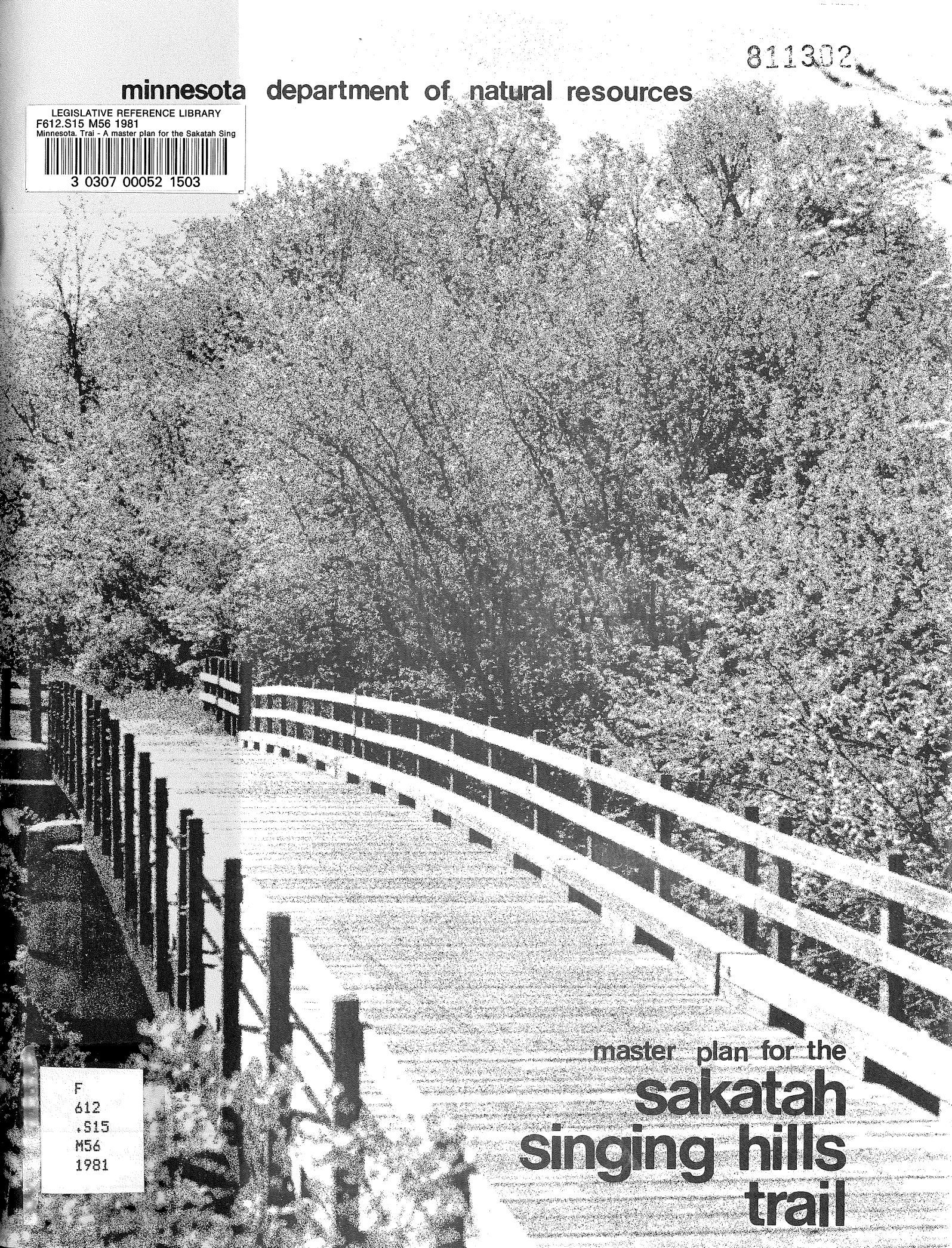
minnesota department of natural resources

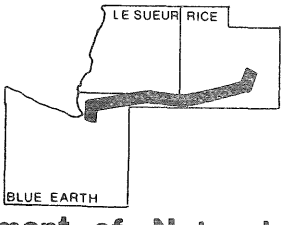


master plan for the sakatah singing hills trail

A MASTER PLAN FOR THE SAKATAH SINGING HILLS TRAIL

January 1981

Originally Approved June 1980



Minnesota Department of Natural Resources
Trails and Waterways Unit

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INTRODUCTION

This master plan was prepared by the Minnesota Department of Natural Resources (DNR), Trails and Waterways Unit, to fulfill the requirements of the Outdoor Recreation Act (Minnesota Statutes, Sections 86A.01 through 86A.11). The law requires the DNR to prepare a master plan for the Sakatah Singing Hills State Trail to insure that the administration of the trail is provided "in a manner that is consistent with the purposes for which the unit was authorized."

To develop this plan, the DNR considered a wide range of physical, biological, social, economic, psychological, and political questions. The pages which follow describe the background of the trail, the trail environment, the DNR goal and guidelines for the trail, the development and management techniques to be used, the means by which the proposed actions will be implemented, and the procedures which will be used to evaluate and modify the plan.

Although the plan has now been completed, the actions outlined are subject to revision. Changes in the user needs, funding, and the trail environment will require appropriate changes in the plan. Thus the plan must retain flexibility. In addition, the DNR will update the plan in ten years to address changes which have occurred.

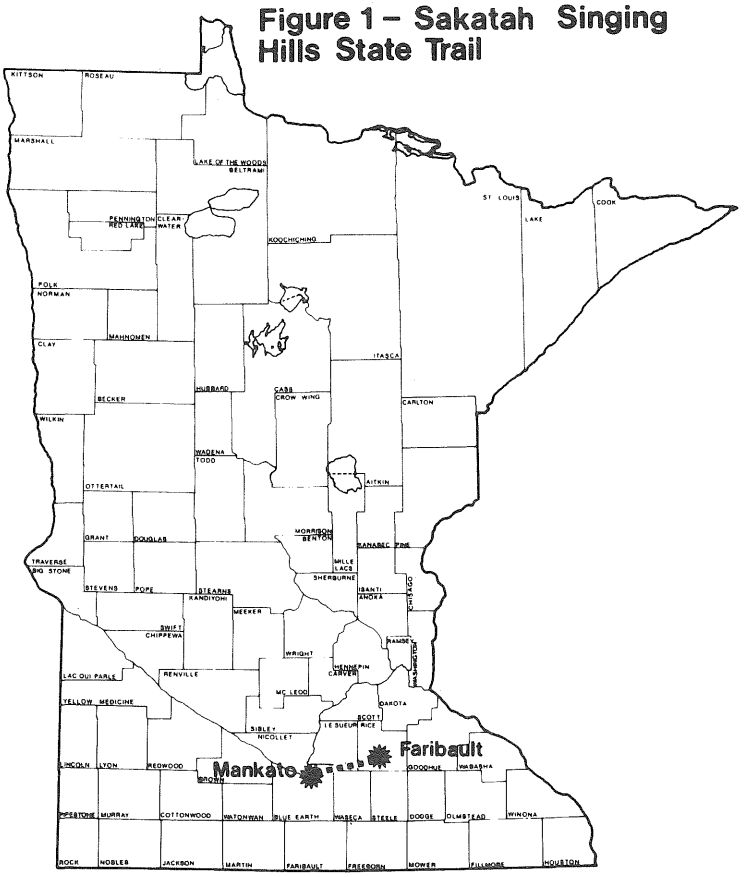
Many hours were spent by numerous individuals in the preparation of the master plan for the Sakatah Singing Hills State Trail. The DNR wishes to express its gratitude to all those citizens and public servants who contributed to the development of this document. The DNR hopes the cooperative spirit that has been evidenced in the preparation of the plan will continue into the future, guaranteeing a first-rate trail.

SUMMARY

The Sakatah Singing Hills State Trail was authorized by the Minnesota Legislature in 1971 (Laws of Minnesota, 1971, Chapter 859, Section 6, Subdivision 8). The trail begins near Faribault in southern Minnesota and continues south-westward for thirty-seven miles along abandoned Chicago and Northwestern railroad right-of-way to Mankato (see Figures 1 and 2). The right-of-way (ROW) width is generally one hundred feet, or approximately fifty feet on each side of the treadway.

As of August, 1980, most of the trail corridor has been acquired by the state. However, there are severances in the trail at Waterville and near EagleLake which need to be eliminated to make the trail continuous. Eight miles of the trail is surfaced between Faribault and Morristown, and is being used for bicycling. The trail is also being used by joggers and hikers in the summer, and snowmobilers in the winter.

Figure 1 – Sakatah Singing Hills State Trail



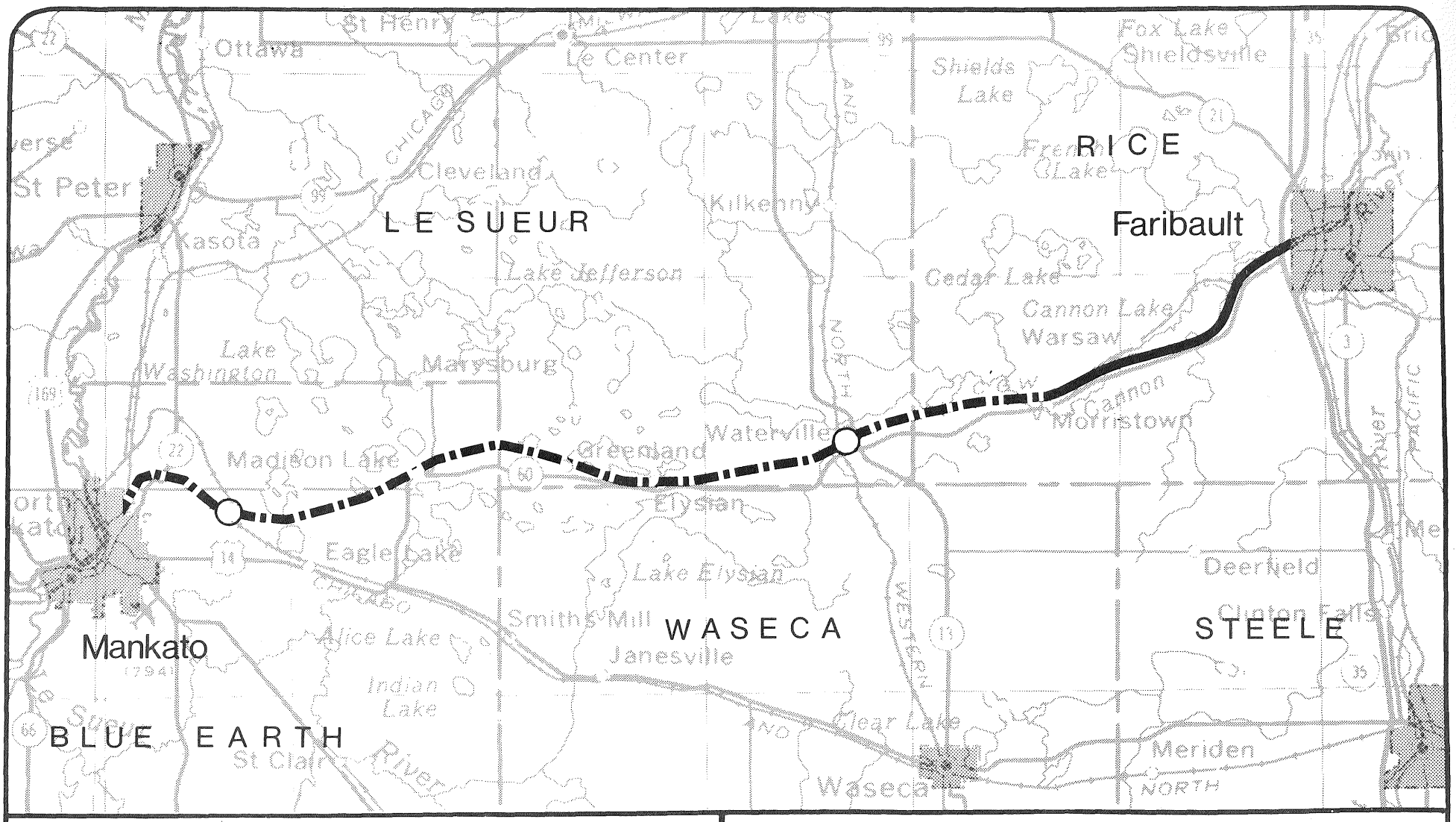


Figure 2
General Trail Alignment
SAKATAH SINGING HILLS
STATE TRAIL MN / DNR

legend

0mi. 2mi. 4mi.

north

- Surfaced
- To Be Surfaced
- Severance

Trail Uses (Main Treadway)

- Hiking
- Bicycling
- Snowmobiling

The purpose of this plan is to: 1) fulfill the requirements of the Outdoor Recreation Act; and 2) establish and document an effective, orderly action program for the Sakatah Singing Hills State Trail. This action program will insure that the scenic, historic, scientific and recreational qualities of the trail are properly managed and maintained for the use and enjoyment of the citizens of Minnesota. The plan focuses on actions to be implemented on the trail during the next ten years.

The goal of the DNR for the state trail consists of four interrelated parts:

- Provide a quality experience for bikers, hikers, snowmobilers, and other users of the trail;
- Compliment regional facilities and contribute to statewide recreation goals;
- Preserve a linear representation of the forest-prairie transition in southern Minnesota; and
- Minimize the negative impacts caused by the trail in the area.

The DNR has proposed a series of actions to help achieve this goal. The eight foot wide limestone surface on the main treadway will be completed on the remaining twenty-nine miles between Faribault and Mankato. The culverts between Morristown and Mankato will be repaired and replaced. The railings on two bridges will be replaced, and the Morristown bridge will be decked. Land will be acquired to complete the treadway into Faribault, to build a parking area at Faribault, to complete the trail near Eagle Lake, and to build a snowmobile trail around Waterville.

A second treadway for horseback riders and ski tourers is planned. This treadway will be built in stages. The first segment to be built will extend from either Shager Park or Faribault to Morristown. However, this segment cannot be built until parking facilities have been established. Additional segments to Faribault, Sakatah Lake State Park, and westward will depend on the use of the treadway and on the feasibility of building the treadway.

Parking areas, rest stops, a campsite, and possibly a maintenance structure will be built along the trail. Major parking facilities are planned at Faribault, Elysian, and Mankato, while minor parking areas are planned for Madison Lake, the Morristown area, and Eagle Lake. Bench-type rest stops will be scattered along the trail for users. One primitive campsite will be built west of Elysian at a location to be determined. A storage-maintenance area may also be needed at Madison Lake.

Several proposed actions will be taken along the entire trail. Native plants will be planted to reestablish pre-settlement vegetation, screen the trail, and prevent erosion. The trail will have signs scattered throughout the route to provide information to users. An interpretation program will also be implemented for users. Various maintenance actions, including litter pick-up, trail grooming, weed control, and fencing, are planned to keep the trail in good condition. State and local officials will enforce laws, rules, and regulations on the trail. Trail encroachment will be monitored and eliminated.

To implement many of the above actions the DNR will require additional personnel and equipment. Funds will be requested to hire a permanent Natural Resources Specialist I and a Seasonal Laborer to manage the trail. The DNR will be closely monitoring the trail environment and users to identify unforeseen changes and problems which occur. The plan will be evaluated periodically to determine what actions need to be changed, added, or deleted. Public input will be sought through surveys and meetings to aid in these evaluations. In ten years (1990) the plan will be thoroughly reviewed and updated.

TRAIL LEGISLATIVE AND ADMINISTRATIVE HISTORY

HISTORY OF THE STATEWIDE TRAIL SYSTEM

Trails were the first land transportation routes. Early trails consisted of animal and Indian trails. Explorers, voyageurs, adventurers, and pioneers used these trails as they traveled across the country. The Grand Portage Trail was one of the first great trails in Minnesota. The Grand Portage Trail and other trails aided in colonial expansion from the Atlantic to the Pacific Oceans.

Trails have recently been considered to be of more value than just for transportation. Increasing amounts of leisure time, higher disposable income, greater mobility, and a growing environmental awareness have increased the recreational value of trails.

Minnesota's first designated recreational trail came about after the development of the first state park in 1889 (Camp Release). However, the formal beginnings of Minnesota's trail system did not occur until the late 1960's. Rapid growth in the popularity of the snowmobile during this period created a need to provide trails and, sometimes, regulate use. Legislation was enacted to require snowmobilers to pay registration fees for trail development. In 1967, the Department of Natural Resources (DNR), Division of Parks and Recreation, was assigned the responsibility of promoting, developing, and managing recreational facilities for snowmobile users (Minnesota Statutes, 1967, Section 84.83, Subdivision 2).

Up until 1969, DNR trails were developed only in state parks and forests. However, in 1969, the Minnesota Legislature authorized the DNR to "establish, develop, maintain, and operate recreation areas" (Minnesota Statutes, 1969, Section 85.015, Subdivision 1). From 1971 to 1975 thirteen trails were authorized by the legislature, including the Sakatah Singing Hills State Trail. These trails now form the backbone of the state recreational trail system (see Appendix A).

In 1973, the legislature provided the means for a statewide recreational trail system through passage of trail legislation, appropriation of trail development and maintenance funds, and authorization of a temporary DNR trail staff. A grants-in-aid program was also initiated to compliment the state trail system.

Grants-in-aid trails are developed through the cooperative efforts of the DNR, local units of government, trail user groups, and landowners. The DNR awards trail assistance grants to local units of government for the development and maintenance of these trails. The DNR recommends that grants-in-aid trails and local trails provide the necessary connections between service areas and the Sakatah Singing Hills State Trail.

In 1975, the legislature passed another statute which affected the DNR trail program: the Outdoor Recreation Act (ORA) (Minnesota Statutes 86A.01 through 86A.11). This act established an outdoor recreation system comprised of eleven components managed by the state. State trails are one component of this system. The ORA required state trail master plans and set forth criteria which must be met in order for a trail to be classified as a state trail (see Appendix B). The act also stated that:

> No construction of new facilities or other development of an authorized unit, 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, a master plan for administration of the unit in conformity with this section. This requirement shall not apply to an existing unit until August 1, 1977. (Minnesota Statutes, 1976, Section 86A.09, Subdivision 1)

(This plan has been reviewed by the State Planning Agency, thus fulfilling this requirement.)

The Trails and Waterways Unit, created by departmental reorganization in 1979, is presently responsible for the planning and development of all DNR trails. The goal of the DNR trail program is to conserve, and wisely use Minnesota's resources so that existing and future generations may enjoy a variety of recreational trail experiences.

TRAIL AUTHORIZATION

The Sakatah Singing Hills State Trail was authorized in 1971 as one of six state corridor trails by an act of the Minnesota Legislature (Laws of Minnesota, 1971, Chapter 859, Section 6, Subdivision 8). The subdivision of the act authorizing the state trail reads as follows:

Subd. 8. Sakatah Singing Hills Trail, Blue Earth, Le Sueur, and Rice Counties.

(a) The trail shall originate at mile post 4.1 of the Chicago and Northwestern Railway Company right-of-way in the junction of Benning, Blue Earth County, and shall extend in a northeasterly direction along the railroad right-of-way to mile post 46.01 of the Chicago and Northwestern Railway at a point commonly known as Faribault Junction in Rice County, a distance of approximately 42 miles, and there terminate.

(b) The trail shall be developed primarily for riding and hiking. Motorized vehicles, except snowmobiles, are prohibited from the trail.

(c) The commissioner shall not acquire any of the right-of-way of the Chicago and Northwestern Railway Company until the abandonment of the line of railway described in this subdivision has been approved by the Interstate Commerce Commission. However, before the abandonment is complete, the commissioner may take such preliminary steps as are necessary for the acquisition of such lands or interests in land, contingent upon the abandonment.

TRAIL CLASSIFICATION

The Outdoor Recreation Act established several criteria for areas to be classified as state trails (see Appendix B). It is the DNR's finding that the Sakatah Singing Hills State Trail substantially satisfies these criteria. The trail qualifies because it:

1(i) "Travels along a route which connects areas or points of natural, scientific, and historic interest;"

The trail passes through an area which possesses a rich history (see pages 29-33). Numerous historic sites are linked by the trail. These sites record the activities and interactions of the different cultures which have inhabited the area.

1(iv) "Travels along a route which is historically significant as a route of migration, commerce, or communication;"

For much of its length the trail parallels a transportation route used by Indians and early white settlers (see pages 29-33). The railroad line which the trail primarily follows was constructed one hundred years ago, making it a route of historic significance.

2) "Utilizes, to the greatest extent possible, consistent with the purposes of this subdivision, public lands, rights-of-way, and the like;"

The Sakatah Singing Hills State Trail primarily follows railroad right-of-way (ROW). Railroads, by their nature, are quasi-public entities. The railroad ROW has served the public in the past, and it will continue to do so as a public recreational trail.

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 Sakatah Singing Hills State Trail satisfies this criterion because it preserves some relatively undisturbed natural features, historic and cultural sites in the area; many other historic and cultural sites are accessible from the trail. An interpretive program, rest stops located at unique or scenic locations, and signs will also help provide the maximum potential to appreciate, conserve, and enjoy the areas of interest.

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

Public demand and future trail use are very difficult to predict. However, the Sakatah Singing Hills State Trail route does take into consideration predicted public demand and future use. The trail can provide recreational opportunities for people in at least two sizable cities, Faribault and Mankato. Public demand for the trail is supported by the passage of legislation authorizing the trail in 1971, and by the comments expressed by the public at meetings in 1978 and 1979 to consider this plan. The trail is presently being used by snowmobilers, bicyclists, and hikers. There is no apparent reason why this support will not continue in the future. Indeed, with future trail development and improvements, with an active promotion program, and with an increasing population in the vicinity of the trail, future use should increase. Public demand also is responsible for the planned development of a second treadway for horseback riders. Finally, public demand and use will be monitored to consider what future actions to take on the trail (e.g., expanding the second treadway).

DESCRIPTION OF THE ENVIRONMENT

NATURAL RESOURCE PERSPECTIVE

Climate

Minnesota's climate is characterized by warm, humid summers and cold, dry winters. Table 1 summarizes some of the climatological characteristics of the Sakatah Singing Hills State Trail area. The growing season in the trail area is 140 days, with approximately 65% of the precipitation occurring during this time. In the summer, frequent local thunderstorms contribute to the area's average annual 29-31 inches of precipitation. In the winter months the trail area averages ninety-five days of snowcover. Average January temperatures are about 14^{0} Fahrenheit. Few sub-zero days occur here during the winter.

Lakes and Rivers

Surface water is an abundant resource in the vicinity of the state trail. Twenty-three lakes are located within 1½ miles of the trail. These lakes provide habitat for many game fish species including walleye, bullheads, panfish, and northern pike. Table 2 lists the sixteen lakes found adjacent to the trail, while Table 3 lists some of the recreational qualities for eight of the main lakes that provide fishing for the enthusiast.

Two large rivers, the Cannon and Minnesota Rivers, are also located near the trail. The eastern half of the trail passes along and over the Cannon River, while the Minnesota River is within two miles of the trail head in Mankato.

Topography

The topographic characteristics of the Sakatah Singing Hills State Trail were formed by glacial action. The glaciers deposited up to several hundred feet of drift material where the trail now sits.

The eastern end of the trail, located in the Cannon River Watershed, has a gently undulating to hilly surface with poorly developed natural drainage systems and many wet depressions. These glacial moranic hills give way in the west to a glacial till plain which forms the upper part of the Blue Earth River Watershed. However, the topographic features of

TABLE 1

Climatological Statistics

	Faribault	North Mankato
Temperature (^{o}F)		
Mean Annual Normal	45	46
January Normal	14	14
April Normal	46	47
July Normal	73	73
October Normal	51	51
January (^{o}F)		
Mean Maximum	23	23
Mean Minimum	3	3
Mean	14	14
July (^{o}F)		
Mean Maximum	84	84
Mean Minimum	61	61
Mean	72	72
Precipitation		
Average Annual Snowfall	43"	40"
Maximum Recorded Depth	37"	24"
Average Annual Precipitation	30.58"	29.46"
July Mean	4.52"	4.00"

Source: U.S. Dept. of Commerce, NOAA, Environmental Data Service, Climatography of the United States (#81) Minnesota (Asheville, N.C.: 1973), and Climatography of the United States (#60-21) (Asheville, N.C.: 1972).

TABLE 2

Lake Statistics

County and Lake Name	Acreage Per Lake	Miles of Shoreline
Blue Earth County		
Ballantyne	350	2.9
Duck	290	2.3
Eagle	1,180	8.6
Gilfillin	210	1.8
Madison	1,350	10.2
Le Sueur County		
Francis	870	8.4
Rays	---	---
Round	---	---
Tetonka	1,330	9.4
Tustin	150	2.2
Upper Sakatah	1,180	7.6
Rice County		
Cannon	1,480	10.2
Lower Sakatah	881	5.4
Wells	630	6.8
Waseca County		
Elysian	2,460	18.4
Lily	---	---

Source: University of Minnesota, Dept. of Geography, and the Center for Urban and Regional Affairs, Minnesota's Lakeshore, Part 2: Statistical Summary. Summary Report of the Minnesota Lakeshore Development Study (Minneapolis: 1970).

TABLE 3

Recreational Lakes Near Sakatah Trail

LAKE NAME	COUNTY	MEDIAN DEPTH - ft.	ACCESS	MOST COMMON FISH SPECIES	SUMMER ANGLING	WINTER ANGLING	SPEARING	HUNTING	BOATING	CANOEING	WATERSKIING	PICNICKING	CAMPING	SWIMMING
Eagle	Blue Earth	4.5	Sec. 31 (public)	Carp, Bullheads, Walleye				X						
Madison	Blue Earth	12.0	SE Shore (public)	Walleye, N. Pike, Carp, Bullheads, Crappies, Buffalo	X	X	X		X		X	X	X	X
Sakatah Lake	Le Sueur/Rice	9.0	Waterville (public)	Crappies, Sunfish, Walleye, Bullheads, Northern Pike	X	X	X	X	X	X	X	X	X	X
Gilfillin	Blue Earth	1.0		Marginal for fish--hunting & fur bearing instead				X						
Francis	Le Sueur	51 (max.) No median given	South Shore (public)	Walleye, N. Pike, Bluegill, Dogfish	X	X	X	X	X	X	X	X	X	X
Elysian	Le Sueur	7.0	Sec. 21 & 28 (public)	Walleye, Crappies, Bluegill, Bullheads	X	X	X	X		X		X	X	X
Cannon	Rice	10.0	South Shore (public)	W. Bass, Crappies, Walleye, Carp, Bullhead	X	X	X		X	X	X	X		X
Wells	Rice	8.0	S.A.R. #13 (public)	Marginal for fish--hunting & fur bearing instead				X						

Source: DNR Ecological Services Section, Lake Survey Information Summary Sheets (dates vary).

the extreme western end of the trail by Mankato are markedly different than those to the east. As the trail dips down into the Minnesota River Valley, the erosive forces of the river have created a number of deep ravines and granitic bedrock out-croppings through the glacial drift.

Soils

The soils in the area through which the state trail passes are medium to fine textured, well supplied with lime, and highly productive.

The soil landscape of this area can be broken down into seven soil classifications, all of which are based on the predominant texture of the upper five feet of the landscape unit (see Figure 3). The predominant soil classification is loam, which consists of an equal mixture of sand, silt, and clay. This soil is considered the best soil for agriculturally based activities, due to its physical and chemical characteristics.

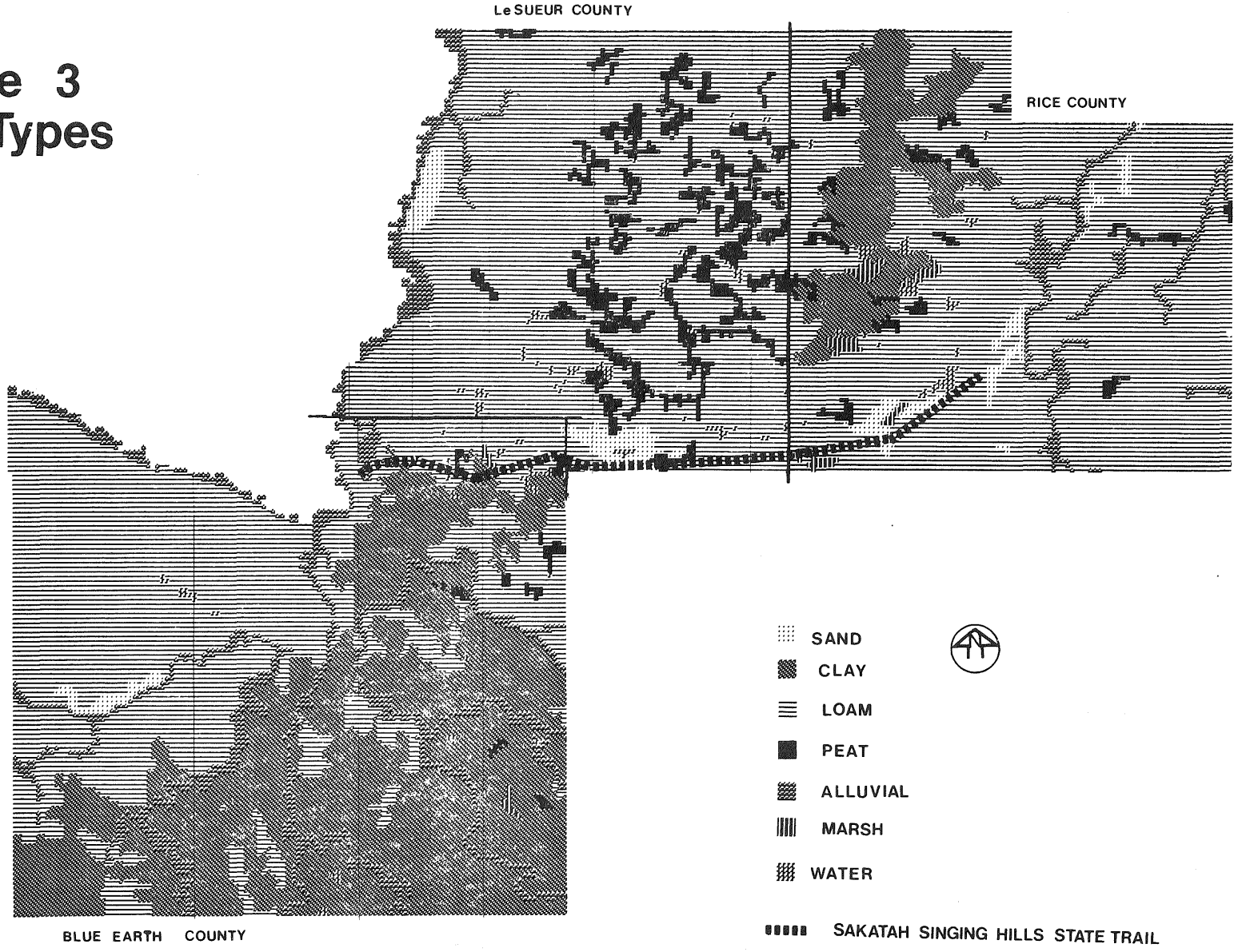
Vegetation

Prior to white settlement, the area now called the Sakatah Singing Hills State Trail was located within the broad forest-prairie transition zone in southern Minnesota (see Figure 4). Five vegetative communities were present in the vicinity of the trail: "Big Woods" found from Mankato to Elysian; "Aspen-Oak Land" located near Elysian; "Oak Openings and Barrens" located in the vicinity of Waterville; "Prairie" found from Morristown to Faribault; and "Wet Prairie Marsh and Slough" scattered throughout the area.

Many of these communities have been dramatically altered in the past one hundred years: cultivation, land clearing, drainage, fire exclusion, tree planting, herbicide usage, road building, and urbanization have all changed the vegetation. The vegetation growing along the Sakatah Singing Hills State Trail today reflects many of these disturbances.

Along the southwest portion of the trail the transitional vegetation, referred to as oak openings and barrens by Marschner (1930), occurred on steep topography. Consequently, agricultural practices were limited here and the land was left relatively untouched. However, man's activities

Figure 3
Soil Types



Generalized Soils Landscape Units

These soil classifications are based on the predominant texture of the material of the upper 5 feet of the landscape unit.

Source: Minnesota Land Management Information System (MLMIS), 1975.

have altered this vegetation by suppressing fire. Today, vegetation resembling the "Big Woods" exists where the oak openings and barrens once were. Mature elms and oaks are prominent. Other species present include maple, ash, basswood, hornbeam, aspen, cottonwood, and box elder.

Clearing, cultivation, grazing, and burning have left little of the historical "Big Woods" vegetation. Where the "Big Woods" once stood along the trail, many dense, young closed stands of quaking and bigtooth aspen are now present. Several oaks, elms, ash, maple, and basswood are also found. Some of the common shrub and vine species of the "Big Woods" still remain, including gooseberry, raspberry, bittersweet, virginia creeper, and wild grape.

The most scenic areas along the northeastern half of the state trail are found today where brushland transition vegetation once existed amidst the grassland. Time and fire suppression have allowed a few of these areas to "succeed" into older, more mature forest stands. Sakatah Lake State Park and an area along the south shore of the Cannon Lake contain such forest stands.

Almost all the natural grassland throughout Minnesota (dry, mesic, and wet prairie) is extinct because of cultivation, grazing, mowing, spraying, and burning. Only designated natural areas, some roadside ditches, and railroad grades contain vegetation that resembles the original tall grass prairie of Minnesota. An often cited estimate of the amount of reasonably good prairie now remaining in all types of ownership is twenty square miles or one-tenth of one percent of the original prairie prior to human alteration.

Along the Sakatah Singing Hills State Trail, vast fields of corn and soybeans grow today where big bluestem, little bluestem, Indian grass, and other native prairie species once thrived. The prairie vegetation has been disturbed within the trail right-of-way by railroad activities and by landowners encroaching on the right-of-way. With proper management, however, this prairie vegetation can be restored. The state trail will then harbor some of the only native prairie in the area, and will act as a refuge for these scarce plants, as well as for wildlife.

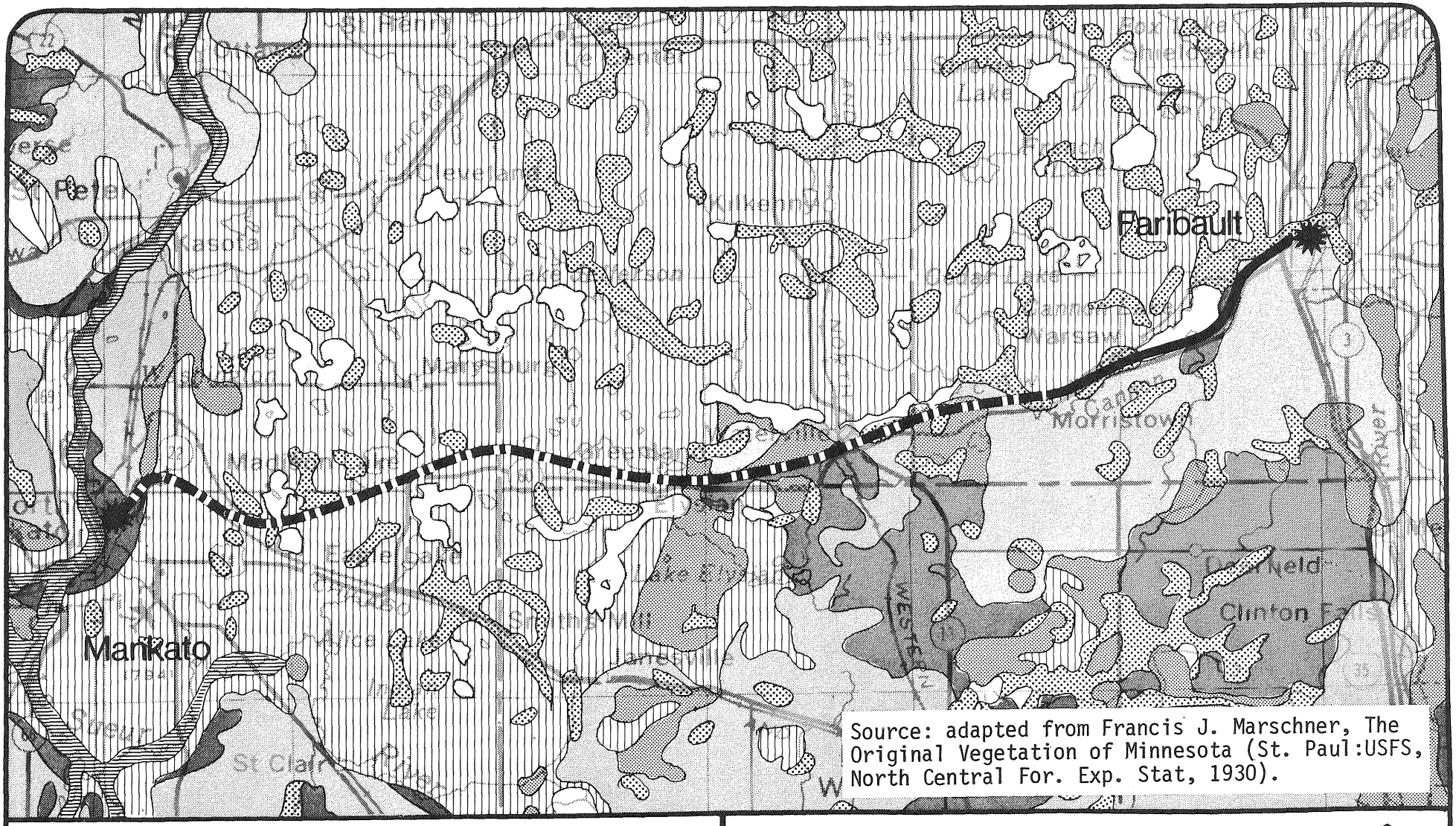


Figure 4
Presettlement Vegetation
SAKATAH SINGING HILLS STATE TRAIL MN / DNR

legend

0mi. 2mi. 4mi.

north

- SURFACED
- TO BE SURFACED
- PRAIRIE
- ASPEN OAK LAND
- WATER
- WET PRAIRIE, MARSH AND SLOUGH
- OAK OPENING AND BARRENS
- BIG WOODS
- RIVER BOTTOM FOREST

The following table lists some of the wildflowers observed by DNR staff along the trail on May 30 and June 12, 1979.

TABLE 4

Wildflowers

COMMON NAME	SCIENTIFIC NAME
Common Ragweed	Ambrosia artemisiifolia
Wood Anemone	Anemone quinquefolia
Rue Anemone	Anemonella thalictroides
Columbine	Acquilegia canadensis
Wild Ginger	Asarum canadense
Charlock Mustard	Brassica kaber
Field (Rape) Mustard	Brassica rapa
Sheperd's Purse	Capsella bursa-pastoris
Common Strawberry	Fragaria virginiana
Wild Geranium	Geranium maculata
Virginia Waterleaf	Hydrophyllum virginianum
Saint Johnswort	Hypericum perforiatum
Alfalfa	Medicago sativa
Spearmint	Mentha spicata
Common Evening Primrose	Oenothera biennis
Jacob's Ladder	Polemonium reptans
Solomon Seal	Polygonatum biflorum
Pasture Rose	Rosa carolina
Purple-flowering Raspberry	Rubus sp.
Bladder Campion	Silene cucubalus
False Solomon Seal	Smilacina racemosa
Yellow Goats Beard	Tragopogon pratensis
Red Clover	Trifolium pratense
White Clover	Trifolium repens
Common Cattail	Typha latifolia
Stinging Nettle	Urtica dioica
Common Milkweed	Verbascum thapsus
Common Blue Violet	Viola papilionacea
Round-leaved Yellow Violet	Viola rotundifloia

Wildlife

Although the main purpose of the trail right-of-way is recreation, the importance of preserving wildlife habitat should not be underestimated. The DNR has preserved over four hundred acres of wildlife habitat along this thirty-seven mile long, 100 feet wide corridor. Small game such as pheasants, hungarian partridge, and rabbits are using the right-of-way for nesting in the spring and for valuable shelter in the winter months.

Many other species of wildlife are found in the vicinity of the trail. The wildlife inventory in the Appendix is based upon checklists submitted to naturalists and wildlife officials from the two regions which the trail traverses. These lists are not all inclusive, but they give a general overview of the type of species present in the trail area.

HISTORICAL PERSPECTIVE

Trail Area History

The country lying along the St. Croix, Mississippi, and Minnesota Rivers, including the Sakatah Singing Hills State Trail, was originally inhabited by Native American Indians. These people probably once lived in the hills and valleys near the trail. Their implements of agriculture, war, and commerce can still be found, and battle walls and mound-like tombs remain as archaeological evidence.

When Europeans first came to southern Minnesota the territory was inhabited by tribes belonging to the powerful Dakota nation. The Wahpekuta tribe lived in the area which the trail now traverses. They named the place Sakatah, which translates to "Singing Hills,"--hence the trail's name.

The Mankato area was first visited by the French explorer Le Sueur in October, 1700. Le Sueur established a French post called Fort L'Hillier near the mouth of the Blue Earth River (Frink). However, the French post was here only briefly.

Over one hundred years passed before the first permanent white settlement was established near the state trail. In February, 1852, Henry Jackson, P. H. Johnson, and several other individuals from Saint Paul formed and organized a company called the Town Site Company. These pioneers chose to settle at the mouth of the Blue Earth River. In the spring of 1852 Mankato's first small buildings were built. More settlers followed these pioneers in spite of Indian opposition.

The railroad played an important role in opening up the country to settlement. Largely through the efforts of L. Z. Rogers of Waterville, the state of Minnesota gave a grant to build a railroad from Red Wing to Mankato. Although the route was surveyed in the late 1870's, none of the actual work was done until the spring of 1882. The railroad was completed from Faribault to Waterville that same year (1882) by the Cannon Valley Company. Four years later the railroad was completed through to Mankato.

In the early 1900's, the Cannon Valley Railroad was taken over by the Chicago and Great Western Railroad. Electric passenger trains and steam freight trains both used the Mankato to Faribault segment, stopping at various points including Waterville and Elysian.

In the 1960's, automobile, bus, and airplane competition reduced the demand for railroad service. Many railroad companies were forced to abandon unprofitable lines. The railroad from Faribault to Mankato was one such line. The Chicago and Northwestern Railroad abandoned the line in sections in 1971 and 1976. The state of Minnesota, in turn, bought the right-of-way in sections between 1973-1977.

Sites of Historical and Cultural Significance*

Although there are no known archaeological sites on or adjacent to the Sakatah Singing Hills State Trail, many historical and cultural sites have been noted (see Figure 5).

1. Old Dakota Indian Water Route

   This old Indian trail formed a direct water route to Wisconsin via the Minnesota, Blue Earth, Le Sueur, and Cannon Rivers. The water route was used as a transportation corridor because the "Big Woods" made land travel difficult, and because a larger load could be carried by canoe. Numerous trading posts and Indian villages existed along the length of the route.

   For much of the route from Mankato to Faribault the Indian water route parallels the Sakatah Singing Hills State Trail. The Indians paddled downstream on the Minnesota River to where Mankato now stands. They then paddled a short distance upstream on the Blue Earth River to reach the Le Sueur River. The Le Sueur River in turn carried the Indians into Lake Elysian (see Figure 5). From Lake Elysian the Indians portaged three miles into Lake Tetonka, part of the Cannon River drainage system. The Cannon River then brought them, via Faribault, to Red Wing and the Mississippi River.

2. Indian Burial Grounds

   Many Indian burial mounds have been uncovered close to the state trail. Some of these burial mounds still exist in Sakatah Lake State Park.

3. Cannon Lake

   Cannon Lake is the largest lake in Rice County, covering about 1,451 acres. The lake was originally named by the Indians "Te-ton-ka To-nah", or the Lake of the Village. The Indians

*The following sites were identified by books, reports, newspaper articles, and by the Blue Earth, Le Sueur, and Rice County Historical Societies. The documents are listed in the Appendix.

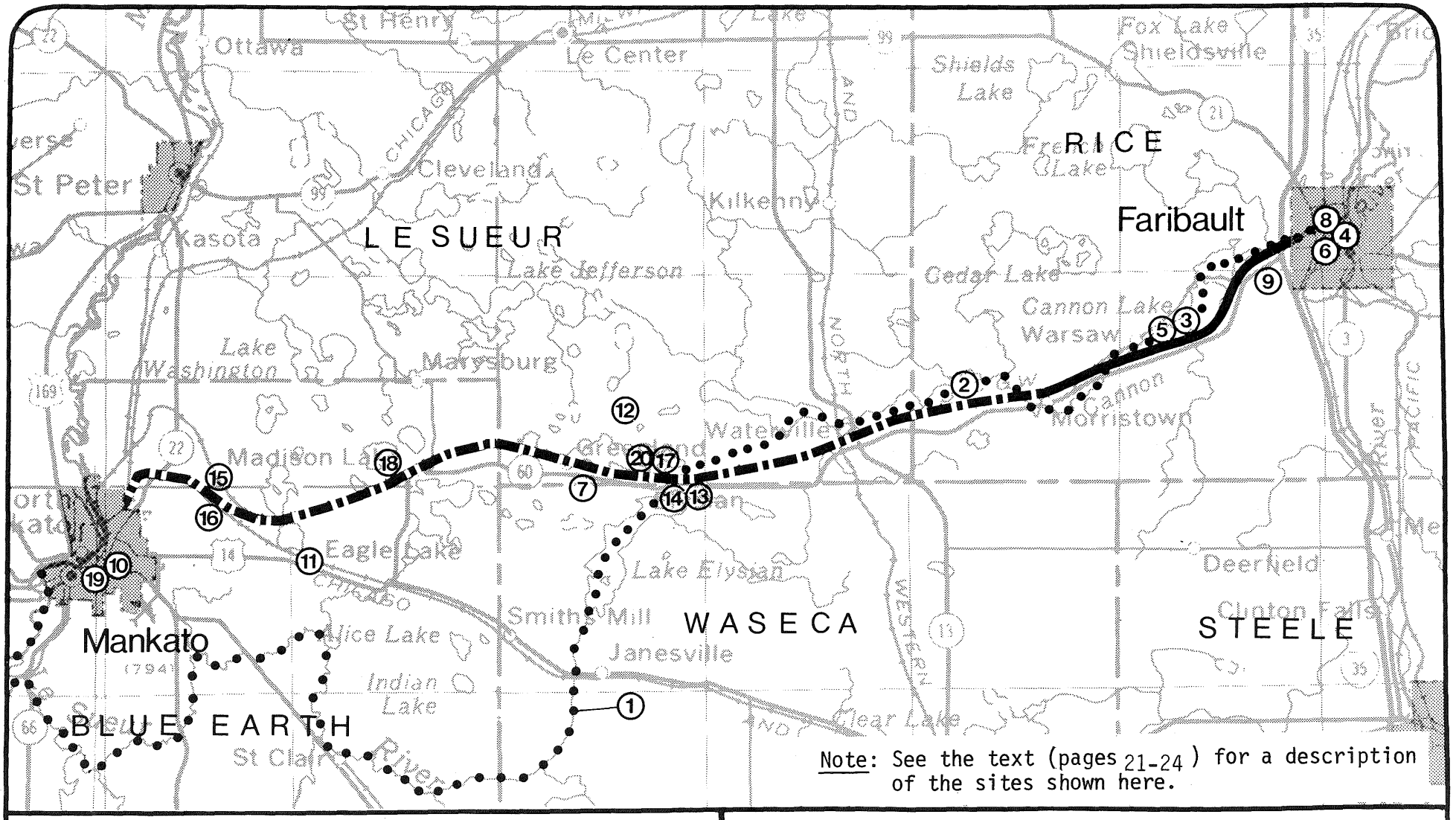


Figure 5
Historic Sites
SAKATAH SINGING HILLS STATE TRAIL MN/DNR

legend

0mi. 2mi. 4mi.

north

- Surfaced
- To Be Surfaced
- Indian Water Route
- ① Historic/Cultural Sites

regularly used the lake as a hunting and fishing ground. Many of the old settlers could recall occasions when there were as many as 200 tepees on the shores of the lake while the hunters were laying in winter supplies.

Cannon Lake derives its English name from the Cannon River which flows into the lake at its southwest corner and drains the lake to the northeast. French fur traders originally called the river La Riviere aux Canots, "the river of canoes." The river's present name, a mispronunciation of the original French, comes from the narratives of explorer Zebulon Pike's expedition in 1805-06. Pike used the name Canoe River when telling of his journey up the Mississippi, and the name Cannon River in the account of his return trip (Curtis and Minnesota DNR).

4. Faribault's Trading Post

Between 1826-1834, Alexander Faribault established a trading post on the northeast shore of Cannon Lake. The local Indians went to this post to obtain provisions and other goods. The trader was paid back with furs when the Indians returned in the spring.

5. "Tepee Tonka"

The village of the Wahpekuta (Leaf Shooters) tribe of Dakota Indians was on the northeast shore of Cannon Lake when Alexander Faribault established his trading post with them (Frink and Rice County Historical Society).

6. The Faribault House - Monument to Alexander Faribault

In 1853, Alexander Faribault (1802-1882) built the first frame building in Rice County. The civic affairs of the village and area centered around this home. Alexander Faribault was in every sense a leader in the county. The area has been identified with the Faribaults since 1826 when the young Alexander and his father, Jean Baptiste Faribault, came here from Mendota to trade furs with the Indians. The site was eventually given the name Faribault and Alexander Faribault was named postmaster.

The Alexander Faribault House was restored between 1944 and 1955. The restored Faribault House is a historic monument to the life of Alexander Faribault--pioneer; trader; friend of the Indians; philanthropist; civic leader; and founder of the City of Faribault (Curtis and Minnesota Department of Transportation).

7. Great Prairie Fire

In September, 1856, the inhabitants of Elysian were thrown into a state of great excitement by the announcement that a sweeping prairie fire was approaching their section of the county from the southwest. The ground was deeply covered with dry leaves and great damage was feared, but the pioneers quickly devised a plan which proved successful in saving their houses and stock. The settlers raked leaves, plowed ditches, and burned the strips of land between a chain of lakes reaching nearly across the township. This effort effectively stopped the ravages of the fire. A few individuals, however, were not so fortunate. Some lost all their possessions, while others managed to save their houses and portions of their stock (Gresham and Le Sueur County Historical Society).

8. Bishop Whipple

Bishop Henry Benjamin Whipple was responsible for the construction of the first Protestant cathedral in the United States (1862). Today this cathedral is still being used in Faribault. Bishop Whipple also established the Seabury Divinity School to train boys for the ministry, and helped establish both St. Mary's Hall (a school for girls) and Shattuck School (for boys) in Faribault (Curtis and Jauhiainen).

9. Sheffield Mill or King Mill

Alexander Faribault built Sheffield Mill in 1862. This mill, the first of its kind in the region, ground the Faribault area grains with stones driven by water power (Swanberg).

10. Site of Hanging - Mankato

In the late 1800's thirty-eight Dakota Indians were hung at Front and Main Streets in Mankato. Three hundred eight Dakota were originally condemned to death, but Bishop Henry Benjamin Whipple and others contacted President Lincoln to protest the executions. Their efforts managed to reduce the number of hangings from 308 to 38 (Jauhiainen and the Minnesota Department of Transportation).

11. Eagle Lake

Eagle Lake was a center of the local lumbering industry. Mills were built here to process timber cut from the "Big Woods." The first saw mill in the area (Le Ray Township) was established in 1864 by the Burgess family. A second water powered mill was built in nearby Madison Lake, near the mouth of the Madison River, in 1872 (Blue Earth County Historical Society).

12. Geldner's Mill

Geldner's Mill was built in the mid 1800's to process the timber harvested from the "Big Woods." Nearly every type of wood product was fabricated here. The mill was responsible for the buildings and furnishings of Elysian and the surrounding area.

This mill is representative of the steam driven stationary sawmills which once existed in the region. It is the only intact mill in the area--the mill still houses the original machinery. Geldner's Mill is listed on the National Register of Historic Places. It is being restored as an Interpretive Center for the Elysian and "Big Woods" area (Le Sueur County Historical Society).

13. Former Site of Okaman

The town of Okaman was located between Lake Lily and Lake Elysian. It was a prosperous little city with a large hotel, several stores, two blacksmith shops, and a flour mill. However, with the coming of the railroads the town was eventually abandoned (Allyn).

14. 37 Ton Double-Deck Steamer

In 1874, G. Allyn put a thirty-seven ton double-deck steamer on Lake Elysian and made daily strips to Elysian and Okaman for freight and passengers. This boat could carry one hundred fifty passengers, as well as flour and sand freight. With the construction of the Minneapolis and St. Louis Railroad through Waterville, however, the boating business was abandoned (Le Sueur County Historical Society and Minnesota Department of Transportation).

15. Watters

A railroad station for the Chicago and Northwestern Railroad was once located here (Blue Earth County Historical Society).

16. Lime

A railroad station for the Chicago and Northwestern Railroad was once located here (Blue Earth County Historical Society).

17. James Gang

"On the second night after the famous Northfield Robbery, the James Gang was known to be hiding out here in a body of timber containing only four or five sections of land, just north of Elysian. Here

they could have been captured or killed. Unfortunately, the leader of the posse was the famous chief of police from Minneapolis named Peter Hoy. Hoy and his men, being from the city, were worthless in the woods and let the robbers slip away" (Allyn).

18. "East Switch" (Second Stop of Jesse James' Gang (1876)

"After a very dark, rainy night of eluding the law and angry pioneers, the James Gang made it through to where Madison Lake town site now stands. They spent the next day in the thick woods near where the East Switch now stands. Soon after, they were captured by the Sheriff's posse in Mankato" (Allyn).

19. Hubbard House

This French Second Empire House was the home of the industrialist who founded the Hubbard Milling Company (1878). The Hubbard House, built just nineteen years after the city of Mankato was founded, now houses the Blue Earth County Historical Society Museum.

20. A Great Fish Haul

"On January 21, 1916, a few men cut a channel in one of the lakes near the village of Elysian and put out a seine, in which was caught in one night, carp and buffalo fish to the amount of fifty thousand pounds. The seine was three thousand feet long and was so filled with fish that it required a traction engine to draw them from the lake. The fish were taken in a car to Mankato and from that city shipped to some of the larger eastern cities. The state game and fish warden was present to see that no game fish were allowed to be used, but thrown back into the lakes. This was an extra haul, although many are made annually almost as large. Members of the historical society were present and vouch for this which might be called a 'fish story'" (Gresham).

SOCIOECONOMIC PERSPECTIVE

Land Use

Agriculture is the most dominant land use found along the Sakatah Singing Hills State Trail right-of-way (see Table 5). Seventy-one percent of the quarter sections along the trail (up to one-half mile from the trail) are cultivated or are pasture. Thus, the trail right-of-way contains some of the only relatively undisturbed wildlife habitat in the area.

Ten percent of the adjacent quarter sections are open and permanent water, while seven percent are forested. Forest areas are sprinkled along the length of the trail. Some of the larger stands of forest exist at the trail's western origin (north of Mankato), the Sakatah Lake State Park area (east of Waterville), and along the south shore of Cannon Lake (just west of Faribault).

Since the Sakatah Singing Hills State Trail is a former railroad line, many towns are located along its thirty-seven miles. Urban residential, urban non-residential, or mixed residential developments are found in

the vicinity of these towns. The trail right-of-way becomes quite narrow in the small towns along the grade due to commercial enterprises which have taken over some of the railroad land. This situation occurs in such towns as Madison Lake, Elysian, Waterville, and Morristown.

TABLE 5

Land Use

	Cultivated	Water/Marsh	Forested	Pasture	Urban Non-Residential	Residential
Number of ¼ Sections*	64	9	6	4	6	4
% of Total Along Trail	66%	10%	7%	5%	7%	5%

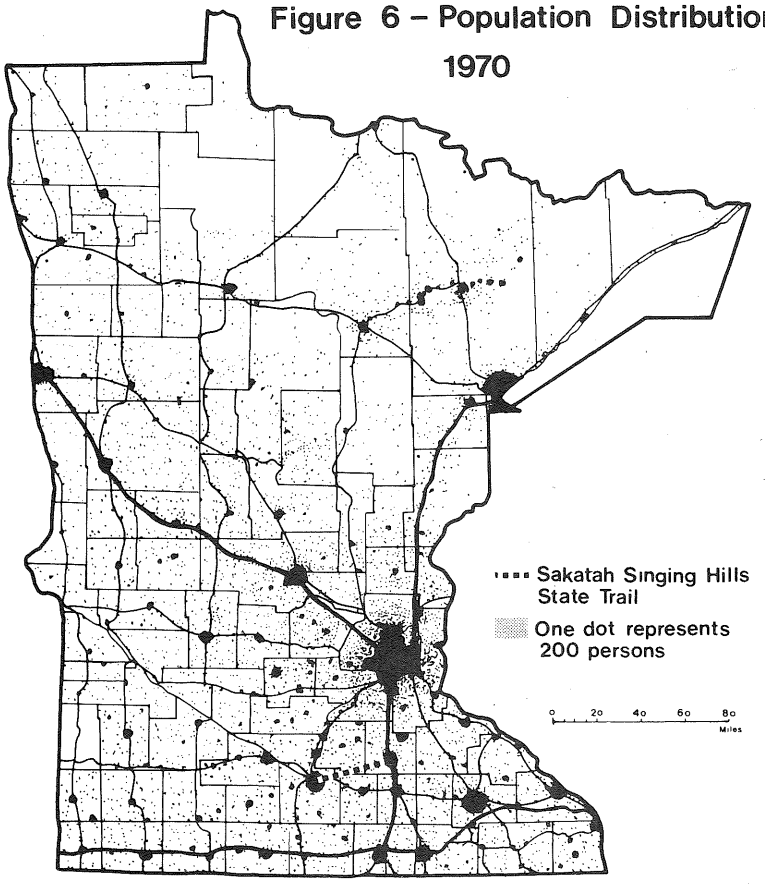
*up to ½ mile from the trail

Source: Minnesota Land Management Information System (MLMIS), 1969 data.

Relationship to Population Centers

The Sakatah Singing Hills State Trail is within a two-hour drive of nearly three-fourths of the state's population (see Figure 6). Mankato, in Blue Earth County, and the adjacent city of North Mankato are the largest population centers in proximity to the state trail. The 1970 census recorded 38,242 people in the two cities. Faribault is the next largest population center adjacent to the trail, with 16,595 residents. Six other communities are located within two miles of the trail (see Figure 7 and Table 6). In addition to the communities adjacent to the trail, the Saint Paul/Minneapolis metropolitan area, Rochester, Austin, and New Ulm lie within a ninety minute drive of the trail. Approximately two million people reside in these communities.

Figure 6 – Population Distribution 1970



Source: adapted from University of Minnesota Center for Urban and Regional Affairs, SPA8CURA Wall Map Series (Minneapolis, 1973).

Highway Access

Two major four-lane highways provide easy access to the Sakatah Singing Hills State Trail. At the western end of the trail, U.S. Highway 169 connects Mankato and the Twin Cities. At the trail's eastern end, Interstate Highway 35 runs north-south almost the entire length of the state. Other two-lane highways that offer convenient access include: State Trunk Highway 22, estending northeasterly out of Mankato; State Trunk Highway 60, closely paralleling the eastern two-thirds of the trail; and State Trunk Highway 13, heading north from Waseca (see Figure 8).

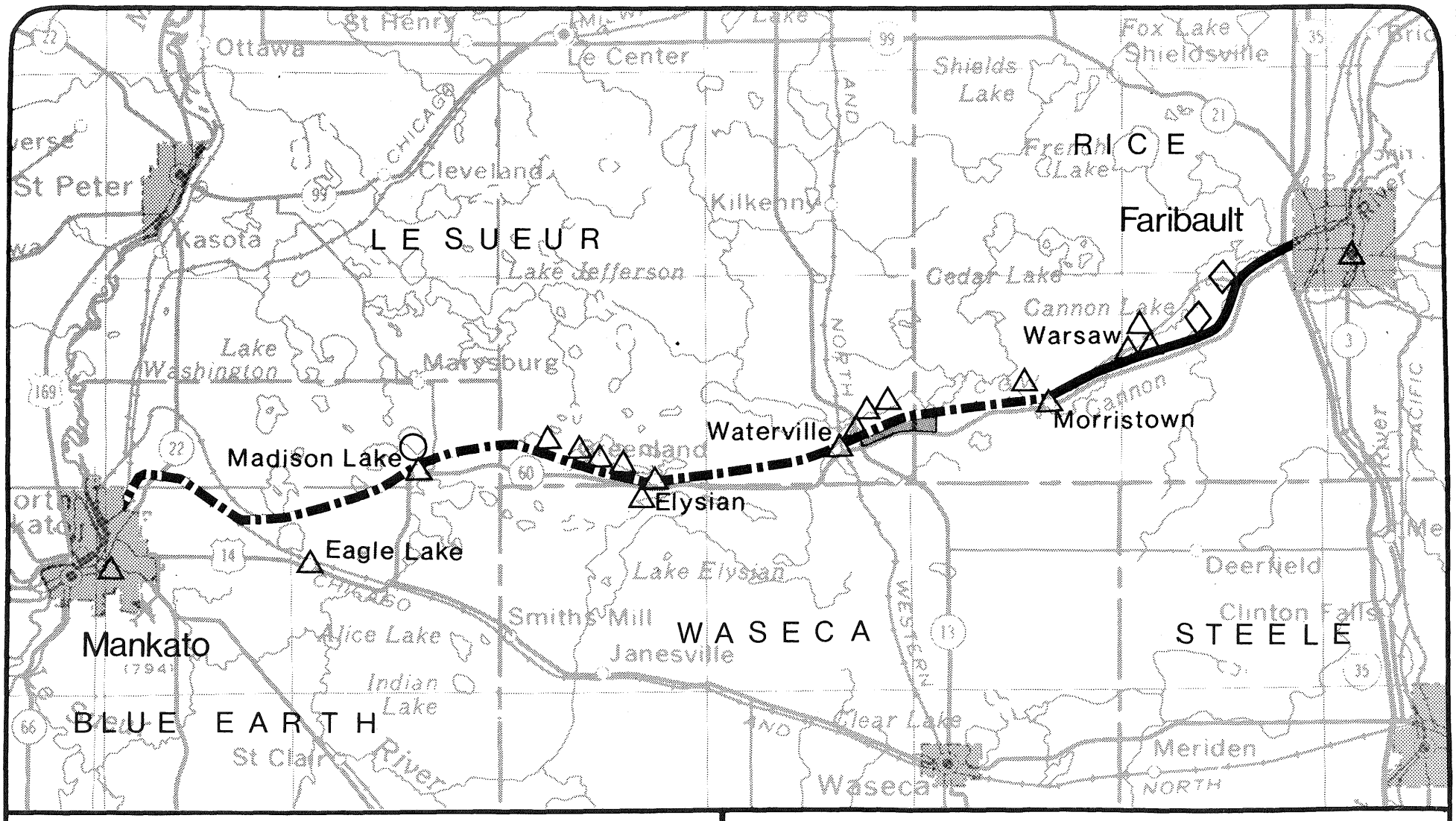


Figure 7
Service and Recreation Areas
SAKATAH SINGING HILLS STATE TRAIL MN / DNR

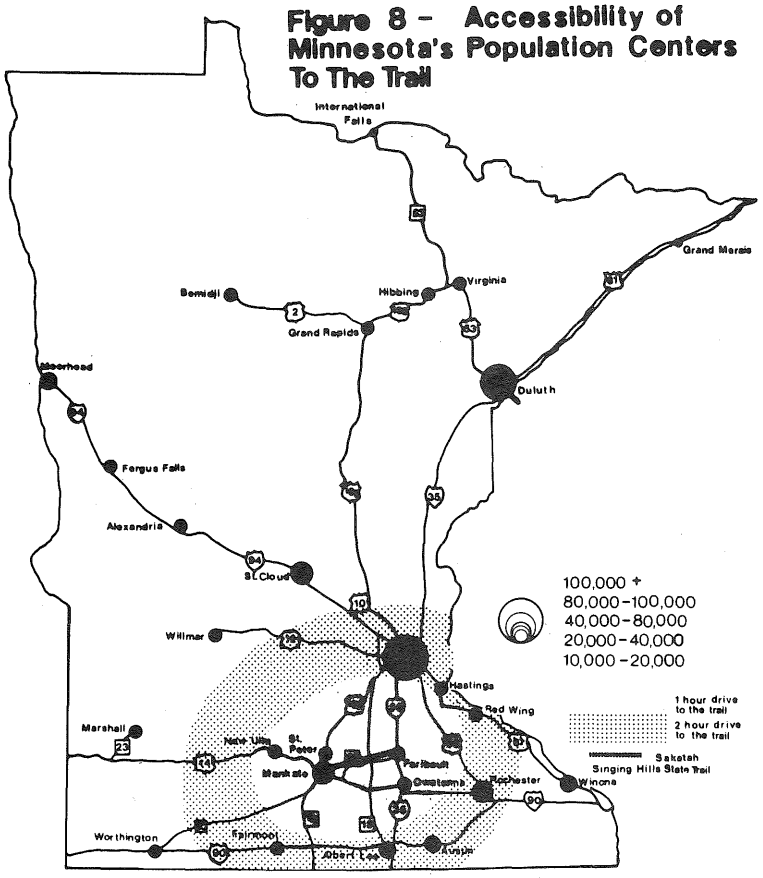
legend

0mi. 2mi. 4mi.

north

- Surfaced
- To Be Surfaced
- Service Areas
- Sakatah Lake State Park
- City Park (outside of city limits)
- County Park

Figure 8 - Accessibility of Minnesota's Population Centers To The Trail



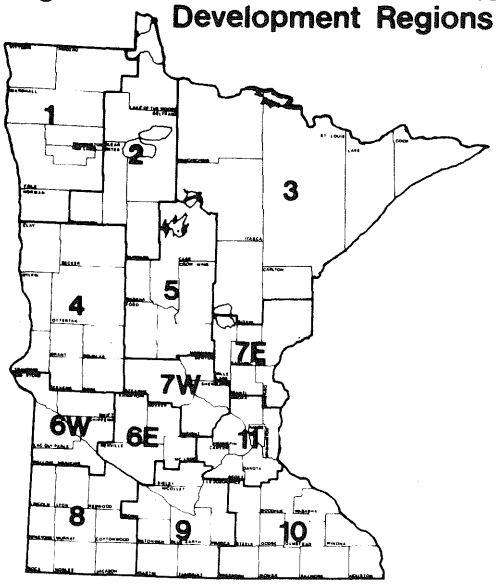
Source: adapted from the University of Minnesota Center for Urban and Regional Affairs, SPA8CURA Wall Map Series (Minneapolis, 1973) and the Minnesota Department of Transportation, 1979-80 Minnesota Offical Highway Map (St. Paul, 1979).

Relationship to Other Recreational Areas

The Sakatah Singing Hills State Trail is located in Economic Development Regions nine and ten (see Figure 9). These two regions serve much of southern Minnesota and Iowa's recreationists with their state parks, private resorts, and campgrounds. Five state parks are located within twenty-five miles of the trail: Flandrau State Park (near New Ulm) is twenty-five miles from the trail; Minneopa State Park (west of Mankato) is approximately ten miles from the trail; Sakatah Lake State Park is traversed by the trail; Nerstrand Woods State Park (northeast of Faribault) is ten miles away; and Rice Lake State Park (east of Owatonna) is twenty miles from the trail. Two county parks and one city park (outside city limits) are also located in close proximity to the trail.

Several private recreational facilities are located in the vicinity of the state trail. Private resorts surround Cannon Lake, Lake Elysian, Lake Sakatah, and Lake Francis. Resorts, private campgrounds, and other service areas can provide trail users with the following assistance: gas, food, shelter, lodging, repairs, entertainment, and first aid. Specific service areas located along the trail are shown in Figure 7.

Figure 9 – Minnesota's Economic Development Regions



Tourism

The Sakatah Singing Hills State Trail has probably affected the local tourist economy. Tourist data for the three counties through which the trail passes, compiled by the Minnesota Economic Development Department, Research Division, is shown in Table 7. The trail will probably continue to affect these sales, although the degree to which sales will be affected is unknown.

Snowmobile registration data provides another example of how the trail could indirectly affect the local tourism economy. In 1979, 269,669 snowmobile registrations were in effect statewide, of which 8,383 were in the three counties which the state trail traverses (Rice, Le Sueur,

TABLE 6

Communities

Listed below are the communities located along the Sakatah Singing Hills State Trail, with some pertinent information. Refer to Figure 7 for community location information.

Name	Pop. (1970)	Main Economic Base	Distance From Trail* (Miles)	Distance From Saint Paul-Minneapolis
Faribault	16,595	Canned Food Products Ferrous Metals Textile Mill Products Tools & Hardware Ready Mix Concrete Creamery Products Heating & Refrigeration Frozen Products Decals & Signs Plastic Products Firearms & Accessories Service Area**▲	0	48
Warsaw	---	Service Area**	½	54
Morristown	---	Grain Mills Service Area**	0	58
Waterville	1,539	Tourism Service Area**▲	0	58
Elysian	445	Bio-Chemical Plant Textile Products Service Area**	0	58
Madison Lake	587	Service Area**	0	75
Eagle Lake	1,010	Service Area**▲	0	75
Mankato	30,895	Specialized Printing Electrical Machinery Flour & Grain Mill Products Bottled & Canned Soft Drinks Concrete & Concrete Products Agricultural & Implement Products Ferrous Metal Products Machine Assembly & Packaging Higher Education Services Service Area**▲ ■	0	77

*Distance from city limits to trail corridor.

**Service Area - The service area provides one or more of the following facilities: gas, food, lodging, repairs, entertainment, or first aid.

Transportation Service: Bus (▲), Plane (■).

and Blue Earth Counties).* If each of these snowmobiles generated $50 in operating costs, $14,900,000 is sales and services would be realized for the state economy; $419,500 would go to Rice, Le Sueur, and Blue Earth Counties. It can be estimated that the businesses in the trail area would be the recipient of some of these revenues.

TABLE 7

Total Sales 1974-1977

Standard Industrial Classification 70
Hotels, motels, lodging, campgrounds, tourist courts, etc.)

County	1974	1975	1976	1977	Percent Change (from 1974)
Blue Earth	$1,650,000	$2,018,000	$1,506,000	$1,623,000	- 1.6%
Le Sueur	510,000	446,000	459,000	621,000	+21.7%
Rice	838,000	913,000	708,000	1,092,000	+30.3%

Source: Minnesota Department of Economic Development, Lodging Receipts in Minnesota 1972-77 (St. Paul).

Population Projections

Population projections are an important factor in determining the future recreational use of trails. Table 8 shows the 1970 census data and population projections for the state, economic development regions, and counties in which the state trail is located. None of the counties surrounding the trail are projected to increase their population relative to the state total population, although there will be an increase in the actual number of persons living within each county.

According to the "Minnesota Population Projections 1970-2000," Minnesota's population growth will be largely influenced by the Twin Cities metropolitan area. This is important since the Twin Cities represents a potential user source for the state trail. As the Twin Cities continues to grow, areas of open space within a relatively short distance of it will be used estensively for recreation. Thus, the Sakatah Singing Hills State Trail could become a valued recreational resource, serving large numbers of people.

*Snowmobile registration data are from the Licensing Bureau of the DNR's Division of Fish and Wildlife. Each snowmobile registration must be renewed every thirty-six months.

TABLE 8

Population Projections

Unit	1970	% of State	1985	% of State	2000	% of State
State	3,804,971	100 %	4,404,842	100 %	4,492,905	100 %
Region 9	218,100	5.7%	234,400	5.5%	243,400	5.2%
Region 10	383,400	10.1%	427,300	10.1%	460,300	9.9%
Blue Earth	52,300	1.3%	61,300	1.3%	69,100	1.3%
Le Sueur	21,300	.5%	23,800	.5%	5,100	.5%
Rice	41,600	1.0%	46,400	1.0%	50,200	1.0%

Source: Minnesota State Planning Agency, Office of State Demographer, Minnesota Population Projections 1970-2000 (St. Paul: 1975).

Potential Trail Users

Use figures, based on the 1978 State Comprehensive Outdoor Recreation Survey of trail users and population projections, indicate that there were approximately 921,800 snowmobilers and 500,500 ski tourers in Minnesota. In 1976 (most current non-winter use estimates), there were 1,300,000 bicyclists, 350,000 hikers, 300,000 small game hunters, 67,000 horse enthusiasts, and 60,000 backpackers and snowshoers. The Sakatah Singing Hills State Trail will undoubtedly help to satisfy some of the demands of these users.

Within Economic Development Regions 9 and 10, where the trail is located, there are approximately 128,000 snowmobilers, 40,500 ski tourers, 126,000 bicyclists, 17,000 horseback riders, and 55,000 hikers.

The estimated number of recreationists in the counties which the trail traverses are listed in Table 9. The figures are based on 1976 estimated population figures from the U. S. Department of Commerce, Current Population Reports--Population Estimates and Projections (#672, 1979; p. 25), and data compiled for the Minnesota State Comprehensive Outdoor Recreation Plan (SCORP).

TABLE 9

User Estimates

	Snowmobilers	Ski Tourers	Bicyclists	Horseback Riders	Hikers
Rice	3,764	3,504	9,518	1,514	4,759
Le Sueur	1,916	1,375	3,561	541	1,532
Blue Earth	4,386	3,147	8,152	1,238	3,508

In 1978 surveys were conducted in Economic Development Regions 9 and 10 for the State Comprehensive Outdoor Recreation Plan to determine residents' desire for additional recreational opportunities. Tables 10 and 11 show the results of these surveys.

TABLE 10

Requests for Additional Winter Recreational Activities

Activity	Percent of the Population Requesting More Opportunity for Winter Activities	
	Region 9	Region 10
Hunting	9.0%	9.9%
Snowmobiling	8.5%	8.7%
Ski Touring	6.1%	8.1%
Downhill Skiing	4.2%	7.5%
Misc. Skiing	3.6%	2.3%
Ice Skating	2.4%	.6%
Sledding	2.4%	.6%
Target Shooting		.6%

TABLE 11

Requests for Additional Summer Recreational Activities

Activity	Percent of the Population Requesting More Opportunity for Summer Activities	
	Region 9	Region 10
Camping	21.2%	15.0%
Fishing	19.4%	12.2%
Bicycling	15.8%	22.0%
Swimming	15.8%	7.5%
Hiking	6.7%	22.0%
Tennis	5.5%	6.9%
Boating	5.5%	7.5%
Golfing	4.8%	2.9%
Picnicking	4.2%	5.8%
Park Facilities	3.0%	1.2%
Horseback Riding	2.4%	3.5%
Trail Biking	2.4%	2.9%
Backpacking	1.8%	
Canoeing	1.2%	3.5%
Four Wheeling	1.2%	.6%
Visiting Historic Sites	1.2%	
Waterskiing	1.2%	.6%
Baseball/Softball	.6%	.6%
Jogging	.6%	.6%
Walking	.6%	

Source: Minnesota Department of Natural Resources, Office of Planning, Research and Policy Section, Statewide Comprehensive Outdoor Recreation Plan (SCORP), (St. Paul: 1979).

In Region 9, snowmobiling, hunting, and ski touring were the winter activities most often requested. Camping, fishing, and bicycling were most often requested for summer activities. In Region 10, hunting, ski touring, and snowmobiling were again the most often requested winter recreational opportunities, while bicycling and hiking were the most often requested summer activities.

Although horseback riding was requested by only 3.5% of those sampled in Region 10, that small segment of the population felt a strong need for this activity. On a five point scale these individuals stated their average need was 4.0 (see Table 12). Thus, horseback riding as a requested opportunity ranked ninth in Region 10, but as express level of need it ranked first among summer activities.

Bicycling, hiking, horseback riding, ski touring, and snowmobiling are all activities which can occur on a recreational corridor. The Sakatah Singing Hills State Trail is being developed initially to provide additional opportunities for bicyclists, hikers, and snowmobilers. The trail will also eventually provide opportunities, on a limited basis, for horseback riders and ski tourers.

TABLE 12

Region 10 Expressed Level of Need for Summer Recreation Activities: 1 = very small; 5 = very great

Activity	Average Need
Horseback Riding	4.0
Tennis	3.5
Boating	3.2
Canoeing	3.2
Hiking	3.1
Fishing	3.1
Camping	3.0
Picnicking	3.0
Trail Biking	3.0
Swimming	2.8
Bicycling	2.7
Golfing	2.4
Park Facilities	1.5

Source: Minnesota Department of Natural Resources, Office of Planning, Research and Policy Section, Minnesota State Comprehensive Outdoor Recreation Plan (SCORP), (St. Paul: 1979).

PUBLIC INPUT

Two sets of public meetings were held at different stages in the planning process at Faribault (February 21, 1979 and March 19, 1980) and in Mankato (April 25, 1979 and March 20, 1980). These meetings were held to inform the public about the DNR's trail planning efforts, and to provide an opportunity for interested citizens to voice their opinions on the trail and the plan.

Although the individuals attending these meetings generally supported the trail and the DNR's planning efforts, several concerns were raised. These concerns included: linking the state trail to the Mankato and Faribault city trail systems; routing the trail through Waterville; coordinating the state trail with Sakatah Lake State Park; making the trail accessible to the physically handicapped; the need for rest stops; maintenance of the trail, such as control of weeds and grooming; hunting on the trail right-of-way; safety problems where the trail crossed private driveways; plans for the Elysian wayside; and enforcement questions. Problems involving the treadway grading and surfacing, and the proposed Madison Lake campsite were also raised (the campsite proposal was subsequently dropped). At one meeting (Faribault, March, 1980) support was voiced for the development of a second treadway for horseback riders.

All of the above points were examined and analyzed by the DNR. The following plan addresses most of the concerns voiced at the meetings, and incorporates many of the recommendations and suggestions.

THE PLAN

TRAIL GOAL AND GUIDELINES

The DNR will strive to achieve the following goal for the Sakatah Singing Hills State Trail. The goal consists of four equally important and inter-related parts:

- Provide a quality experience for hikers, bicyclists, snowmobilers, and other users of the trail;
- Compliment regional facilities and contribute to statewide recreation goals;
- Preserve a linear representation of the forest-prairie transition in southern Minnesota; and
- Minimize the conflicts caused by the trail and its users.

Several guidelines, based on the above goal, were used to develop the Sakatah Singing Hills State Trail plan. All of the actions proposed in this plan should take these guidelines into account, as should all actions which are proposed in the future:

- The trail should promote alternative transportation methods by providing users with a pleasing and varied natural setting;
- The trail should contribute to the restoration and perpetuation of the natural and historic resources in the area;
- Resource damage, user conflicts, and user-landowner conflicts should be minimized along the trail corridor;
- Existing railroad grades and structural facilities should be utilized wherever possible
- Use of other public and private recreation facilities that relate to the trail should be encouraged;
- Connections to service areas and city trail systems should be provided to insure user safety and enjoyment;
- The use of recreational motor vehicles, except snowmobiles, shall be prohibited on the trail;
- The trail and trail facilities should be accessible to the handicapped and disabled;
- The user's appreciation and knowledge of the trail and its resources should be enriched;
- User safety should be promoted;
- Law enforcement on the trail should be promoted;

- Public awareness of the trail should be promoted;
- The DNR should be flexible and responsive to user demands;
- Trail resources and users should be monitored; and
- The public, landowners, and users' opinions should be solicited on all aspects of planning, operating, and maintaining the trail.

LAND ACQUISITION

Legislation passed in early 1979 set forth explicit instructions for land acquisition. Laws of Minnesota, Chapter 301, Section 7, Subdivision 1, entitled "Trail Acquisition Criteria; Public Meetings," requires the DNR to "...maximize the number of potential (trail) users and minimize adverse effects on adjoining agricultural land and property owners."

Most of the Sakatah Singing Hills State Trail right-of-way (ROW) has already been purchased. However, several parcels of land still need to be acquired. These parcels are necessary for parking and to complete the alignment.

Five or six parcels on the east end of the trail are necessary to complete the trail across Interstate 35 and into Faribault. The DNR attempted to purchase a strip of old railroad ROW along State Trunk Highway 60 from a private landowner. This segment would have crossed under I-35 and then entered Faribault. However, the state's offer was rejected by the landowner. The DNR is currently attempting to acquire other parcels to make this connection via the State Trunk Highway 60 ROW. If the necessary parcels are purchased, the DNR will work with the Minnesota Department of Transportation to complete this connection.

A parking area is also necessary near Faribault. The DNR is attempting to acquire a parcel here for parking.

In Section 2, Township 108, Range 26 (near Eagle Lake), a land exchange is nearly complete to correct a half mile severance in the trail ROW.

Another gap in the trail is present in Waterville. Land will be acquired here, either by the DNR or the county, for snowmobiling (see pages 50-51 for a discussion of this proposal).

At the west end of the trail, directly across from Lime Valley Road, the DNR has purchased some railroad ROW which has not yet been developed. This area will become a parking lot. Since the ROW width here is only 100 feet, a verbal agreement was reached with the Blue Earth county engineer giving the DNR permission to use a portion of the road ROW. The DNR is making arrangements with the county for parking access.

To date, 485 acres have been purchased for the Sakatah Singing Hills State Trail at a total cost of $343,400. Of this amount, $151,750 was reimbursed by the federal Heritage Conservation and Recreation Service (HCRS). Future acquisition costs may be reimbursable, and application for such reimbursement should be filed after acquisition of each parcel.

All of the following tools have and will continue to be used to acquire land for the trail: fee title purchase, easement, lease, land exchange, or cooperative agreement.

LEASES, PERMITS AND EASEMENTS

All leases, permits and easements in effect at the time the Sakatah Singing Hills State Trail was acquired from the railroad will be renegotiated at the request of the landowner. The state of Minnesota may issue a lease for a period of ten years. Many leases, especially for grain elevators, have already been extended.

Additional leases on land purchased with federal funds are subject to Section 6F of Public Law 94-422, a part of which states:

> (3) no property acquired or developed with assistance under this section shall, without the approval of the Secretary, be converted to other than public outdoor recreation uses. The Secretary shall approve such conversion only if he finds it to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as he deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location.

This law does not apply on land purchased solely with state funds.

Each lease will be reviewed on an individual basis and must be in accordance with all federal regulations. Any new construction or reconstruction resulting from the lease will be paid for by the lessee and the trail will be restored to a satisfactory condition at their expense.

Requests for cattle and farm equipment crossings will be approved through a simple permit. These permits should be for a minimum of five years. Any other future requests for trail crossings, other than farm related, will be granted through a permit. Fees will be charged for these permits in most cases.

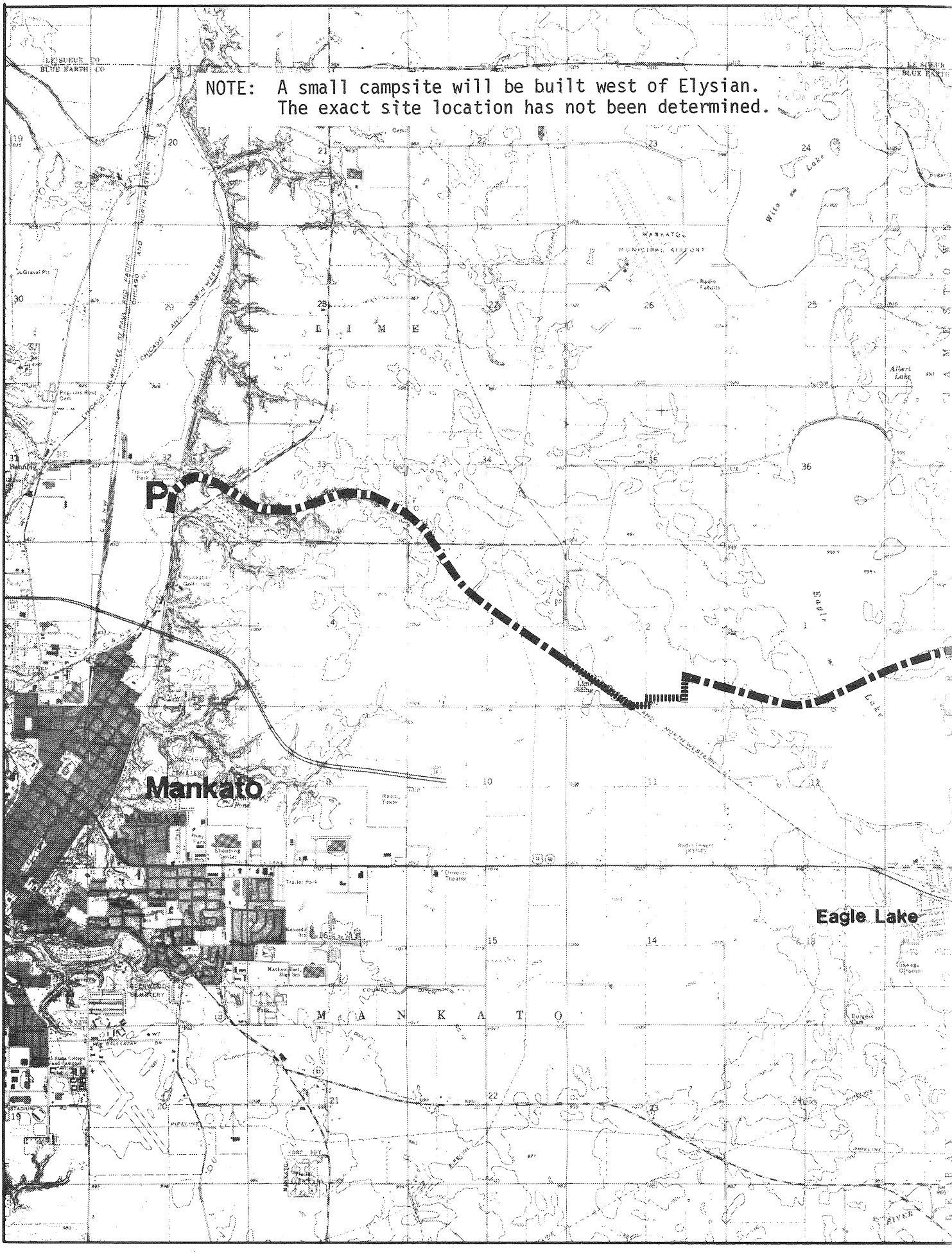
CORRIDOR DEVELOPMENT

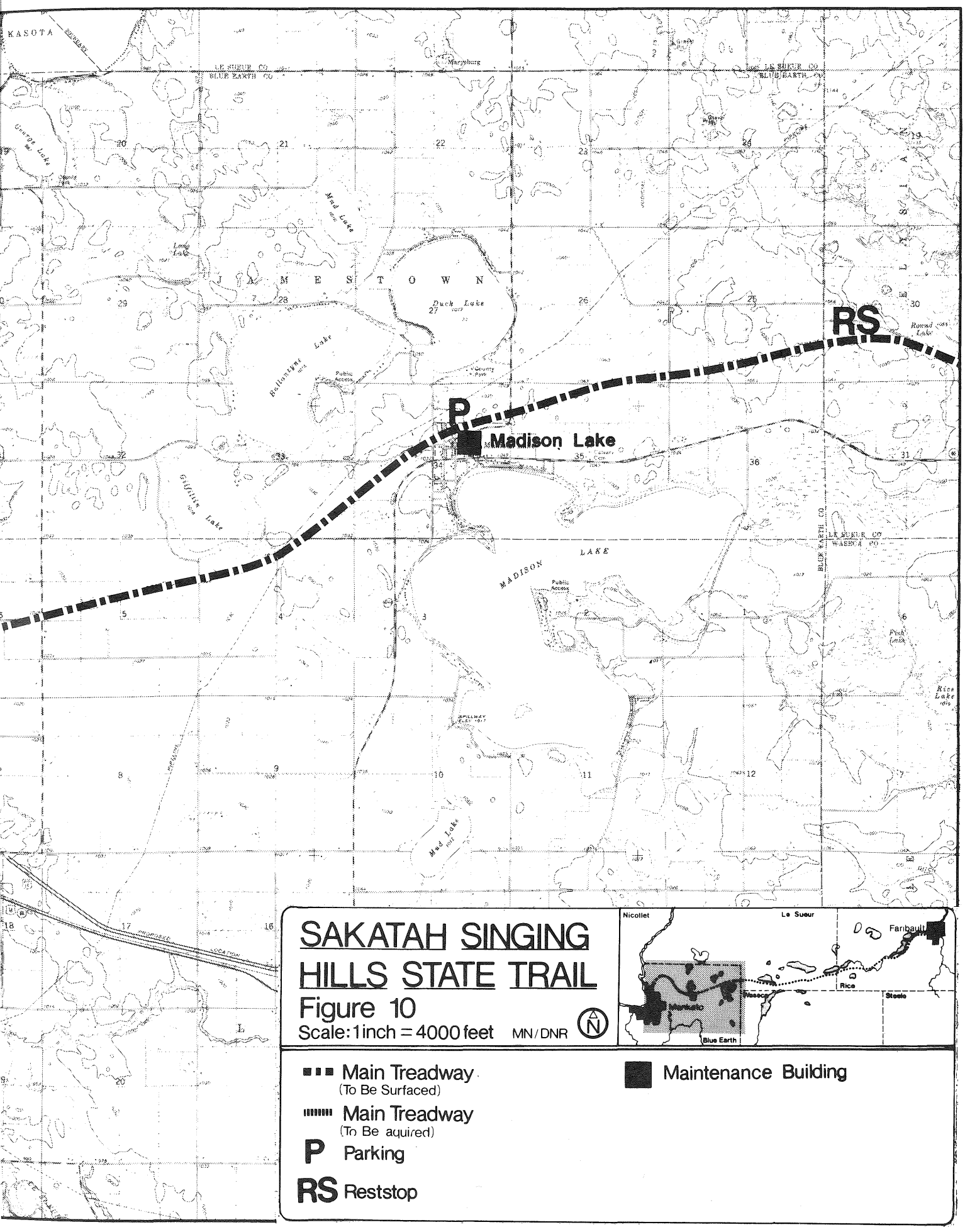
Main Treadway

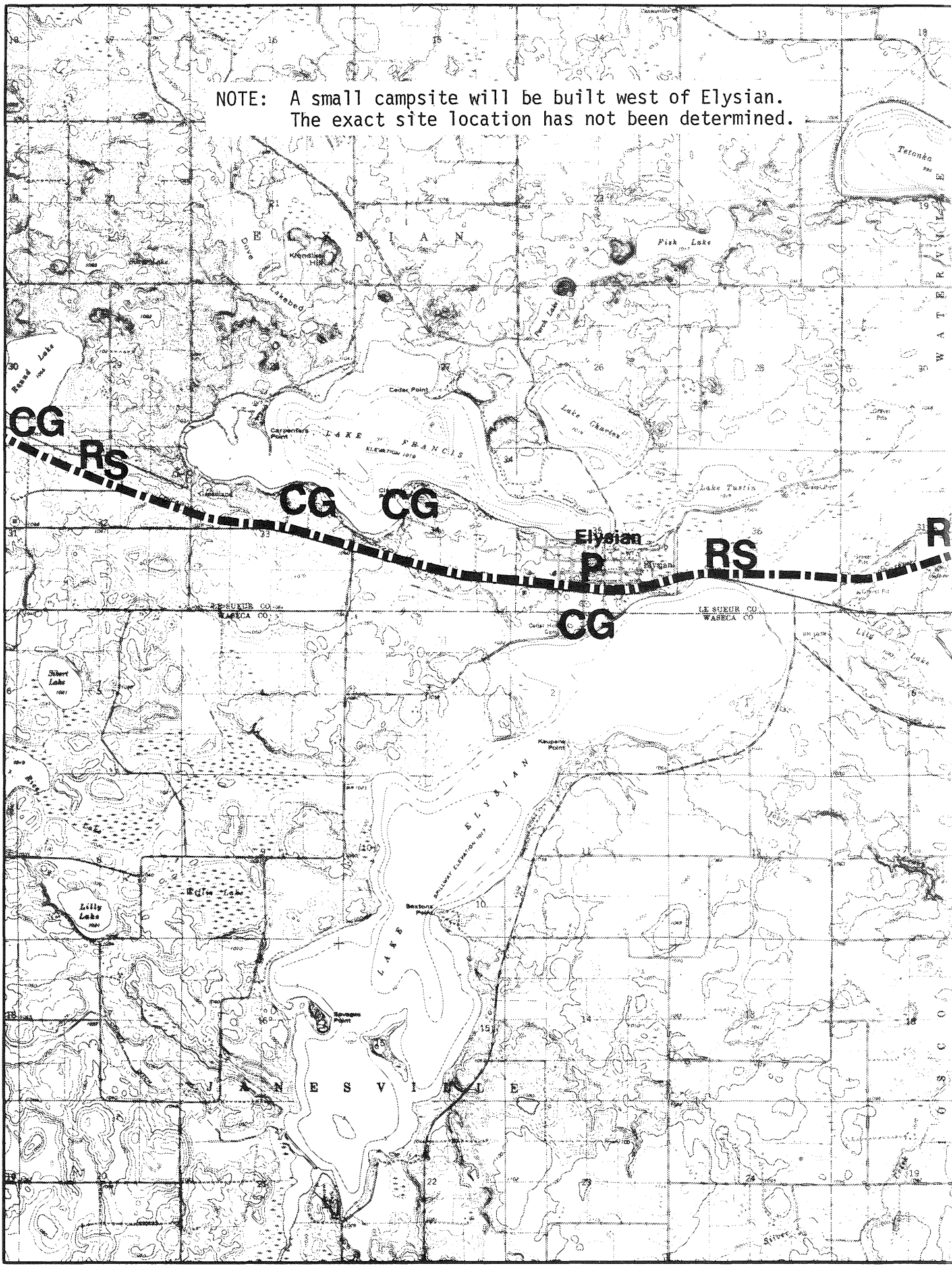
The state trail's main treadway, when completed, will be an eight foot wide limestone surface between Faribault and Mankato. Figures 10-12 show the proposed trail alignment. Most of the main treadway follows the abandoned Chicago and Northwestern Railroad line. It will be developed for bicycling and hiking in the summer, and snowmobiling in the winter.

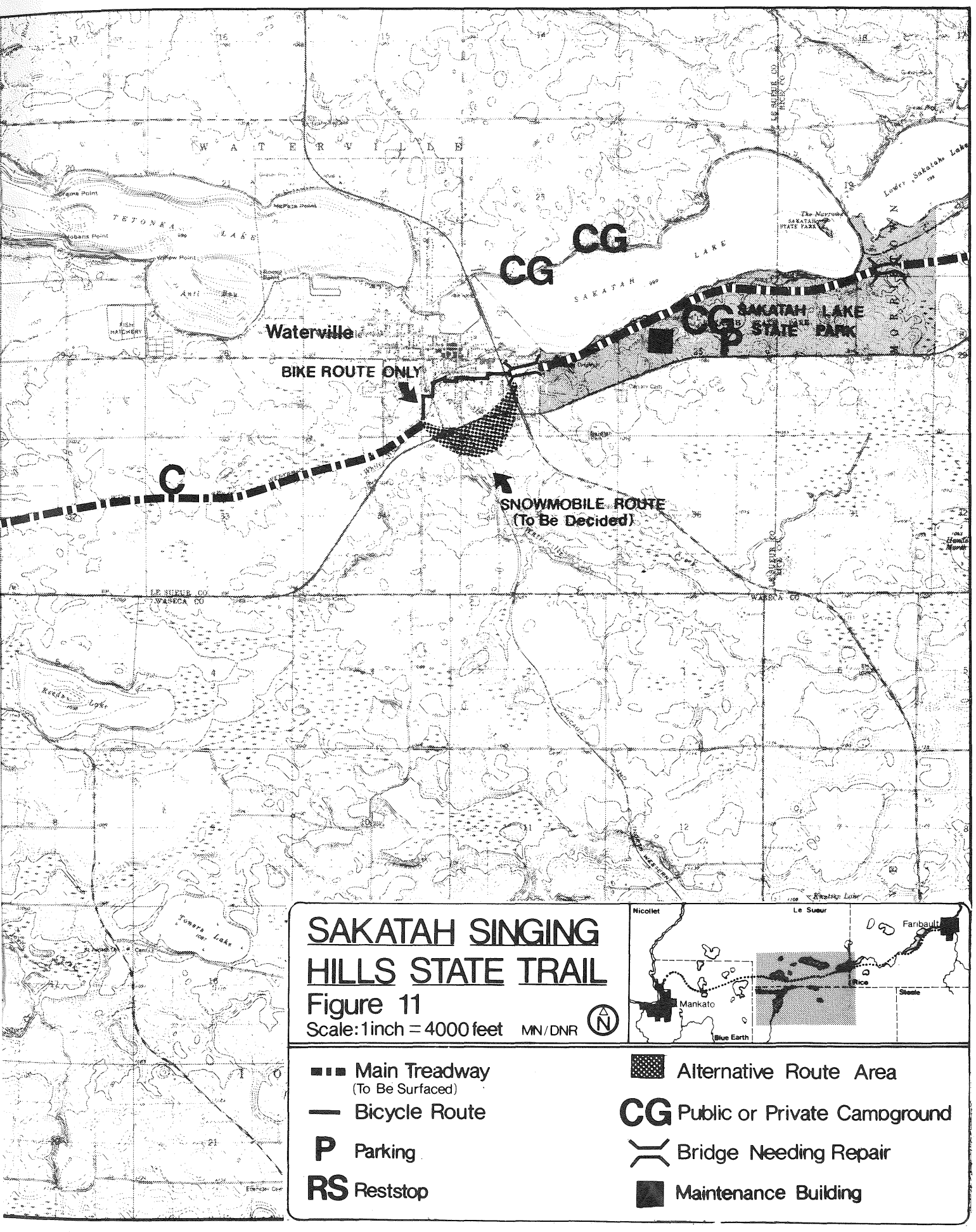
To date, only the eastern eight miles of the trail from Faribault to Morristown have been hard-surfaced with limestone; twenty-nine miles of the main treadway still need to be surfaced. Preparation of the abandoned railroad bed for the trail will consist of: removing remaining ties from the trail; shaping, compacting, and sterilizing the sub-grade; and shaping and compacting the limestone. Ties from the railroad bed will be buried or hauled away from the right-of-way. Access grading should be done at the same time as the grading of the main treadway.

A commercial soil or herbicide should be applied to the sub-grade prior to surfacing the trail with limestone. This is necessary to prevent the germination of weed seeds in the sub-grade. Care should be taken to follow the manufacturer's recommendations for handling and application, and to comply with all laws, ordinances, and regulations governing the use of such chemicals. After the limestone surface is finished, a sterilant will still have to be applied periodically to prevent weed germination and growth.


NOTE: A small campsite will be built west of Elysian.
The exact site location has not been determined.
Mankato
Eagle Lake


RS
P
Madison Lake
JAMESTOWN
Duck Lake
Ballantyne Lake
Griffith Lake
MADISON LAKE
Mud Lake
Long Lake
Round Lake
Rice Lake
Public Access
LE SUEUR CO
BLUE EARTH CO
WASECA CO
Marysburg
KASOTA
SAKATAH SINGING HILLS STATE TRAIL
Figure 10
Scale: 1 inch = 4000 feet
MN/DNR
Nicollet
Le Sueur
Faribault
Rice
Steele
Waseca
Blue Earth
Main Treadway
(To Be Surfaced)
Main Treadway
(To Be aquired)
P Parking
RS Reststop
Maintenance Building


NOTE: A small campsite will be built west of Elysian.
The exact site location has not been determined.
CG
Rs
CG
CG
Elysian
P
RS
CG
Round Lake
Lake Francis
Lake Tustin
Pick Lake
Tetonka
Silent Lake
Lilly Lake
Eden Lake
Lake Elysian
Janesville
Le Sueur Co
Waseca Co

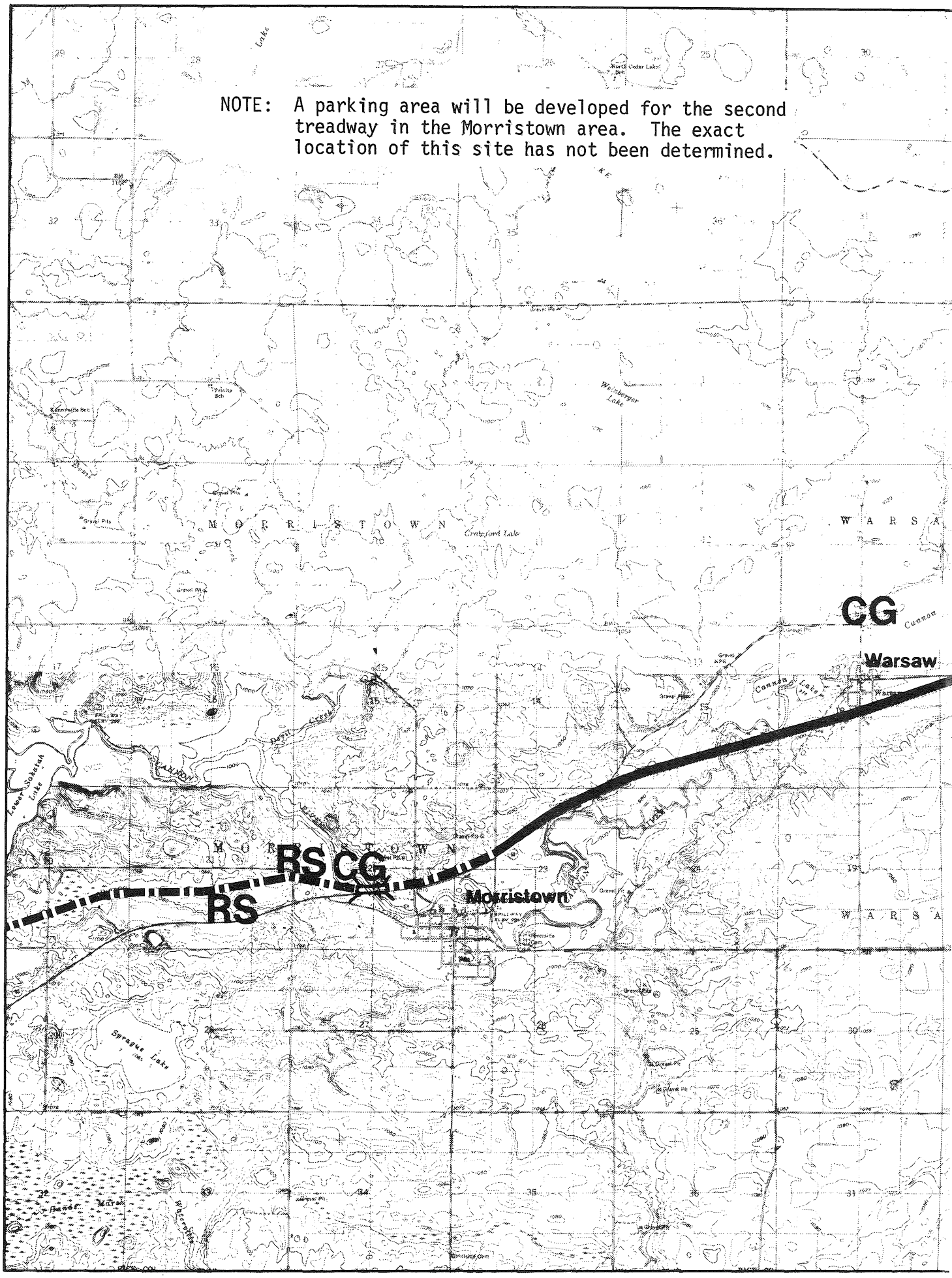


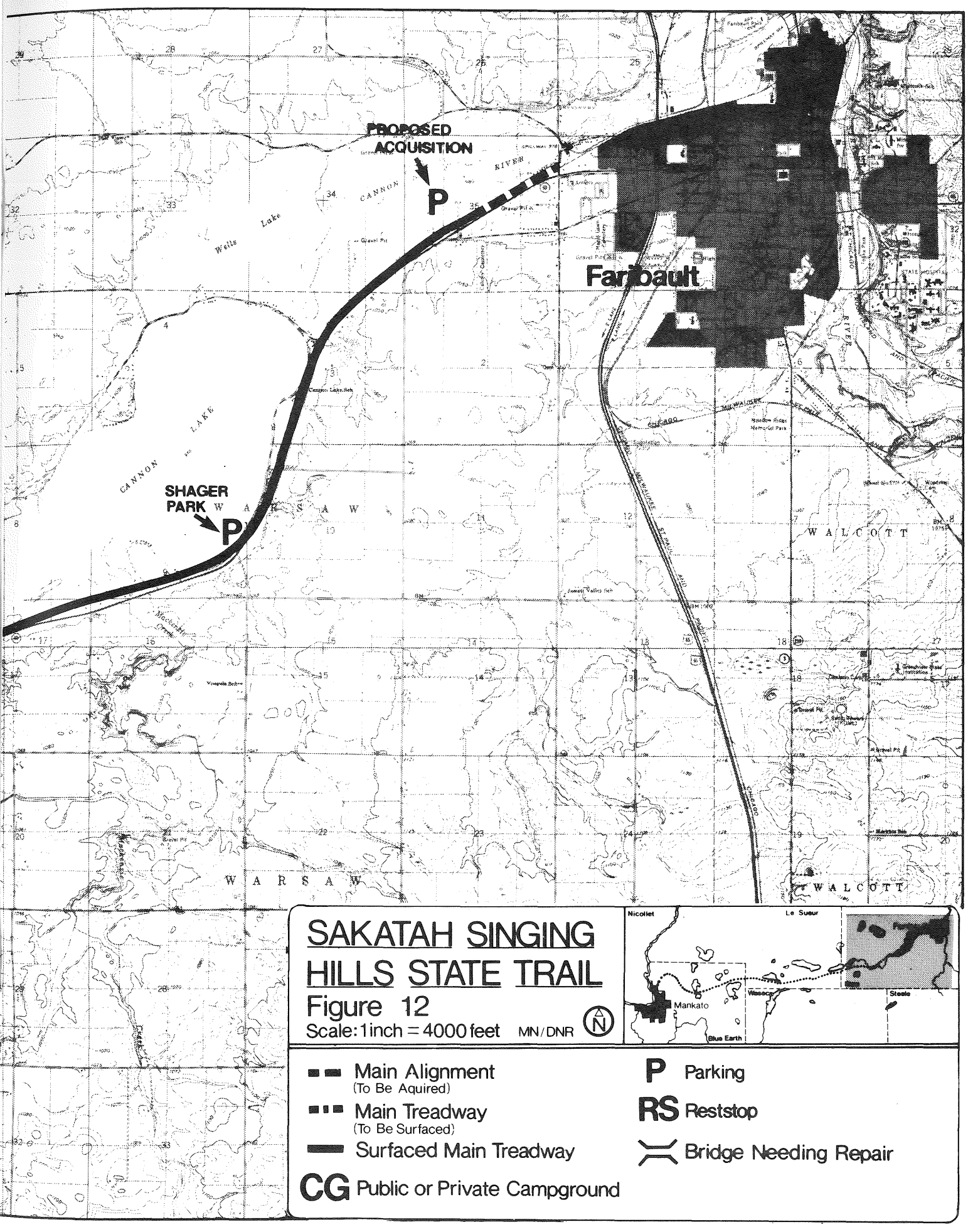
SAKATAH SINGING HILLS STATE TRAIL

Figure 11

Scale: 1 inch = 4000 feet MN/DNR

- Main Treadway (To Be Surfaced)
- Bicycle Route
- P Parking
- RS Reststop
- Alternative Route Area
- CG Public or Private Campground
- Bridge Needing Repair
- Maintenance Building


NOTE: A parking area will be developed for the second treadway in the Morristown area. The exact location of this site has not been determined.
CG
Warsaw
RS,CG
RS
Morristown
MORRISTOWN
WARSA
Crawford Lake
Weinberger Lake
Lower Scanlon Lake
Sprague Lake



SAKATAH SINGING HILLS STATE TRAIL

Figure 12

Scale: 1 inch = 4000 feet MN/DNR

- Main Alignment (To Be Aquired)
- Main Treadway (To Be Surfaced)
- Surfaced Main Treadway
- CG Public or Private Campground
- P Parking
- RS Reststop
- Bridge Needing Repair

Since most of the remaining twenty-nine miles of treadway to be surfaced lies on an abandoned railroad bed, the amount of limestone base needed to complete the trail is minimal. The same procedures and specifications used to complete the limestone base between Faribault and Morristown in 1976 should be followed for the rest of the trail.

It is the DNR's policy that state trails should be physically accessible to all users whenever this is possible without undue alteration of the landscape. The Sakatah Singing Hills State Trail provides a good opportunity for disabled and handicapped users. The main treadway is primarily on a flat grade and is surfaced. It, therefore, will be handicapped accessible. The treadway specifications should take into account the points raised in the DNR's workbook "Access for All" (June, 1979).

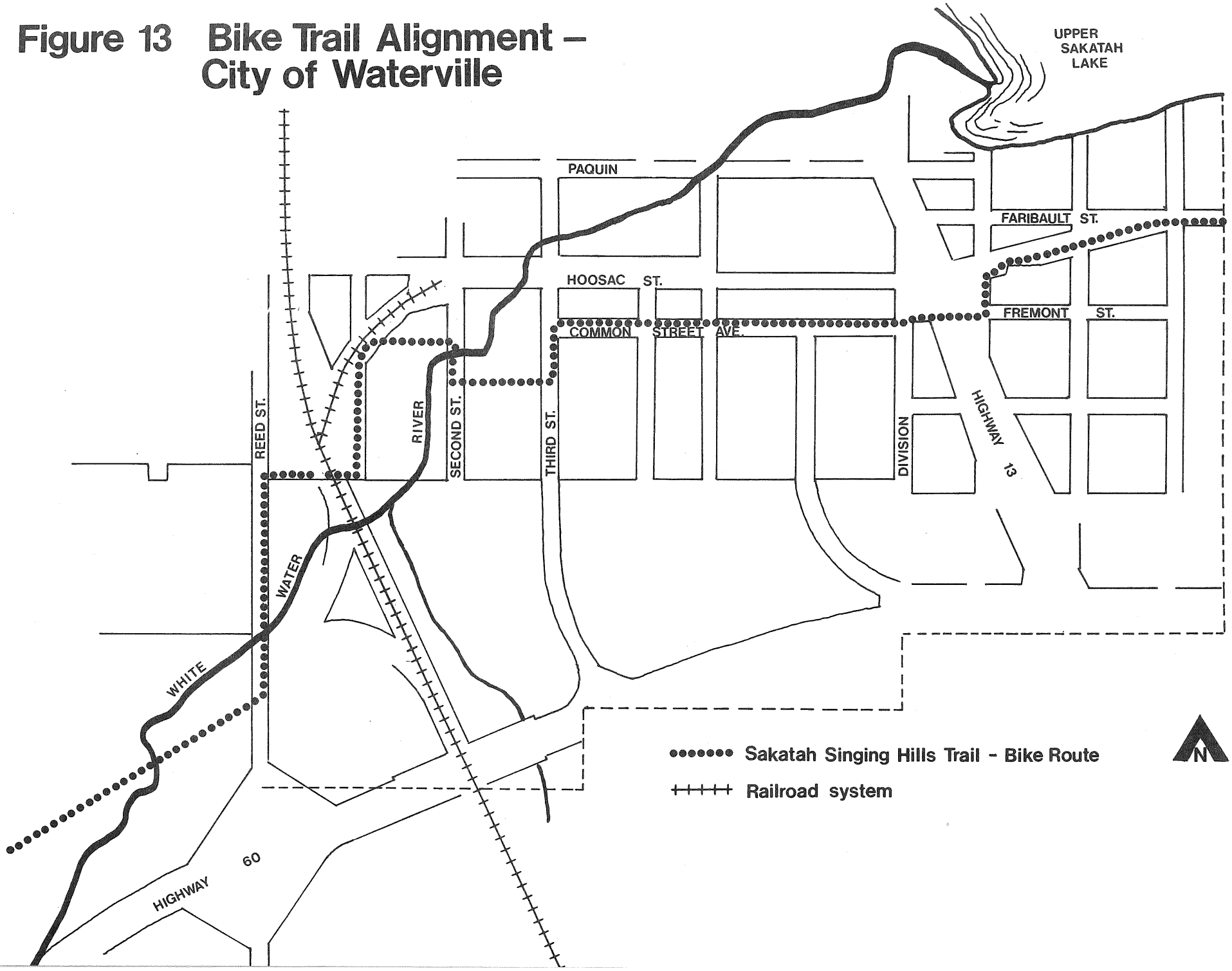
Waterville Alignment

The Sakatah Singing Hills State Trail through Waterville is divided into two alignments, one for biking and the other for snowmobiling. The bicycle route is experiencing no problems, and will remain unchanged (see Figure 13).

The snowmobile alignment, as originally proposed, followed the same route as the bike trail. Snowmobiling is presently allowed on most city streets. This alignment has the advantages of: 1) being the shortest, most direct route through the city; 2) allowing snowmobilers to stop and use the city's services; 3) low cost; and 4) keeping trail uses together on the same streets. However, two concerns were expressed about routing the trail through the city: a church along the route could be disrupted by snowmobile use, and city snow removal on these streets could make snowmobiling difficult.

Two other alignments were studied to enable snowmobiles to travel through the Waterville segment. The second alternative alignment follows Silver, Webster, Hamilton, Fifth, one unnamed street, and Common Avenue before linking with the bike route. This alternative would bypass the church, while still allowing snowmobiles to stop and use the city's services. The cost would be low. But this alignment also has several disadvantages: it is a longer, more indirect route; snow removal problems associated with city streets would be complicated; noise disruption would occur over a

Figure 13 Bike Trail Alignment – City of Waterville



greater area; and it would complicate matters for motorists because they would have to watch for two alignments through the town.

The third alignment alternative is to route the snowmobile trail to the south, out of the town completely. Little noise disruption would occur with this alignment, and the snow removal problem on the city streets would be solved. The alternative would, however, cost more, and land acquisition would be needed. The route also eliminates the possibility of snowmobilers stopping in the town to use the city's services (unless a spur was built).

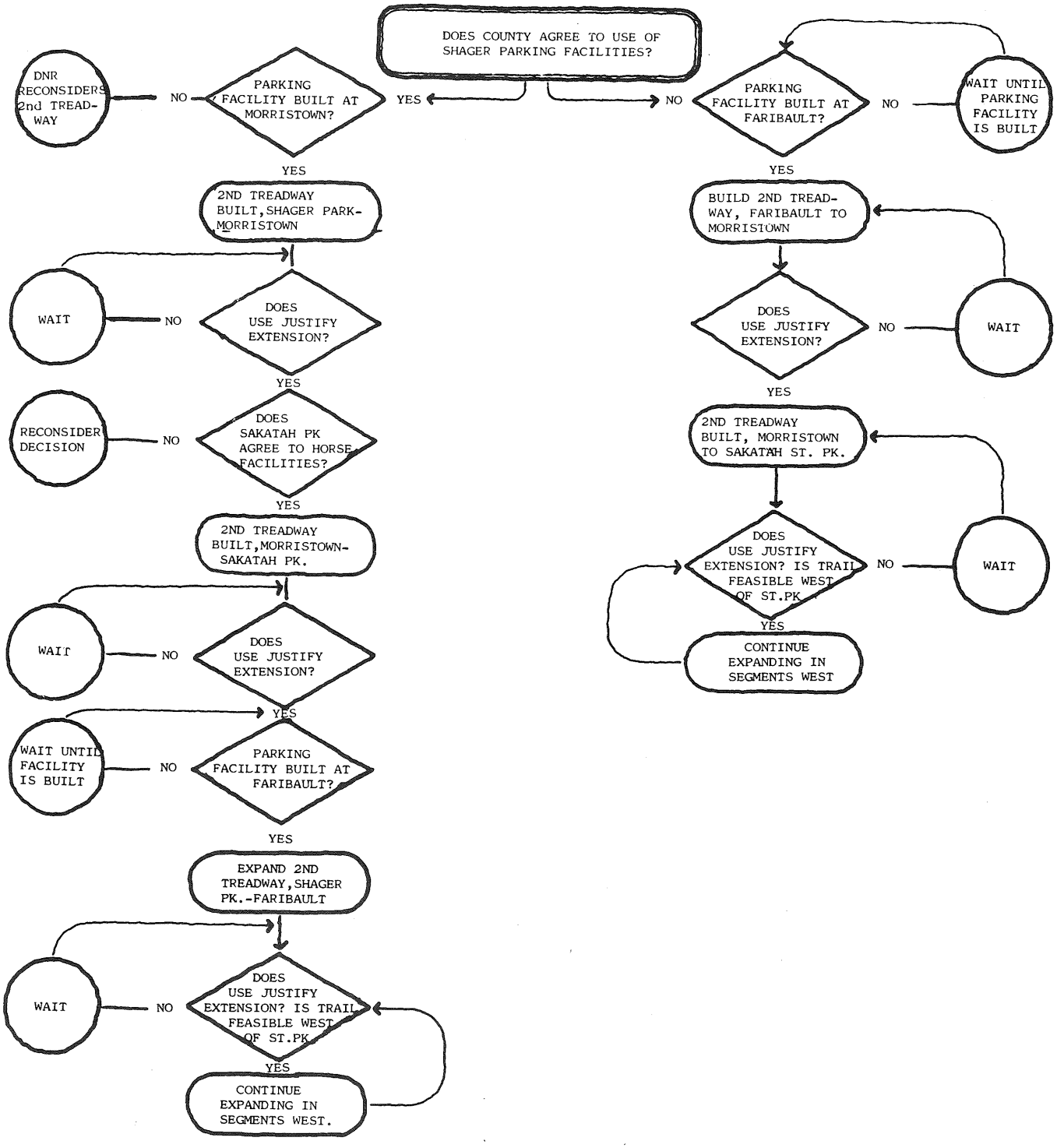
Based on the above advantages and disadvantages, the DNR has decided to implement the third alignment alternative--to route the snowmobile trail south of the city. The exact alignment has yet to be worked out, but the crossing of the Chicago and Northwestern Railroad right-of-way will occur at grade in town, or on a township road in the S½NW¼ of Section 35 in Waterville Township. The alignment will be acquired either as a DNR state trail or as a county grants-in-aid trail. If permits or easements are used on the alignment, the agreements need only cover four months (December-March) of each year.

Other Alignments

At Faribault, Interstate 35 is a barrier to the trail alignment. The trail will, therefore, be extended along State Trunk Highway 60 ROW where it passes under Interstate 35 (see also Land Acquisition, page 52). The trail extension will then continue east along the inactive railroad ROW to the ultimate trail head at Western Avenue.

In Mankato, the trail presently ends on Lime Valley Road. Several alternatives exist, however, to link the state trail with the city bike trail system. One alternative is to extend the trail south on State Trunk Highway 22 ROW, passing under U. S. Highway 14. The city could then connect its bike system with the Sakatah Singing Hills State Trail at a future date. If this alternative is selected, the trail should be located far enough off the highway to be safe for trail users; the highway shoulder will not be used for the trail.

Figure 14 Second Treadway Development Process



Two other alternatives have been proposed by the city of Mankato to link the state trail with the city trails. One proposal would connect the north end of the city's river bike trail with the state trail. Another possibility would be to connect the state trail to U. S. Highway 14 East, and then continue down U. S. Highway 14 to the Madison East Center.

The DNR will work with the city of Mankato and the Minnesota Department of Transportation to determine which of these three alternatives is the most desirable alignment. The trail will then be extended into the city.

Both the Faribault and Mankato trail segments will probably use trunk highway ROW. DNR trails using trunk highway ROW will be maintained in compliance with the Minnesota Department of Transportation (MN/DOT) Bulletin 77-6.

Second Treadway

Some support has been expressed for horseback riding and ski touring on the Sakatah Singing Hills State Trail (see pages 41 and 42). However, experience has shown that if incompatible trail users, such as ski tourers and snowmobilers, share a narrow ROW corridor, serious problems can result. Furthermore, most of the treadway being developed for bicycling, hiking, and snowmobiling has a limestone base. Horses will damage and eventually ruin this surface if they are permitted on the trail. Therefore, a second treadway will be built and designated on an experimental basis for horse use. This treadway can also be used for ski touring, but the trail will not be groomed in the winter.

The second treadway will be built in stages along the eastern half of the trail (see Figure 14). The first part of this treadway will start at either Shager Park or the proposed Faribault parking area and extend to Morristown. If Rice County agrees to the plan, Shager Park will be the starting point. Shager Park has existing facilities for parking, picnicking, swimming, and lake access. However, some concern has been expressed that Shager Park's parking area may not be adequate for horse trailers. Therefore, if the county does not agree to this plan, then the proposed Faribault parking site will be the starting point for the treadway. Faribault is one

of the primary access points to the trail, and could be a service center for horseback riders. The proposed parking area here will also provide space for horse trailers.

Several key steps must be taken before this segment can be developed. First, the county must make a decision on parking facilities at Shager Park. Second, if Faribault is selected as the treadway starting point, then the parking facility must be built. Presently there is some question as to the location of this facility (see page 41). Third, a small parking area must be built in the Morristown area regardless of whether Faribault or Shager Park is selected. The Morristown area presently lacks a parking site which horseback riders would need to use this segment. If the Morristown parking facility cannot be built, or if Rice County does not permit use of the Shager Park parking lot and the Faribault parking facility cannot be built, then the DNR will have to reconsider the development of the second treadway.

Trail use on the first segment (and all future extensions) will be carefully monitored before any decision is made regarding the construction of another segment. The trail monitoring program should take into account: user numbers, group sizes, times of use, length of trips, ability levels, etc. If use justifies an extension, a second segment will be added to the first one, then a third segment, and so forth.

Sakatah Lake State Park would be an excellent end point if a second extension of the horse trail is built. The park has considerable wayside facilities and natural amenities. It would provide users with parking, camping, swimming, picnicking, hiking, and lake access opportunities. Loop trails could also be built in the park to link the state park with the treadway.

It is anticipated that trail use will justify the development of the second treadway to the state park. However, the Division of Parks and Recreation staff will have to consent to horseback riding within the park before this second segment is built. Presently, the park does not contain trails or facilities for horses. If the park staff agrees to the horse trail,

then the Trails and Waterways Unit will work with the park personnel to plan and develop the second treadway and ancillary facilities.

A third extension may be justified if Shager Park is the initial starting point of the second treadway (see Figure 14). The treadway could be extended from the county park east to Faribault.

Extensions of the second treadway from Sakatah Lake State Park west to Elysian and beyond may occur in time. However, the DNR will have to determine if use justifies the extension(s) and the feasibility of developing the extension(s).

The second treadway will parallel the main treadway, although it will generally not be on the same grade as the main treadway; the two treadways will be combined only at bridges and possibly road crossings. The second treadway will be eight feet wide, with an overhead clearance of 12-14 feet, and follow the natural terrain of the right-of-way. Most of the second treadway will consist of no more than a mowed strip since the alignment will be on grassy areas. Some sections will need to be brushed and/or pruned to meet the width and height specifications. The treadway will need to be stabilized for horses where the ground is soft. This can be done by making a corduroy surface reinforcement with cross logs overlaid with clay and mineral soils. The corduroy reinforcement should be surfaced with two or three inches of sand and wood chips.

The major cost in developing the second treadway will be filling in lower wet areas along the right-of-way. Figure 15 identifies the lower wet areas and gives approximate lengths. In these areas the side banks should be seeded to prevent erosion. The second treadway will be constructed adjacent to and on the same grade as the main treadway for these wet areas. (The main treadway may have to be adjusted in spots when the two treadways are adjacent to each other.)

Trail Facilities

The Sakatah Singing Hills State Trail will have, when completed, major parking areas at Faribault, Elysian, and Mankato. Minor parking areas

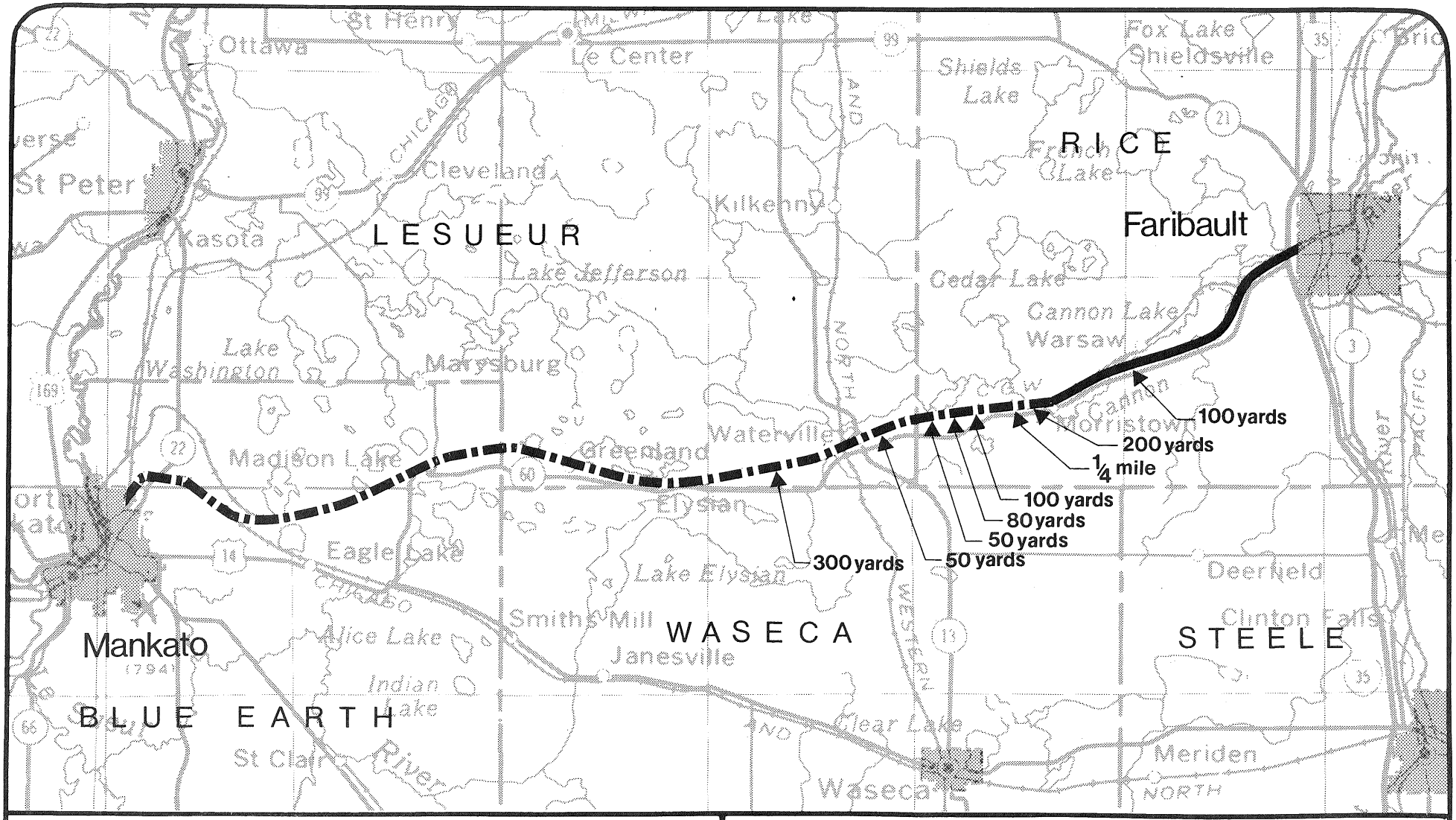


Figure 15
Fill Areas — second treadway
SAKATAH SINGING HILLS STATE TRAIL MN / DNR

legend

0 mi. 2 mi. 4 mi.

north ↑

▲ AREAS and DISTANCES that REQUIRE FILL for SECOND TREADWAY

will be present at Madison Lake, Morristown, and Eagle Lake (2).* Each of the DNR state trail parking areas will be able to handle both car and car/trailer parking. Except for the two parking areas near Eagle Lake, all of the parking areas will contain rest rooms and refuse containers. Picnic facilities will be available during non-winter months at the Faribault, Elysian, and Madison Lake parking areas. Picnic facilities at or near the Mankato parking site appear unfeasible because of lot size and location.

The Morristown parking area will be for summer-only parking. It will be a designated mowed area, marked with posts and signs. The exact location of the parking area will be determined when an on-site inspection has been completed.

The two parking areas near Eagle Lake will just be pull-offs for hunters to gain access to Eagle Lake. In the past there have been problems with hunters parking on the trail ROW, and with congestion occurring on the adjacent road. The two pull-offs should solve these problems.

The Elysian facility will be both a trail wayside and a State Trunk Highway 60 rest area (see Figure 16). The DNR will acquire the necessary ROW and build the facility. It is recommended that the facility be hooked into the Elysian city water system for drinking water. Since the building will not be heated, the water will be shut off during the winter months. Vault toilets should be installed for year-long use.

If a second treadway is developed to Elysian, a potentially dangerous situation for children and other wayside visitors would be created by the presence of horses. It may be necessary to expand the wayside for horses onto the adjacent state land to the west.

The DNR will provide rest stops along the trail at unique, scenic, or other appropriate locations. Planned rest stops are noted in Figures 10-12.

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*Other parking sites are available at Shager Park and Sakatah Lake State Park, but these sites are not designated for trail use. Shager Park, Sakatah Lake State Park, and a Waterville city park also provide picnic facilities.

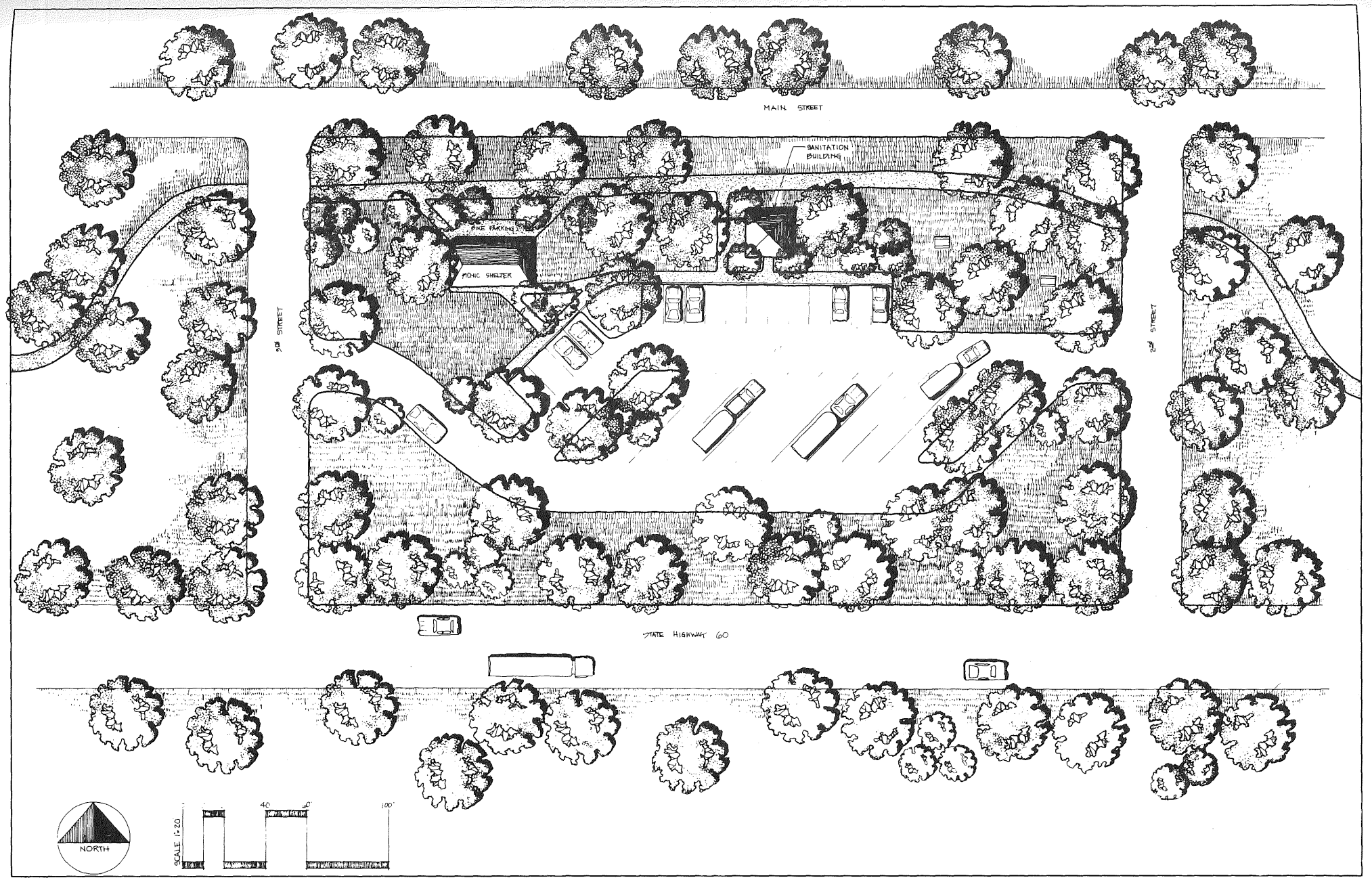


Figure 16
Proposed Elysian Wayside Rest Area

These rest stops will consist of one wooden bench capable of seating six to eight people. They will be far enough off the main treadway to avoid interference with the main flow of traffic or with any grooming and maintenance vehicles.

A small camping site will be developed to accommodate trail users west of Elysian. Private camping facilities do not exist in close proximity to the trail here. The exact location of the site will be determined when an on-site inspection has been completed. The campsite will be on a level area along the trail ROW. It will include a fire ring, ten pads, and a single pit type toilet (see Appendix E for a camping site typical). Refuse containers will not be provided initially. These containers could cause some visual pollution. Instead, a "take it out with you" litter practice will be stressed along the trail through the interpretive program. It is hoped that this practice will eliminate trash from trail users. However, if litter becomes a problem at the site, then refuse containers may become necessary.

All of the above structures--rest stops, campsites, picnic facilities, parking areas, rest rooms, utilities--should be designed or modified so they are accessible to all users. The guidelines and specifications listed in the DNR's "Access for All" workbook should be followed when possible.

One other trail-related structure needs to be either built or rented. Sakatah Lake State Park presently provides the necessary storage and maintenance facilities for equipment on the eastern end of the trail. However, a storage-maintenance structure will be needed at the west end of the trail. If a building cannot be rented, then a 20'x40' building will be constructed. The structure should be built in Madison Lake, since the DNR already owns land in a convenient location here.

Bridges and Culverts

Except for the bridge at Morristown, all of the trail bridges have been decked; the Morristown bridge is being decked. All the bridges have the required railings, but the railings on the bridge at Sakatah Lake State Park and on the bridge just west of the park need replacing.

The culverts between Morristown and Mankato are in poor condition. They will be repaired and replaced when the trail surface is laid down. Most of the other trail culverts are in satisfactory condition.

Signing

Several different types of signs will be erected on the state trail. The DNR will:

1. Use mile markers to show distances between facilities, service areas, and parking areas. A number of the old cement railroad mile markers are still present on the trail and should be used. New mile markers should be placed using the old markers as guides;
2. Construct "You Are Here" map signs at regular intervals along the trail and at major trail crossings. The signs will also indicate service areas and facilities;
3. Construct informational and interpretive signs at the parking areas in Faribault, Elysian, and Mankato. The signs will note pertinent trail information, including all nearby service centers, trails, and points of interest;
4. Erect use designation signs at all intersections where users may enter the trail. These signs will indicate which uses are permitted on the trail;
5. Erect signs to warn users of potential hazards along the trail. The trail crosses fifty roads, twenty field roads, and fifteen private drives. Stop signs and stop ahead signs will be used on all road crossings, except private drives. Yield signs will be used on private drives (the trail users will have the right-of-way). Caution signs will be placed on other areas of the trail where potential hazards exist; and
6. Place trail boundary signs at intervals of one per 100 feet on both north and south boundaries. Signs may need to be placed closer together in areas of encroachment or through towns.

All signing will be in accordance with the specifications and regulations set forth in the February 6, 1980 DNR sign manual (see Appendix E for sign typicals).

Vegetation

The Sakatah Singing Hills State Trail vegetative management program will focus on reestablishing and maintaining native plant species. This program will enhance both the trail and its surrounding area, as well as help restore the pre-settlement vegetation which grew here. The revegetation program will also in time:

- Prevent soil erosion;
- Improve wildlife habitat;
- Form a "natural barrier" to keep trail users in the right-of-way;
- Screen the trail from adjacent highways and developments;
- Help retain adequate snow cover;
- Control undesirable plant species (consequently reducing the need for mechanical and chemical weed control efforts); and
- Compliment interpretive efforts and enhance the user experience.

Table 13 lists some of the native species which could be planted on the trail right-of-way. The species selected and the techniques used to plant and maintain the species will depend on a variety of site-specific factors such as soil, moisture, slope, aspect, the pre-settlement plant community, and seed supplies.

TABLE 13

Suggested Species to Plant in the Trail Corridor

COMMON NAME	LATIN NAME
Trees:	
Balsam fir	Abies balsamifera
Maple (extensive)	Acer saccharum
Birch	Betula papyrifera
White spruce	Picea glauca
White pine	Pinus strobus
Aspen (extensive)	Populus tremuloides
Black cherry	Prunus serotina
Oak (extensive)	Quercus sp.
Basswood (extensive)	Tilia americana
Shrubs:	
Juneberry	Amelanchier canadensis
Grey dogwood	Cornus racemosa
American hazelnut	Corylus americana

TABLE 13 cont.

Beaked hazelnut	Corylus cornuta
Rose	Rosa sp.
Willow	Salix sp.
Wolfberry	Symphoricarpos

Grasses and Forbs:

Should represent a composite of prairie species

Fire is thought to have occurred on a frequent basis in the prairie-forest transition region where the state trail sits. After European settlement, however, fire was suppressed. Prescribed burning would help regulate plant succession, restore and maintain native prairie vegetation, and suppress alien vegetation. A prescribed burning program could also provide visitors with a chance to observe the effects of fire. Although it may be desirable from a resource perspective, several problems could be created by burning selected areas on the state trail. For instance, safety problems and adjacent landowner fears would have to be addressed. Thus, the DNR will study the feasibility of instituting prescribed burns on selected sites where prairie vegetation occurred (this could perhaps be done in conjunction with Sakatah Lake State Park). If prescribed burning is found to be feasible, then burn plans will be developed with the assistance of the regional forester for the selected sites. Before any burns occur, however, it is important that all adjacent landowners be well informed and agreeable to the action.

It may also be necessary to remove vegetation in some areas along the trail ROW. Vegetative clearing may be necessary to open scenic lookouts and eliminate trees which pose a hazard to trail users.

Soils

Soil resources should be managed to prevent or minimize erosion, compaction, and contamination. To achieve this, a soil survey should be conducted before any major grading is done or before facilities such as pit toilets, wells, shelters, and picnic areas are developed. In areas where erosion is a problem, natural erosion control techniques, such as restoration and maintenance of adequate ground cover, should be used. Where natural erosion control techniques are not feasible, control structures such as rip-rap and

retaining walls will be used. It is hoped that these artificial control structures will be used sparingly since they detract from the natural qualities of the area.

Water

Revegetation and the other erosion control methods outlined above should help prevent pollution of surrounding surface and groundwater resources. However, the DNR will monitor developments on and adjacent to the trail to insure they are carried out in accordance with state and county regulations. The trail interpretive program should also help educate users and prevent water pollution.

Wildlife

Proper vegetative management should have a positive effect on wildlife resources in the area. The suggested plant species list contains native trees and shrubs which provide wildlife food, cover, and shelter. Brushpiles created by the removal of vegetation should remain in the right-of-way to help sustain a variety of game and non-game species.

Hunting

Trail rules and regulations state that hunting will be allowed within most of the Sakatah Singing Hills State Trail right-of-way. Minnesota Regulation NR 20 (g)(1) reads as follows:

> No firearm or bow and arrow shall be discharged within the trail at any time, except for the purpose of lawful hunting during the period from September 15th to March 30th only. No rifle, shotgun, with slug, or bow and arrow shall be discharged upon, over, or across the trail treadway at any time.

However, the state trail will not be completely open to sport hunting due to the nature and location of the trail. A Commissioner order has been filed under Minnesota Regulation NR 20 (1), "Suspension of Rules," to close the western end of the trail to hunting from Lime Valley Road to Blue Earth County Road 12. Local ordinances also prohibit the discharge of firearms in other cities. Finally, there are some areas where residences are too close to the trail and the 1979 "Trespass Law" (Minnesota Statute 100.273, Subdivision 5) would apply in these cases. The statute reads as follows:

Subdivision 5. No person shall take any wild animal with a firearm without the written permission of the owner or occupant of the premises on any private agricultural land not his own or any public right-of-way within 500 feet of any building occupied by a human being or by livestock, or within 500 feet of any stockade or corral containing livestock, nor shall any person take any wild animal with a firearm within 200 feet of any building occupied by a human being on any land other than agricultural land without the oral permission of the owner or occupant of the premises, or within 500 feet of any burning area.

INTERPRETATION

Theme

The interpretive program for the Sakatah Singing Hills State Trail should use a historical framework integrated with natural resources as its main theme--the rich history of the trail should be used to bring the lakes, rivers, geology, the "Big Woods" and prairie communities, the construction of the railroad, and other interpretive aspects into perspective for the trail user. For example, the old Sioux Indian trail (see page 30) could be used as part of the interpretive theme to bring together the trail's hydrologic, historic, and biological interpretive features. A "transportation through the ages" theme could also be stressed by focusing on Indian and early pioneer travel along the route, rail transportation, and finally the present recreation travel corridor.

The interpretive program should also educate trail users about the management of the trail, conflicts which occur, and problems which individuals can help to resolve (e.g., litter, trespassing). Users should be kept aware that the Sakatah Singing Hills State Trail is their trail, and their help is essential in managing and maintaining the trail.

Methods

At least three different methods can be used to develop the trail theme for the user: (1) interpretive signing, (2) self-guiding brochures, and (3) guided tours by a DNR naturalist. Resources which are easily destroyed or damaged, however, should not be interpreted--bringing these fragile resources to the attention of users may invite damage.

Signs are valuable interpretive tools because they identify for the user the immediate site of interest. Since this is a multiple-use trail, signs

and sign placement should be designed to serve users who are travelling at different speeds. Information panels located at rest stops and picnic areas could help to supplement the interpretive program also.

A self-guiding method of interpretation should include site-specific trail maps with descriptions of the cultural or natural significance of each interpretive site. An illustrated brochure could serve as the standard trail guide, covering in detail the highlights of each trail segment. These brochures could be distributed to trail user groups, schools, tourist information centers, area chambers of commerce, community information centers, youth centers, and churches. Brochures should also be available at major access points and rest stops.

Guided tours by DNR naturalists should be conducted on the trail, but only on the basis of demand. Schools could benefit greatly from this method of interpretation by using the trail right-of-way as an outdoor classroom.

The DNR Bureau of Information and Education can also help promote and interpret the state trail. Periodic news releases and features distributed through the local media will help to increase public awareness of the trail and what it has to offer.

The Sakatah Lake State Park staff and the state trail staff should work together to develop and provide complimentary interpretive programs. The park and trail interpretive programs should be related in such a way that they present only a subtle transition for the user of both facilities.

MAINTENANCE

Trail maintenance is just as important as trail acquisition and development. It includes such activities as treadway stabilization, vegetative management, winter grooming, facility upkeep, sign replacement, fencing, mowing and weed control, and rodent control. However, the effects of a good maintenance program are not limited to the physical and biological features of the trail:

1. Good maintenance is an effective way of helping advertise and promote the trail as a state recreational unit (word of mouth advertising is best);

2. The psychological effect of good maintenance can be an effective deterrent to vandalism, litter, and encroachment;
3. Good maintenance can create positive public relations between the adjacent landowners and the Department of Natural Resources; and
4. Good maintenance can help make enforcement of the trail more efficient. Local clubs and interest groups will take pride in "their" trail and will be more apt to assist in the protection of this recreational facility.

Thus, an effective trail maintenance program is essential if the DNR is to achieve its goal for the Sakatah Singing Hills State Trail.

Treadway

The main treadway limestone surface will require dragging and the application of soil sterilants at least once during the year. Trail use and condition will determine how frequently these actions occur.

Erosion of the treadway and the trail right-of-way is, and will continue to be, a small but persistent problem. While it is hoped that most of these soil disruptions can be controlled by effective vegetative management techniques, some artificial erosion control methods may be required. It may be necessary to dig ditches and install culverts in areas where the treadway is situated between high and low areas. The ditches and culverts will help drain these areas and prevent water from pooling in heavy rains. In Sakatah Lake State Park, the side of the treadway adjacent to Sakatah Lake may be steep enough to require water bars and rip-rap in addition to planting low lying vegetation to control erosion. Checks for erosion should be made monthly during other regular maintenance activities on the trail.

Although rodents are not presently causing problems on the treadway, some rodent control may be necessary in the future. Gophers and ground squirrels may have to be controlled since they can create hazards for bicyclists.

Grooming

Proper grooming during the winter is crucial on the main treadway. Grooming should generally be done after a minimum of six inches of snow

covers the treadway, and as needed thereafter. Semi-weekly grooming during the peak use months is recommended.

Grooming will be the responsibility of the Trails and Waterways Unit and will be done by local contractors and/or with state equipment. If state equipment is used, a back-up local contract should be secured to cover those times when mechanical breakdowns occur or use levels warrant extra grooming. These back-up contracts should insure proper grooming on a continuous basis. Money allotted for the back-up contracts which is not used should revert to the following year's maintenance budget.

Grooming on the Sakatah Singing Hills State Trail will be limited to the main treadway and those trails to and from the parking areas and waysides. Grooming spur trails to service areas and the second treadway will not be the responsibility of the DNR; local groups or clubs should groom these areas.

Weed Control

The DNR is required by law (Minnesota Statutes, 1974, Section 18.171, Subdivision 5) to control noxious weeds growing within the trail right-of-way. This control is done in two phases. First, where an immediate weed problem occurs, mechanical and chemical control methods are applied. Second, for long term weed control, native vegetation and other plants will be reestablished on the trail by mechanical seeding and planting to shade out undesirable weed species and improve wildlife habitat.

Chapter 9, Section 182 of the Minnesota Agricultural Rules and Regulations lists nine noxious plant species that occur statewide.* Other species may be considered noxious in individual counties and townships. Adjacent landowners should notify their local inspector or the regional DNR office if a noxious weed problem occurs within the trail ROW. These officials will determine the appropriate treatment for problem areas, and ensure that treatment is applied in a timely manner.

*The nine species are: field bindweed, hemp, poison ivy, leafy spurge, sow thistle, bull thistle, Canada thistle, musk thistle, and plumeless thistle.

Litter

Litter along the trail ROW will be removed by state maintenance crews or refuse collectors contracted by the state. Litter receptacles should be placed at access points and waysides, but not at the campsite (as discussed on page 61). Litter should be picked up twice a week, just before and after a weekend.

Fencing

Assuming need can be demonstrated, the DNR may absorb up to one-half the cost of construction and maintenance of fences. The DNR and adjacent landowners must, however, sign an agreement which describes their duties and responsibilities for the construction and maintenance of the fence(s). Where the fence(s) is needed to protect the property of the state and/or users of the property, the DNR will construct its share of the fence(s) and act under Minnesota Statute 344 to require the adjacent property owners to construct their share of the fence(s).

ENFORCEMENT

An effective enforcement program is necessary for citizens to have a safe and enjoyable trail experience. Thus, enforcement will play a major role in all phases of trail management. To establish safe use of trails, a common sense approach will be used in enforcing trail rules and regulations.

The state of Minnesota has specific rules and regulations which govern the use of state recreational trails (Minnesota Regulation NR 20). These rules and regulations will be posted conspicuously at accesses, waysides, and at other necessary locations on the trail. Trail brochures and meetings with trail user groups will also help inform users of the regulations.

Enforcement of Regulation NR 20 is the responsibility of the DNR conservation officers in cooperation with local law enforcement agencies. The sheriff's office in each county along the trail will be asked to aid in control of trail use. Funds are available from the DNR Trails and Waterways Unit to assist local enforcement agencies in equipping themselves for trail patrol. Adjacent landowners and trail users are encouraged to report violations to either the local DNR conservation officer or sheriff.

The following three law enforcement methods can be used to supplement the actions of conservation officers:

1. Minnesota Statutes 1973, Chapter 64B, authorizes payment of grants-in-aid money to local units of government to assist in the enforcement of laws pertaining to snowmobile use. County boards in several counties have already applied for such assistance.
2. Minnesota Statutes 1976, Chapter 84, Section 84.029, authorizes each DNR employee "while engaged in his employment in connection with such recreational areas, has and possesses the authority and power of a peace officer when so designated by the commissioner." Classroom training through the DNR Enforcement Division or Bureau of Criminal Apprehension is suggested to acquaint employees with appropriate methods and actions of peace officers.
3. DNR Interim Operational Order 21 gives DNR employees, while engaged in their employment, the authority to write infractions of the rules and regulations on Conservation Officer From #145. Such a report is admissable in court as court evidence. Employees doing this must witness the violation and are advised to understand the constitutional rights of individuals.

Encroachment

Encroachment is an enforcement problem on the Sakatah Singing Hills State Trail. Currently, there are numerous areas where adjacent landowners are encroaching on the trail ROW. This represents an illegal use of public lands by private landowners and cannot be condoned. The erection of signs, and planting of trees and shrubs along the ROW boundary, and the vigorous enforcement of state laws, rules and regulations should help reduce the problem.

DNR trail policy regarding encroachment is listed below:

A. Condition: Trailways have been used by abutting landowners for yard (garden, patio, lawn, picnic tables, swings, sandboxes), recreation (golf course, volleyball courts), miscellaneous storage (tool shed, firewood, automobiles, trailers, trash), pasture, crop and private driveway (not crossing trail) purposes.

1. Policy: No agreements for these uses will be issued within the 100 ft. trailway except as noted in B.
2. Rationale: The roadmaster gave landowners permission to use the ROW to improve it (e.g., keep down weeds) and to improve public relations. The understanding was to use the ROW, not to give the land away. The landowner will lose the use of the property and suffer inconvenience and a perceived loss in value to his property, but the moving cost is minimal. In addition, Heritage Conservation Recreation Service (HCRS) policy prohibits the conversion of trail land purchased with Land and Water Conservation Funds (LAWCON) from recreational use to nonrecreational use. For management, safety, enjoyment, wildlife, aesthetic and survey cost purposes, the state should maintain the existing 100 ft. trail ROW.

B. Condition: Trail land has been used by individuals for homes, barns and other permanent structures; by business for storage tanks (oil, fuel, gasoline, storage elevators (grain), and storage sheds (lumber, fabrication); and other similar purposes.
   1. Policy: Agreements for the above uses will be considered after land exchange proposals are submitted or easements with local units of government are proposed.
   2. Rationale: Individuals and businesses were issued leases by the railroad for these uses. The cost of moving these structures is usually high. Land exchange is an equitable and permanent solution for all parties based on the concept of value for value. In addition, HCRS regulations require land in exchange for land.

IMPLEMENTATION

Implementation of the proposed actions in this plan will depend upon the availability of funds and personnel, and upon the coordination of many governmental units' activities. These factors will determine the extent of development, management, and maintenance the trail will receive in any given year.

DNR TRAILS AND WATERWAYS UNIT AND REGIONAL STAFF RESPONSIBILITIES

The DNR Trails and Waterways Unit and the regional staff are primarily responsible for the planning and operation of the state trail. The overall responsibilities and duties for the existing regional and St. Paul staff (as of 2/80) are listed in Table 14. These guidelines will change if additional trail staff can be hired; some of the duties and responsibilities listed under the regional staff will be transferred to the on-site personnel.

DNR PERSONNEL REQUIREMENTS

The Sakatah Singing Hills State Trail is split between DNR Regions IV and V. Equipment and personnel from both regions are presently being used to maintain the existing trail. This is not an acceptable long-term arrangement. As the trail development is completed, a Natural Resource (NR) Specialist I should be assigned to the trail. The primary duties of this position would be to regulate trail use and maintain the trail. A seasonal laborer and the necessary equipment should be assigned under this position also.

The personnel assigned to the trail would be based in the trail headquarters and information center. Consideration should be given to using a building at either Sakatah Lake State Park or at Elysian for this purpose. State housing for the personnel is not necessary.

ESTIMATED TRAIL COSTS

Table 15 on pages 63-64 lists the estimated costs of developing, managing and maintaining the Sakatah Singing Hills State Trail for ten years. Resource 2000 funds will be requested to pay for the developments, while DNR general funds will be requested for equipment and maintenance costs. Resource 2000 and general funds will both be requested to pay for resource management activities.

TABLE 14

Trails and Waterways Unit and Regional Staff Duties and Responsibilities

DEVELOPMENT

Regional Staff	St. Paul (Operations)
1. Review master plan	1. Ensure compliance with master plan
2. Originate project proposals	2. Review project proposals
3. Originate budget request	3. Review and approve budget request
4. Prepare engineering request	4. Review and process engineering request
5. Initiate equipment request	5. Review and process equipment request
6. Initiate all requisitions	6. Process requisitions
7. Submit work schedule	7. Review and approve work schedule
8. Prepare contracts for development work	8. Process approved contracts
9. Inspect trails development	9. Monitor trail development
10. Hire laborers and foremen	10. Review labor budget
11. Submit recommendations for development manual	11. Review and print manual
12. Submit any changes or recommendations on trail maps	12. Complete changes for map
13. Submit monthly report on accomplishments	13. Review accomplishments
14. Plan and attend public trail meetings	14. Monitor certain meetings
	St. Paul (Planning)
15. Initiate request for Master Plan modification	15. Review and process all changes to Master Plan
	16. Monitor development to improve planning process

MAINTENANCE

Regional Staff	St. Paul Staff (Operations)
1. Prepare project proposals and budgets	1. Review proposals and allocate funds
2. Hire local laborers	2. Review labor budget
3. Initiate bids for maintenance	3. Review bids for maintenance
4. Inspect maintenance job	4. Monitor maintenance job
	St. Paul (Planning)
	5. Monitor maintenance to improve planning process

TRAIL ACQUISITION

Regional Staff	St. Paul Staff (Operations)
1. Originate project proposals	1. Establish trail acquisition priorities
2. Prepare fact sheets	2. Review and number parcels
3. Prepare lease forms	3. Review and coordinate with land unit
4. Assist land appraisers and negotiators when requested	4. Review with legal staff
5. Assist in engineering surveys	5. Review all changes made in land alignments
6. Prepare changes in map when needed	6. Finalize maps and submit for printing
7. Submit monthly report	7. Review monthly report
8. Attend public meetings on acquisition	8. Monitor acquisition meetings
	St. Paul (Planning)
	9. Hold public hearings on land acquisition for completed plans

TABLE 15

Estimated Trail Costs[1]

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Total
DEVELOPMENT						
Treadway--Morristown to Lime Valley Road, Mankato (29 miles at $12,000/mile); includes grade preparation, limestone surface and culverts.[2]	$344,000					$344,000
--Faribault segment from present trail head to Western Ave. (3/4 mile); includes the cost of highway drainage structures.		$ 70,000				70,000
Access Parking and Wayside Areas						
--Faribault	20,000					20,000
--Mankato	10,000					10,000
--Madison Lake	5,000					5,000
--Elysian[3]	10,000	60,000				70,000
--Eagle Lake (2 parking areas)	2,000					2,000
--Morristown		2,000				2,000
Rest Areas--7 at $300/each		2,100				2,100
Camping Area		2,000				2,000
Signing--boundary, regulatory, informational; includes interpretive signing	1,500					1,500
--wood routing		2,000				2,000
Fencing at $2,400/mile/side	2,000	10,000	$ 8,000	$ 5,000	$ 5,000	30,000
Bridges--Morristown (railing and decking)	10,000					10,000
--Sakatah Lake State Park (railing for 2 bridges)	500					500
Maintenance Building[4]		13,000				13,000
Interpretation--brochures	3,000	3,000	3,000	3,000	3,000	15,000
Second Treadway						
--Shager Park to Morristown[5]		5,000				5,000
--Morristown to Sakatah Lake State Park			10,000			10,000
--Morristown to Faribault[6]				5,000		5,000
	$408,000	$169,100	$ 21,000	$ 13,000	$ 8,000	$619,100

EQIUPMENT						
1 -- 3/4 ton pickup truck	$ 7,000			$ 7,000		$ 14,000
1 -- Snowmobile	2,000			2,000		4,000
1 -- Tractor (with mower)	8,000					8,000
1 -- Groomer and drag	35,000					35,000
Miscellaneous equipment (brush cutter, chainsaw, etc.)	3,000			3,000		6,000
	$ 55,000			$ 12,000		$ 67,000
MAINTENANCE						
Sign replacement (15%/year)	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 12,500
1 -- N. R. Specialist 1 position	24,000	24,000	24,000	24,000	24,000	120,000
1 -- Seasonal Laborer position	18,000	18,000	18,000	18,000	18,000	90,000
Limestone surface maintenance and repair	5,200	5,200	5,200	5,200	5,200	26,000
Other maintenance--fencing, grooming, etc.	5,000	5,000	5,000	5,000	5,000	25,000
	$ 54,700	$ 54,700	$ 54,700	$ 54,700	$ 54,700	$273,500
RESOURCE MANAGEMENT						
Vegetation establishment, weed control, controlled burning, erosion control, etc.		$ 20,000	$ 8,000	$ 2,000	$ 2,000	$ 32,000
TOTALS						
DEVELOPMENT	$408,000	$169,100	$ 21,000	$ 13,000	$ 8,000	$619,100
EQUIPMENT	55,000			12,000		67,000
MAINTENANCE	54,700	54,700	54,700	54,700	54,700	273,500
RESOURCE MANAGEMENT		20,000	8,000	2,000	2,000	32,000
GRAND TOTAL	$517,700	$243,800	$ 83,700	$ 81,700	$ 64,700	$991,600

TOTAL ESTIMATED COST = $991,600

[1]Figures are in 1980 dollars.

[2]This estimate does not include the costs of extending the Mankato segment past Lime Valley Rd. or developing a trail for snowmobiles around Waterville.

[3]Two costs are included, one for the parking area and one for the wayside facilities.

[4]Assuming it must be built.

[5]Assuming Shager Park is the eastern end. If Faribault is the eastern end, then the Morristown-Faribault (Phase 4) figure will be incorporated here; the total cost for Phase 2 will be $10,000.

[6]Assuming use justifies the extension and it is feasible to build.

COORDINATION

Although the Trails and Waterways Unit and the regional staff will have the primary responsibility for the state trail, many other governmental units will be involved, in varying degrees, in implementing the trail plan. The Trails and Waterways Unit and regional staff will need to work with several other divisions, bureaus and sections in the DNR. Since the trail passes directly through Sakatah Lake State Park, the coordination between the park and trail staff is particularly important. The park provides a convenient access to the trail and it also serves as a destination for trail users. Park and trail facilities and programs should compliment each other. For instance, loop trails could be built within the park to tie the park to the state trail. At present, however, coordination between the park and trail staff is lacking. Park and trail personnel should work together to consider and/or plan interpretation programs, horse use, use of park facilities (e.g., parking, camping, space for trail staff), maintenance and enforcement for the trail segment which passes through the park.

Several other DNR divisions, bureaus and sections are also involved in planning and operating the trail. The Enforcement Division will be enforcing state laws, rules and regulations applicable to the trail. The Bureau of Engineering will be involved in developing specifications for the trail and its facilities, and in building the trail. The Bureau of Information and Education can assist in promoting the trail. The Land Bureau is concerned with the acquisition necessary for the trail. The Forestry Division, Fish and Wildlife Division, Division of Waters, the Office of Planning, the Scientific and Natural Areas section, and the Natural Heritage Program may also be occasionally involved with the implementation of the trail plan.

The DNR will need to coordinate its actions with the Minnesota Historical Society, Minnesota Department of Transportation (MN/DOT) and the State Planning Agency (SPA). The Historical Society will be involved with historical sites which occur along the trail. For instance, the agency could conduct a survey to determine if any archaeological sites exist here. DNR and MN/DOT personnel should work together to plan and develop

the trail alignment in Mankato and Faribault, and to develop the Elysian wayside facility. Under the provisions of the Outdoor Recreation Act, the State Planning Agency must review and approve this plan before it can be implemented. The agency may also be involved with modifying the plan (see page 46).

At the federal level, the DNR must apply to the Heritage Conservation and Recreation Service (HCRS) of the Department of the Interior if it is to receive federal funding (Land and Water Conservation Fund (LAWCON), etc.) for the trail.

At the local level, the DNR should work together with the counties (Blue Earth, Le Sueur and Rice), townships, and municipalities which the trail traverses. The DNR will need to coordinate enforcement and maintenance actions where the trail is on county, township or municipal road right-of-way. The local government units can also help publicize the trail. The DNR and Rice County will need to come to an agreement on whether the parking area at Shager Park should be an access point for horseback riders. Arrangements must be finalized with Blue Earth County for parking in Mankato. Le Sueur County should be consulted on the location of the trail alignment (for snowmobiling) around Waterville. The DNR will also work with the cities of Faribault and Mankato to link the state trail with their trail systems. Finally, the DNR will need to work with all of the local governmental units to resolve problems which arise as a consequence of the trail.

EVALUATION

The preceding pages have described the actions which are presently considered necessary to guide the future development and management direction of the Sakatah Singing Hills State Trail. However, trail conditions, user populations, technology, landowners, land uses, and other management considerations change with time--often in unforeseen ways. Also, problems may need to be addressed in the implementation of the plan. It is, therefore, important to periodically review and evaluate the plan. The evaluation will enable managers, legislators, users, and other interested parties to determine how effectively and efficiently the trail is being managed. The evaluation will address such questions as whether user needs are being met, and whether the second treadway should be extended. Based on the results of the evaluations, changes in the plan's goal, guidelines, and actions may be instituted.

PUBLIC INPUT

Public input is an important part of evaluation. Indeed, the public is constantly evaluating the trail and its managers. The users and adjacent landowners are particularly important evaluators since these groups are the two most interested in the trail--the evaluation these groups give the trail will largely determine whether or not the trail is used.

To enable users and landowners to voice their frustrations, problems, insights, and general comments, periodic meetings should be held, perhaps once per year. Comment cards and surveys can also be used to solicit comments for evaluation purposes. By encouraging citizens to voice their concerns, the DNR is acknowledging the importance of continuing citizen input in the management of the trail.

PROVISIONS FOR MODIFICATIONS

Managers, users, landowners, and other interested parties will eventually propose changes in the trail plan. Proposed changes must be sent to the Trails and Waterways Unit in St. Paul. Proposals will be reviewed by both the trail operations and planning sections. When agreement is reached, the trail planning section will draft the changes for the Special Assistant to the Commissioner assigned to the Trails and Waterways Unit.

The entire plan should be thoroughly reviewed and updated every ten years starting in 1990 by the Trails and Waterways Unit planning section. Public comments, DNR staff recommendations, and trail studies should all be utilized in these reviews. If major changes are proposed for the trail, such as changes in the trail goal or actions which significantly affect the trail alignment or management, then the same procedures used to develop the plan should be followed: public meetings, in-house DNR review, and State Planning Agency review should all be sought.

APPENDIX

A. DNR STATE TRAILS

Trail	Authorization
Minnesota Valley	1969
Casey Jones	1971
Countryview	1971
Douglas	1971
Glacial Lakes	1971
Root River	1971
Sakatah Singing Hills	1971
Luce Line	1973
Minnesota Wisconsin Boundary	1973
Heartland	1974
Taconite	1974
Grand Marais to International Falls	1975
North Shore	1975

B. THE MINNESOTA OUTDOOR RECREATION ACT OF 1975
(selected portions)

Minnesota Statutes 86A.09 OUTDOOR RECREATION SYSTEM

86A.09. DEVELOPMENT AND ESTABLISHMENT OF UNITS. Subdivision 1. Master plan required. No construction of new facilities or other development of an authorized unit, 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, a master plan for administration of the unit in conformity with this section. This requirement shall not apply to an existing unit until August 1, 1977. No master plan is required for wildlife management areas that do not have resident managers, for water access sites, or for rest areas.

Subd. 2. Master plan; preparation and content. The managing agency shall supervise preparation of the master plan and shall utilize the professional staffs of any agency of the state when the expertise of the staff of such agency is necessary to adequately prepare the master plan; the master plan shall present the information in a format and detail that is appropriate to the size and complexity of the authorized unit. When the master plan has been completed the managing agency shall announce to the public in a manner reasonably designed to inform interested persons that the master plan is available for public review and in the case of any major unit shall hold at least one public hearing on the plan in the vicinity of the unit. The managing agency shall make the master plan available for review and comment by the public and other state agencies for at least 30 days following the announcement and before submitting the master plan to the state planning agency. Copies of the plan shall be provided to members of the outdoor recreation advisory council and to any other person on request.

Subd. 3. Master plan; review and approval. All master plans required by this section shall be submitted to the state planning agency for review pursuant to this subdivision. The state planning agency shall review the master plan to determine whether the plan: (a) provides for administration of the unit in a manner that is consistent with the purposes for which the unit was authorized and with the principals governing the administration of the unit, as specified in section 86A.05 and the statutes relating to each type of unit; (b) recognizes values and resources within the unit that are primarily the responsibility of another managing agency to protect or develop, and provides for their protection or development either through a cooperative agreement with other managing agency or through designation of the appropriate area as a secondary unit. In reviewing any master plan, the state planning agency shall consult with other state agencies. Within 60 days after receiving the master plan, the state planning agency shall notify the managing agency that the plan has been reviewed and forward its recommendations for any changes it might suggest. The managing agency shall review the recommendations and notify the state planning agency of the disposition made of them. Failure to comment on a master plan within the time specified shall be considered approval of the plan by the state planning agency. If the director of the state planning agency feels that the master plan still fails significantly to comply with this subdivision, he may request review of the master plan by the governor. In that event review shall be deemed completed until after the master plan has been approved by the governor or 60 days have elapsed without action by the governor to approve or reject the plan, whichever occurs first.

Subd. 4. Development. Construction of necessary facilities and other development of the unit shall commence as soon as practicable after review of the master plan by the state planning agency, and the governor if requested, and shall be carried outin conformity with the master plan.

Subd. 5. Establishment. When, in the opinion of the managing agency, acquisition and development of the unit are sufficiently complete to permit operation and administration of the unit in substantial conformity with the master plan as approved, the managing agency shall declare the unit established and ready for use.

(1975 c 353 s 9)

Minnesota Statutes 86A.05, Subdivision 4 CRITERIA

Subd. 4. State trail; purpose; resource and site qualifications; administration; designation.

(A) A state trail shall be established to provide a recreational travel route which connects units of the outdoor recreation system or the national trail system, provides access to or passage through other areas which have significant scenic, historic, scientific, or recreational qualities or reestablishes or permits travel along an historically prominent travel route or which provides commuter transportation.

(B) No unit shall be authorized as a state trail unless its proposed location substantially satisfies the following criteria:

(1) Permits travel in an appropriate manner along a route which provides at least one of the following recreational opportunities:

(i) travel along a route which connects areas or points of natural, scientific, cultural, and historic interest;

(ii) travel through an area which possesses outstanding scenic beauty;

(iii) travel over a route designed to enhance and utilize the unique qualities of a particular manner of travel in harmony with the natural environment;

(iv) travel along a route which is historically significant as a route of migration, commerce, or communication;

(v) travel between units of the state outdoor recreation system or the national trail system; and

(2) Utilizes, to the greatest extent possible consistent with the purposes of this subdivision, public lands, rights-of-way, and the like; and

(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; and

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

(C) State Trails shall be administered by the commissioners of transportation or natural resources as specified by law in a manner which is consistent with the purposes of this subdivision. State trails established by the commissioner of natural resources shall be managed to provide a travel route through an area with a minimum disturbance of the natural environment and recognizing other multiple land use activities. Trail markers shall be limited to those providing safety information and interpretation.

(D) Facilities for the rest and comfort of trail users shall be provided primarily within units of the outdoor recreation system through which the trail passes. When additional facilities are required to insure the rest and comfort of the traveler, the managing agency may develop such facilities along the trail and shall designate the facilities as trail waysides. In addition to the foregoing purpose, trail waysides shall be developed for the preservation and interpretation of the trail's natural, historic, or scenic values, and may include facilities for primitive camping, picnicking, sanitation, and parking for access to the trail.

APPENDIX C
Wildlife Inventory

Bird Species Found in the Vicinity of the Trail	Relative Abundance				Seasonal Occurrence	
	Abundant	Common	Uncommon	None	Permanent Resident	Migrant or Seasonal
Bitterns		X				X
Red-winged Blackbird	X					
Yellow-headed Blackbird		X				
Blue Jay			X			
Bobolink		X				
Indigo Bunting			X			
Black-capped Chickadee			X			
American Coot	X					
Brown-headed Cowbird	X					
Common Grackle	X					
Common Crow	X					
Mourning Dove	X					
Rock Dove		X				
Redhead Duck			X			
Northern Shoveler	X					
Common Egret		X				
Common Flicker			X			
Great Crested Flycatcher			X			
American Goldfinch			X			
Pied-billed Grebe		X				
Canada Goose		X				
Rose-breasted Grosbeak			X			
Hawks		X			X	X
Herons		X				X
Green Hern		X				
Killdeer		X				
Eastern Kingbird			X			
Horned Lark	X					
Mallard		X				X
Purple Martin			X			
Western Meadowlark	X					
Northern Oriole			X			
Owls		X			X	
Hungarian Partridge		X			X	
Ring-necked Pheasant		X			X	
Robin	X					X
Shorebirds		X				
Common Snipe		X				
Chipping Sparrow		X				
Field Sparrow		X				X
Grasshopper Sparrow			X			
House Sparrow	X					
Savannah Sparrow		X				
Song Sparrow	X					X
Vesper Sparrow	X					
Starling	X					
Bank Swallow			X			
Barn Swallow	X					
Cliff Swallow			X			
Rough-winged Swallow		X				
Blue-winged Teal		X				X
Black Tern		X				
Yellow Throat		X				
Brown Thrasher		X				
Warbler	X	X				X
Red-headed Woodpecker		X			X	
House Wren		X				
Marsh Wren		X				

Abundant: 200+ individual birds sited within a 100 mile survey area.

Common: 100-200 individual birds.

Uncommon: 20-100 individual birds.

Source: Minnesota Breeding Birds: Relative Abundance & Distribution, MNDNR, 1978.

Mammal Species Found in the Vicinity of the Trail	Relative Abundance				Seasonal Occurrence	
	Abundant	Common	Uncommon	None	Permanent Resident	Migrant or Seasonal
Beaver			X		X	
Chipmunks		X			X	
Eastern Chipmunk		X			X	
White-tailed Deer		X			X	
Red or Gray Fox		X			X	
Pocket Gopher	X				X	
Prairie Deer Mouse		X			X	
Mink		X			X	
Eastern Mole		X			X	
Muskrat		X			X	
Opossum			X		X	
Cottontail Rabbit		X			X	
Jack Rabbit			X		X	
Raccoon					X	
Short-tailed Shrew		X			X	
Spotted Skunk			X		X	
Striped Skunk		X			X	
Fox Squirrels		X			X	
Gray Squirrels		X			X	
Ground Squirrels		X			X	
Red Squirrels		X			X	
Long-tailed Weasel			X		X	
Woodchucks		X			X	
Least Weasel						

Source: Surveys by DNR Region 4 & 5 Naturalists, and Wildlife Officials.

Reptile and Amphibian Species Found in the Vicinity of the Trail	Relative Abundance				Seasonal Occurrence	
	Abundant	Common	Uncommon	None	Permanent Resident	Migrant or Seasonal
Northern Leopard Frog	X				X	
Tiger Salamander		X			X	
Eastern Milk Snake		X			X	
Plains Garter Snake	X				X	
Spiny Softshell Turtle	X				X	
American Toad		X			X	
Common Snapping Turtle		X			X	
Western Painted Turtle		X			X	
Wood Turtle		X			X	

Source: Surveys by DNR Region 4 & 5 Naturalists, and Wildlife Officials.

D. ENVIRONMENTAL IMPACTS OF THE STATE TRAIL

Soils

Soil erosion will occur during trail construction, maintenance and use. This erosion will be the result of soil compaction and exposure. However, the erosion is expected to be local and of minor significance. Treadway construction will have a minor detrimental impact on the soil because the trail corridor already exists. Construction of trail parking areas and the campsite, involving temporary vegetation removal and site preparation, will cause some soil erosion. Careful site selection is important in minimizing this erosion. Vegetation will be replanted as soon as construction of the facilities is completed to help to limit soil disturbance.

The intensity of trail use will largely determine the amount of soil disturbance on the trail. Since access points, parking and rest sites, and campsites generally experience the heaviest use, the greatest detrimental impact will occur here. These areas will be carefully monitored.

Enhancing existing vegetation of the right-of-way will have a beneficial impact on the soils. The vegetation will replenish soil nutrients. Vegetation planted on slopes will help stabilize soils and prevent erosion.

Vegetation

Overall disturbance of area vegetation will be minimal because the trail follows a pre-existing travel corridor. Indeed, developing the railroad bed as a recreational trail will have a positive impact on vegetation growth because railroads have traditionally suppressed growth along the right-of-way. Since vegetation will be suppressed only on the treadway, and since a seeding and planting effort is planned, an increase in total vegetation within the right-of-way is expected. This is beneficial, because the intensive farming practiced in much of the area has left a scarcity of natural vegetation.

Some trail vegetation will nevertheless be removed or disturbed. Grading and surfacing of the treadway will cause some impacts. However, vegetation has always been impaired on the grade because of: compaction, the lack of good topsoil, and the presence of railroad ties. More significant vegetative disturbance will probably result from construction of trail facilities and user deviation from the treadway. This type of disturbance may increase as use increases.

Fish and Wildlife

Since traditional edge cover has been all but eliminated by present day farming practices, increased vegetation within the right-of-way will improve the habitat for area wildlife. The trail and the accompanying seeding and planting program will have a long-term positive impact on wildlife. Wildlife disturbances resulting from trail development can be minimized if delays in construction are avoided. Disturbance may result, however, from maintenance work and general trail use. If maintenance work is scheduled around peak wildlife breeding and rearing periods, then this disturbance will depend largely on the type and intensity of use on the trail.

Fishing might increase in the area due to an influx of people who are attracted by the trail. Other impacts on the local fish populations are expected to be negligible.

Air and Water Quality

Air and water quality impairment is expected to be minimal. Dust and emissions from heavy equipment will occur during trail construction. Air pollution will also result from snowmobile emissions and increased auto emissions on access roads and parking areas, although the intensity of trail use will largely determine the degree of air pollution.

Development and use of the trail will cause some minor local impacts on the water quality of adjacent waterways. The type and intensity of trail use will again largely determine the degree of the impacts. Areas exposed to erosion by trail construction activities and users could contribute

to some sedimentation of adjacent waterways. Erosion control is the most important factor in maintaining the water quality in the trail area. If intensive horse use occurs, organic waste problems could occur--accumulations of organic waste, especially at grade waterway crossings, could affect the water quality of local streams and water bodies. However, impacts of this nature are not expected to be significant.

Socioeconomic Factors

Trail users can have negative social impacts on adjacent landowners. Litter, trespass, vandalism, and noise probably will increase with increased use of the trail. However, irregular litter pick-up, adequate fencing, proper enforcement, and DNR rules limiting snowmobile noise emissions will reduce the occurrence of these incidents. Planting trees and shrubs for screening purposes will help minimize potential trespassing, preserve individual privacy, and reduce noise pollution problems. Local traffic volumes will increase as trail use increases, but are not expected to exceed design capacities of the existing highway system.

The additional recreational opportunities the trail will provide to a large number of people is a positive social impact. The trail will make a recreational experience available to the general public, and also probably increase the use of public and private recreational facilities in the area.

As trail use increases, local economies will benefit from the resulting increase in tourist travel expenditures. Other beneficial cost expenditures will also be generated by the trail: new jobs will be created and additional dollars will be spent in the area for material and equipment during the development and maintenance of the trail. These positive local economic impacts will help mitigate the loss in tax revenues to local governments. (The DNR will also be contributing funds to the local governments in lieu of the taxes.)

Land Use

The acquisition and development of the right-of-way will result in a

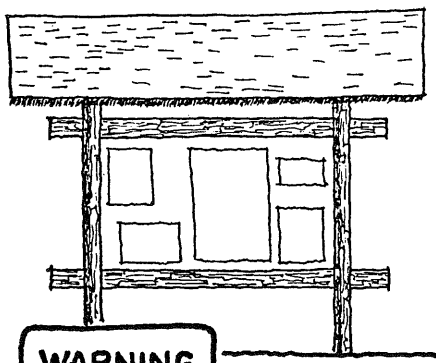
commitment of the land to multi-purpose recreational uses. Farm severances will occur where the trail passes through agricultural areas, causing disruptions in daily farming operations. The DNR will issue permits for on-grade crossings and provide cattle passes where needed to mitigate this impact.

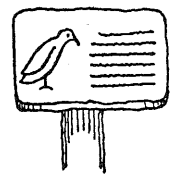
Land uses adjacent to the trail (most notably in communities) could change with the development of businesses that provide goods and services for trail users (e.g., equipment stores, eating and drinking establishments, recreation facilities). Agreements with adjacent landowners, careful zoning, and land use planning can avoid or reduce adverse impacts from trail-related developments. However, it is the responsibility of local governments to develop, implement, and enforce these measures.

Historic and Cultural Factors

No impacts on these resources is expected to occur. The Minnesota Historical Society will be requested to conduct a study of available historical and cultural resource records, and U.S. Geological Survey topographic maps, to determine whether on-site archaeological investigation is necessary before trail construction commences.

E. Typicals – Signs





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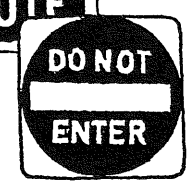

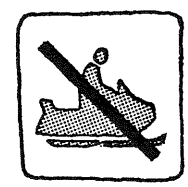

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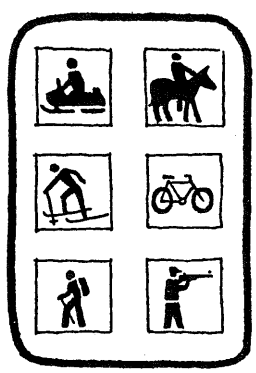
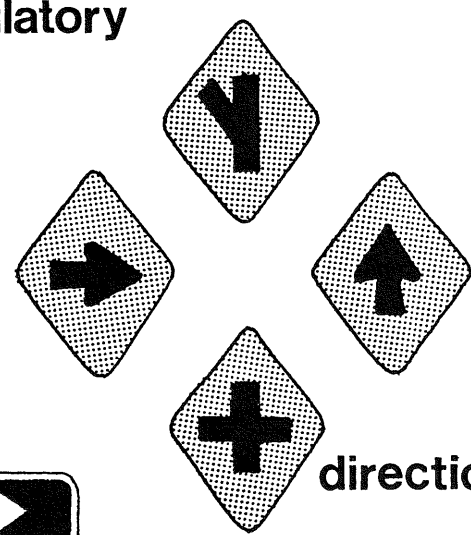
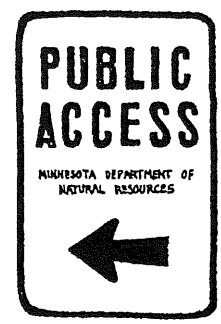
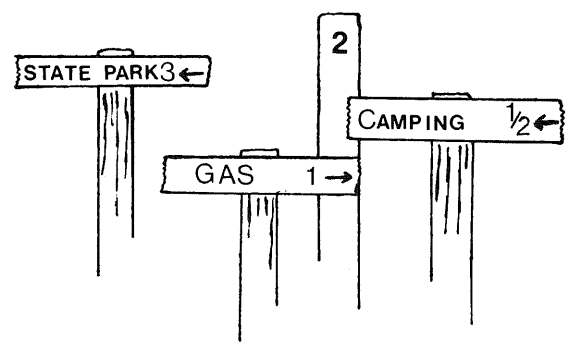




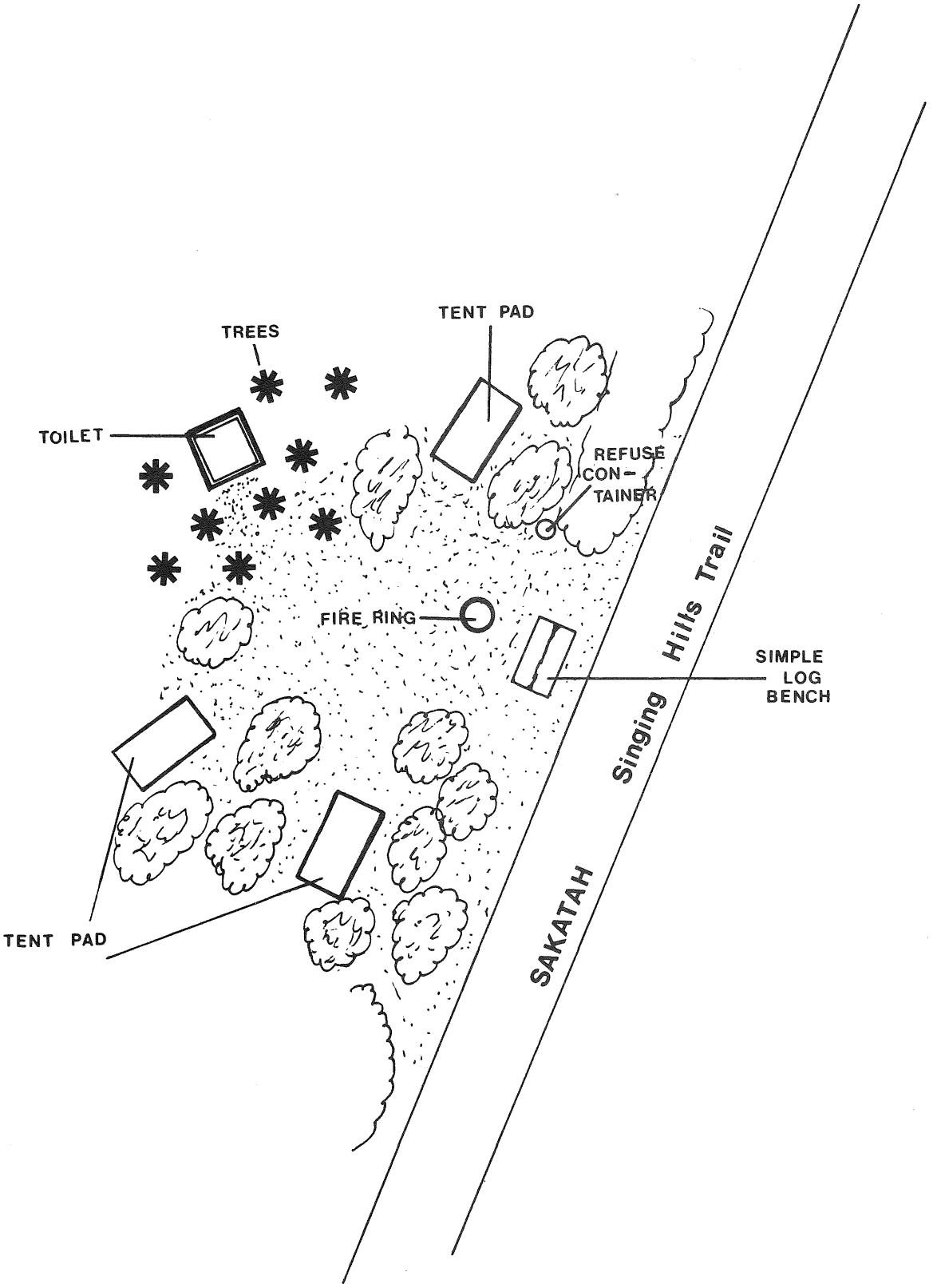


directional

boundary



SAKATAH CAMPSITE TYPICAL



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