Tower Soudan
State Park Management Plan

Draft

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LIST OF ABBREVIATIONS

ORA '75 - Outdoor Recreation Act of 1975
DNR - Minnesota Department of Natural Resources
MHS - Minnesota Historical Society
SPA - State Planning Agency
MPD - Management Plan Details
GPMP - General Park Management Plan
BWCAW - Boundary Waters Canoe Area Wilderness
CETA - Comprehensive Employment Training Act
YACC - Young Adult Conservation Corps
YCC - Youth Conservation Corps
SNA - Scientific and Natural Area
IRRRB - Iron Range Resources and Rehabilitation Board
DM&IR - Duluth, Missabe, and Iron Range Railroad Company
OSHA - Occupational Safety and Health Administration
MSHA - Mine Safety and Health Administration
CSAH - County State Aid Highway
TH - Trunk Highway
I - Interstate
mi - mile
km - kilometer
sq mi - square mile
sq km - square kilometer
ft - foot/feet
m - meter
in. - inch
cm - centimeter
kg - kilogram
cfs - cubic feet per second
cms - cubic meters per second
ppm - parts per million
ROW - right-of-way
msl - mean sea level
gpm - gallons per minute
lpm - liters per minute
hp - horsepower
F - Fahrenheit
C - Centigrade
p - page
pp - pages

PREFACE

The primary concern in the development of the park management plan format was the identification of the "audience." For whom are these plans to be written? Eight different audiences were identified.

1. DNR reviewers of the whole planning process
2. DNR reviewers whose main concern is one specific part to the plan
3. DNR regional administrators, supervisors, and park managers
4. SPA reviewers
5. The general public
6. Special interest groups
7. Reviewers of the environmental impacts of proposed actions
8. Legislators

The requirements of each of the audiences are different. All audiences require a document which includes some technical data, but the degree of detail as well as the manner of presentation varies. Some audiences require that specific topics be discussed in detail in all phases from inventory through recommended management. Other groups require a short, non-technical, yet comprehensive and logical management plan. A plan, obviously, cannot be both technical and non-technical nor can it be both long and short. It seemed logical then to produce two documents: 1) a short, comprehensive, non-technical document for the general public ("General Park Management Plan" GPMP), and 2) a detailed, technical document for specialists ("Management Plan Detail" MPD).

This document is the General Park Management Plan. All recommendations, both resource management and physical development, are included in this document. Detailed inventory data and specific instructions necessary for implementation of the plan are not included. This information has been compiled into technical appendices, which are on file at:

Park Planning
Department of Natural Resources
444 Lafayette
St. Paul, Minnesota 55101

II. INTRODUCTION

AN OVERVIEW OF TOWER SOUDAN STATE PARK

Tower Soudan State Park is located on a rugged ridge in northern St. Louis County overlooking Lake Vermillion to the north and the communities of Soudan and Tower to the south. These namesake communities are the nearest population centers. Tower's population was 669 in 1970. Soudan is slightly smaller. The park is about midway between the larger population centers of Ely (5,219) to the east and Virginia (12,450) to the west. Trunk Highways 1 and 169 (TH 1 and 169) provide access to the park from the east (Ely and the North Shore), west, and south. Interstate 35 (I-35) and TH 53 provide access from the south and TH 53, 1, and 169 provide access from the north.

Establishment of the park came about through the generosity of United States Steel Corportation (US Steel). The Minnesota Department of Natural Resources (DNR) was contacted by them in the early 1960s to discuss the possibility of making the soon to be abandoned mine into a state park. The legislature accepted the idea and established the park in 1963. The statutory boundary included 2,909 acres (1,177 hectares). The initial legislation restricted the DNR to only accepting donations of land within this boundary. The DNR, Division of Parks and Recreation currently owns 1,303 acres (527 hectares). Most of this acreage was given by US Steel in two gifts - one in 1963 and one in 1965.

A later piece of legislation in 1969, overrode the initial bill and opened the door for outright purchase of land within the boundary. In 1973, the Duluth, Miss abe, and Iron Range Railroad Company (DM&IR) donated a section of their abandoned right-of-way grade (14 acres/5.7 hectares) to the park. The remaining acreage within the statutory boundary is owned largely by US Steel with numerous small parcels owned by private individuals, the township of Breitung, the city of Tower, and the DM&IR.

Tower Soudan is a park which documents the iron ore mining industry in Minnesota. The Soudan mine began operation in 1882 and closed in 1962. It was the first iron ore mine in Minnesota.

The park contains a small picnic area and hiking and snowmobile trails. Also within the statutory boundary are 158 small lakeshore lots, leased by individuals from the state. There are boathouses on 149 of these lots.

The park supports scenic stands of white and Norway pine mixed with some balsam, aspen, and birch on the uplands. The lowlands are dominated by white cedar interspersed with balsam, tamarack, black spruce, ash, and muskeg.

THE PLANNING PROCESS

The variety of outstanding natural, cultural, and historical resources of Minnesota provide abundant opportunities for outdoor recreation and education. In order to ensure that present and future generations will have the opportunity to enjoy these resources, we must plan now to protect, perpetuate, and provide access to these resources. For this reason, the Minnesota Legislature passed the Outdoor Recreation Act of 1975 (ORA '75).

This act mandated that a comprehensive management plan be completed for each of the major units in the state recreation system. In the course of this planning process, each park will be classified in recognition of its resources and its role in the statewide system.

This plan sets the long range goals and objectives for resource management and recreational development which are appropriate for the park's classification. The actions that should be taken to move toward fulfilling these goals and objectives are then stated and scheduled.

The planning process consists of five steps:

1. Compilation of an inventory of natural resources and existing facilities. Task forces of specialists from other DNR divisions and sections are mobilized to assist in collecting pertinent data. At this point the first public workshop is held.
2. Identification of alternatives for park management and development. A second public workshop is held to review these alternatives and invite further public comment. These alternatives are then reviewed by the Division of Parks and Recreation.
3. Classification of park, development of park goal, and writing draft plan. This step culminates in the first interdepartmental review, followed by a 30 day public review. Within this 30 day period, the third public workshop is held.
4. Revision of the draft plan according to information received from public and interdepartmental reviews. Plan is then sent to the State Planning Agency for a 60 day reviewal period.
5. Implementation of development plan by the Division of Parks and Recreation.

SUMMARY

Tower Soudan State Park is recommended for classification as a recreational state park with a historic site secondary unit. The goal for Tower Soudan is to provide a high quality, unique, historically-oriented interpretive experience augmented by recreational trail opportunities and future water-based recreational activities.

Resource management will improve the park's scenic qualities and wildlife habitat while protecting its sensitive soil and water resources.

The major proposed changes to existing park facilities will be to:

-Construct a new park entrance road off TH 1 and TH 169 from the east

-Relocate the contact station adjacent to the new entrance road

-Construct a new parking lot north of the service area

-Relocate the picnic area

-Rehabilitate the entire mine tour operation

-Rehabilitate and expand the trail system to provide for hiking, snowmobiling, and ski touring

-Provide an alignment, trail shelter, and parking area for the Taconite Trail

-Improve and broaden the park's interpretive program

A major statutory boundary revision is proposed for Tower Soudan. The revision will remove 1,620 acres (655.6 hectares) and add 20 acres (8.1 hectares) to the statutory boundary. The revision will eliminate the non-park quality land and add a parcel needed for the new entrance road.

Lake Vermilion

Long Island

Echo Point

19

20

21

22

Swectatawin Bay

Stuntz Bay

The Narrows

Puncher Point

30

29

28

27

Hoodoo Point

Tower Municipal Landing Field

Soudan

Pike Bay

1

169

Legend

- Highway
- Paved Road
- Unimproved Road
- Railroad Right-of-Way
- Statutory Boundary

32

Tower

33

34

31

East Two River

West Two River

Range 15 West

Range 15 West

Township 62 North

Township 61 North

11

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Tower Soudan State Park

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STATE PARK ROLE ANALYSIS

Introduction

In order to determine a park's potential role in perpetuating natural resources and fulfilling recreational needs, a state park analysis process has been initiated. The analysis is designed to look at a given park's interrelationship with:

the state park system

the biocultural region system

regional recreational facility supply and demand

Recognition of a state park's interrelationship with these components will help to ensure that park development will be planned to protect natural and historic resources, meet appropriate recreational demands, and avoid undue competition with other recreation providers.

The State Park System

Minnesotan's are fortunate to live in a state with such a wide variety of natural, scenic, and historic resources. To ensure public access and to prevent inappropriate development, the state has set aside lands which exemplify these outstanding resources. It is the management goal for all state recreational lands, including state parks, to protect and perpetuate these resources for use and enjoyment by the citizens of Minnesota.

There is a delicate balance which must be maintained when recreational facilities are provided for large numbers of people in areas of outstanding and often sensitive resources. Generally, certain resources are best suited for particular types of recreation. To help ensure this recreation/resource balance, the Minnesota state legislature outlined in the ORA '75 the components which comprise the state recreational

system. These components are historic sites; forests; water access sites; rest areas; trails; wildlife management areas; scientific and natural areas; wild, scenic, and recreational rivers; wilderness areas; and parks. Included in this legislation is a classification system which identifies general criteria for planning and management of all state recreational lands. Each unit is evaluated and classified on the basis of these criteria.

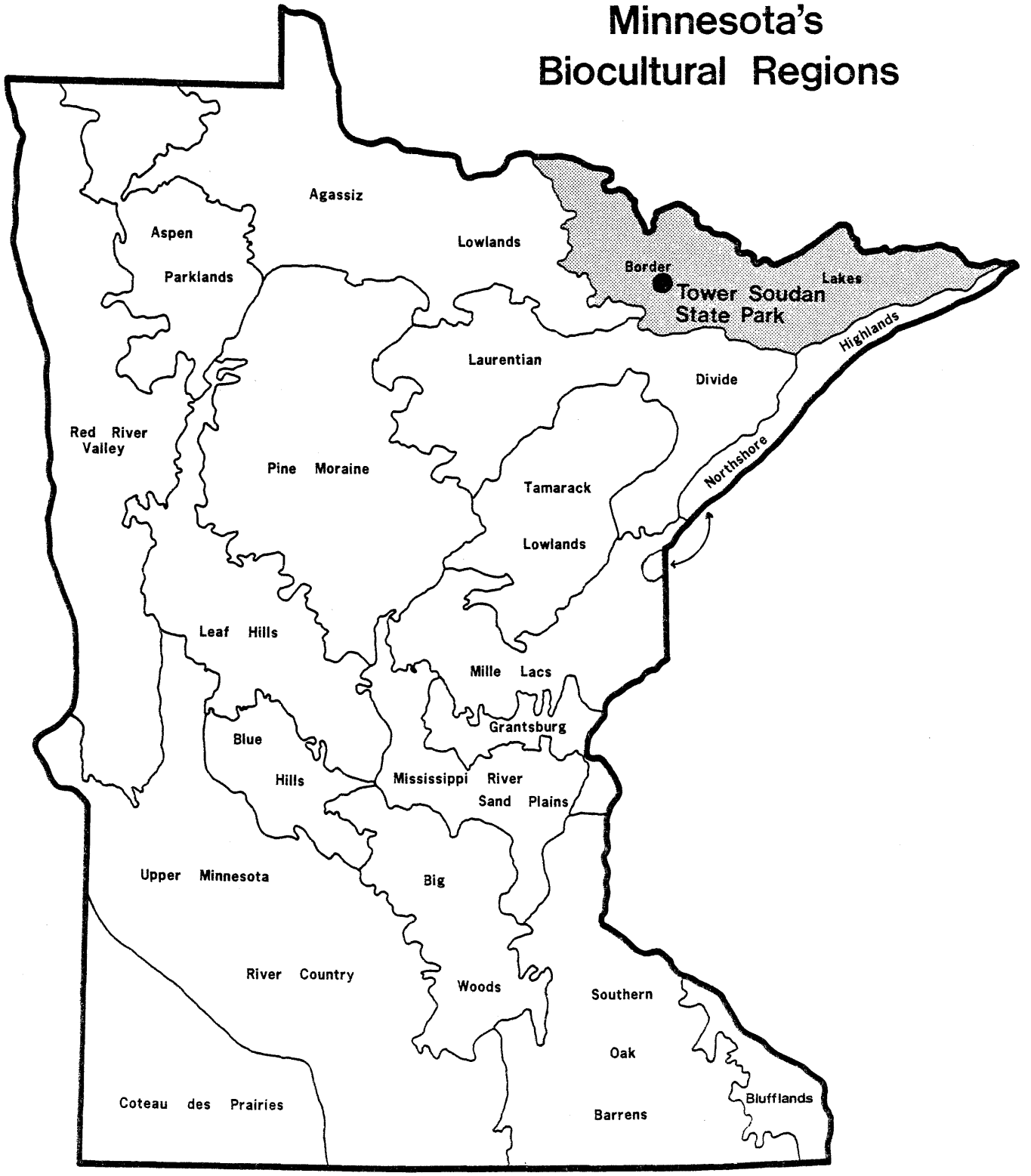
This classification system identifies the role for each recreational unit in the statewide system. (See the Classification Section, p for further discussion.) The two primary classifications for state parks are natural and recreational. These two, along with other classifications, are considered during the planning process and the most appropriate are recommended for the park. If a state park does not meet the established classification criteria for a state recreation unit, the DNR will consider the possibility of eliminating the park from the state recreational system.

Biocultural Region System

The biocultural region system divides the state into 18 regions. These regions are differentiated according to the characteristic plant and animal life, landofrms, and cultural patterns which existed before, during, and after European settlement. The biocultural region system is a framework which provides valuable information useful in the planning of Minnesota's state parks.

Tower Soudan State Park is located in the Border Lakes Biocultural Region of the state. This region is famous for the ice-scoured landscape which was formed by overriding glaciers. Movement of ancient glaciers removed soil and loose rock, exposing bedrock. Between the ridges, valleys and basins were filled with water forming thousands of large lakes and potholes, connected by swift streams and rivers. Most of this region is characterized by the type of landscape found in Boundary Waters Canoe Area Wilderness (BWCAW) and Voyageurs National Park.

Minnesota's Biocultural Regions



The border lakes area was originally covered by northern conifer forests of mixed pine, spruce, and fir. It has been extensively logged and burned by forest fires. Only small stands of original vegetation remain. Some dominant native vegetation species have regenerated. But, most of the area is now covered by birch and aspen.

Regional Recreational Facility Supply and Demand

The rugged topography and the numerous lakes and rivers combine to make this area one of the most scenic in Minnesota. Historically, the local area was important as a source of lumber. It is also the birthplace of the iron mining industry in Minnesota. While these functions are still the economic base of the region, recreation and tourism are becoming increasingly important in the lifestyle and economy of the area.

Tower Soudan is a component in a local recreation system which includes federal, state, county, municipal, and privately owned facilities. These facilities, coupled with the resource attractiveness of the area, provide an outstanding recreation destination for visitors.

It is, therefore, important in the planning for Tower Soudan, that the DNR analyze the potential interrelationship of Tower Soudan with other local recreation units to assess the demand for particular activities in this region and to determine how Tower Soudan might function in helping to fulfill these demands.

Statewide and regional factors which may influence recreational use patterns of a state park must also be analyzed in order to adequately plan a park. Factors which are being considered in the Tower Soudan State Park planning process include the park's relationship to population centers, the effects of energy on park use, and an analysis of supply and demand for recreational opportunities in the surrounding area.

Accessibility

The park's accessibility in terms of time and distance from major population centers must be evaluated when resource and recreation programs and developments are considered. Alternative transportation modes must be considered in light of the energy situation.

Tower Soudan State Park is adjacent to the community of Soudan, 25 mi (40 km) northeast of Virginia, and 218 mi (349 km) from Minneapolis-St. Paul. TH 53 is the primary access route into the region from the metropolitan area. TH 169 provides access from Virginia and TH 1 accesses the park from the North Shore.

As gasoline prices continue to rise, the use of alternate forms of transportation may become more popular. Bicycling, as a form of transportation, is becoming more and more popular. The number of cyclists is increasing each year. A bicycle route is being developed from Ely to Bearhead Lake State Park. This trail may be extended to Tower Soudan State Park sometime in the future, if use warrants. Bus transportation also has good potential for providing access to the park. The existing schedule provides access from the Minneapolis-St. Paul area to Soudan and Ely. Since the park is located adjacent to Soudan, bus service to the park should be encouraged.

The Surrounding Area

Tower Soudan State Park is located in a sparsely populated area of the state. The population of Ely is approximately 5,219. Tower and Soudan have a combined population of approximately 800. According to the Minnesota Department of Health, the population of St. Louis County will drop to 177,952 by the year 2000.

With the abundance of recreational opportunities available to the local people, the small population base will not have a major impact on the park. In other areas of the state where there is not a wide variety of recreational facilities the major portion of the park users tend to come from the local area.

The major economic influence in St. Louis County is the iron mining industry which directly or indirectly employs most of the labor force. Tourism and logging are the two other major economic influences in the county, with tourism playing a major role in the local area.

Tower Soudan State Park offers a unique combination of recreational opportunities, including picnicking, hiking, snowmobiling, and the only underground mine tour in the country. These opportunities draw both day and overnight visitors to the area.

Cooperative Land Use

Tower Soudan does not provide a wide variety of recreational activities but it is in an area that does provide this variety. Breitung Township park borders Tower Soudan on the west. It provides camping, picnicking, swimming and boat launching facilities. One mile west, the city of Tower's Hoo Doo Point Campground provides camping and picnicking. There are several private campgrounds and Bear Head Lake State Park campgrounds in the vicinity. Therefore, there is no justification at this time for an overnight camping facility in Tower Soudan. On the other hand, the close proximity to the township and city park facilities requires that the DNR work closely with local units of government in linking these complementary facilities with trails.

Recreational Facility Demand

The SCORP '79* survey has ranked the following recreational activities according to Minnesotans' desire for more opportunities to do them.

Summer Activities

All Minnesotans	Region 3 Residents
1. Bicycling	1. Camping
2. Camping	2. Fishing
3. Fishing	3. Bicycling
4. Tennis	4. Tennis
5. Swimming	5. Swimming
6. Hiking	6. Boating
7. Picnicking	7. Picnicking
8. Boating	8. Hiking
9. Golfing	9. Golfing
10. Park Facilities	10. Canoeing
11. Canoeing	11. Baseball/Softball
12. Horseback Riding	12. Horseback Riding

*SCORP '79 is a 4-year study which identifies recreation patterns and activity preferences on state and region levels.

Winter Activities

All Minnesotans	Region 3 Residents
1. Hunting	1. Hunting
2. Ski Touring	2. Ski Touring
3. Snowmobiling	3. Snowmobiling

Proposed recreational facility development in Tower Soudan should be based on the inventory of existing facilities and the demand for recreation opportunities as revealed in SCORP '79. It should be noted, however, that some recreational facilities are not appropriate for state parks (e.g., tennis courts and golf courses), and are better provided by municipalities or the private sector.

The Park User

The mine tour in Tower Soudan State Park is a feature that no other unit in the state recreation system has and is the primary focus of the park. There are no camping facilities and only a few picnic sites making it totally a day use park. The majority of park visitors come from throughout Minnesota, however visitors from throughout the United States and many foreign countries have registered in the park ledger.

Activity/Facility Analysis

It is important to note that recreational facilities near the park may duplicate services. However, some people will consistently choose to frequent one area over another in the pursuit of a particular experience. For example, camping is a recreational activity which state parks provide. Municipal and county parks in the vicinity of a state park also have campsites. However, some people will consistently travel to a state park because of the type of experience it offers, namely, camping in a natural setting augmented by other recreational opportunities such as hiking, wildlife observation, and historical interpretation. While camping facilities may be duplicated elsewhere, the total activity experience is not.

Picnicking

There are several picnicking areas within a 25 mi (40 km) radius of the park. The following chart summarizes these facilities.

Administration	Number of Areas	Number of Picnic Sites
Mn/DOT	8	11
Municipal	7	103
US Forest Service	9	45
DNR	4	36
Private	15	60
Totals	43	255

Picnicking is an activity which complements the mine tour. Picnicking sites located near the mine site will best suit park visitor needs.

Camping

The following table illustrates the camping facilities located within a 25 mi (40 km) radius of the park.

Administration	Number of Campgrounds	Number of Sites
US Forest Service	5	176
DNR	3	106
Private	18	208
Municipal	4	190
Totals	30	650

Even though camping ranks first in demand in Region 3, family camping should not be accommodated in Tower Soudan. There are a sufficient number of camp sites in other nearby public and private units (see Cooperative Land Use, p).

Hiking

Other facilities which offer hiking facilities include the Superior National Forest, Bearhead Lake State Park, Burntside and Bear Island state forests, Taconite State Trail, and numerous private trails associated with resorts and campgrounds.

There are numerous hiking trails in the area and hiking only ranks eighth in demand in Region 3. However, the hiking trail system in Tower Soudan should be expanded in order to enhance the interpretive program in the park, complementing the mine tour. Use of the trail system for hiking will also ensure year-round use of the trail system.

Bicycling

There are no bicycle trails within 25 mi (40 km) of Tower Soudan State Park.

Bicycling is a very popular activity statewide and there is great demand for facilities. However, the topography and soils in Tower Soudan are not very suitable for bicycling. Therefore bicycle trail development in the park should be limited to the park link in the Taconite State Trail. (There is potential, in the future, to develop a loop off the Taconite on the abandoned railroad grade along the southern boundary of the park.)

Ski Touring

Ski touring ranks second in facility demand in region 3. Because of this projected need and a current lack of ski touring trails in the area, development of the ski touring trail system in the park should be a priority.

Snowmobiling

The demand for snowmobiling on the statewide and regional level remains high, with 10-year SCORP '79 projections indicating a slow, but steady increase in snowmobiling occasions. A strong desire

for more snowmobiling opportunities is expressed by Minnesotans statewide. Snowmobiling ranks third behind hunting and ski touring statewide. There is an extensive network of snowmobiling trails in the local area. The trails in this network include grant-in-aid trails and the Taconite State Trail. This network also connects with the snowmobile trails in the Superior National Forest. There are additional links to the Iron Range and North Shore, providing a broad range of opportunities for snowmobiling in the area. Therefore the development of snowmobiling trails in the park should be limited to providing links for adjacent trail systems and access to the trail shelter.

Swimming

The following table lists the swimming beaches located within a 25 mi (40 km) radius of the park.

Administration	Number of Beaches
Municipal	6
US Forest Service	4
DNR	2
Private	56
Total	68

Swimming facilities should not be provided in Tower Soudan because the number of beaches in the area and the fact extensive lakeshore alteration would be necessary to develop a swimming beach.

Fishing

The local area has an abundance of fishing lakes, streams, and rivers and there are a number of public boat launching facilities in the immediate area. Therefore this activity need not be accommodated in the park.

SURROUNDING LAND USE

Because a substantial boundary reduction is being recommended in this plan, land use surrounding the proposed statutory boundary will be discussed in this section. The park is bordered on the north by Lake Vermillion. The east side is bounded by vacant, forested land owned by the steel companies. The eastern part of the southern boundary borders the community of Soudan. The remaining part of the southern boundary is forested and open mining company land; part of which is being farmed. The western boundary is bordered by McKinley Park, (a Breitung township park) and residential development. Near the west and south side of the park is a municipal park and a landing strip. The two nearby parks have both camping and day use facilities.

Lake Vermilion
Echo Point
19
The Narrows
Puncher Point
Residential
20
Residential
Switzstown Bay
21
Long Island
22
Stuntz Bay
Forest
McKinley Park
30
29
28
27
Forest and
Open Land
Hoodoo Point
Municipal Park
Tower Municipal Landing Field
Soudan
Pike Bay
1
169
Legend
32
Tower
33
34
31
East Two River
West Two River
Range 16 West
Range 15 West
Township 62 North
Township 61 North

25

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Tower Soudan State Park

Surrounding Land Use

III. A GOAL FOR THE PARK

CLASSIFICATION

Purpose

The purpose of the classification process as stated in the ORA '75 is to establish "an outdoor recreation system which will (1) preserve an accurate representation of Minnesota's natural and historical heritage for public understanding and enjoyment and (2) provide an adequate supply of scenic, accessible, and usable lands and waters to accommodate the outdoor recreational needs of Minnesota's citizens."

Process

In accordance with the ORA '75, the park planning staff has reviewed the classification of each park under study this biennium. After the park resource inventory was completed for each unit, the planning staff determined:

A. Which of the 11 classifications from ORA '75 was most appropriate for the unit.
B. Whether sub-units (e.g., scientific and natural areas or other sub-units authorized in ORA '75) should be considered to deal with special areas within the unit.
C. Whether administration of the unit should be reassigned to other governmental bodies (e.g., other state agencies, county, or local governments).

Each park has been recommended for classification according to its resources and use potential and will be managed and developed according to the nature of those resources and their ability to tolerate visitor use.

The classification alternatives considered for Tower Soudan State Park were natural or recreational state park.

Charlemagne Tower, George Stuntz, and George Stone are important people in Minnesota and iron mining history. The restoration and maintenance of the mine buildings will preserve for future generations the mining architecture of the early 20th century. Historical and archaeological artifacts have been discovered in the area and there is a good probability that similar artifacts can be found in the park. Finally, the half mile deep shaft and numerous drifts at different levels along with the deep open pits nearby are significant geographical features.

Other Alternatives

Two other alternatives were explored during the planning process: transferring the mine or the entire park to the Minnesota Historical Society (MHS), or transferring the mine or the entire park to the Iron Range Resources and Rehabilitation Board (IRRRB).

Minnesota Historical Society

MHS was considered for taking over part or all of Tower Soudan because nearly all the park is part of the Soudan Mine District within which is the national landmark. Also the mine is now and will probably always be the main attraction in this park. MHS was not, however, interested in taking on the complex mine operation.

Iron Range Resources and Rehabilitation Board

The DNR, Division of Parks and Recreation met with IRRRB in 1978 to attempt to negotiate transferring the mine to them. At that time, IRRRB had funding available to totally revamp the mine, tours, and buildings and to operate them. IRRRB, also, is charged with assisting communities in the area, and thereby could legally take over the mine. The negotiations broke down when IRRRB determined that they would accept the mine if they could have the entire park and eliminate the park sticker fee. DNR did not believe that the entire park should be transferred. The IRRRB was approached again in 1980. At this time, however, they did not have adequate funds. They have also shifted their goals and objectives away from interpretive ventures.

The extent to which Tower Soudan fulfills the criteria, as defined by the ORA '75, is summarized below.

Natural State Park Alternative

ORA Criterion # 1

> "Exemplifies the natural characteristics of the major landscape regions of the state, as shown by accepted classifications, in an essentially unspoiled or restored condition or in a condition that will permit restoration in the foreseeable future; or contains essentially unspoiled natural resources of sufficient extent and importance to meaningfully contribute to the broad illustration of the state's natural phenomena."

Tower Soudan is located on the southern fringe of the Border Lakes Biocultural Region. Bearhead Lake, approximately 15 mi (24 km) southeast of Tower Soudan, is the only other state park in this region. Tower Soudan has natural resources that typify the biocultural region. The park is split by a rugged, rocky, shallow-soiled, ice-scoured ridge that rises 280 ft (85 m) above the Lake Vermillion shoreline. This lake, which is the fifth largest that lies completely within Minnesota, has numerous rocky, vegetation-covered islands and a very irregular shoreline. It is typical of many lakes in the region. The park's vegetation is also typical of the region with large white and Norway pine, balsam fir, aspen, and birch on the uplands. The lowlands are covered by white cedar, balsam fir, black spruce, tamarack, and ash. The park contains minerals including iron ore, copper, nickel, and other precious metals.

ORA Criterion # 2

> "Contains natural resources sufficiently diverse to attract people from throughout the state."

The park's Norway and white pine stands and the scenic views and potential future development of the shoreline could attract visitors from outside the area. However, at this time, the tour of the underground iron ore mine is attracting visitors from throughout the state.

ORA Criterion # 3

> "Is sufficiently large to permit protection of the plant and animal life and other natural resources which give the park its qualities and provide for a broad range of opportunities for human enjoyment of these qualities."

Because of the rugged shoreline of the lake and the thin soil layer and steep slopes throughout the park, less than 15 percent of the total 1,314 acres (532 hectares) are suitable for development. This is not sufficient to provide a broad range of recreational facilities and still protect the park's resources.

Recreational State Park Alternative

ORA Criterion # 1

> "Contains natural or artificial resources which provide outstanding outdoor recreational opportunities that will attract visitors from beyond the local area."

Tower Soudan State Park contains an abandoned iron ore mine which consists of open pits and underground shafts. Tours are conducted down the #8 shaft to the 27th level, 2,341 ft (714 m) below the surface. These tours attract people not only from throughout Minnesota, but the nation and world as well.

Also, Lake Vermillion draws people from throughout the state and midwest for boating and fishing. The park could provide some auxiliary facilities for these activities (e.g., boat launch, camping, picnicking).

ORA Criterion # 2

> "Contains resources which permit intensive recreational use by large numbers of people."

Other than the mine area, the land resources of the park are sensitive to intensive recreational use by large numbers of people. However, the park has the potential to provide access to Lake Vermillion for a broad range of water oriented recreational activities.

> "May be located in areas which have serious deficiencies in public outdoor recreation facilities, provided that recreational state parks should not be provided in lieu of municipal, county, or regional facilities."

There is no deficiency in either boating or fishing facilities in this region. However, the motor ban on lakes in the BWCAW that will soon go into effect may well result in a deficiency in pleasure boating opportunities in the area. This may result in increased demand for this activity on Lake Vermillion.

Historic Site Secondary Unit

The Soudan Mine National Landmark and the Soudan Mining District substantially satisfy three and marginally satisfy two ORA '75 historic site criteria:

(1) Is the site of or directly associated with a significant event; or
(2) Is associated with persons whose lives and accomplishments are historically unique or important; or
(3) Embodies the distinctive characteristics of an architectural style or method of construction which represents a particular and significant historical period, or the work of a master builder, designer, or architect; or
(4) Has yielded, or is likely to yield, historical or archaeological artifacts, records, or other original data or information; or
(5) Is a geographical feature of outstanding significance and includes, by way of example, the highest point in the state, the continental divide, and the source of the Mississippi River.

The site is significant because it was the location of the only gold rush in Minnesota, but more importantly as the site of the first iron ore mine.

RECOMMENDED CLASSIFICATION

Tower Soudan has potential to be classified either as a natural or recreational state park. A recreational classification with a historic site secondary unit was selected because the park's primary use does not focus on its natural resources. Nor do its resources exemplify well the Border Lakes Biocultural Region.

PARK GOAL

The goal for Tower Soudan State Park is to provide a high quality, unique, historically-oriented, interpretive experience augmented by recreational trail opportunities and potential water-based recreational activities. Resource management will be geared toward improving the scenic quality of the vegetation and wildlife viewing opportunities.

V. PARK RESOURCES

RESOURCE MANAGEMENT OBJECTIVES

Resource management objectives are necessary to ensure that the park's natural resources are managed properly. In Tower Soudan State Park, little resource management other than vegetation is necessary at this time. Other resource management objectives which will keep Tower Soudan consistent will all recreational state parks are:

To utilize resource management techniques that will harmonize with the park's natural systems

To improve diversity and perpetuate renewable resources

To identify, interpret, and protect the park's historic resources

1210

CLIMATE

Average summer temperatures in Minnesota vary only a few degrees from north to south. The only major exception is the North Shore of Lake Superior where average temperatures can vary from 10 to 15 degrees cooler than southern Minnesota.

Average temperatures for the month of July in the Tower Soudan area vary from an average high of 79°F (26°C) to an average low of 53°F (12°C). These temperatures indicate that the entire northeast part of the state is cooler than the rest of Minnesota.

In winter there is a different weather pattern across the state. Average temperatures for January in the area surrounding Tower Soudan vary from an average high of 15°F (-9°C) to an average low of -6°F (-21°C). These temperatures are fairly consistent across most of the northern part of the state, except the North Shore.

Information on annual precipitation in the Tower Soudan area comes from a weather station in Tower. Total annual precipitation (rain and snow) is about 28 in. (71 cm). Snowfall is substantial, but varies considerably year to year in this area. An idea of this variance can be seen in the snowfall totals for the last two reported winters. The 1977-78 total snowfall was just over 60 in. (152 cm), while the 1978-79 total snowfall was over 80 in. (203 cm).

1211

GEOLOGY/TOPOGRAPHY

Tower Soudan State Park is located on the rugged Vermillion glacial moraine. Elevations range from a low of 1,360 ft (415 m) above mean sea level (msl) along the Lake Vermillion shoreline to a high of 1,640 ft (500 m) msl near the mine buildings. This rough terraine was at one time covered by a large sea which extended over most of central North America. The glacial era with its advancing sheets of ice scoured and filled the terrain changing it even further. The discovery of iron ore deposits in the park and the subsequent digging of open pits have made the last changes in the park's landscape.

The park contains two types of bedrock. The northern fringes of the park are underlain by metmorphosed sedimentary rocks. These rocks were orginally deposited at the bottom of the large sea. As the deposits piled up, the resulting pressure and heat converted the softer sedimentary rocks into much harder metamorphic rocks.

The remainder of the park is underlain by metamorphosed volcanic rock. It is this second group of rocks that contains the iron ore bearing formations. Both types of bedrock have numerous outcroppings throughout the park.

The same bedrock that has yielded the pure iron ore has potential to yield more iron ore and other precious metals. Geologic studies reveal a good potential with good reliability for minable deposits of nickel, zinc, copper, lead, gold, and silver to be found in the park. Since the mineral rights are owned by the people of Minnesota, the park should be protected from mining, except in case of a national emergency.

Lake Vermilion

Echo Point

19

The Narrows

Puncher Point

20

Sydenham Bay

21

Long Island

22

Stuntz Bay

30

29

28

27

Hoodoo Point

Tower Municipal Landing Field

Soudan

Pike Bay

32

Tower

33

34

31

East Two River

West Two River

Range 16 West

Range 15 West

1

169

Legend

Greater than 12% slope

Township 62 North

Township 61 North

37

N

Tower Soudan State Park

Slope

SOILS

The soils data available for Tower Soudan are at the general soils mapping level. A detailed soils survey is in progress in St. Louis County, but it will be some time before it is completed. The general soils map indicated three soils groups in Tower Soudan - two upland and one lowland. One upland group covers a majority of the park, nearly all of which is now in public ownership. This group is made up primarily of Quetico-rock outcrop. It is a very shallow loam over bedrock. It is characterized by numerous areas of exposed rocks and is generally unsuitable for development. Some small areas within the series may be suitable. The other upland group consists mainly of Newfound sandy loam. This soil is fairly good for park development on the less steep slopes. The lowland group consists primarily of Moose Lake peatland which is not suitable for development.

The lack of park development, other than the mine tours, has minimized negative impact on park's soils. Therefore, there are few soils problems in the park. There are only a few bad spots on the trails that should be rehabilitated or realigned.

Management

Objectives:

To correct present erosion problems

To prevent erosion from occurring around new park development

There are no specific recommendations needed at this time. Trail erosion problems will be covered in the Trails Section, pp - .

VEGETATION

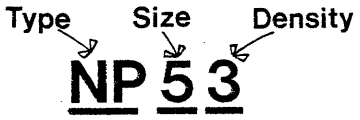
Original Vegetation

The original vegetation in Tower Soudan was very similar to what is found there today. Marschner on his Original Vegetation of Minnesota Map, lists three vegetation communities in the park. The lowlands were covered by conifer bogs and swamps. This community usually consisted of spruce, tamarack, cedar, and balsam. Black ash was also probably found in some of the lowland areas. The eastern, upland part of the park was covered by mixed hardwoods and pine communities consisting of maple, white pine, basswood, oak, aspen, birch, and balsam fir. The western upland part of the park was covered by an aspen-birch-conifer community consisting of white and Norway pine, balsam fir, birch, spruce, and cedar. The area was probably logged somewhat during the early mining era to clear the way for digging open pits and to supply timber for the mines and mining towns. Fire in the area back in the early twentieth century also had an affect on the vegetation.

Existing Vegetation

The lack of major logging has generally kept Tower Soudan's vegetation unchanged. There are 12 vegetative and 3 non-vegetative cover types in the park today. Two types - aspen and Norway pine - cover nearly two-thirds of the park. The remaining third is covered by white pine, ash, birch, cedar, upland grass, open pit mines, industrial development, spruce-fir, black spruce lowland, muskeg, lowland brush, rock outcrops, and tamarack. The park's dense vegetation is largely mature or overmature. These two indicators suggest that some management program should be started soon or some of the forest could be lost to disease and storms. The vegetation was inventoried not only on state park land, but also on some of the adjacent US Steel land that is being considered for future park use. Some of the land inside the park boundary was not inventoried because the location of the adjusted boundary had not been determined. Once the boundary location is finalized and private lands within the boundary are acquired, the inventory will be finished.

VEGETATION MAP LEGEND



Type

Code	
A	-Aspen
Bi	-Birch
C	-Cedar
BSL	-Black Spruce Lowland
Ea	-Ash
NP	-Norway Pine
WP	-White Pine
SF	-Spruce Fir
T	-Tamarack
MS	-Muskeg
LB	-Lowland Brush
UG	-Upland Grass
RO	-Rock Outcrop
Pit	-Open Pit
Dev.	-Developed Area

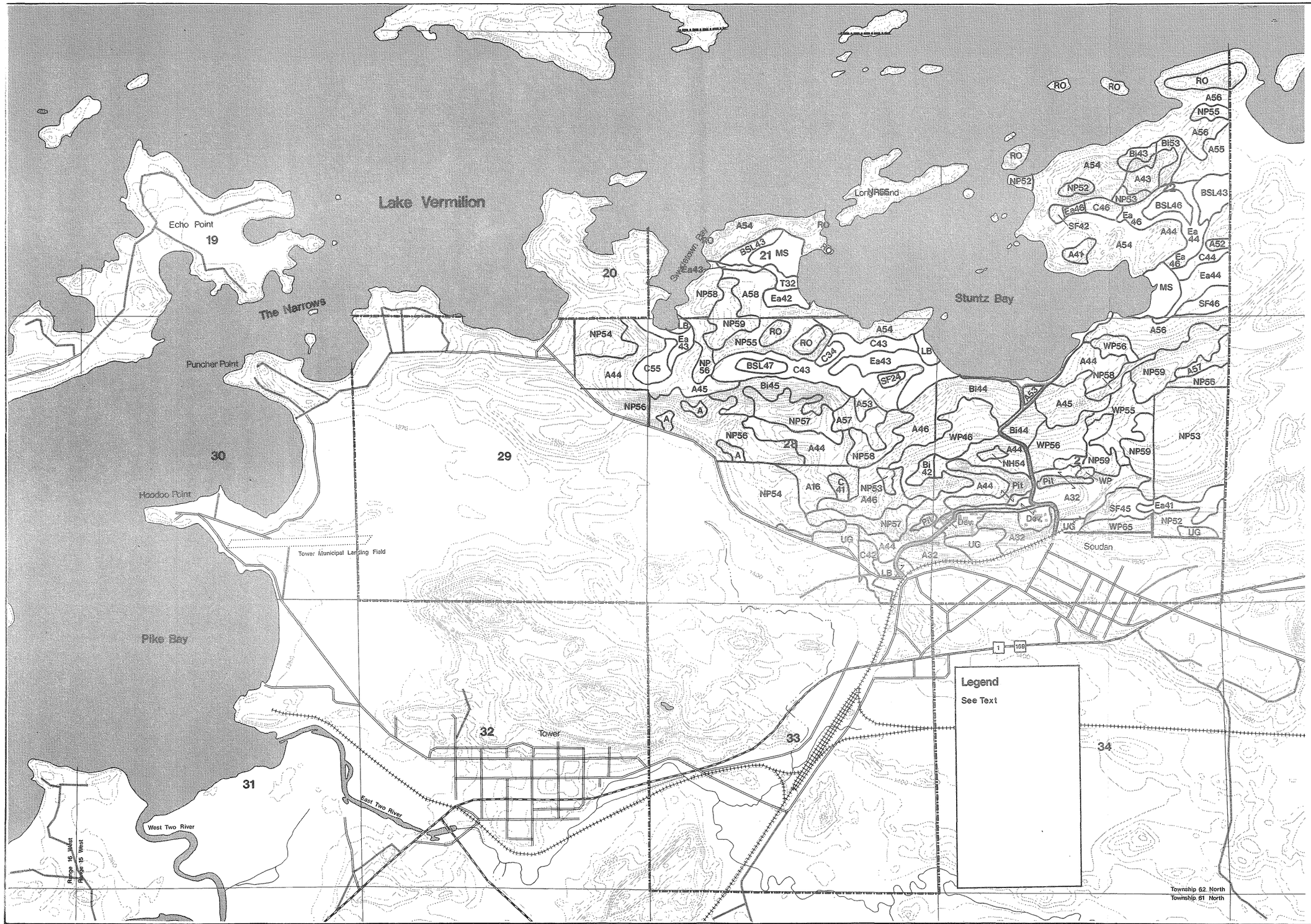
Size

Code	DBH (Diameter at Breast Height)
0	Not applicable for the type
1	0 to 1 inches
2	1+ to 3 inches
3	3+ to 5 inches
4	5+ to 9 inches
5	9+ to 15 inches
6	15+ inches

Density

Code	Seedlings 0-1" Trees/ Acre	Saplings 1-5" Trees/ Acre	Poles 5-9" Trees/ Acre	Small Saw Timber 9-15" Trees/ Acre	Large Saw Timber 15" Trees/ Acre
	1	2	3	4	5
0	*	*	0-30	0-10	0-5
1	0-500	0-250	31-90	11-40	6-20
2	501-1,000	251-500	91-150	41-60	21-30
3	1,001-2,000	501-1,000	151-210	61-80	31-45
4	2,001-5,000	1,001-2,500	211-270	81-100	46-60
5	5,001-10,000	2,501-5,000	271-330	101-130	61-75
6	10,001-20,000	5,001-10,000	331-390	131-150	76-90
7	20,001-30,000	10,001-15,000	391-450	151-180	91-105
8	30,001-40,000	15,001-20,000	451-510	181-200	106-120

*Not a valid density code for these size classes



Tower Soudan State Park

Vegetation

Lake Vermilion
Echo Point
19
The Narrows
Puncher Point
20
21 MS
Long Island
Stuntz Bay
22
30
29
Hoodoo Point
Tower Municipal Landing Field
Pike Bay
32
Tower
33
34
31
East Two River
West Two River
Range 16 West
Range 15 West
Soudan
10
Township 62 North
Township 61 North

Legend

For number code (1-9), see text.

Tower Soudan State Park

Vegetation Management

42

Implementation of this plan will be supervised by the park manager with assistance by the district forester, regional resource management coordinator, and area wildlife manager.

Management

Objectives:

To improve the overall health of the vegetation

To improve the natural aesthetics of the park

To remove dead, dying, and diseased vegetation that may create safety hazards

To rejunvenate vegetation types

To improve wildlife habitat

To increase vegetation type and age diversity

Detailed Recommendations

The primary objective of vegetation management in state parks is to improve the aesthetics and authenticity of the plant communities. Though the actions below may suggest many practices commonly used for timber improvement management, they should be considered in the context of wise use of resources to reach an attainable goal or objective.

No active management is recommended for many stands in the park because of: no need, sensitive terrain, or lakeshore location. Some of the recommended actions are contingent on disposal or acquisition of lands.

There are several overall directives which must be followed throughout the implementation of the vegetation management recommendations. Raptor nesting sites are sensitive areas and should be avoided. Wildlife openings should be located on or near trails to increase wildlife viewing opportunities. All timber removal projects should follow the natural

topographic contours in irregular shapes to maintain as natural a character as possible. And finally, management actions should not be undertaken in high tourism months.

Two costs are listed for most actions. The first, lower costs consists of DNR's administrative costs incurred in setting up and inspecting the project. This method is preferred whenever it is possible. The second cost figure indicates what the DNR would have to pay the park's crews or special crews to carry out the specific action. Both costs reflect actions undertaken in the next ten years. Many of the proposed vegetation management actions will be continued after the time frame of this plan.

Action #1. Thin the pine stands. (Map codes 1, 2, and 3)

These Norway and white pine stands are very dense. Trees in dense stands have retarded growth rates and are more susceptible to disease. There is also little or no natural regeneration. This action will increase growth rate and health, decrease the disease potential, and enhance natural regeneration. Some of the pine will be used as timbers in the mine as was done in the original mining operation.

Cost. Timber sale: $1,100
Park staff: 7,335

Action #2. Regenerate vegetation types. (Map codes 4 and 5)

Many stands in the park are overmature. This is particularly true of most of the aspen stands. Much of the aspen is also diseased. In order to maintain aspen as a cover type in the park, this overmature, diseased overstory must be removed. This action will allow full sunlight to penetrate to the forest floor and natural aspen regeneration will result. Other benefits include temporary wildlife openings, increased age diversity, and improved natural aesthetics. Area #5 is a mixed stand. The aspen and jack pine components are in the worst condition and should be removed. In addition, two small plots should be planted to cedar in this stand. Natural cedar regeneration has declined considerably in recent years. These plots will provide an opportunity to regenerate cedar in a natural setting.

The clearings should be located along trails to increase wildlife viewing opportunities whenever possible.

Cost. Timber sale: $ 1,350
Park staff: 30,000

Action #3. Sanitize and regenerate stand. (Map codes 6 and 7)

These birch and white and Norway pine stands are in generally good condition. They contain small pockets of aspen and some dead or dying white pine, which should be removed. This action will remove potential safety hazards, release the understory, improve wildlife habitat, and enhance white pine and aspen regeneration.

Cost. Timber sale: $ 700
Park staff: 24,220

Action #4. Maintain existing or create new permanent grass openings. (Map codes 4, 6, 8, and 9)

The park's few natural openings should be maintained for vegetation diversity and wildlife habitat. Most wildlife species prefer the area along the edge of an opening and dense woods. Also, with a few notable exceptions (woodpeckers, squirrels, woodducks, martins, and raptors), most wildlife prefer a young forest to an older one like in Tower Soudan. This action will generally improve wildlife habitat in the park.

Cost. Timber sale or firewood permit: $14,115
Park staff: 35,915

Action #5. Inventory and make management recommendations. (Map code 10)

This land was not inventoried because it was privately owned and was not being considered for purchase at the time of the inventory. When it is acquired, it should be inventoried by the Division of Forestry and appropriate management recommendations made.

Cost. None

WILDLIFE

Wildlife has not been inventoried in Tower Soudan. This plan's data base consists of the area wildlife manager's observations and general knowledge of the area and lists compiled by DNR's non-game wildlife specialist.

Since Tower Soudan is quite small and the habitat is quite aged, many of the species listed probably do not nest or live in the park, but nearby. After vegetation management proposals are implemented, more of the area's wildlife may move into the park.

The available information indicates 113 bird species, 37 mammals, and 15 reptiles and amphibians inhabit or regularly visit the Tower Soudan area at the present time. Some of the more interesting species include pine marten, timber wolf, moose, big and little brown bats, loon, bald eagle, osprey, pileated woodpecker, black-backed three-toed woodpecker, and ravens. The two woodpecker species, eagle, wolf, and marten are quite rare and are worthy of special protection.

The one wildlife-related problem in Tower Soudan is habitat. The lack of vegetation age diversity and grassy openings decreases the numbers of species that would otherwise be found in the park. Many of the proposed vegetation management actions will create the younger forest and openings preferred by wildlife. At the same time, some species such as the pine marten, woodpeckers, woodducks, and many raptors prefer the existing habitat. Therefore, some mature stands and trees within other stands will be left as habitat for these species.

Management

Objectives:

To protect nest and den sites of animals found in the park, particularly rare and threatened species

To maintain and improve nesting habitat for birds

To increase species diversity and populations

Detailed Recommendations

Most of the necessary wildlife management recommendations are covered through vegetation management as habitat improvement.

Action #1. Drill holes in trees for woodduck nesting cavities.

To further enhance nesting habitat for woodducks, nesting sites are needed. Drilling cavities is much more natural than hanging nesting boxes. The holes should be 4 in. (16 cm) in diameter drilled into a dead and/or hollow tree. The area wildlife manager should survey the park for suitable nesting trees and drill a few experimental holes. If these are used, then more should be drilled.

Cost. $1,500

As the habitat improves in the park, wildlife populations must be monitored closely to control possible overpopulation. The area wildlife manager, park manager and regional park resource management coordinator should establish a monitoring program and recommend to the director of Parks and Recreation the population control method which should be used.

2203

GROUNDWATER

Tower Soudan State Park receives its water from the municipal system of the township of Breitung. This system consists of three wells between Tower and Soudan and a pressure tank in the park. The primary well is a new 62 ft (19 m) well with a 16 in. (41 cm) casing. The well pumps 300 gpm (1,136 lpm), but has a capacity of 500 gpm (1,893 lpm). The static water level is 7 ft (2 m) below the surface. The well draws down 6 ft (1.8 m) when pumped at 250-300 gpm (946-1,136 lpm) and 29 ft (8.8 m) when pumped at 500 gpm (1,893 lpm). The combination of high volume and low drawdown generally indicates a high yielding well. The well is drilled into aquifers that generally are good volume

producers. The first 5 ft (1.5 m) of the well was drilled through black dirt. This is underlain by 31 ft (9.4 m) of blue clay which is underlain by 12 ft (3.7 m) of sand with boulders. The last 15 ft (4.5 m) is clean, coarse gravel, with some sand. These last two layers are usually good water producers. The quality of the groundwater is also very good. The casing in this well has a lead pack around it to prevent surface contamination.

The second well is only 42 ft (12.8 m) deep. Because it is located very near the new well, they are alternately pumped to prevent a cave-in of the aquifer. This well can pump 225 gpm (852 lpm) and should have good quality water, since it is so close to the new well. It is probably drilled into the same aquifer as the new well, at a lesser depth.

The third well is located at the storage tank in the park. It will pump at 90 gpm (341 lpm) and is used only in emergencies. The first two wells provide plenty of high quality water for the current demand.

The park's sewage is currently handled by two Imhoff septic tank and drain field systems. There are no problems with either system at this time.

Management

Objectives:

To provide an adequate supply of high quality water for park uses

To protect the groundwater from contamination

Detailed Recommendations

No specific actions are immediately necessary to fulfill the management objectives. The water supply is more than adequate and the quality is good. At some future date when new park facilities are added in other areas of the park, either water lines from the existing well or a new well will be needed. Unless a winter water supply is needed, laying water lines should be much less expensive than drilling a new well.

The treatment of sewage from any new facilities must be considered carefully. In most cases vault toilets will be more feasible than drain fields. Sewage facilities must be carefully selected to protect the groundwater from possible contamination.

2204

SURFACE WATER

Inventory

There are no surface water bodies within the boundary of Tower Soudan State Park. But the park is bordered on the north by Lake Vermillion. There is 5.8 mi (9.3 km) of shoreline within the boundary. All but one half mile (.8 km) is in state ownership. Lake Vermillion is a softwater lake and averages 25 ft (7.6 m) in depth with a maximum depth of 48 ft (14.6 m). The lake shoreline in the park consists of two bays - Stuntz and Swedetown. Both bays are quite shallow, averaging only 4-5 ft (1.2-1.5 m) in depth. The shoreline along the park is indicative of the entire lake. It ranges from boulder, gravel, and sand to muck with boulders predominating. The lake bottom is nearly three-quarters silt, with muck, sand, gravel, and rock making up the balance. The presence of aquatic vegetation indicates that the Stuntz Bay bottom is silt and/or muck. Both submergent and clustered emergent pondweeds are common throughout the lake in up to 8 ft (2.4 m) of water. The lake level fluctuates just over 2 ft (.6 m) annually. The overall water quality appears to be good,though there have been problems with some residents and tourists dumping garbage into the lake.

Management

Objective:

To maintain Lake Vermillion's high water quality

There are no specific actions necessary at this time, however, the DNR should work with Breitung Township and the other units of local government to ensure that Lake Vermillion's high water quality is maintained.

2205

FISHERIES

Inventory

Lake Vermillion is a good, popular fishing lake. It is classified as a walleye-pike lake for management purposes. The lake contains tullibee, whitefish, common sucker, northern pike, perch, walleye, crappie, and burbot. Spawning conditions are good for tullibee, whitefish, sucker, perch, and walleye; fair for crappie, and burbot; and poor for northern pike.

Walleye is stocked in the lake annually. An average of 10 million walleye fry have been stocked over the last four years, and over 5 million fry in 1974 and in 1975. Northern pike are stocked occasionally, mostly with stock resulting from rescue operations from other lakes. In 1977, 705 adult, 710 yearling, and 2,500 fingerling pike were released in Vermillion.

Presently, there is adequate public access to the lake particularly along the south side. A public access in the park would be an added attraction to the park and will be considered in the future.

Management

Objectives:

To maintain Lake Vermillion as a quality walleye fishing lake

No additional management is necessary.

2206

HISTORY/ARCHAEOLOGY

Evidence of human habitation in the area during the copper era (4000 BC) has been found in the area. Sometime later, native Americans mined ochre along the shoreline of Lake Vermillion.

Fur traders were the first Europeans in the area. The Hudson Bay Fur Trading Company first sent men into the area and a trading post was built west of the park along Lake Vermillion.

Logging and lumbering operations moved into the area in the nineteenth century. Many sawmills were operated in and around Tower, but feuding between loggers and logging claim jumping prevented Tower from becoming a large lumbering center. One individual planned to establish the large Rainy Lake Lumber Company in Tower, but established the company in Virginia after being driven from Tower by a lynch mob led by an irate competitor.

In 1863, George Stuntz was surveying in the Tower and Soudan area, when he discovered iron ore deposits. In 1865 gold was also discovered. This led to a two year "gold rush" until it was realized that the amounts of real gold were not in mineable quantities and most of the "gold" was really pyrite (fool's gold). Stuntz, meanwhile, brought samples of the iron ore to George Stone in Duluth who was able to interest Charlemagne Tower of Pennsylvania in financing a mining company. With this eastern capital provided, the Minnesota Iron Company was born. The Breitung Mine (later called Soudan) was the first iron ore mine in Minnesota. It opened in 1882. At the same time Charlemagne Tower's son started constructing a new railroad line at Two Harbors

to run to the Soudan Mine to haul the ore to Lake Superior. The railroad was completed in 1884 and on July 31, 1884, the first load of ore left for Two Harbors. Over the years, 15.5 million tons of iron ore were shipped out of the mine. The last shipment was made on August 20, 1963. The mine closed due to high mining costs and increased foreign competition, even though it contains a known reserve of 1.5 million tons.

The ore was first mined from open pits using horses and mules. Then in the 1890s, the operation went underground. The same draft animals were used underground until electricity was installed in 1924. Candles provided the first lights for the miners. These were replaced by carbide lamps in 1918, which in turn gave way to the battery operated cap lamps still used today for the tours.

The mine became a state park in 1963 when US Steel, the successor of the Minnesota Iron Company, through the Oliver Mining Company, donated the mine and approximately 1,000 acres (408 hectares) of land to the state of Minnesota.

Today visitors can tour the surface mine buildings and the underground mine shaft. The mine buildings and facilities are discussed in more detail in the Development Section, pp - .

Management

Objectives:

To provide the opportunity for visitors to experience the work environment of the underground iron ore miner

To identify all the significant historic and prehistoric sites in the park

To protect historic and prehistoric sites from park development which would negatively impact them

Detailed Recommendations

Proposed Development, Visitor Services, p discusses in detail the necessary actions to locate all the historic and prehistoric sites in the park. It also provides the framework for the interpretive program.

Action #1. Conduct the standard site survey to determine if the proposed developments could adversely affect the site.

A consultant will be contracted to carry out this study.

Cost. $4,000

Sources.

Aguar, Jyring, Whiteman, and Moser, "Economic Resources, Survey, and Analysis of St. Louis County, Duluth, Minnesota. 1971.

"Tower Soudan: The Park Down Under," Michael Eliseuson.

IV MANAGEMENT AREAS

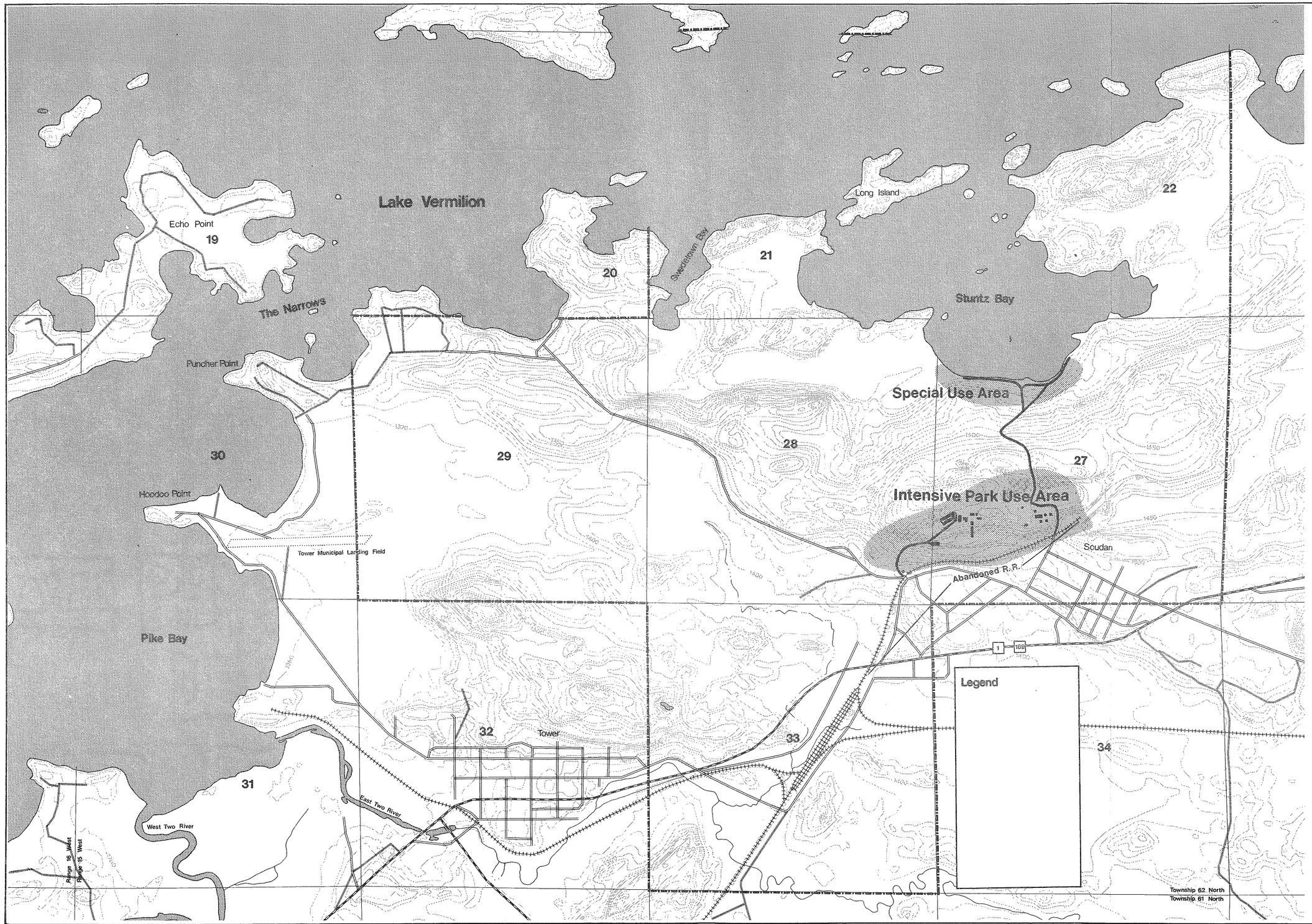
SPECIALIZED MANAGEMENT AREAS

Tower Soudan will have two specialized management areas; an intensive park use area and a special use area. (See Specialized Management Areas Map, p .)

The intensive park use area will receive the vast majority of visitor use. The resources in this area must be able to withstand the impact of large numbers of people and motorized vehicles. The resources will also be managed for protection of the service area and visitor control.

The intensive special use area contains the boathouses. While the leases are in effect, the DNR will closely monitor the activities of the lessees so that no resource damage occurs. If degradation of the water resources is discovered, leases can be cancelled. All terms of the lease will be strictally enforced. No leases will be extended beyond the year of 2015. If any of the existing or future lessees wishes to discontinue a lease or let it expire, the lease will be cancelled. A new lease will not be issued for that particular lot.

The remainder of the park will be managed for improvement of the natural environment. Resource management proposals will be aimed at improving and diversifying the vegetative cover as well as improving the wildlife habitat.



Tower Soudan State Park

Management Areas

56

III PHYSICAL DEVELOPMENT AND RECREATION MANAGEMENT

EXISTING DEVELOPMENT

Existing development in the park is centralized around the mine. It consists of several open pits and a few underground shafts. The deepest, most extensive shaft mine and its structures are now open for public tours. The structures include the engine house, dry house, headframe and lander's shed, crusher house, trestle, mine rescue station, drill shop and the remains of the power plant. The engine house contains the large hoist that lowers and lifts the cages in the shaft. The dry house served as the locker room for the miners. It is now a visitor center, with facilities for mine tour ticket sales and an employee locker room. The headframe is a large steel, frame structure over the shaft that directs the cables from the cages to the hoist. The lander's shed is located on this frame structure. (The lander is the person responsible for unloading the ore from the cages and loading them again with drilling and blasting supplies.) The crusher house contains two large crushing machines which reduced the size of the ore pieces before they were loaded on the ore cars or the stockpile. The trestle is another steel frame structure used to load the ore onto the rail cars or the stockpile. The mine rescue station is a small building next to the headframe where rescue equipment was stored. Today it is used for general storage. The drill shop was used for sharpening and repairing drill bits. The power plant was on Stuntz Bay. Only the foundation and smokestack remain today.

One quarter mile (.4 km) east of this shaft is the manager's residence/shop complex. This complex consists of the residence, miner's pay office, a large machine/carpentry shop building, a four stall garage, a warehouse, a core storage shed, a fire shed, and the Breitung Township water storage/pump building. The miner's pay office was remodeled as the manager's residence when the park was first established. It is now used for storage. The core storage building contains most of the core samples taken from the mine. The fire shed was used to store fire fighting equipment. While the mine was operating, US Steel provided the fire protection for the Soudan community. The water building is owned and operated by Breitung Township.

The only other park development is trails. There is a one-third mile (.5 km) hiking trail, a one mile (1.6 km) snowmobile trail, and 5.6 mi (9 km) hiking/snowmobile trails. Stuntz Bay Road (1 mi/1.6 km) and an abandoned segment (1/2 mi/.8 km) of the DM&IR right-of-way (ROW) are used as multi-use trails.

Non-park facilities within the statutory boundary include a township road and 158 leased lakeshore lots on Stuntz Bay. On these lots are: 149 boathouses, a boat ramp, and two seaplane tie-down areas. The leases were included in a deed given to the people of Minnesota by US Steel. The expiration dates for the leases range from 1985 to 2015. Only the lots are under lease from the DNR, the boathouses are owned by the lessees. There can be no park development on Stuntz Bay until these leases expire.

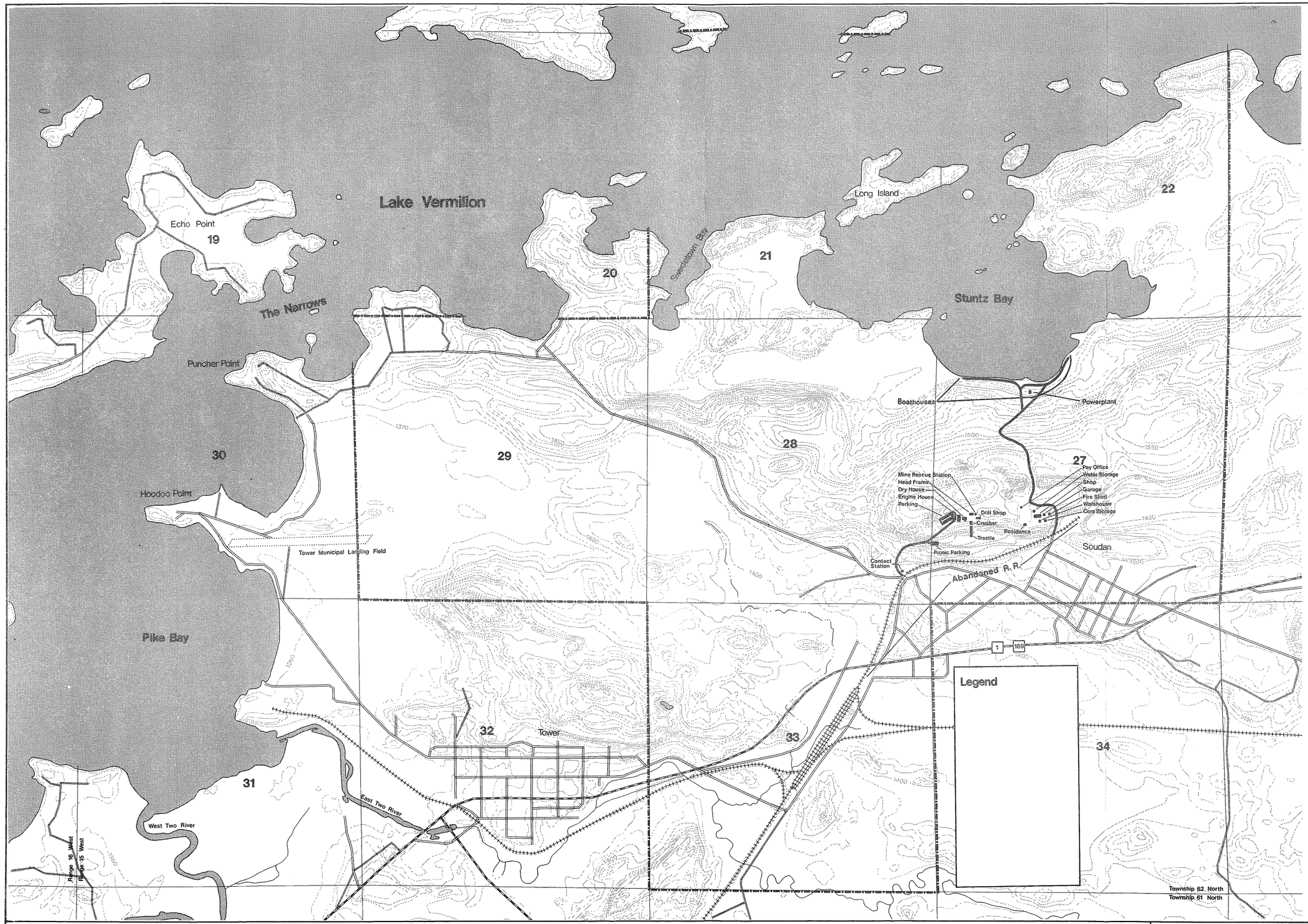
2207

Recreation Management Objectives:

To preserve the historic integrity of the Tower Soudan mine and give park visitors the opportunity to safely tour the mine facilities

To provide a broad selection of outdoor activities consistent with maintaining a pleasing natural environment

To provide only those facilities necessary for appropriate use and enjoyment of the resources



Tower Soudan State Park

Existing Development

60

Lake Vermilion
Echo Point
19
The Narrows
Puncher Point
30
Hoodoo Point
Tower Municipal Landing Field
Pike Bay
20
Swedetown Bay
21
Long Island
22
Stuntz Bay
29
28
Remove
27
Contact Station
Picnic Areas
Parking
Temporary Parking
Soudan
Abandoned R.R.
1
169
32
Tower
33
34
31
East Two River
West Two River
Range 16 West
Range 15 West
Township 62 North
Township 61 North
Legend

61

N

Tower Soudan State Park

Proposed Development

DEVELOPMENT OVERVIEW

The proposed development for Tower Soudan will be completed in two major parts. Part one should be completed immediately as funds become available. The majority of the recommendations should be implemented in this phase. Conditionate PROPOSALS should be completed as soon as the statutory boundary is adjusted and the necessary land is purchased.

Part one proposals include:

Roads and Parking
- Redesign the parking lot
- Construct a small overflow parking lot

Picnicking
- Develop picnic sites near the parking lot

Trails
- Provide a link for the Taconite Trail through the park
- Rehabilitate and expand snowmobile and hiking trails
- Provide ski touring trails
- Construct a small adirondack-style trail shelter

Contact Station
- Install a vault toilet

Mine Building, Structures, and Equipment
- Restore and/or rehabilitate all mine buildings, structures, and equipment
- Replace all rail cars and locomotives
- Replace fences around open pits and shafts

Service Area
- Restore the exteriors of the buildings
- Remodel the shop interior
- Construct a gas and oil storage building
- Fence the service area

Visitor Services

- Contract a consultant to create an interpretive program for the park
- Remove the vegetation from the open pits used in the interpretive program

Conditional proposals include:

Roads and Parking

- Construct a new entrance road
- Construct a new parking lot north of the service area
- Remove the existing parking lot and relandscape

Picnicking

- Develop picnic sites near the new parking lot

Contact Station

- Move the contact station to a location along the new entranct road

2211

Roads and Parking

Objectives:

To provide a road system which allows safe, efficient traffic flow year-round

To provide adequate parking facilities

Action #1. Rehabilitate the parking lot.

The existing lot has some sharp turning radii and is confusing. Removing the island on the east end of the lot will give buses and cars with trailers a larger turning radius into and out of the lot. Painting parking stall lines and directional arrows will increase the parking efficiency and facilitate the traffic flow. The DNR, Bureau of Engineering should design the stall painting pattern.

Cost. $5,000

Action #2. Construct a small gravel parking lot southeast of the existing lot.

This lot will require only minimal grading and a gravel surface. It will be used by park employees and for overflow parking on peak visitor days. Park employees who buy park stickers are allowed to park in the visitor lot. On busy days, these additional vehicles add to the congestion. This action will alleviate the problem until the new park entrance and parking lot are developed.

Cost. $5,000

Action #3. Construct a new entrance road into the park. (CONDITIONAL)

The new road will intersect TH 1 and TH 169 east of Soudan, entering the park from the southeast. The main road will provide access to the mine area. A secondary road will branch off and tie into the Stuntz Bay Road north of the open pits. This road will eliminate the double entrance into the park and provide a more scenic road with less steep grades. It will eliminate the current confusing, twisting entrance into the park. It will also allow the DNR, Division of Parks and Recreation to eliminate a portion of the Stuntz Bay Road that is hazardous and a maintenance problem.

Cost. $105,000

Action #4. Construct a new parking lot north of the shop complex. (CONDITIONAL)

This lot will provide parking for mine visitors after the new park entrance road is constructed. The lot will be divided into a large general parking area with a designated area for the handicapped and senior citizens on the west end. The new lot should be designed so that the pay office can remain in its present location. If the pay office must be moved, the US Department of Interior must be petitioned for authorization to move the building. The new lot will be out of sight of the mine buildings and will allow a safer approach to the mine site. This lot will also be used as a parking area for Taconite Trail users.

Cost. $30,000

Action #5. Remove the present visitor parking lot and relandscape it. (CONDITIONAL)

Once the new entrance road and parking lots are built, this lot will no longer be needed.

Cost. $5,000

Picnicking

Objective:

To provide accessible, casual picnicking sites for park visitors

Action #1. Develop a few picnic sites near the existing parking lot.

These sites will be located along the north side of the parking lot and the north side of the open pit adjacent to the mine buildings. The sites will consist of a table and fire ring with a minimum of clearing. Toilet facilities will be placed near the sites.

The present picnic site is tucked away where many visitors miss it. The new sites will be visible and close to both the mine site and the parking lot so that visitors can picnic before or after the mine tour.

Cost. $10,000

Action #2. Develop a few casual picnic sites near the parking lot along the south rim of the large open pit. (CONDITIONAL)

These sites will be developed only after the new road and parking lot are built. The sites will each contain one or more tables and a fire ring. Toilet facilities and a water supply will be located nearby. Clearing of trees and brush and mowing should be kept to a minimum.

Cost. $5,000

Trails

Objectives:

To provide a complete loop system of trails

Lake Vermilion
Echo Point
19
The Narrows
Pundsier Point
30
Hoodoo Point
Tower Municipal Landing Field
Pike Bay
20
Speckstown Bay
21
Long Island
22
Stuntz Bay
29
23
27
Soudan
Abandoned R. R.
1
169
32
Tower
33
34
31
East Two River
West Two River
Range 15 West
Range 15 West
Township 62 North
Township 61 North

Legend

Snowmobile Trail

Snowmobile/Hiking Trail

N

Tower Soudan State Park

Existing Trails

66

Lake Vermilion
Echo Point
19
The Narrows
Puncher Point
30
Hoodoo Point
Pike Bay
Tower Municipal Landing Field
McKinley Park
20
29
Swedetown Br
21
Long Island
Stuntz Bay
22
Boardwalk
Boardwalk
Trail Shelter
28
27
Parking
Soudan
Abandoned R. R.
1
169
32
Tower
33
34
31
East Two River
West Two River
Range 15 West
Range 15 West
Township 62 North
Township 61 North

Legend
- Hiking/Skiing
- Hiking/Snowmobiling
- Hiking
- Taconite Trail

N

Tower Soudan State Park

Proposed Trails

67

To provide an alignment for the Taconite Trail

To provide access to area trails

To connect Tower Soudan to nearby local parks

Action #1. Construct a 2.2 mi (3.5 km) segment of the Taconite Trail through the park.

The trail will enter the park from the west on the abandoned DM&IR ROW. It will follow an existing park snowmobile trail through the heart of the park and exit on a new alignment in the east central part of the park. The trail will be designated for snowmobile and hiking uses through the park with future potential for bicycling.

When completed the Taconite Trail will connect Tower Soudan with two other state parks -- Bearhead Lake and McCarthy Beach. The park will provide trail users with an access point, trail information, and a rest area.

Cost. Covered by DNR, Trails and Waterways

Action #2. Rehabilitate existing and construct new snowmobile/hiking trails.

A total of 2.7 mi (4.3 km) of snowmobile/hiking trails is recommended for development. This mileage, together with the 2.2 mi (3.5 km) of the Taconite Trail, will provide nearly 5 mi (8 km) of snowmobiling/hiking trails for the park visitors. These trails will also provide access to McKinley Park, possible historic and prehistoric mining sites and to many miles of other trails via the Taconite Trail.

Cost. $7,500

Action #3. Rehabilitate and construct new hiking/ski touring trails.

A total of 7.3 mi (12 km) is recommended for development. These trails will provide area skiers with highly scenic and challenging trails.

The park trails will also tie into McKinley Park and provide access to prehistoric and historic mining sites. Segments of these trails will require boardwalks, culverts, and/or small bridges for year-round use.

Cost. $35,000

Action #4. Rehabilitate and construct new hiking only trails.

This action calls for the development of short trail links totaling 1.7 mi (2.7 km). These links will add diversity to the summer use trail system.

Cost. $5,000

Action #5. Construct a small, open, adirondack style shelter near the junction of the Taconite Trail and the hiking/ski touring trails.

This building will provide shelter from the wind, and a place to light a warming fire, eat a lunch, and rest. Toilet facilities will be located nearby.

Cost. $5,000

Contact Station

Objective:

To provide a facility to control access to park facilities

Action #1. Provide a handicapped accessible toilet near the present contact station.

The person working in the present contact station has to walk or drive up the hill to the dry house to use a restroom. A vault toilet could be set up near the contact station, but out of sight. The vault would protect the fragile soils in the area.

Cost. $3,200

Action #2. Rehabilite, as necessary, and move the existing contact station and vault toilet to a location along the new entrance road. (CONDITIONAL)

The building should be located immediately west of the branch in the new road, so that the contact station worker can observe traffic to and from Stuntz Bay without stopping the vehicles.

The present building will be used because it fits the park's architectural theme. The station will continue to be open only during the tour season. The park manager's office will remain in the dry house, so the existing building will be adequate.

Cost. $3,000

Mine Buildings, Structures, and Equipment

Objective:

To maintain the historical integrity of the buildings

To improve maintenance and use efficiency of the mine structures

To improve public safety on mine tours

To increase the underground tour capacity

Action #1. Restore and rehabilitate the exteriors of the following structures: engine house, dry house, crusher building, loading/storage trestle, drill shop, mine rescue building, and lander's shed.

The project will require sandblasting and tuckpointing the brick buildings, sandblasting and painting the trestle, repairing and/or replacing sheet metal and painting the metal buildings. Most of the doors and windows and some of the roofs need to be repaired or replaced. These buildings have had only minor repair and maintenance since the park was established. The brick buildings have been painted. This has changed the character of the buildings and hastened the brick decay. The buildings all leak around the windows and doors. Those used

year-round need better insulation and caulking. The park manager should coordinate restoration with the Minnesota Historical Society (MHS) to ensure historical authencity.

Cost. $70,000*

Action #2. Rehabilitate and/or restore the interiors of the engine house, dry house, and crusher building and rehabilitate the headframe platforms.

The first two buildings must be made more energy efficient. Some electrical panels need to be rewired and an air compressor replaced in the engine house. The dry house should be completely replumbed including fixtures. The headframe needs new planking. The crusher building needs new decking and railings.

Cost. $60,000*

Action #3. Rehabilitate the shaft equipment.

This project consists of replacing rails and timbers, hoist cable, cable rollers, communications line, and discharge pipe from the 12th level to the surface and where necessary. A new 40 hp pump should be installed. The 125 hp and 300 hp pumps must be rebuilt. Also, the pump controls and three-phase electrical service must be rebuilt on the 22nd level.

These actions are all necessary to be in compliance with OSHA requirements which ensure public safety.

Cost. $105,500*

Action #4. Rehabilitate equipment on the 27th level.

This project consists of replacing rails and ties in the drift and constructing a switch lane at the ends of the rail line to turn the electric locomotives around. These improvements were recommended by the Mine Safety and Health Administration (MSHA) to ensure public safety.

Cost. $18,000*

Action #5. Replace the existing rail cars with new, light-weight models.

The existing cars have the old, heavy ore car chassis. The car weight limits the number of people who can ride at one time. The lighter cars will allow the engines to pull more cars with more people per trip.

Cost. $12,000*

Action #6. Replace the locomotives with new, larger ones.

The existing engines are worn out. Their capacity is limited and they are constantly breaking down. The combination of lighter cars and new, more powerful engines will dramatically improve the mine tour's efficiency

Cost. $60,000

Action #7. Refurbish the mine equipment display on the surface in the drill shop and on the 27th level.

The equipment has become extremely corroded since the mine closed down. This equipment plays an important part in the interpretive experience offered by the mine. Therefore, it is important that it looks the way it did when the mine was in operation. Cleaning will also make the equipment usable for demonstrations.

Cost. $20,000*

Action #8. Construct new or replace fencing around all mine pits and shafts.

The existing fencing has deteriorated or been removed in many places. The fencing is necessary for public safety.

Cost. $40,000*

*The restoration of the mine and mine structures may be eligible for 100 percent federal funding. The funds for restoration will still be requested IN THE DEVELOPMENT BUDGET AS A CONTINGENCY.

Service Area and Manager's Residence

Objectives:

To provide a suitable working area for repair and maintenance of equipment

To provide ample storage space for supplies and equipment

To provide an OSHA mandated separated gas and oil storage building

To maintain the historical integrity of the mine shop complex

To improve security for the complex

Action #1. Rehabilitate and restore the exteriors of all the existing buildings to their mining era appearance.

The buildings all need major repair. The paint should be stripped off the brick and the brick tuck pointed. Many buildings need roof work and all need better doors and windows for improved energy efficiency. The double door on the east end of the shop must be enlarged to accommodate the larger, modern trucks.

Cost. $130,000

Action #2. Remodel the interior of the shop buildings.

The remodeling should provide individualized heated areas for equipment repair, carpentry, and electrical work. It will also provide heated and unheated storage areas. Finally, it will make the building more energy efficient.

A small area in the engine house is being used by the employees for a shop. The area is too small and in violation of OSHA standards. With remodeling, this building will provide nearly all the park's maintenance space under one roof.

Cost. $120,000

Action #3. Remodel the small warehouse, if suitable, or build a new structure for gas and oil storage.

OSHA requires all flammable materials to be stored in a separate building. If a new building is necessary, it must conform to the park's architectural theme.

Cost. $12,500

Action #4. Fence the service area.

The chain link fence will be screened on both sides by deciduous and coniferous trees, shrubs, and vines. This screening is necessary because Stuntz Bay Road runs near the shop and the new parking lot will be located nearby. The screen will give the manager privacy and remove it from the view of the public. The vegetative screen should be designed and planted immediately so that the trees and shrubs are growing well when the new parking lot is developed.

Cost. $15,000

Action #5. Retain the pay office either for park storage or as an orientation center for the interpretive program. See Visitors Services, Action #1, p for further discussion.

Cost. None

3202

ARCHITECTURAL THEME

The architectural theme for Tower Soudan State Park must portray the original character of the Soudan Mine. All the buildings were of brick and sheet metal construction. All except three buildings - the pay office, fire shed, and the manager's residence - fit into this architectural theme at the present time. These three are of wood construction. Some of the buildings have been painted in recent years. Restoration work will be necessary to return these buildings to their original character. All new buildings should be of brick and/or sheet metal construction.

3203

SECONDARY UNITS

The Soudan Mine is a national historic landmark on both the federal and state registers of historic places. It is also part of the larger Soudan Mining District Historic Site. The landmark includes the two main shafts (No. 8 and Alaska) and many open pits in the park. The district includes the landmark plus mine buildings in the community of Soudan. These buildings are the former mine headquarters (now the Soudan Store), former hospital (now a nursing home), and seven miner's cottages.

Since ORA '75 park classification is limited to the statutory boundary, the recommended historical secondary unit can include only the part of the Soudan Mining District that is within the park boundary, see map, M).

The secondary unit is justified primarily by the status of the national historic landmark. This historic classification is the highest status classification in the historic sites system. The entire unit satisfies the first and fifth criteria for ORA '75 historic site designation (see Classification, p) The secondary unit will continue to be managed by the DNR.

Lake Vermilion
Echo Point
19
The Narrows
Puncher Point
20
Swedetown Bay
21
Long Island
22
Stuntz Bay
30
Hoodoo Point
29
28
27
Historic Site
Soudan
Tower Municipal Landing Field
Pike Bay
32
Tower
33
34
31
East Two River
West Two River
Range 15 West
Range 15 West
Legend
Township 62 North
Township 61 North
75A

Tower Soudan State Park | Secondary Unit

VISITOR SERVICES

The primary emphasis of the interpretive program at Tower Soudan State Park will be the mine and its history. But to tell the entire story, two additional topics should be introduced - the geology of the area and prehistoric mining activities in the park.

This three part program will include interpretation of features in the park other than the mine site. This will probably result in lengthening visitor stays in the park. Coordination of such an extensive interpretive program will be a huge undertaking.

Objectives:

To offer the park visitor a multi-media interpretive program

To interpret the geologic formation of this area

Detailed Recommendations

Action #1. Contract a study to develop an interpretive program for the park.

The study will be completed in three parts. The first part will involve the surface tour from the parking lot through the mine buildings. The study should determine the method of interpretation and prepare the texts for signs, boards, and tapes. It should evaluate the function of the visitor center. It should also determine the feasibility of retaining the pay office or constructing a biosk near the parking lot as an orientation center.

The second part will involve changes or additions to the underground tour. Stopping at another level or developing another area on the 27th level to depict underground mining during the early 20th Century should be considered.

The third part will be involved with developing interpretive trails throughout the park to prehistoric and historic mine sites. One of these trails will lead down to an observation platform at the bottom of one of the open pits. (See Action #2. p .)

The present underground tour is very good, but it does not tell the whole story. Implementation of this plan will provide a complete, quality program for the park visitor. It will also aid the visitor flow by providing alternative activities.

Cost. $105,000*

*This figure covers the study and the resulting development not already covered in the Development Section.

Action #2. Remove the vegetation from the side walls of the open pit with the observation platform in it. The pit immediately north of the mine buildings and the stockpile/loading area also should be cleared of vegetation.

The vegetation along the side walls of the open pits obstructs the view. All of the pits should not be cleared, however, due to the cost and risk of the operation. The stockpile area should be cleared to look as it did when the mine was in operation.

Cost. $7,000

3.0 THE PARK BOUNDARIES

PARK BOUNDARY

Tower Soudan State Park, through two legislative acts, contains approximately 2,900 acres (1,178 hectares) in Sections 21, 22, 27, 28, 29, and 33 of T62N R15W (see map, Current Statutory Boundary, p). This boundary contains numerous islands in Lake Vermillion including Long Island and a tip of Ely Island. Within this boundary only 1,030 acres (417 hectares) are in public ownership, controlled by the DNR, Division of Parks and Recreation (See map, Current State Ownership, p). The balance is owned by US Steel, Breitung Township, and numerous private landowners. Many of the private landowners are within the community of Soudan which is transected by the statutory boundary.

Large areas within the existing boundary are not park quality lands. The lower part of Section 27 is part of the community of Soudan. Section 33 is criss-crossed by roads and railroad lines. Section 29 contains part of a municipal airstrip and a residential subdivision. The NW 1/4 of the NE 1/4 of Section 29 is a township park. The larger islands in Lake Vermillion which are within the statutory boundary have cabins or seasonal homes on them.

Boundary Adjustments

Objectives:

To establish a manageable boundary that includes quality park land without including unnecessary land

To purchase all lands within the adjusted boundary

Detailed Recommendations

Letter code A–D, Actions #1–#4 are illustrated on the Boundary Adjustments Map, p .

A Action #1. Delete the following parcels in T62N R15W from the statutory boundary.

Section 21

a - Gov't. Lots 1-5/Seven Sisters Islands

b - Gov't. Lot 6/Ely Island (only a tip)

c - Gov't. Lot 11/Long Island (western part)

d - That portion of the W1/2 SW1/4 lying westerly of Swedetown Bay

Section 22

e - Gov't. Lot 2/Satterfield Island

f - Gov't. Lot 3/Sarkela Island

g - Gov't. Lot 4/Seven Sisters Island (part of one)

h - Gov't. Lot 5/Long Island (eastern part)

i - Gov't. Lot 6/Soderberg Island

Section 27

j - All lands lying south of the DM&IR ROW in the S1/2 SW1/4

k - All lands lying south of TH 1 and 169 in the SE1/4 SE1/4 SE 1/4

l - The SW1/4 SE1/4 SE1/4

m - The SW1/4 SE1/4

Section 28

n - All lands lying south of McKinley Park Road, except the SW1/4 SE1/4 SE1/4

Section 29

o - All of the section (see Item C, Action #3)

Section 33

p - All lands except the former DM&IR ROW in the NE1/4 NE1/4 (further described in the Deeds Book, p 249).

The statutory boundary legislation should include a provision which states that if any of the current owners of Long Island or any islands south of it let their lands go tax forfeit or want to sell or give their land to the people of Minnesota, the transaction may take place and these lands shall automatically be reinstated into the statutory boundary.

Cost. None

B Action #2. Expand the statutory boundary to include that part of SW1/4 SW1/4 SW1/4 of Section 26 north of TH 1 and TH 169.

This minor expansion is necessary to provide a good location for the proposed park entrance road.

Cost. None

After the land remaining within the new statutory boundary is acquired, the park will contain 1,300 acres (526 hectares).

C Action #3. Transfer 40 acres (16 hectares)of land (NE 1/4 NE 1/4 Section 29) controlled by the DNR, Division of Parks and Recreation to Breitung Township.

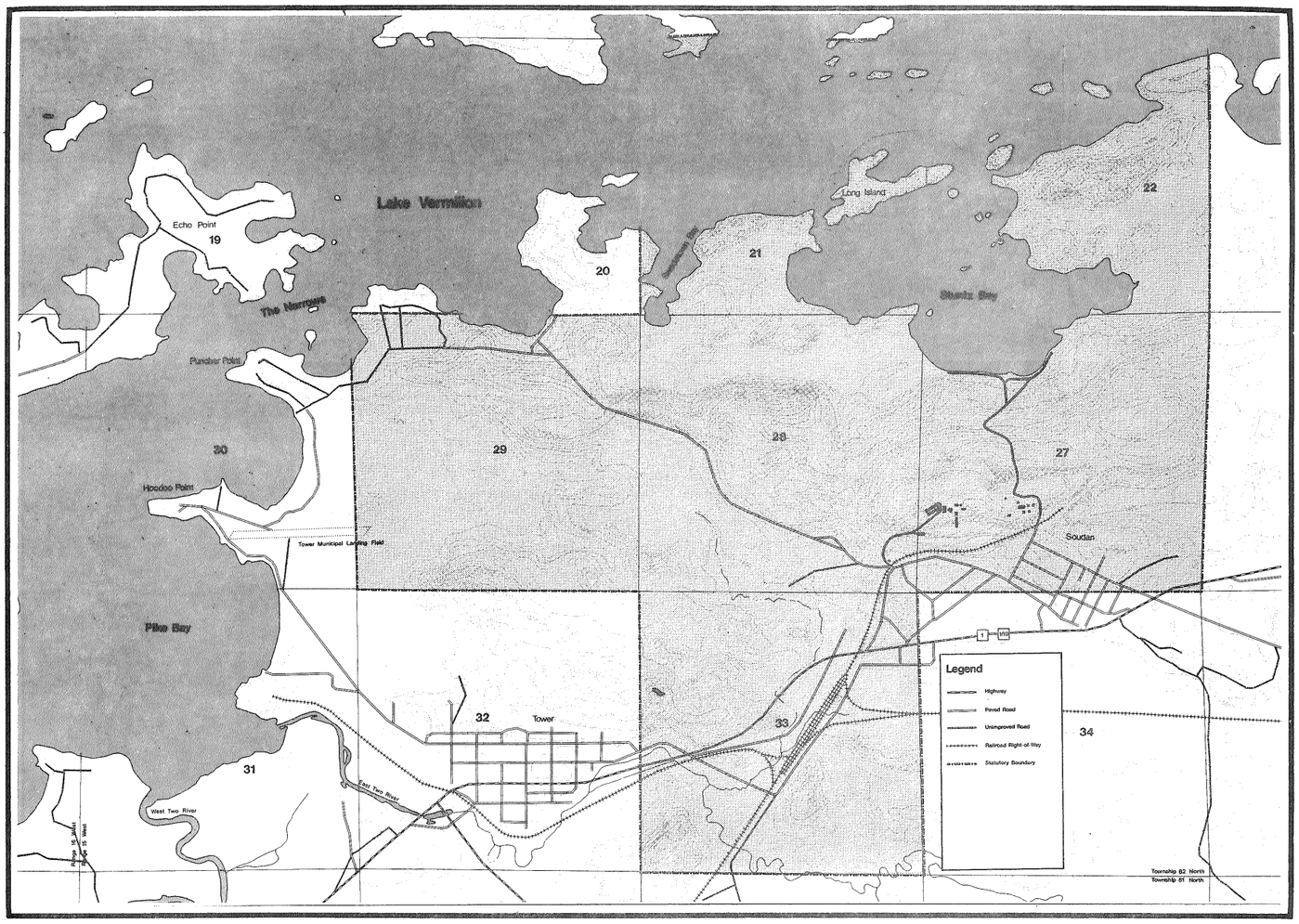
This land will become an addition to McKinley Park. The township park is presently cramped for space. The addition would allow the township to add family and group campsites which will in turn benefit Tower Soudan State Park by drawing more people into the area.

Cost. None

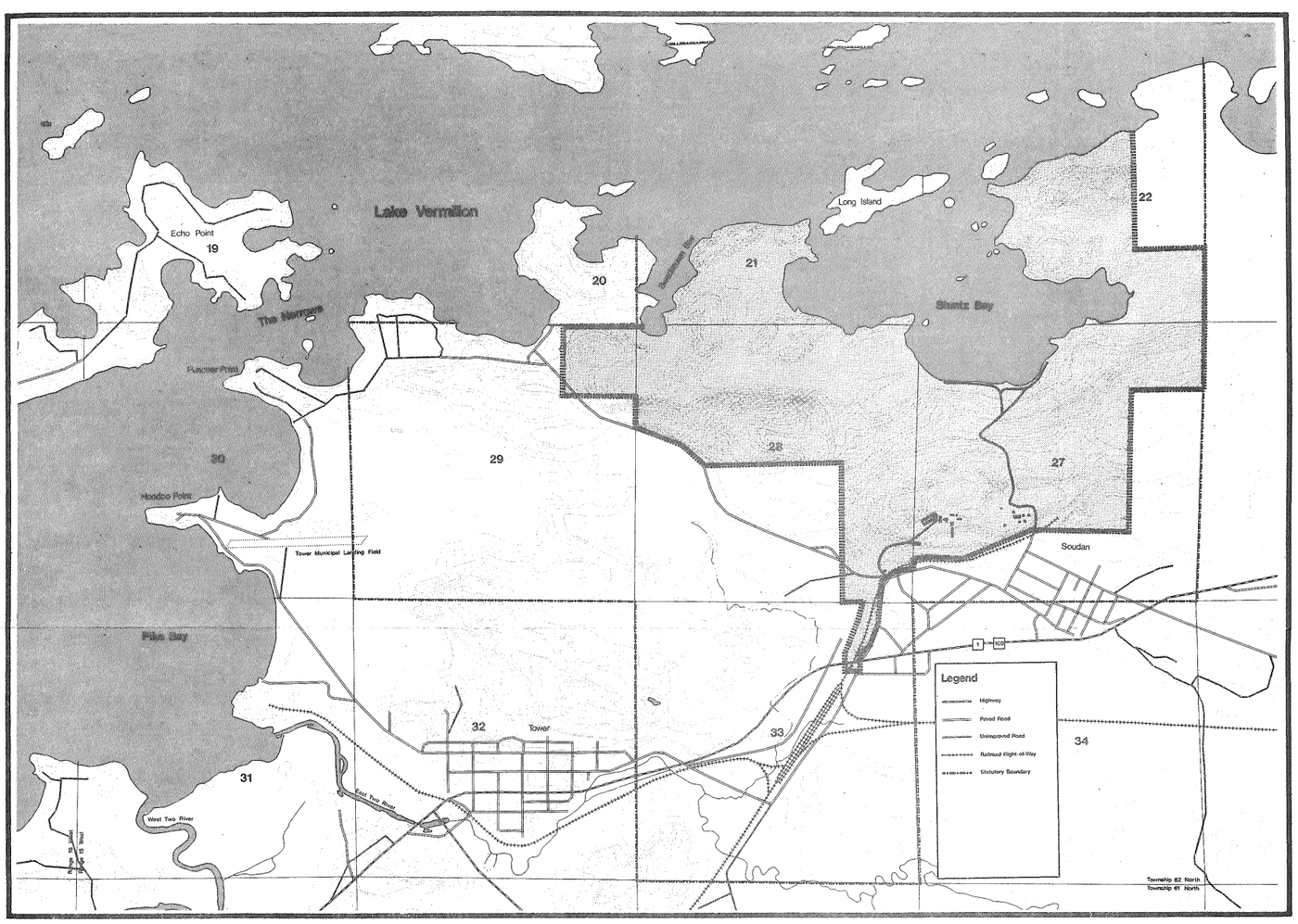
D Action #4. Acquire the remaining lands within the adjusted statutory boundary which are not administered by the DNR, Division of Parks and Recreation.

The three larger parcels are owned by the US Steel. The company will not give or sell these properties, but they may be willing to trade for equivalent public lands. The fourth parcel is the old DM&IR ROW. This parcel is owned by the railroad company and contains a snowmobile trail which ties into park trails at each end. Since the trail is in actuality a segment of the state park trail system, it is groomed with state park equipment. This parcel should be acquired to gain total control of the trail.

Cost. To be determined by appraisal



Current Statutory Boundary



Current State Ownership

Tower Sudan State Park Current Boundary Conditions

Lake Vermilion
Echo Point
19
The Narrows
Puncher Point
30
Hoodoo Point
Tower Municipal Landing Field
Pike Bay
West Two River
Range 16 West
Range 15 West
31
32
Tower
East Two River
Statutory Boundary
29
A-o
20
b
a
g
A
f
e
d
Speckbrunn Bay
21
A
h
i
Long Island
c
22
D
23
Stuntz Bay
C
28
Current Consolidation Boundary
D
27
D
26
A-n
i
D
Soudan
A
m
B
j
l
k
A-p
33
34
35
1
169
Township 62 North
Township 61 North

Legend

Proposed Park

A(a-o)
B
C
D

See Text pp For Explanation of Letter Code A-D

N

Tower Soudan State Park

Boundary Adjustments

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IX. OPERATIONS AND STAFFING

OPERATIONS

Maintenance is an essential responsibility of the DNR, Division of Parks and Recreation. In the case of Tower Soudan, maintenance takes on an added dimension, that of ensuring visitor safety. Moving large numbers of people 234 ft (714 m) underground into a mine is a potentially dangerous activity. This task of ensuring visitor safety is monumental. The DNR is continually judged by the safety and efficiency of the mine operation and the appearance of the park. During the tourist season, from mid–May through Labor Day, the mine is open for tours from 8:00 a.m. to 6:00 p.m. seven days a week. Because of the proximity of the community of Soudan and the layout of area roads, park trails are accessible to use 24 hours a day, 365 days a year. In order to fulfill these maintenance and operations responsibilities a year–round staff of highly trained, competent personnel is absolutely essential.

There are four basic aspects of maintenance and operations:

1. Maintaining resources
2. Maintaining facilities
3. Providing services to the park visitors
4. Enforcing rules and regulations which protect park visitors, resources, and facilities

One of the major maintenance problems of all parks is the heavy impact of large numbers of people concentrated in specific locations. Since Tower Soudan's major attraction is the mine, nearly all of the use is concentrated in one relatively small area. There are two other maintenance problems in Tower Soudan that are not common in most state parks. First, it has a large number of buildings, structures, and large equipment that must be maintained. Second, it has many safety hazards in the form of abandoned, open pit mines from which the public must be protected. A regular maintenance program with adequate personnel, supplies, and equipment controls damage, will provide adequate user safety and thereby reduce the need for expensive reconstruction and protect the DNR from costly litigation.

STAFFING

One of the staffing problems at Tower Soudan is the high degree of specialized training that is needed for many of the positions including the seasonal positions. The complex equipment and working conditions in the mine require specialized training and the work is often somewhat hazardous. It is a recommendation of this plan that job responsibilities which require specialized training should be done only by permanent personnel. Seasonal and temporary personnel should by hired only for minor maintenance and special projects.

The following chart summarizes the existing staff in Tower Soudan State Park. The positions in each staffing category have been grouped into total "staff years." Staff years is the common denominator which reflects the amount of time spent in each area of park maintenance and operations.

Existing Staff	Staff Years (in months)
Management	
1 full time park manager	12
Maintenance	75
1 mine foreman	
1 electrician	
4 mine hoistmen	
1 3-month laborer	
Tour Operation	84
8 6-month mine guides	
6 6-month park workers	
Contact Station	12
2 6-month park workers	

Future Staffing Needs

The need for specialized training and the potential expansion of the mine tours, surface and underground interpretation, and extension of trail mileage will require additional personnel.

Management

One 12 month natural resource specialist 1– Currently the manager must turn over park control to the head mine hoistman or the mine foreman on his days off. The two current occupants of these positions are capable, but they are nearing retirement. It is important that another professional level person be on staff to provide leadership in the manager's absence. Also, the manager classification should be changed to mine superintendent to better identify this position's responsibilities.

Maintenance

Two full time mine maintenance aides – These two positions would have dual responsibilities. During the busy tourist season these two people would act as head tour guides. During the off–season, they would supplement the regular maintenance crew. The current mine guides are retired miners who know mines and mining first hand. When retired miners are no longer available they must be replaced by personnel who have not had actual mining experience. Because of their training and maintenance experience, the mine maintenance aides will maintain the mine tours' credibility plus they will be able to train the seasonal mine guides. With the addition of the two mine maintenance aides, all the mine guides will be able to double as surface interpretation guides as the surface tours are expanded.

Clerical

One full time clerk typist – Currently, one of the park workers must be taken away from regular duties to carry out clerical tasks. During off–season there is no one for clerical work. The volume of paperwork for this operation justifies this position.

Trails Maintenance

Additional general labor monies – The expansion of the trail system and the Taconite Trail which will pass through the park will require an additional level of service. A laborer during the winter months for trail grooming will be necessary. It is recommended that the DNR, Trails and Waterways Unit be requested to furnish this position. If this is not feasible then additional labor funding will be required.

Special Budget Considerations

The mine is a costly, unusual operation. It clearly cannot and should not be run like a typical state park. During this planning process several options were considered for the continued operation of the mine. Turning the mine and the park over to another agency (IRRRB or MHS) was pursued with little success. The possibility of receiving some funding support from outside sources (IRRRB, US Steel, and the United Mine Workers Union, UMW) was considered. These sources do benefit from the story being told at Tower Soudan and therefore are logical, legitimate sources of funding. Establishing a separate funding account within DNR for this wask was also considered.

It is thus recommended that the DNR establish a separate funding account for Tower Soudan outside of the normal state park account. The DNR should also pursue additional funding from US Steel, UNW Union, IRRRB, and the Carnegie–Millon Foundation. These funds could partially alleviate the strain on the budget for the other state parks.

VIII. COSTS AND PHASING SUMMARY

The following cost estimates were generated in October 1980. These cost estimates are based on current prices and available information. As new information is made available and as new or modified programs are initiated, revised cost estimates will be prepared to more realistically represent costs at that time. This plan is intended to be implemented in 10 years. The phases noted suggest the level of funding to be requested each biennium. However, there is no guarantee that this amount of funding would be received from the legislature. Therefore, some change to these phases can be expected.

	Phase I	Phase II	Phase III	Phase IV	Phase V	Total	Conditional
RESOURCE MANAGEMENT							
Vegetation							
Action # 1. Thin pine stands.	$ 200	$ 200	$ 200	$ 200	$ 200	$ 1,000	
							$ 7,335
Action # 2. Regenerate type.	200	350	350	200	250	1,350	
	6,600	6,800	6,200	7,200	3,200	30,000	
Action # 3. Sanitize and regenerate stand.	100	100	300	100	100	700	
	3,420	4,950	5,950	4,950	4,950	24,220	
Action # 4. Maintain and create permanent grass openings.	4,120	2,735	3,405	1,210	2,645	14,115	
	9,500	6,835	11,025	5,910	2,645	35,915	
Action # 5. Inventory and make recommendations.	None						
Wildlife							
Action # 1. Drill woodduck nesting cavities.	1,500					1,500	
History and Archaeology							
Action # 1. Conduct site survey.	4,000					4,000	
RECREATION DEVELOPMENT							
Roads and Parking							
Action # 1. Rehabilitate existing parking lot.	5,000					5,000	
Action # 2. Build small gravel parking lot.	5,000					5,000	
Picnicking							
Action # 1. Develop picnic sites near parking lot.	10,000					10,000	

	Phase I	Phase II	Phase III	Phase IV	Phase V	Total	Conditional
Trails							
Action # 1. Construct Taconite Trail segment.	Cost borne by Trails and Waterways						
Action # 2. Rehabilitate and construct new snowmobile/hiking trails.	2,500	2,500	2,500			7,500	
Action # 3. Rehabilitate and construct new cross–country skiing/hiking trails.	5,000	15,000	15,000			35,000	
Action # 4. Rehabilitate and construct new hiking trails.	1,000		4,000			5,000	
Action # 5. Construct small, open adirondack shelter with unisex toilet.	5,000					5,000	
Contact Station							
Action # 1. Provide restroom.	3,200					3,200	
Mine Buildings							
Action # 1. Restore and rehabilitate exterior of structures.	10,000	60,000				70,000	
Action # 2. Restore and rehabilitate interiors of structures.	57,500	2,500				60,000	
Action # 3. Rehabilitate shaft equipment.	80,500	25,000				105,500	
Action # 4. Rehabilitate equipment on 27th level.	3,000		15,000			18,000	
Action # 5. Replace rail cars.	12,000					12,000	
Action # 6. Replace locomotives.			60,000			60,000	
Action # 7. Refurbish mine equipment display.		20,000				20,000	
Action # 8. Fence pits and shafts.			20,000			20,000	
Service Area and Manager's Residence							
Action # 1. Restore and rehabilitate exterior of buildings.	60,000	70,000				130,000	
Action # 2. Remodel shop interior.	120,000					120,000	
Action # 3. Provide gas/oil building.	12,500					12,500	
Action # 4. Fence service area.			5,000			5,000	
Visitor Services							
Action # 1. Contract study.	105,000					105,000	
Action # 2. Remove vegetation.		7,000				7,000	

	Phase I	Phase II	Phase III	Phase IV	Phase V	Total	Conditional
CONDITIONAL PROPOSALS							
Roads and Parking							
Action # 3. New entrance road.							105,000
Action # 4. New parking lot.							30,000
Action # 5. Remove present lot.							5,000
Picnicking							
Action # 2. Develop new picnic sites.							5,000
Contact Station							
Action # 2. Rehabilitate and move contact station.							3,000

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STATE OF MINNESOTA

DEPARTMENT NATURAL RESOURCES

Office Memorandum

TO : All Individuals Interested in the Management Plan for Tower Soudan State Park

DATE: Dec. 18, 1980

FROM : Harry R. Roberts
Park/Trails Planner

PHONE: 296-6485

SUBJECT: Tower Soudan State Park Draft Management Plan Review Process and Upcoming Public Information Meeting

A draft management plan for Tower Soudan State Park has been completed by the Department of Natural Resources, Park Planning Section. This plan was prepared under the authority of the Outdoor Recreation Act of 1975.

Copies of the draft management plan are available for review at the Tower Soudan park office, the District Forester's office in Tower, the Tower City Clerk's office, Breitung Town Hall, and at the public library in Ely. Any comments you have on the plan should be made in writing and addressed to:

Harry R. Roberts
Trails and Waterways Unit
Box 52 - Centennial Building
St. Paul, Minnesota 55155

The Outdoor Recreation Act of 1975 provides for a 30-day review period in which comments may be made by the public. During this 30-day review period a public meeting will be held in Tower to discuss the draft management plan. The public meeting will be held on Monday, January 19th at 7:30 p.m. in the Tower Civic Center. Additional comments on the proposed plan for Tower Soudan State Park will be received at that time.

We hope you can be in attendance.

HRR:la