minnesota department of natural resources



master plan for the tower to international falls trail

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FOREWORD

The Department of Natural Resources wishes to express its gratitude to those citizens and public servants who have contributed to the development of this management plan for the International Falls to Tower Trail. It is hoped that these people will continue to support this project to insure that the trail is developed into a first rate recreation facility for all Minnesotans to enjoy.

PURPOSE AND SCOPE OF THE PLAN

This master plan is written to provide a procedural outline for administration, management, development and maintenance of the International Falls to Tower segment of the Arrowhead Region Trails System. The purpose of the master plan is to implement the specific and general mandates of the legislature, cooperative agreements with the U.S. Forest Service, DNR - Division of Forestry, County Land Commissioners and other public and private agencies affecting management of the area, along with policies and objectives for state recreational trails.

This master plan is also written to inform the general public, state and local authorities, and trail user groups about the management of the trail. The master plan includes a description of the regional setting of the International Falls to Tower Trail, the trail itself and its immediate environment. Furthermore, it addresses user demand, lists goals and objectives, and lays out the plan of action for development, maintenance, resource management, and interpretation. The master plan also includes an environmental assessment of the proposed action and how it will effect the environment. (See Appendix 5)

The master plan is intended to be flexible to allow for unforeseen changes in the social and natural environment. Should these conditions change in the future, another planning effort should be made to update and amend this plan taking into account these changes. Periodic research and re-evaluation of the master plan concepts should be undertaken to insure that the trail will continue to fulfill public and natural resource needs.

LEGISLATIVE HISTORY

The formal beginnings of Minnesota's Trail System came about in 1967, when the legislature required snowmobiles to be registered. Funds from these fees were appropriated to the Department of Natural Resources to promote, develop, manage and maintain recreational facilities for snowmobile users.

Until the first State Recreational Trail was authorized in 1969, state trails were developed only in state parks and state forests. In 1969, the legislature authorized the DNR to establish, develop, maintain and operate recreational areas including the Minnesota Valley Trail (MSA 1969, 85.015, Subd. 1). Since that time, twelve additional trails have been authorized (see Table 1, page 3).

During the 1973 session, the legislature provided the means for a statewise recreational trail system through passage of trail legislation, appropriation of trail development and maintenance funds, and authorization of a temporary DNR trail staff.

In 1975, the Minnesota Legislature passed the Outdoor Recreation Act (ORA). This act established an outdoor recreation system, classified units and specified the purpose and administrative authority for each unit. State Trails are included as one of the 11 units identified by the ORA.

The act specifies that "No construction of new facilities or other development of an authorized unit (State Trail), other than repairs and maintenance, shall commence until the managing agency has prepared and submitted to the State Planning Agency and the State Planning Agency has reviewed pursuant to this section" (See Appendix 1 for ORA trail related sections).

TABLE 1

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STATE TRAILS

Trail	Authorization	Authorized <u>Mileage</u>
Taconite	1974	165
North Shore	1975	192
Grand Marais to International Falls	1975	220
Casey Jones	1971	37
Countryview	1971	22
Douglas	1971	12
Glacial Lakes	1971	100
Heartland	1974	48
Luce Line	1973	104
Minnesota Valley	1969	72
Minnesota-Wisconsin Boundary	1973	210
Root River	1971	50
Sakatah Singing Hills	1971	42
TOTAL		1,274



SUMMARY

REGIONAL PERSPECTIVE

The International Falls to Tower Trail is an 85 mile trail which will be located in northwestern St. Louis County and eastern Koochiching County. The trail travels through a variety of terrain and vegetation and along many small lakes, rivers and streams.

Northeastern Minnesota, often referred to as the Arrowhead region, contains a variety of natural resources. Iron mines, extensive forests and the many lakes have long attracted tourists from Minnesota and the U.S.

The area has extensive amounts of land in public ownership, national forests, a national park, a national monument, state forests, state parks, wildlife management areas, state trails and tax-forfeited property.

Bounded on the north by the Province of Ontario, Canada and the east by Lake Superior, the Arrowhead region ranks first in the state in water and forest acreage. Because of the rocky soil, mining and forestry are the area's main source of income.

Opportunities for providing recreational facilities abound in this region. Recognizing this fact the legislature has authorized three state trails in this region: 1) the Taconite Trail, from Ely to Grand Rapids, 2) the North Shore Trail from Duluth to the Canadian Border, and 3) the Grand Marais to International Falls Trail.

Completion of these trails will allow visitors to view and enjoy northeastern Minnesota.

LEGISLATIVE AUTHORITY

The International Falls to Grand Marais Trail is part of the Arrowhead Region Trails system authorized by the Legislature in 1975 (MS 1975, 85.015).

(NOTE: Due to its length, the trail has been divided into two segments for planning purposes; International Falls to Tower and Ely to Grand Marais.)

Subd. 13. Arrowhead Region Trails, in Cook, Lake, St. Louis, Koochiching and Itasca counties.

(3) The Grand Marais to International Falls Trail shall originate in Grand Marais in Cook County and extend northwesterly, outside of the Boundary Waters Canoe Area, to Ely in St. Louis County, thence southwesterly along the route of the Taconite Trail to Tower in St. Louis County, thence northwesterly through the Pelican Lake area in St. Louis County to International Falls in Koochiching County, and there terminate.

(b) The trail shall be developed primarily for riding and hiking.

(c) In addition to the authority granted in subdivision 1, lands and interests in land for the Arrowhead Region Trails may be acquired by eminent domain. Before acquiring any land or interest in land by eminent domain, the commissioner of administration shall obtain the approval of the governor. The governor shall consult with the legislative advisory committee before granting his approval. Recommendations of the legislative advisory committee shall be advisory only. Failure or refusal of the Committee to make a recommendation shall be deemed a negative recommendation.

Sec. 2. This act is effective the day after final enactment.

LEGISLATIVE CLASSIFICATION

To be included as a unit of the Outdoor Recreation system, a State Trail must meet the criteria established for state trails in the Outdoor Recreation Act (M.S. 1975, Chapter 353, Section 86A.05). (see appendix 1). The extent to which the Tower to International Falls Trail fulfills the criteria for classification as defined by the Outdoor Recreation Act (ORA) is summarized below.

ORA Criteria

- 1) "Permits travel in an appropriate manner along a route which provides at least one of the following recreational opportunities:
 - i "travels along a route which connects areas or points of natural, scientific, cultural and historic interest;"

The Tower to International Falls Trail is located in two very diverse landscape regions: the Border Lakes Region known for its lakes, ridges and bedrock areas, caused by glacial erosion, and the Agassiz Lowlands, an area of little relief and extensive lowlands caused by glacial deposition. Users of the Tower to International Falls Trail will be able to experience this natural diversity firsthand. While traveling from Tower to International Falls, trail users will be able to view the lowlands near Tower, the rock ridge topography near Orr and the Ash River and once again the flat lowland topography near International Falls. This natural diversity, when experienced and interpreted, will help users to better understand the natural forces which shaped this area of the state.

Culturally and historically, the trail area is important because it is: located near one of the major fur trading areas of the last century, connects to the areas where iron ore was first discovered and mined, and because it travels through an area of significant logging. Scientifically, the trail is significant because it may connect to Voyageurs National Park which is one of the best preserved areas of the state.

ii "travels through an area which possesses outstanding scenic beauty."

The diversity in vegetation and relief and the wildness of many areas through which the trail passes will provide the trail user an opportunity to view areas of scenic beauty unique to this part of the state. The seemingly endless sedgemats and broken stands of black spruce, tamarack, and white cedar of the Agassiz lowlands present a contrast to the pine covered ridges, rock outcroppings and lakes which make the Border Lakes Region one of the most scenic areas in the state.

iv "travels along a route which is historically significant as a route of migration, commerce or communication."

The Tower to International Falls Trail crosses the Pike River, parallels the Vermilion River and may connect to Voyageurs National Park. These rivers and the lakes of Voyageurs National Park were once traveled by early explorers and fur traders.

> v "travel between units of the outdoor recreation system or national trail system."

The Tower to International Falls Trail will connect to two state parks, Tower Soudan and Bearhead Lake; two state trails, the Taconite and Northshore; Kabetogama State Forest trails; and in the future, Voyageurs National Park.

2) "Utilizes to the greatest extent possible public lands."

The land ownership patterns shown on Plates 1 through 9 show that over 90 percent of the Tower to International Falls Trail has been routed on available public lands.

3) "Provides maximum potential for the appreciation, conservation and enjoyment of significant scenic, historical, natural or cultural qualities of the areas through which the trail may pass."

The scenic, historical, natural and cultural qualities of the trail area mentioned earlier and in the Description of the Environment section of this plan will be interpreted so that trail users will be better able to appreciate and enjoy the trail and the area. Management and development practices utilized in implementing this plan will insure that the areas and resources are conserved for future enjoyment.

4) "Takes into consideration predicted public demand and future use."

As outlined in the user demand and projected use sections of this plan, the Tower to International Falls Trail is being developed primarily for snowmobile use because of current public demand. The plan, however, does allow for upgrading for other uses in the future, should demand for hiking, horseback riding and ski touring along the entire trail increase in the future. SCORP surveys and trail user studies will be used to determine future increases in demand for these activities.

GOAL AND MAJOR OBJECTIVES

The goal of the DNR for the International Falls to Tower Trail is: To provide Minnesotans with a recreational travel route which will allow them to enjoy, appreciate, and better understand the natural, cultural and historic resources of the border lakes region. To help implement this goal, the following major objectives have been identified:

- 1. To complete a segment of the statewide recreational trail system.
- 2. To provide a vital link to the Arrowhead Region's Trail System as authorized by the legislature.
- 3. To provide a recreational trail that is flexible and responsive to user demand.
- 4. To provide access to other trails and recreation areas within the region.
- 5. To encourage local units of government and private interests to provide connecting trails to points of interest and service facilities.
- 6. To contribute to the local recreation-based economy.
- 7. To establish and maintain trail waysides where existing facilities cannot meet user needs.
- 8. To provide a recreation facility that promotes user enjoyment and safety through proper signing and management techniques.
- 9. To coordinate on-going development and maintenance operations with various governmental agencies, private concerns and interested user groups.
- 10. To interpret natural and historic features in the area for user enjoyment.
- 11. To involve interested members of user groups in the on-theground layout of the trail to insure that the trail is responsive to their needs.

NATURAL RESOURCE MANAGEMENT

The management of lands adjacent to the trail will be supervised by the U.S. Forest Service on federal lands, the DNR Division of Forestry on state owned lands, and by the county land commissioner on county lands. National, state and county forest lands are managed to provide resource use and enjoyment for the greatest number of people. This multiple use policy considers watershed, wildlife, wood resource and outdoor recreation uses when making a land management decision.

RECREATION MANAGEMENT

The DNR recommends:

- that a continuous snowmobile trail right-of-way be established from Tower to International Falls that will link existing state forest and grants-in-aid snowmobile trails.
- that development follow the specifications and alignment outlined in this plan.

- that the trail be linked to service areas and towns to insure user safety and enjoyment.
- that only designated sections of the trail be suitable for hiking and horseback riding.
- that construction of an additional treadway for ski touring not be considered unless user preference for skiing changes from loop trail systems to linear trail systems.
- that a spur trail be developed to Voyageurs National Park should an on-land snowmobile route become a reality in the future.
- that additional loop trail systems rather than a linear trail for ski tourers, horseback riders, and hikers be developed in state forests in the area when a need is expressed by these users.



description of the environment

DESCRIPTION OF THE ENVIRONMENT

NATURAL RESOURCES

Location

The International Falls to Tower Trail is located in Northern Minnesota along the western edge of the Border Lakes Region. From its start west of Tower to International Falls (approximately 85 miles), the trail passes through a remote forested landscape typical of the Border Lakes Region.

Trunk highways 53, 65, 73 and 169 are the major north-south highways serving the area. Trunk highways 1 and 11 provide east-west access and intersect most north-south highways in northern Minnesota (see Figure 1).

Population centers nearest to the trail include Tower, Cook, Orr and International Falls. South of the trail area is Minnesota's Iron Range with all its historical and recreational aspects.

The nearest major metropolitan area to the trail is Duluth-Superior, 86 miles southeast of Tower, 163 miles southeast of International Falls. Estimated driving time from Duluth to Tower is about two hours, to International Falls about four hours. The Duluth-Superior area had a 1970 census population of 265,350 people and may be a major visitor market for the trail.

The Saint Paul-Minneapolis metropolitan area is 300 miles south of International Falls, 220 miles south of Tower. The metropolitan area had a 1970 census population of 1,813,647. Most visitors from the Twin Cities and Duluth are expected to reach the trail via U.S. Highway 53.

The region has a variety of recreational facilities that will complement the trail. In addition to the previously mentioned Taconite, Ely to Grand Marais and North Shore trails, there are many miles of trails located in state parks, state forests, national forests and Voyageurs National Park.

The Superior National Forest located to the east and south of the trail encompasses nearly 3,000,000 acres. Within this national forest is located the 1,000,000 acre Boundary Waters Canoe Area. This famous wilderness area is a major attraction which draws recreationists from all over the United States.

Voyageurs National Park, 219,000 acres, located north and east of the trail is in the planning stage and could have a significant impact on the International Falls to Tower Trail because of the large number of visitors it could attract.

The Kabetogama State Forest through which a majority of the trail passes, encompasses 697,000 acres in Koochiching and St. Louis counties of which 155,772 acres are state owned. For its vast size, this state forest has relatively few recreational developments.

Numerous state parks, state forests and historic sites are also found throughout the region. Figure 2 outlines public land ownership in the area of the trail.



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Geology and Topography

Many features of the area surrounding the trail are diverse examples of the area's geologic history. The trail is located in the Superior Province of the Canadian Shield, a vast area of ancient Precambrian rocks that form the nucleus of the North American Continent.

The topography of the region surrounding the trail is a combination of flat marsh or lowlands and rugged rolling mounds and hills caused by glaciation that occurred over ten thousand years ago.

Rock types found in the area of the trail today consist basically of granite and granite related rocks, biotite schist and greenstone. The principal area of granite rock is found along the middle one-third of the trail, generally south of Lake Kabetogama and near Orr (see Figure 3). The granite rock that outcrops within the area generally is rounded and smooth and displays evidences of glacial activity.

The extensive marsh or wetlands found south and east of International Falls is a glacial lake bottom. This lake bottom formed by Glacial Lake Agassiz at one time occupied most of Koochiching County and portions of St. Louis County. Today most of this old lake bottom is a poorlydrained flat wetland. Figures 4 and 5 show drainage problems caused by this lake bottom.

Bedrock outcroppings are also found within the former glacial lake basin and are most prominent near Rainy, Kabetogama and Namakan lakes. The rugged hilly topography experienced along Highway 53 and portions of the trail was caused by glaciers scouring the land surface, removing soils and leaving the most resistant rock rounded and smoothed.

Lakes in the area were formed by glacial action which gouged out the basins that are now occupied by water.

Mineral Potential

The area surrounding the International Falls to Tower Trail has mineral potential for a variety of metallic minerals. This would include such minerals as: gold, silver, copper, zinc, lead, nickel, and iron. The highest potential for these minerals is found in contact areas between geologic formations.

An area of high mineral potential is found to the west of the southern portion of the trail.

Another area of high mineral potential is found near the start of the trail at Tower.

An area of fair mineral potential exists in the northern area of the trail from Rainy River on the west to the Voyageur Park boundary on the east.

Areas through which the Tower to International Falls Trail passes could in the future be subject to leases for mining. In the past, areas around the southern portion of the trail and to the south and east of the area, have been included in state copper-nickel lease sales. It is likely that





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in future lease sales, parcels within this area and adjacent areas will be requested for lease. The areas with the greatest potential to be leased would include those areas of high and good mineral potential shown in Figure 3.

Another source of mining activity along portions of the trail may be the excavation of peat. The Lost Lake peat bog near Tower, the Nakoda peat bog south of International Falls, and the International Falls peat bog east of International Falls, are all prominent peat bogs traversed by the trail. Special consideration should be given to the trail if these resources will be mined.

Soils

Five major soil types have been identified in the area surrounding the trail according to H. F. Arneman, a soil scientist for the University of Minnesota (see Figure 6).

Nebish-Rockwood and Chetek-Menahga are medium to coarse textured forest soils formed from glacial outwash. These soils are found primarily along the southern portion of the trail near Pfeiffer Lake and Tower. Indus-Taylor-peat, Ahmeek Rock Outcrops and Cloquet-Taylor Rock Outcrops are coarse to fine textured forest soils, organic soils and rock outcrops which are interspersed along the northern portion of the trail.

Nebish-Rockwood soils are found in hilly to undulating areas. These light colored well drained soils have developed from loam (Nebish) and sandy loam (Rockwood) calcareous buff colored glacial till. Lakes and poorly drained mineral and organic soils occupy the level and depressional areas.

Chetek-Menahga soils are found for the most part in a nearly level area. These soils are light colored and droughty. Chetek is developed in sandy loam or loam material overlying noncalcareous outwash gravel within 18 inches of the surface. Menahga is formed from medium to coarse outwash sand.

Indus-Taylor Peat soils are found in a hilly to undulating area. These mineral soils are light colored and have formed from calcareous lacustrine clay. Indus is somewhat poorly drained and Taylor is moderately well drained. The mineral soils are intermingled with areas of organic (peat) soils.

Ahmeek-rock outcrops are found in a rolling to hilly area. The Ahmeek soils are dark colored soils formed from a reddish brown noncalcareous sandy, stony, glacial till. Rock outcrops of basic igneous rocks are common.

Cloquet-Taylor-rock outcrops is a gently rolling to hilly area, with many lakes. Rock outcrops are prominent on the landscape, but only make up about one-fourth of the land surface. Cloquet is a light colored soil formed from gravelly glacial drift. Taylor is a light colored soil developed from calcareous lacustrine clay.



Climate

The trail area, as well as the entire state, lies within a humid, continental-type climate zone. This zone has great extremes in temperature with the greatest share of precipitation falling during the growing season.

Temperatures range from an average daily of $65.5^{\circ}F$ during the month of July to an average daily of $3.1^{\circ}F$ during January. However, extremes such as -46°F in the winter and 98°F in the summer have been recorded. The frost-free growing season ranges from 100 to 110 days. The last killing frost generally occurs between May 27 and June 1 with the first killing frost occurring around the 11th of September.

Precipitation in the trail area follows a seasonal pattern. Light precipitation falls in the winter season of December, January, and February with a fairly even distribution pattern. Precipitation amounts increase steadily during the spring months of March, April and May. The summer period of June, July and August coincides with the growing season, and accounts for 40 to 50 percent of the annual precipitation. Annual average precipitation is 26.6 inches, with a normal range from 3.37 inches for the wettest month to .71 inches in the driest month.

Even with the light precipitation levels in the winter months, the normal snowfall is between 50 to 60 inches per year. However, the maximum recorded snowfall is 158.20 inches and the minimum is 6.70 inches.

Water Resources

The trail travels through two watersheds. These are the Littlefork watershed covering 1,849 square miles, and the Rainy Lake watershed covering 4,489 square miles.

The Littlefork River rises in a rather flat region in St. Louis County south of Vermilion Lake. This is also the area where the trail will start. However, only the southern ten to fifteen miles of the trail will be located in this watershed.

From its start in St. Louis County, the Littlefork River follows a meandering course to the northwest through the eastern part of Koochiching County to its junction with the Rainy River 12 miles below International Falls. Throughout its length, the main stem of the Littlefork has numerous falls and rapids. Sturgeon Lake, 2,115 acres, Big Rice Lake, 1,800 acres, and Nett Lake, 7,300 acres, are the only major lakes in the drainage basin. In addition, many small lakes occupy the closed depressions in the morainic terrain near the headwaters area.

The Rainy Lake watershed is characterized by irregularly shaped lakes and numerous short broken streams occupying depressions in the forested rocky terrain. The majority of the trail is located in this area. Drainage within the watershed is northward to the border chain of lakes and thence westward into Rainy Lake.

The principal drainage line is a chain of connected border lakes with the following major tributaries: Kawishiwi, Vermilion and Rat Root rivers which have drainage areas of 1,376, 1,030 and 270 square miles respectively. The rocky nature of the terrain and absence of appreciable soil cover combined with the rugged topography tend to accelerate runoff. Many of the large lakes lie in deep valleys cut in the bedrock and have outlets partly dammed by accumulations of glacial drift. As a result, the lakes act as retarding basins which tend to equalize streamflow. In addition to the excellent regulation afforded by lakes, additional storage and regulation has been created on some of the rivers and lakes by the construction of dams. Large lakes located near the trail include Kabetogama, Namakan, Sand Point and Rainy lakes. Numerous smaller lakes are also found along the route.

Ground water is abundant in some parts of both watersheds. Sand glacial aquifers of sufficient depth of groundwater in bedrock fractures, fissures and joints are occasionally used for municipal and domestic water supplies but more frequently these supplies are obtained from surface waters.

Water quality is relatively good throughout the trail area. Areas where lower water quality may occasionally occur are the Vermilion River, Ash River and near the towns of Tower, Cook, Orr, Kabetogama, Ray, Ericsburg and International Falls. Water quality may also suffer near resorts or private residences because of inadequate utility systems. These reductions in water quality are primarily due to poor treatment of sewage and other waste materials.

Industrial and commercial uses of water are primarily related to hydroelectric generation and the pulp and paper industry. Dams at Kettle Falls and Squirrel Falls control the Namakan reservoir that stores water for the hydroelectric plant at International Falls. Water from the Rainy Lake reservoir is utilized by Boise Cascade Corporation to operate a steam and hydroelectric station.

Vegetation

The presettlement vegetation types in the area of the International Falls to Tower Trail identified by Marschner consisted primarily of the following plant communities: Conifer Bogs and Swamps, Jack Pine Barrens and Openings, Aspen-Birch-Conifer and White and Norway Pine (see Figure 7).

Conifer bog and swamp community which was found along the flat poorly drained areas of the trail consisted primarily of black spruce, tamarack, bog birch, heaths and sphagnum mosses. Less acid soils also supported northern white cedar, balsam fir, paper birch and speckled alder. Some areas were nearly treeless and supported only sedges, grasses and bog birch.

Jack Pine Barrens and Openings community was found primarily on the thin rock outcrop soils in the area and was fire maintained. In places extensive stands of jack pine were interspersed with nearly treeless heaths or open, lichen-covered, rock outcrops. Common shrubs and ground cover species included hazel, blueberries, sweetfern, bearberry, bracken and reindeer moss. In some areas, jack pine stands were integrated with black spruce, balsam fir, white spruce and northern white cedar.

Mixed Hardwood and Pine community is a transitional forest and was found along some of the rock ridges near Orr. In these areas, white pine stands were intermingled with oak, maple, basswood, elm, black ash, aspen, yellow birch, and paper birch.



Today's vegetation along the proposed trail has been altered by land clearing, logging, fires, tree planting, urbanization and fire exclusion. Pioneer species have invaded many of the disturbed sites resulting in a wide distribution of the Aspen-Birch and Spruce-Fir covertypes. (see Figure 8). Fire suppression has permitted many conifer bogs and swamps to succeed toward more mature stands of black spruce, tamarack and northern white cedar. Alder and dogwood are the most common shrub species found on wet soils.

Aspen-Birch is the major forest cover to be found along the trail. This forest type generally is associated with clay-sandy-gravel soil types and the majority of this cover type is found in St. Louis County. These stands of aspen-birch also have a scattering of conifers and mixed hardwoods.

spruce-Fir is the second largest forest type to be found along the trail. This forest type is associated with wetter-poorer soils of the area. The majority of this cover type is found along the southern and northern portions of the trail.

Other major forest types found along the trail include non-productive forest lands and a combination of white, red and jack pine. These nonproductive areas are associated with the very wet organic soils. The pines are associated with the shallow rocky soils found in northwestern St. Louis County.

Wildlife

Sector Sector

The area surrounding the International Falls to Tower Trail with its diversity of vegetation, provides suitable habitat for many wildlife species. The trail user may on occasion be able to observe a number of mammals and birds.

Common big game species found in the trail area today are white-tailed deer, black bear, and occasionally moose. Woodland Caribou were at one time present but were extirpated with the advent of the logging industry and its influence on forest ecology.

Upland game species include ruffed grouse and snowshoe hare. Fur bearers include beaver, otter, mink, Canada lynx, weasel, muskrat, fisher, pine marten, fox, timber wolf, wolverine and bobcat.

Owls, hawks, warblers, chicadees, nuthatches, sparrows, wood peckers and grosbeaks are some of the more common birds. Waterfowl most common to the area are mallards, black ducks, mergansers, ring-necked ducks, goldeneyes and teal. The area also provides good nesting habitat for the common loon - Minnesota's state bird.

Fisheries

Fish species of commercial or sport fishing value found in area lakes include: smallmouth bass, muskellunge, black crappie, yellow perch, northern pike, sauger, walleye, lake trout, brook trout and brown trout. Burbot, northern redhorse, white sucker and tulibee have commercial value but are less desirable sport species.



The following list of species which occur in the area of the trail are listed in <u>The Uncommon Ones</u>, a Minnesota Department of Natural Resources publication and merit varying degrees of special consideration and management. Presently none of these species are considered endangered or rare. Those considered threatened in Minnesota but not necessarily throughout their entire range include the pine marten and timber wolf. Species of changing or uncertain status include the Canada lynx, fisher, bald eagle, osprey and lake sturgeon.

The wildlife managers, district foresters and trails development personnel will work closely together when implementing this plan to assure that these and other species are not detrimentally affected by the trail.

CULTURAL RESOURCES

History

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Dakota Indians had lived in the Quetico-Superior country for two centuries before the arrival of Europeans, a time coincidental to the already started forced move of the Dakota out of the region by the Chippewa Indians.

The early explorers of the region were nearly all French, sent out in search of new sources of fur by the merchants of Montreal and Quebec. Radisson and Gorseilliers explored the mouth of the Pigeon River in the spring of 1660. The Coureurs de Bois (Knights of the Forest), as the roving explorer-traders were called, ranged far and wide along a 3,000 mile fur trading route which eventually extended from Montreal to Lake Athabaska. Fur trading was the motivation in the exploration and, finally, settling of much of North America.

The establishment of forts at strategic locations along the trading route provided supply depots and winter headquarters as well as trading centers for the Indians. One of the earliest forts in northwestern Ontario was Fort Kaministiquia, built in 1679 by Daniel Graysolon Sieur Du Lhut, near the present City of Thunder Bay. Nine years later, in 1688, Jacques de Noyon blazed the first section of the canoe highway to the West when he ascended the Kaministiquia River to Dog Lake and followed the route through Lac des Mille Lacs to Rainy Lake and Lake of the Woods. During the next 30 years, trading operations were primarily along the James and Hudson bays.

In 1731, la Verendrye and his sons set out from Grand Portage to explore the country between Lake Superior and Rainy Lake. Later that year, Fort St. Pierre was established, near the present town of Fort Frances. For the next 70 years, the route followed by la Verendrye through the Quetico-Superior country was the main link in the fur trading highway to the West.

Originally there were three routes into the International Falls area. The southern route started at Fond du Lac, (present day Duluth), then up the St. Louis River and Pike River to Vermilion Lake, then down the Vermilion River to Crane Lake. The middle route started at Lake Superior over Grand Portage to Pigeon River, then westward through the border chain of lakes to Lac La Croix and Rainy Lake. The northern route was by way of the Kaministiquia River, near Fort William in Canada, to Lac de Mille Lacs, by portage to Pickerel Lake, across Sturgeon Lake, down the Miligne River, then into Lac La Croix.

After the founding of the Hudson Bay Company in 1670, a series of forts were established along Hudson Bay. In a counter move, Montreal merchants established a chain of forts from Lake Superior across the prairies: Fort Williams, Fort Frances, and fur posts at Winnipeg, Prince Albert, Calgary and others. In 1779, the Montreal merchants formed the North West Company which made the border lakes canoe route famous, building posts at Grand Portage and Fort Charlotte, and on Moose, Knife, Basswood and Little Vermilion lakes. In 1808, a third company, the American Fur Trading Company headed by John Jacob Astor entered the scene and resulting competition was eventually ruinous. In 1821, the North West Company merged with the Hudson Bay Company and paid the American Fur Company an annual sum for exclusive trading rights in the border country. Meanwhile, after the American Revolutionary War, the trading route shifted northward. After 1804, when the North West Company discontinued using the Grand Portage-Pigeon River route, and the importance of the boundary area in fur trading ended.

During the late 1800's as lumber supplies in the east diminished, lumbermen turned to Northern St. Louis and Koochiching counties. Railroads were responsible for the lumber industry developing on a large scale in these counties. They provided the necessary transportation to ship products to towns which were developing on the prairies and elsewhere.

White and Norway pine were the main types of trees cut by the lumber companies. In the peak years of the lumbering industry, around 1904, a total harvest of 85 million board feet was not uncommon.

Most of the western portion of the boundary waters was logged around the turn of the century for several large mills. Powerful groups operated large mills at Fort Frances, International Falls and Rainy River over a period of 40 years. Perhaps the most successful of the lumber-mill operators was J. A. Mathieu, who as owner of J. A. Mathieu Limited (1922-66) produced and processed a billion board feet.

Until the middle 1890's the timber industry was only concerned with pine logs and cedar products. Then the paper industry was attracted to this area by the fine spruce stands. The first operations were for eastern paper mills. In 1889, Minnesota's first paper mill, Northwest Paper Company, was established in Cloquet.

In 1865 Henry H. Eames, the state geologist, was in northern St. Louis County making a survey of the area's mineral resources. His report stated that there were high grade iron ore deposits in paying quantities in the area. Eames also mentioned that he found some gold bearing quartz. His mention of gold started a gold rush to the shores of Lake Vermilion and the Trout Lake area. Although some gold was found, it was difficult and costly to mill. Transportation was a problem and interest in gold soon waned in the area. The opening of the Mesabi Iron Range at the same time was of greater importance and interest to the mining industry.

Fishing became a commercial industry in the 1890's throughout the Rainy River, Rainy Lake and Crane Lake area. Sturgeon, pike, pickerel and whitefish were the main types of fish netted commercially. The area was also known for its caviar production, which was hauled to eastern market areas via railroads.

In the 1890's transportation by steamboat and railroad made the area more accessible. Fur trading, logging and commercial fishing attracted many people to the area. The land contained some rich soils which encouraged farming. Farmers were soon growing, on a small scale, wheat, barley, oaks, potatoes and legume crops in the rich soils of the Rainy River Valley. Steamboats serviced the farmers along the river. West of Lake Vermilion there are rich soils, bottom lands of Glacial Lake Agassiz. Here farmers concentrated on dairying, seed crops and legume crops. Agriculture, however, has never developed on a large scale in this area.

Significant historic features in the trail area are listed below and are exhibited in Figure 9.

- A. Nett Lake Indian Culture Wild rice harvesting and processing. Drum Island Petroglyphs, early burial gounds.
- B. Cusson Settlement One time headquarters of Virginia Rainy Lake Logging Company. Railroad shops and service center for more than 5,000 woodsmen, 1909-1930.
- C. Gheen Farm Site of Indian farm school, Indian Agency, first saw mill in region.
- D. Bourassa Fur Post Believed to be site of earliest trading posts in region (French, 1736). Owned by Minnesota Historical Society.
- E. American Fur Company Post Documented in 1866 map as "Roussain Post." (William Aitkin and Vincent Roy also served here). Site of gold stamping mill during 1860's gold rush; 1878 mission Indian burial grounds.
- F. Soudan Mine State's oldest and deepest mine operated from 1887 to 1962 by U.S. Steel and now incorporated within Tower Soudan State Park. (Only National Historic landmark within planning area).

Natural and Historic Features

There are many natural and historic features within the study area. The list below and Figure 10 show the most significant features.

Unique natural features shown in Figure 10 are:

- 1. Ash River Falls
- 2. Wild rice beds of Nett Lake
- 3. Haslem Point, "Sugar Bush", Pelican Lake
- 4. Indian Point, Pelican Lake
- 5. "Hidden Forest" of South Big Lake and adjoining Pelican River
- 6. Wild rice fields of Vermilion River
- 7. High Falls of the Vermilion River
- 8. Vermilion River Gorge

- 9. Moss covered granite outcrop at Crane Lake Lookout Tower
- 10. Table Rock Falls of Vermilion (Privately owned access and posted)





TABLE 2

Historic and Natural Features of the Trail Area

	Koochiching	St. Louis	Total
Prehistoric Sites	4	10	14
Cluster of Archaeological Features	2	0	2
Indian Cultural Sites	3	23	26
Fur Trade Post	2	10	12
Lumbering Sites	26	111	135
Mining Sites	4	23	27
Historic or Architecturally			
Significant Building	2	13	15
Ghost Town Sites	1	1	2
Other Historic Sites	0	1	1
Waterfalls (10' + Vert. Drop)	0	. 2	2
Rapids, Whitewater Areas	2	2	4

Source: Natural Historic Areas of Minnesota, Minnesota Department of Natural Resources, 1971, and <u>Exploring St. Louis County's</u> <u>Historical Sites</u> by Charles E. Aguar, 1971, and <u>Historical</u> <u>Resources Inventory</u> Koochiching County, Minnesota by Aguar, Jyring, Whiteman and Moser, 1967.
- 11. Entire length of Vermilion River. Unique cross-section of Laurentian Shield Country and historic Indian waterway and voyageurs route.
- 12. Elbow "Falls" of Elbow River
- 13. Hannine Falls of Little Fork River
- 14. Beaver Brook Scenic Falls and Gorge

In addition to the outstanding features listed above, a tabulation of recognized natural and historic features in the area has been compiled and is summarized in Table 2. The information for this compilation has been obtained from "Natural and Historic Areas in Minnesota" by the Department of Natural Resources, plus the "Historical Resources Inventory" for Koochiching County and the "Historical Sites" of St. Louis County by Charles Aguar.

The regional naturalist and Minnesota Historical Society will be consulted to determine which of these sites should be identified and which should not. In some cases, trail users could unknowingly harm these sites. Those sites which are suitable to be identified and interpreted will be managed according to recommendations of the Historical Society and regional naturalist.

Population

Population projections for St. Louis and Koochiching counties and Economic Development - Region 3 are listed in the table below (Source: Department of Energy, Planning and Development). Projected changes for the counties and region vary until 1985. Thereafter, the population of the region is expected to decline. The statistics for St. Louis County reflect the strong influence of Duluth, and urban area, distant from the trail. Forty-five percent of the people in St. Louis County live in the city of Duluth, making the population figure for the county unrepresentative of the trail area.

TABLE	3
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Population Projections

Year	St. Louis County	Koochiching County	Region 3
1970	220,700	17,100	329,600
1975 1980	217,100	17,800	331,100 330,300
1985 1990	216,400 215,000	18,200 18,400	332,600 332,400
1995	212,900	18,300	330,200
2000	210,000	17,800	325,400

The trail is located in a sparsely populated area with approximately half of the residents living in cities of 2,500 people or less. The poulation of the region is decreasing, while the state population as a whole is increasing. Much of the decrease can be attributed to out-migration.

Economic Structure

The forest industry provides the economic base for those communities that exist along or near the trail route. Boise Cascade Corporation is the major employer for the area. Agriculture, fisheries, construction and recreation are relatively unimportant in the area's economy when compared to the timber industry. In addition, wholesale and retail trades make up a smaller portion of jobs in the region than in the rest of the state. These characteristics indicate an economy highly dependent upon a single basic resource industry.

Economic expansion in the recreation industry of the area is expected as Voyageurs National Park is developed and attracts visitors. When development occurs, employment is expected to increase in the recreation, construction and wholesale-retail trade sectors.

Tourist travel expenditures during 1974 in St. Louis County totaled \$61,742,091 ranking it 20th in the state based on tourist travel expenditures as a percent of gross sales. These expenditures accounted for 5% of gross sales. Tourist travel expenditures for Koochiching County totaled \$14,680,155, or 22% of gross sales. Koochiching County ranked fourth in the state in tourist travel expenditures as a percent of gross sales.

Land Use and Development Trends

Koochiching a	nd St. Louis	County General Land Use	(acres)
	Koochiching	St. Louis	Total
Forested	1,736,600	3,568,000	5,304,600
Cultivated	17,960	79,840	97,800
Pasture and Open	86,000	182,440	268,440
Water	31,360	352,600	383,960
Marsh	147,640	48,640	196,280
Urban	8,720	101,800	110,520
Extractive	160	44,960	45,120
Transportation	560	4,160	4,720
TOTAL	2,029,000	4,382,440	6,411,440

TABLE 4

Source: MIMIC

Eighty-three percent of the land in the two counties is forested and constitutes the largest type of land use followed by water and marsh (see figure 11).

Most of the farming activity in the area is near Orr and Littlefork. The densest concentration of farms is within 12 miles of Littlefork with over 120 farms in the area. Another cluster of 69 farms is located south and west of Orr. The remainder of the farms are scattered throughout the area long major roadways.



The most extensive form of development in the area is seasonal and "year-round dwellings. These can be divided as a ribbon of development lying along major roadways throughout the area, concentrations in close proximity to cities and the larger lakes.

Commercial development is also located along major highways, large bodies of water and municipalities. Resorts and lodges are the most prominent commercial development, followed by retail businesses.

Forest and forest related products form the only major industry in the area. There are 12 or more sawmills in the area and extensive logging takes place throughout the trail area. Boise Cascade Corporation's paper and wood chip mills are the major industry in the area.

Relationship to Other Recreation Areas

Region 3 (see Figure 12) offers a number of state-owned recreation facilities including: 16 state parks, 22 state forests, four state trails, 12 historic sites, 5 cance and boating routes, 559 miles of ski touring trails, and 1,800 miles of snowmobile trails.

In the study area, a number of publicly- and privately-owned recreation facilities offer a wide variety of activities to the visitor of the trail. Following is an inventory of existing outdoor recreation facilities derived from the Department of Natural Resources' - Statewide Comprehensive Outdoor Recreation Plan (SCORP) inventory. The inventory has been summarized and broken down into four recreational categories.

The planning area has a combined total of 18 wayside rests and picnic grounds (see Figure 13). Eleven wayside rests are found along major highways in the area. Picnic grounds total seven and are located in the vicinities of the South Shore of Kabetogama Lake and also near Crane Lake and the rivers of Echo, Sioux and Vermilion. The sites are in federal, state and private ownership.

A second category of recreational facility includes campgrounds, public access areas and swimming beaches. The trail study area has a total of 83 such facilities consisting of 34 campgrounds, 38 public access areas and eleven combination campground/public access sites (see Figure 13). These facilities are scattered along the major waterways of the area. The water courses include lakes Vermilion, Pelican, Crane, Kabetogama and Rainy, also the rivers of Vermilion, Ash and Big Fork. There are, of course, several sites located on other water courses.

A third category identified by SCORP for their recreational importance and multi-use attributes are forest lands and wildlife management areas. The area has eleven individual forests and one wildlife management area. These areas encompass roughly two thirds of the land area near the trail (see Figure 14). The St. Louis County portion of the trail is almost totally within forest designated lands from the Southern township line of 61 north to the Canadian border. The Superior National Forest and Kabetogama State Forest are the two largest forest areas. The Koochiching County segment is not as extensively covered with designated forest lands. Koochiching County has forest lands located along the western, southwest and southern boundaries of the county. The Koochiching State Forest is the largest forest land holding in the county.





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The ownership and administration of forest lands and management areas is contained under five government levels and one private company. The six different ownership classifications are federal, state, county, municipal, district and private sector (see Figure 14). These forest lands are multi-use in nature but are primarily managed for timber and pulp production and only secondary for public outdoor recreation.

The fourth and largest recreational facility category in the trail area is resorts, lodges and golf courses. This category contains 78 resorts, eight lodges, 16 resort/lodges and two golf courses (see Figure 13). The resorts and lodges are concentrated along several major waterways including the major lakes of Rainy, Vermilion, Kabetogama, Namakan, and Pelican. Other resorts are scattered on smaller lakes and rivers. Services such as marinas, public accesses, playgrounds and swimming beaches are offered by these establishments.

Along with the above mentioned inventory, a general description of major federal and state facilities has been included as follows which will have a significant impact on the trail.

Voyageurs National Park is a 219,000 acre park managed by the National Park Service within the U.S. Department of the Interior.

Of the 219,000 acres Voyageurs encompasses, 80,300 are water. The main body of the park is located on the Kabetogama Peninsula which is heavily forested. The park offers visitors a chance to view superlative lake country scenery, wildlife, rock formations and other significant features.

As of this date, Voyageurs is relatively undeveloped. When developed, it will offer the visitor opportunities for backpacking, hiking, camping, boating and other outdoor related activities. An extensive system of loop trails is being planned for skiers and hikers. At present snowmobiling is permitted on Rainy and Kabetogama lakes but these routes may change after a wilderness study for the park is completed. Boating, fishing and canoeing will probably be the major activities attracting visitors to the park.

Voyageurs National Park is of significance to the trail because of the projected number of visitors expected at the park. Approximately 600,000 people are expected to visit the park annually by 1990. Although most of these will visit only the park, some may use the trail. Also, this large amount of visitors will cause significant economic development throughout the area.

The Minnesota Department of Transportation (Mn/DOT) is developing a bike route along trunk highway 11 which will allow visitors to reach the park by bicycle. Although funding is doubtful, Mn/DOT is giving consideration to upgrading U.S. 53 to a four-lane divided highway with shoulders between International Falls and Virginia. If this project is implemented, use levels would likely be consistent with bicycling safety standards. Mn/DOT has already developed an onshoulders bikeway between Virginia and Cook. Superior National Forest borders Voyageurs National Park on the east and encompasses more than 3,000,000 acres of land and over 2,000 lakes. The forest is managed for multiple-use by the U.S. Department of Agriculture and the U.S. Forest Service. The forest is managed for outdoor recreation, range, timber, watershed and fish and wildlife purposes. The Forest has a number of campgrounds and other recreation facilities available to the public in addition to the 1.2 million acre Boundary Waters Canoe Area Wilderness.

The Boundary Waters Canoe Area Wilderness (BWCAW) is the second largest unit of the National Wilderness Preservation System and its only canoe wilderness. The BWCAW lies within the Superior National Forest and is managed in a manner which is meant to "leave it unimpaired for future use and enjoyment."

The area is a major attraction for people who like to canoe and hike in a wilderness setting.

Both the Superior National Forest and BWCAW are also major attractions for visitors to northeastern Minnesota. These facilities may have a significant impact on use of the trail because the BWCAW and Voyageurs National Park will draw most of the hikers and backpackers who visit this region.

Kabetogama State Forest encompasses 697,000 acres in northern St. Louis and Koochiching counties. The majority of the trail will be located in this forest.

Management of Kabetogama State Forest is also based on the multipleuse concept and the management program includes timber, wildlife, soils, watersheds and recreation. Four campgrounds have been developed in the forest along with snowmobile and ski touring trails. The four campgrounds are: Ash River, Hinsdale Island, Wakemup and Woodenfrog and contain a combined total of 100 campsites, nine picnic sites, two swimming beaches, and four boat accesses. Fifty-four miles of snowmobile trail and eighteen miles of ski touring trail currently exist.

Kabetogama State Forest is significant to the trail because management of the trail area will be handled for the most part by DNR District Forester.

User Demand

The following table (Table 5) shows estimates of the number of users who participate in various trail activities in Koochicning and St. Louis counties, Region 3 and the rest of the state. These figures are based on a survey of trail users which is part of the State Comprehensive Outdoor Recreation Plan (SCORP) of 1980.

TABLE 5

Activity	<u>St. Louis</u>	Koochiching	Region 3	State
Hiking	6,513	534	9,909	273,397
Horseback Riding	4,342	356	6,606	88,211
Bicycling	32,565	2,670	49,545	707,664
Snowmobiling	78,156	6,408	115,900	921,800
Cross Country Skiing	32,565	2,670	48,400	500,500

Number of Participants by County, Region and State

Table 6 shows the number of miles of existing trails, by type, in Koochiching and St. Louis counties, Region 3 and the rest of the state. These figures are based on SCORP inventory and DNR-Parks and Recreation data.

	TABLE 6 - EXISTING	TRALL MILEAGE	5	
Trails	St. Louis	Koochiching	Region 3	<u>State</u>
Hiking Snowmobile Horseback Bicycle Cross Country	239 334 36 16 225	12 230 3 	791 2,310 171 24 426	2,841 7,546 1,135 565 1,277

In 1974, a comprehensive sub-regional plan for the Voyageur Planning Area was prepared by the Arrowhead Regional Development Commission. (Figure 1, shows the approximate area covered by this study.) In this technical report, projections were made indicating the number of miles of hiking and snowmobile trails necessary to meet future demand in the Voyageur Planning Area.

Data available at that time indicated that the study area contained some 20 miles of existing hiking trail, with half the mileage located in the Kabetogama State Forest. Private trails, as well as trails developed by individual hikers, were not included. Five additional miles of designated hiking trails were projected to be required by 1975, with an additional 6 miles needed by 1980, and 20 miles required by 1990. In all, 51 miles of hiking trails would be needed by 1990 based on these projections. 1978 data for the Voyageur Planning Area indicates that the area contains 95 miles of hiking trail, more than was projected to be needed to meet user needs. Voyageurs National Park will add additional miles to this total when developed.

Snowmobiling was the second activity for which projected needs were calculated. At the time the sub-regional plan was written, the planning area contained 178 miles of snowmobile trail. Future trail facility needs projected at the time of this study for the planning area indicated that the area would require 185 miles by 1975, 223 miles by 1980, and 298 miles by 1990. During the fifteen year period, a total of 113 additional trail miles were projected to be required. (No projections were made for other trail uses.)

1978 data for the Voyageur Planning Area shows that the area today contains about 187 miles of snowmobile trail. This mileage was sufficient to meet projected demand for 1975 but will be deficient by 36 miles by 1980 and by 111 miles by 1990.

Table 7 shows snowmobile registration figures by county for the past eight years. The counties shown were chosen because they are expected to be the counties where the majority of users will come from.

<u></u>		TAI	BLE 7			
	Snowr	nobile Req	gistration	n Figures		
	<u>1973 1974 1975 1976 1977 1978</u>					<u>1978</u>
Koochiching St. Louis Itasca Lake Cook	3,288 23,412 5,719 2,645 869	3,258 25,859 5,554 2,638 831	3,125 25,584 5,791 2,800 885	2,960 25,019 5,936 2,777 892	2,798 24,035 5,937 2,692 879	2,659 22,157 5,900 2,481 851

Table 7 shows that the number of snowmobile registrations for the five counties has remained relatively stable since 1973. Whether this trend will continue cannot be predicted at this time. However, a 1978 survey conducted by the Minnesota DNR - Office of Planning found that nearly 70% of Minnesota's snowmobilers expressed a resounding desire for more trails. Based on this survey, Minnesota snowmobilers still desire more trails.

Cross country skiers were also surveyed in 1978 and it was found that over 80% of the skiers felt that additional trails and facilities were needed.

Along with finding out whether skiers and snowmobilers desired more trails, the survey also asked a series of questions regarding actual trail design. The responses to these questions appear in Table 8.

TABLE 8

Trail Design Choices

Cross	Country	Snowmobilers
Skiers	Percent	Percent

Resource Characteristics

Offer a chance to view wildlife	95.6	89.6
Located in wilderness-like area	86.3	79.9
Pass along a river	86.1	72.7
Pass mostly through woods	84.2	75.3
Pass along a lake shore	73.8	64.0
Pass through hilly terrain	67.7	76.9

TABLE 8 Cont.

	Cross Country Skiers Percent	Snowmobilers Percent
Design and Management		
Return to starting point Pass through open areas where	90.2	78.9
the trail can be left	69.2	69.5
Develop rest shelters	60.9	57.2
Be marked by frequent signs	60.3	83.3
Have warming huts and toilets	58.5	59.7
Provide safety patrol	57.1	73.4
Connect recreation areas	56.3	72.0
Contain groomed trail	55.2	65.3
Have tent campsites along trail	27.9	19.3
Have cabins for overnight stays	27.7	30.8
No signs, but self-guiding map	27.0	15.2
Require trail breaking	19.8	19.0
Conflicts		
Provide separate paths for		
different uses	43.4	62.8
Allow all types of uses	8.8	22.2

Tables 9 and 10 show the desired trail types and lengths and the percentage of respondents who would not return to a trail if it was being used by other recreationists.

	г Г	TABLE 9	
	Desired Trai	1 Type and Length	
Trail Type	A	B B	C C C C C
		Cross-Country Skiers Percent	Snowmobilers Percent
Туре А Туре В Туре С		5.0 18.4 76.6	3.1 16.4 80.4
Trail Lèngth			
Mean Median		10.5 miles 9.5 miles	32.4 miles 25.3 miles
Distance from	Home		
Median		20.1 miles	20.3 miles

TABLE 10

Percentage of respondents who would not return to a trail if it was being used by other recreationists

Respondents

Recreationists Using the Trail	Cross-Country Skiers Percent	Snowmobilers Percent
Cross-Country Skier	1.9	32.9
Snowshoer	12.0	29.9
Dog Sledders	43.2	3.3
Four-wheel Drives	93.2	39.3
Snowmobilers	84.2	16.8

From the tables it can be seen that there are few differences between the two groups in regard to trail needs and preferences (Table 8).

Network trails were desired by over three quarters of the respondents from each group (Table 9). The ideal trail for cross country skiers was thought to be ten miles in length. Snowmobilers wanted trails of around thirty miles in length (Table 9).

Snowmobilers for the most part expressed a tolerance for other types of trail users; cross country skiers saw themselves as compatible only with other skiers and snowshoers (Table 10).

Concluding, the Department of Natural Resources recommends that the Tower to International Falls Trail be designated for snowmobile use. Only portions of the trail will be open to hikers and horse riders. Ski touring and snowshoeing will be permitted but not promoted.

The reasons for this designation are as follows:

- 1. At public information meetings held in February and March, 1980, the majority of interest concerning the trail came from snowmobilers. In fact, no interest was expressed by cross-country skiers, and only three of 55 people were interested in a horse trail. No interest was expressed by hikers.
- 2. A snowmobile trail can be developed at far less cost than a yearround trail. This is because of the large areas of low ground found in the study area which cannot be avoided. If all portions of the trail were developed for summer use, large sums of money for acquisition and development would have to be expanded to make a high land route. Demand for a summer use trail in this area would not justify this expense at this time. It should also be noted that Voyageurs National Park and the Boundary Waters Canoe Area Wilderness will provide additional and possibly more desirable hiking and cross country skiing areas.

- 3. The majority of research indicates that ski touring and snowmobiling are not compatible and that even separate adjacent treadways will not mitigate this conflict.
- 4. Based on the Voyageurs Planning Area Study, there appears to be a deficiency of snowmobile trails versus hiking trails in the area. The 1978 SCORP survey also points out that even though snowmobile registrations have not increased in recent years, there is still a strong desire for more snowmobile trails.
- 5. Even though research indicates that the majority of users prefer network trails, public input at information meetings indicates that there is a strong desire in the study area for a connection from Tower to International Falls. Also, the Tower to International Falls Trail will connect with three separate state forest systems and a grant-in-aid system. By providing this connection, the snowmobiler will have the choice of enjoying a network system, point-to-point trail or mixture of the two types.
- 6. If hiking demand increases for this trail in coming years, the plan allows for upgrading to year-round use for the trail's entire length.

Projected Use

Potential use of the trail by snowmobilers should be considered although this is extremely difficult to estimate. Use by hikers and horseback riders is expected to be minimal although scattered areas of the trail will be used by local residents. The majority of the hikers will probably be hunters and fishermen using the trail for access. Use by cross country skiers is also expected to be minimal because of this group's preference for network trail and their strong preference to be able to ski without encountering snowmobiles.

The following paragraphs explain the methodology used to try and predict the number of potential snowmobile users for the International Falls to Tower Trail.

The data from the State Comprehensive Outdoor Recreation Plan (SCORP, 1980) snowmobile survey shows that the average snowmobiler in Development Region 3 will travel 12.5 miles to use a trail for a short outing. He will travel 23.5 miles to use a trail made for full-day outings. No other region's snowmobilers will travel far enough to reach the International Falls to Tower Trail area, given the availability of the average trail.

The size of the potential user group for a trail between International Falls and Tower was calculated as follows: two bands, one corresponding to the 12.5 mile distance from the trail; the other to the 23.5 mile distance, were drawn. The towns on the map were recorded by band. The remaining Region 3 towns were also noted. Each town's population was obtained from the 1978 Rand-McNally Commercial Marketing Guide.

The total population within each band was calculated along with the total population of the region. The population within the bands, divided by the total population of the region, resulted in the percentage of the population within the bands. This was necessary because the mapped towns in the region accounted for only 60% of the Region 3 population.

To get a true population in each band, each percentage was multiplied against the 1975, Region 3, population figures (Population Estimates for Minnesota Counties 1977) to yield an estimate within each band.

The population figure in each band was multiplied by the percentage of the regional population that snowmobiles (SCORP Surveys). This product in turn was multiplied by the percentage of snowmobilers wanting a new trail. Finally, the number of snowmobilers wanting a short day use trail was applied to the 12.5 mile band, and the percent wanting a full day trail to the 23.5 mile band.

The results show:

- 1. 3,904 snowmobilers in Region 3, in the area of the International Falls to Tower Trail, want a trail made specifically for short outings;
- 2. 13,587 snowmobilers in Region 3, in the International Falls to Tower Trail, want a trail made specifically for a full day outing (the calculations used to arrive at the figures mentioned above can be seen in Table 11); and
- 3. Region 3, in the area of the International Falls to Tower Trail, provides a ready clientele of 17,500 snowmobilers who would probably make regular use of a trail like the International Falls to Tower Trail.

In addition, since the trail is being developed to make use of the scenic attractiveness of the area and will connect to existing network trail systems in the area, the trail may draw users from a greater distance. Nevertheless, the 17,500 user figure in the immediate area will form the majority of the trail users.

No attempt has been made to calculate use by summer user groups due to insufficient data. Cross-country ski use could be calculated using the same methodology and the SCORP surveys. This was not done because the incompatibility of the two groups would probably cause use by this group to be minimal.

Total Population - Mapped Towns Region 3	208,881
Total Population - Mapped Towns Within 12.5 mile band (short day)	19,968
% of True Population within 12.5 miles	10%
10% of 322,726 (Actual Region 3 population) = True Population within 12.5 miles	32,273
True Population within 12.5 miles	32,273
x% of population that snowmobiles (36%)	11,618
x% of snowmobilers wanting new trail (80%)	9,294
x% of snowmobilers wanting short day trail (42%)	3,904
Total Population - Mapped Towns	208,881
Total Population - within 23.5 miles (full day)	50,891
% of True Population within 23.5 miles	24%
Population within 23.5 mile band)	78,628
True Population within 23.5 miles	78 , 628
x% of population that snowmobiles (36%)	28,306
x% of snowmobilers wanting new trail (80%)	22,645
x% of snowmobilers wanting full day trail (60%)	13 , 587



THE PLAN

The following pages describe the acquisition, development and maintenance procedures for the Tower to International Falls Trail. The trail will be developed primarily for snowmobiling, with hiking and horseback riding being secondary uses to be accommodated only on specific segments. The major topics covered in the plan are: Trail Route Description, Land Acquisition, Corridor Development Specifications, Trail Maintenance and Implementation.

The solid and dotted line on the trail route maps indicates the main trail route which will be developed primarily for snowmobiles. In addition, the maps show areas that may be developed along the main trail route for hiking and horseback riding and also suggested spur routes to various cities.

Only where sufficient high ground exists will segments of the trail be opened to summer use. The entire route will not be developed for summer use until significant demand is demonstrated by hikers and horseback riders who wish to travel from Tower to International Falls.

TRAIL ROUTE DESCRIPTION

The following pages and maps describe the alignments and uses proposed for various portions of the International Falls to Tower Trail. The descriptions are by segments to allow the reader an opportunity to view the maps after reading the description. Waysides, parking areas and bridges are also shown on the maps and will be developed according to specifications described later in the plan.

International Falls Area Trail Segment

Plate 1, pages 47-48 shows the proposed trail starting point along U.S. Highway 53. From this point east, no trail route has been determined at this time. Large amounts of private land and the Duluth Winnipeg and Pacific (DWP) Railroad tracks limit the potential trail routes that could be utilized to reach the existing grants-inaid trail.

One route which would have followed the new Minnesota Power and Light (MP&L) powerline was investigated and found to be infeasible at this time. All affected landowners along the route were contacted by letter or phone. Some were in favor and some were not, so the idea has been dropped for the present time. This route will be investigated further when development commences to see if a suitable connection can be found.

Another possibility investigated was to follow the county ditch east from the porposed trail starting point and cross the DWP railroad tracks where the ditch crosses. This would have involved an undergrade or overgrade crossing since DWP will not give any new on-grade crossing permits for trails unless it is at an existing public crossing. The undergrade (culvert) type crossing is not feasible due to a high water table and an overgrade crossing is not feasible due to the costs involved.





Because of the problems encountered with the crossing of this railroad, the Department may seek legislation to obtain a crossing, or condemnation of a crossing easement in this area.

If these measures fail, it is recommended that the trails development section work with the International Falls snowmobile club to determine a feasible trail alignment to connect to town and the existing grantsin-aid trail system. It may be feasible for the club to obtain permits along the new MP&L powerline since most landowners contacted said they might be willing to allow a grants-in-aid trial but did not want to grant permanent easements.

From the proposed starting point at the International Falls Jaycees trap range and snowmobile race track, the trail will follow along the north and west property lines to the county ditch grade. It will then follow the ditch grade west until it intersects another ditch grade and turns south. From this point south, the trail will follow alternative 2 shown on Plate 2.

Use of this segment of the trail (Plate 1) will be limited to snowmobile use due to the large amounts of low ground which it must traverse. Should demand for summer use be shown in coming years, this route could be upgraded to a year-round trail or a more suitable higher land route could be investigated.

The proposed trail access facility at U.S. 53 would be located on property owned by the International Falls Jaycees. The DNR would like to lease the land needed to construct a parking lot, toilets and a shelter.

North Galvin Line to East Branch Rat Root River

Plate 2 shows three trail alternatives for this segment. The eastern route which uses the Galvin Line was the preferred route but has been eliminated because the DNR could not obtain easements from Boise Cascade Corporation.

Alternative 1 has also been eliminated due to problems with adjacent landowners.

The third route, (Alternative 2) which is the one selected, involves a route which goes west and south of the county ditch shown on Plate 1, to avoid private lands. The trail would then turn east, cross the Rat Root River where a bridge would have to be constructed, and then connect to the ditch grade which routes the trail east.

From the ditch grade, the trail will continue east utilizing state and county lands to U.S. 53. From U.S. 53 the trail will continue east, cross the Duluth Winnipeg and Pacific Railroad tracks at an existing crossing, and continue east to the East Branch of the Rat Root River (Plate 2).



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This segment of trail will also be limited to snowmobile use. By using alternative 2, the Tower to International Falls Trail will connect to the Little Fork (State Forest) Snowmobile Trail.

The shelter area shown on Plate 2 will consist of a fire ringe and adirondack shelter. The shelter is to be located in a small state forest plantation.

East Branch Rat Root River to Ash River Trail

From the East Branch of the Rat Root River (Plate 3), the trail will continue east, staying south of Voyageurs National Park. At the Koochiching County line the trail will turn south staying close to the county line for approximately $3\frac{1}{2}$ miles, where it will again turn east. Continuing east, the trail will cross the Kabetogama Road where it will turn southeast to the Ash River Trail. The area wildlife manager must be consulted prior to finalization of this trail segment to insure that deer habitat areas are avoided as much as possible.

Use of this segment of trail will be predominantly snowmobile, but portions will be suitable for limited hiking and horse use.

An adirondack shelter with a fire ring is proposed near the county line. The access area, Kabetogama Road, will include parking for 5-10 cars, a trash receptacle and pit toilets.

It should be mentioned here that trail routes were investigated also farther north during the planning process for this segment. These routes, however, were determined to be infeasible because of the width of the Rat Root River east of Ericsburg. Had there been a suitable crossing, a northern route would have been preferred.

Ash River Trail to Ash Lake

From the Ash River Trail, the trail will proceed south along the Ash River (Plate 4). The trail will be routed very close to the Ash River Falls Ski Touring and Hiking Trail which is being developed at this time. Both trails have been routed close together to avoid private lands over which the DNR could not obtain easements. Special design considerations will have to be utilized to prevent conflicts between users. From the Ash River, the trail will proceed south to Ash Lake. As the on-the-ground alignment for this portion of the trail is being established, the area fisheries manager must be contacted. Special consideration will have to be given to trout streams and springs in this area. Bridges, instead of culverts, should be used and the trail should be routed away from the edges of rivers and streams.

Suggested uses for this portion of trail are snowmobiling, hiking and horseback riding.

The proposed shelter area will be designed similar to those previously mentioned and will be shared with users of the Ash River Falls Ski Trail. The proposed parking area east of Ash Lake will again be a small 5-10 car lot and be located along Highway 53. The spur trail to the Ash Lake State Forest Trail will cross TH 53 and the railroad at an existing crossing and connect via a gravel road.









Ash Lake to Myrtle Lake Trail

From Ash Lake, the trail will proceed south and east toward Black Duck Lake (Plate 5).

From Black Duck Lake, the trail will proceed south and east to the Pelican River where it will connect to the existing Kabetogama state forest snowmobile trail. This existing trail is located on an abandoned logging railroad grade. It should be mentioned here that a route closer to Black Duck Lake was investigated and eliminated due to an existent deer habitat improvement project close by. The special considerations mentioned in the previous section concerning streams and rivers also apply for this section.

The shelter area will be located near a beaver pond.

Snowmobiling will be the primary use, but hiking and horseback use will also be feasible. The spur to Cusson, if developed, will be located on or next to the county road and will not have to cross the railroad.

Myrtle Lake to Elbow River

From Myrtle Lake (Plate 6), the trail will continue on the existing Kabetogama state forest snowmobile trail to the Elbow River. A route west of this existing trail was investigated earlier in the planning process which would have been located closer to Orr and Moose Lake. This route, however, was eliminated after opposition was expressed at the public meeting held in Orr (spring 1979). Residents in this area were concerned about increased trespass and other problems they felt would be created if this route was selected.

Along the route of the existing Kabetogama state forest trail is a spur to the Pelican River and a trail shelter. A route from this shelter to Orr was investigated by the district forester and determined to be infeasible.

Uses on this portion of the trail will include snowmobiles with limited opportunity for hiking and horseback riding. Special signing will have to be placed along the portions of trail which are routed on the Elbow Lake State Forest Road warning motorists and trail users of each other's presence. The parking area will be built to handle 5-10 cars with trailers. Trash receptacles will also be provided. A pit toilet will not be located here because of potential vandalism problems.

Elbow River to Cook Trail

From the existing state forest trail at the Elbow River (Plate 7) the proposed trail will proceed south crossing the river on a new bridge. It should be mentioned that from this point the state forest snowmobile trail continues west to Glendale located on U.S. 53, 1½ miles south of Orr. From Glendale, a route will be investigated by local residents to determine if a connection through Orr to the Ash Lake Trail is feasible. Local residents from the Orr meeting (spring, 1980) will be working on this and will contact DNR.





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After crossing the rive. Hoodoo Lake to Sunset Lasouth to a township roader existing state forest spin Bay.

Use of this segment will Sunset Lake to Hoodoo Lak and horseback riders. he trail will proceed south and east around From Sunset Lake, the trail will proceed ere it will connect to the Cook Trail, an obile trail which goes from Gheen to Frazer

primarily snowmobile, but the route from should be developed to accommodate hikers

Cook Trail to Lost Lake

From Cook Trail, the prop of Frazer Bay (Plate 8). east toward Lost Lake. The to accommodate snowmobiler input at the Tower plannin local club members in 1979 d trail alignment continues to a point east om this point, the trail will go south and trail was routed to the east of Lost Lake who live along Lake Vermilion. Public meeting and a follow-up meeting with roduced the route shown.

Due to large areas of low ground, snowmobiles will be the only trail use accommodated on this section.

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Lost Lake to Tower (Plate 9)

From Lost Lake, the trail wil proceed southwest, cross State Highway 1 on grade and connect to the Taconite Trail at the Pike River Flowage. The Taconite Trail Plan calls for development of a rest stop at this point. Signs will have to be placed on Highway 1 to warn motorists of the trail crossing. From this point, the International Falls to Tower Trail will follow the route of the Taconite Trail to Tower and Ely. Interested readers should refer to the Taconite Trail Master Plan for details of this route.






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LAND ACQUISITION

Land acquisition for the Tower to International Falls Trail will be kept to a minimum by using public lands and rights-of-way as much as possible. However, in certain areas, private land will be acquired for the trail right-of-way. Types of land acquisition measures utilized will include the following:

- 1. Fee Title Acquisition outright purchase may be the most preferred means of acquiring land in that it provides permanent public ownership. This type of acquisition requires a willing seller and a clear title.
- 2. Land Exchange can be used to acquire fee title land that meets requirements for outright purchase. Exchanges are made on a value-for-value basis.
- 3. Easement is an acquisition of certain interests in land for specific purposes; ie., trails. An easement, used when fee title cannot be obtained, should be perpetual.
- 4. Leases, Use Permits and Cooperative Agreements will be utilized only if one of the more permanent forms of acquisition is not possible.
- 5. The authority for eminent domain has been granted for this trail at the time of authorization. However, this authority will only be used when no other alternative exists.

Policies for Land Acquisition

- a. Public lands and rights-of-way will be considered first for the right-of-way. Private lands will be considered only where no other feasible alternative exists.
- b. County Tax Forfeited lands will be acquired through county board resolutions and long-term easements.
- c. The use of federal land will be secured via cooperative agreements¹ or special use permits.
- d. The amount of right-of-way acquired for the trail will be a minimum of 20 feet and a maximum of 100 feet. Final width will be determined during negotiations with the landowner.
- e. In addition to the trail right-of-way, spur trail routes leading to service areas and towns will be acquired. In many cases, these routes could be for winter use only, similar to acquisition for grant-in-aid snowmobile trails.
- f. Additional land adjacent to the trail right-of-way will be purchased for support facilities.

¹See Appendix for details of Cooperative Agreement currently in place for the Arrowhead Region Trails System.

g. If condemnation is required on any parcel, no more than a 33 foot right-of-way will be acquired. This authority will be used for trail right-of-way only and not for land needed for parking lots or other support facilities.

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h. Prices paid for land in fee or easement will be the fair market value as determined by an appraiser.