500 (−)
	4	65,408	10,858	1,776	9,182 (−)	5,000 (−)
	5	51,387	8,530	1,647	6,883 (−)	1,500 (−)
South	6	29,465	4,891	2,777	2,114 (−)	2,100 (−)
	7	125,841	20,889	3,012	17,877 (−)	18,000 (−)
	8	37,660	6,252	1,401	4,851 (−)	1,700 (−)
	9	69,676	11,566	2,160	9,406 (−)	1,400 (−)
	10	127,245	21,123	3,448	17,675 (−)	8,800 (−)
Metro	11	473,808	59,226	5,897	53,329 (−)	26,500 (−)
Total		1,109,721	164,787	27,709	137,078 (−)	80,900 (−)
Golf			(Holes)	(Holes)		
North	1	8,799	275	140	135 (−)	No
	2	3,291	103	90	13 (−)	Adjustment
	3	19,460	608	252	356 (−)	Necessary
	4	13,316	416	273	143 (−)	"
	5	12,792	400	324	76 (−)	"
South	6	9,228	288	133	155 (−)	"
	7	24,413	763	297	466 (−)	"
	8	11,262	352	126	226 (−)	"
	9	15,379	481	216	265 (−)	"
	10	16,599	519	360	159 (−)	"
Metro	11	69,239	1,731	1,098	633 (−)	"
Total		203,778	5,936	3,309	2,627 (−)	

Table 72

1985 SUPPLY, DEMAND AND DEFICIENCY ON AN AVERAGE SUMMER SUNDAY FOR BOATING, CANOEING, FISHING, GOLF, PICNICKING, SWIMMING AND WATER SKIING

(Demand, Supply, Deficiency or Surplus in Terms of Facilities)

By Regions

Region		Total Act. Occ. Average Sunday	Demand Average Sunday	Supply	Deficiency (−) or Surplus (+)
Boating			(Pking. Sps. or Marina Slips)	(Pking. Sps. or Marina Slips)	
North	1	19,709	3,843	937	2,906 (−)
	2	27,822	5,425	2,759	2,666 (−)
	3	157,995	30,809	6,101	24,708 (−)
	4	70,080	13,666	3,189	10,477 (−)
	5	88,105	17,180	5,768	11,412 (−)
South	6	25,818	3,821	2,012	1,809 (−)
	7	191,857	28,395	5,411	22,984 (−)
	8	21,934	3,246	1,012	2,234 (−)
	9	80,402	11,899	3,018	8,881 (−)
	10	106,862	15,816	5,968	9,848 (−)
Metro	11	113,602	25,447	7,939	17,508 (−)
Total		904,186	159,547	44,114	115,433 (−)
Swimming			(Sq. ft. Water)	(Sq. ft. Water)	
North	1	46,032	579,082	254,245	324,837 (−)
	2	35,197	442,778	4,124,699	3,681,921 (+)
	3	299,326	3,765,521	2,973,949	791,572 (−)
	4	161,027	2,025,720	1,530,146	495,574 (−)
	5	194,260	2,443,791	1,844,092	599,699 (−)
South	6	93,154	1,112,259	1,038,930	73,329 (−)
	7	403,000	4,811,820	1,221,862	3,589,958 (−)
	8	493,133	5,888,008	729,676	5,158,332 (−)
	9	177,405	2,118,216	960,909	1,157,307 (−)
	10	303,000	3,617,820	842,275	2,775,545 (−)
Metro	11	782,176	5,553,450	3,678,458	1,874,992 (−)
Total		2,987,710	32,358,465	19,199,241	13,159,224 (−)
Fishing			(Acres)	(Acres)	
North	1	6,596	14,841	52,870	38,029 (+)
	2	11,071	24,910	828,900	803,990 (+)
	3	55,869	125,705	524,900	399,195 (+)
	4	30,695	69,064	311,600	242,536 (+)
	5	45,806	103,064	404,000	300,936 (+)
South	6	17,365	39,071	59,000	19,929 (+)
	7	92,180	207,405	157,400	50,005 (−)
	8	14,070	31,658	57,900	26,242 (+)
	9	43,542	97,970	55,400	42,570 (−)
	10	40,623	91,402	154,240	62,838 (+)
Metro	11	56,949	128,135	72,200	55,935 (−)
Total		414,766	933,225	2,678,410	1,745,185 (+)
Canoeing			(Miles of Stream)	(Miles of Stream)	
North	1	665	166	171	5 (+)
	2	3,155	789	227	562 (−)
	3	14,951	3,738	1,453	2,285 (−)
	4	3,487	872	166	706 (−)
	5	6,253	1,563	382	1,181 (−)
South	6	1,926	241	123	118 (−)
	7	16,441	2,055	527	1,528 (−)
	8	2,305	288	100	188 (−)
	9	6,985	873	228	645 (−)
	10	7,650	956	391	565 (−)
Metro	11	17,901	1,127	306	821 (−)
Total		81,719	12,668	4,074	8,594 (−)

Table 72—Continued

1985 SUPPLY, DEMAND AND DEFICIENCY ON AN AVERAGE SUMMER SUNDAY FOR BOATING, CANOEING, FISHING, GOLF, PICNICKING, SWIMMING AND WATER SKIING
(Demand, Supply, Deficiency or Surplus in Terms of Facilities)

By Regions

Region		Total Act. Occ. Average Sunday	Demand Average Sunday	Supply	Deficiency (−) or Surplus (+)
Water Skiing			(Acres—Water)	(Acres—Water)	
North	1	5,121	22,430	43,136	20,706 (+)
	2	7,791	34,913	741,289	706,376 (+)
	3	40,341	176,694	382,000	205,306 (+)
	4	20,285	88,848	237,215	148,367 (+)
	5	28,606	125,294	418,166	292,872 (+)
South	6	45,542	45,542	42,230	3,312 (−)
	7	59,697	261,473	139,666	121,807 (−)
	8	8,290	36,310	13,831	22,479 (−)
	9	25,362	111,086	22,992	88,094 (−)
	10	40,079	175,546	105,507	70,039 (−)
Metro	11	42,355	185,515	103,000	82,515 (−)
Total		323,649	1,263,651	2,249,032	985,381 (+)
Picnicking			(Picnic Tables)	(Picnic Tables)	
North	1	24,653	4,092	1,141	2,951 (−)
	2	13,164	2,185	1,651	534 (−)
	3	125,536	20,839	2,799	18,040 (−)
	4	69,378	11,517	1,776	9,741 (−)
	5	58,273	9,673	1,647	8,026 (−)
South	6	31,068	5,157	2,777	2,380 (−)
	7	145,701	24,186	3,012	21,174 (−)
	8	41,563	6,899	1,401	5,498 (−)
	9	83,988	13,942	2,160	11,782 (−)
	10	157,368	26,123	3,448	22,675 (−)
Metro	11	615,624	76,953	5,897	71,056 (−)
Total		1,366,316	201,566	27,709	173,857 (−)
Golf			(Holes)	(Holes)	
North	1	7,845	245	140	105 (−)
	2	3,723	116	90	26 (−)
	3	29,272	915	252	663 (−)
	4	14,346	448	273	175 (−)
	5	13,426	420	324	96 (−)
South	6	9,660	302	133	169 (−)
	7	27,110	847	297	550 (−)
	8	12,614	395	126	269 (−)
	9	18,572	580	216	364 (−)
	10	20,913	654	360	294 (−)
Metro	11	89,046	2,226	1,098	1,128 (−)
Total		246,527	7,148	3,309	3,839 (−)

Table 73

1967 CAMPING DEMAND INDICATING NEEDS—BY REGION

Unadjusted

Region	1	2	3	4	5	6	7	8	9	10	11	Total
Metro												
Distribution Factor	.012	.033	.123	.059	.170	.027	.362	.027	.107	.080	—	1.00%
People	344	945	3,525	1,691	4,871	774	10,373	774	3,066	2,292	—	28,655
Tourist												
Distribution Factor	.026	.018	.041	.077	.024	.019	.035	.038	.034	.098	.059	1.00%
People	380	263	599	1,124	350	277	511	555	497	1,431	8,616	14,603
Regional												
Factor .0195 1967 Population	79,200	54,250	252,380	166,250	106,650	120,740	207,880	125,190	217,110	274,800	3,387	2,815,386
Regional Campers	1,544	1,058	4,921	3,242	2,080	2,354	4,053	2,441	4,234	5,359	589	31,875
Total Campers	2,268	2,268	9,045	6,057	7,301	3,405	14,937	3,770	7,797	9,082	9,205	75,133
Average Sunday Demand, No. Sites*	567	566	2,261	1,514	1,825	851	3,759	942	1,949	2,270	2,301	18,783
Site Supply	567	2,357	4,828	2,564	2,732	808	3,435	587	689	1,689	275	20,531
Surplus (+) Deficiency (−)	0	+1,791	+2,567	+1,050	+907	−57	−324	−355	−1,260	−581	−2,026	+1,748
Acres**	0	+299	+429	+175	+151	−10	−54	−59	−210	−97	−338	+292

*Total Campers ÷ 4. **6 Sites per acre.

Table 74

1975 CAMPING DEMAND INDICATING NEEDS—BY REGION

Unadjusted

Region	1	2	3	4	5	6	7	8	9	10	11	Total
Metro												
Distribution Factor	.012	.033	.123	.059	.170	.027	.362	.027	.107	.080	—	1.00%
Metro Campers	549	1,511	5,632	2,702	7,784	1,236	16,576	1,236	4,900	3,663	—	45,791
Tourist												
Distribution Factor	.026	.018	.041	.077	.024	.019	.035	.038	.034	.098	.590	1.00%
Tourist Campers	607	420	957	1,797	560	443	817	887	794	2,287	13,768	23,336
Regional												
Factor	1.382	1.319	1.384	1.373	1.472	1.330	1.421	1.39	1.443	1.598	—	—
1967 Population	1,544	1,058	4,921	3,242	2,080	2,354	4,053	2,441	4,234	5,359	589	—
Regional Campers	2,134	1,396	6,811	4,451	3,062	3,131	5,759	3,393	5,589	7,733	941	44,400
Total Campers	3,290	3,327	13,400	8,950	11,406	4,810	23,152	5,516	11,283	13,683	14,709	113,526
Average Sunday Demand No. Sites*	823	832	3,350	2,238	2,852	1,203	5,788	1,379	2,821	3,421	3,677	28,382
Site Supply	666	2,443	5,592	2,599	2,935	984	3,526	779	841	2,501	498	23,364
Surplus (+) Deficiency (−)	−157	+1,611	+2,242	+361	+83	−219	−2,262	−600	−1,980	−920	−3,179	−5,020
Acres**	−26.2	+269	+374.4	+60.3	+13.9	−37.	−377.7	−100.2	−330	−154	−531	−838.3

*Total Campers ÷ 4. 6 Sites per acre.

Table 75

1980 CAMPING DEMAND

INDICATING
NEEDS—BY REGION

Unadjusted

Region	1	2	3	4	5	6	7	8	9	10	11	Total
Metro												
Distribution Factor	.012	.033	.123	.059	.170	.027	.362	.027	.107	.080	—	1.00%
Metro Campers	669	1,840	5,859	3,290	9,480	1,506	20,186	1,506	5,967	4,461	—	55,763
Tourist												
Distribution Factor	.026	.018	.041	.077	.024	.019	.035	.038	.034	.098	.590	1.00%
Tourist Camper	739	512	1,165	2,188	682	540	995	1,080	966	2,785	16,766	28,417
Regional												
Factor 1967 Corp.	1.576	1.5	1.574	1.556	1.544	1.520	1.655	1.590	1.624	1.675	1.946	—
Population	1,544	1,058	4,921	3,242	2,080	2,354	4,053	2,441	4,234	5,359	589	—
Regional Campers	2,433	1,587	7,746	5,045	3,212	3,578	6,708	3,881	6,876	8,976	1,146	51,188
Total Campers	3,841	3,939	15,770	10,523	13,374	5,624	27,889	6,467	13,809	16,222	17,912	135,370
Av. Sunday Demand No. Sites*	960	985	3,943	2,631	3,344	1,406	6,972	1,617	3,452	4,056	4,478	33,844
Site Supply	666	2,443	5,592	2,599	2,935	984	3,526	779	841	2,501	498	23,364
Surplus (+) Deficit (−)	−294	+1,458	+1,649	−32	−409	−422	−3,446	−838	−2,611	−1,555	−3,980	−10,480
Acres**	−49	+243	+275	−5	−60	−70	−575	−140	−436	−260	−664	−1,750
Adjusted Site Deficiency	−294	+840	−240	−690	−1,110	−420	−3,120	−840	−510	−1,550	−3,180	−11,114

*Total Campers ÷ 4. **6 Sites Per Acre.

Table 76

1985 CAMPING DEMAND

INDICATING
NEEDS—BY REGION

Unadjusted

Region	1	2	3	4	5	6	7	8	9	10	11	Total
Metro												
Distribution Factor	.012	.033	.123	.059	.170	.027	.362	.027	.107	.080	—	1.00%
Metro Campers	804	2,218	8,244	3,954	11,394	1,810	24,263	1,810	7,172	5,362	—	67,031
Tourist												
Distribution Factor	.026	.018	.041	.077	.024	.019	.035	.038	.034	.098	.590	1.00%
Tourist Campers	888	615	1,400	2,630	820	649	1,195	1,298	1,161	3,347	20,152	34,155
Regional												
Factor	1.536	1.665	2.106	1.648	1.612	1.688	1.781	1.761	1.873	1.989	2.339	—
1967 Population	1,544	1,058	4,921	3,242	2,080	2,354	4,053	2,441	4,234	5,359	589	—
Regional Campers	2,372	1,762	10,364	10,511	3,353	3,974	7,218	4,299	7,930	10,659	1,378	63,820
Total Campers	4,064	4,595	20,008	17,095	15,567	6,433	32,676	7,407	16,263	19,368	21,530	165,008
Av. Sunday Demand No. Sites*	1,016	1,149	5,002	4,274	3,892	1,608	8,169	1,852	4,065	4,842	5,383	41,252
Site Supply	666	2,443	5,592	2,599	2,935	984	3,526	779	841	2,501	498	23,364
Surplus (+) Deficit (−)	−350	+1,294	+590	−1,675	−957	−624	−4,643	−1,073	−3,224	−2,341	−4,885	−17,888
Acres**	−58.5	+216.1	+98.5	−279.7	−159.8	−104.2	−775.3	−179.1	−538.4	−390.9	−815.7	−2,987.2

*Total Campers ÷ 4. **6 Sites Per Acre.

MINNESOTA OUTDOOR RECREATION PLAN - 1968

ADDENDUM NO. 1

Page 37 - State total acres '68* should read 144,827.82 instead of 104,197.82.

Page 63 - Acreage of 2.6 million should read 3.0 and five per cent should read six per cent.

[redacted]

Page 172 - Table 66 Summary: Acquisition and Development Priority 1970-75 - Region 11.

State Parks - Existing parks should read 1,025 instead of 625 and New Parks 1,900 instead of 1,500.

Waysides should read 50 instead of 25 in Facility Needs column, 50 instead of 25 in Acquisition column and 25 instead of 12 in Development column.

Total Facility Needs should read 5,890 instead of 5,065, 32,589 instead of 32,564 and 2,976 instead of 2,963.

BOP
9/3/69