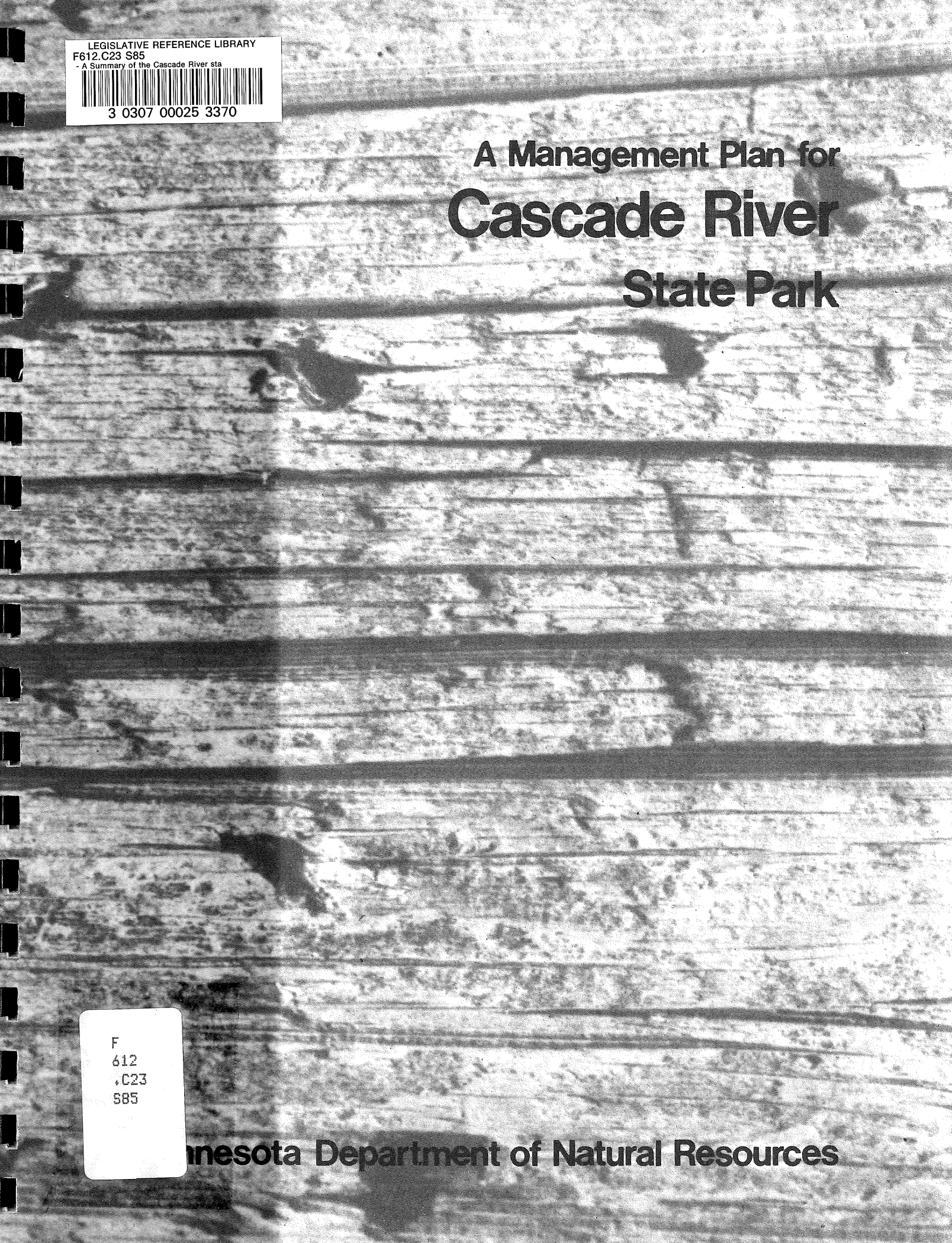
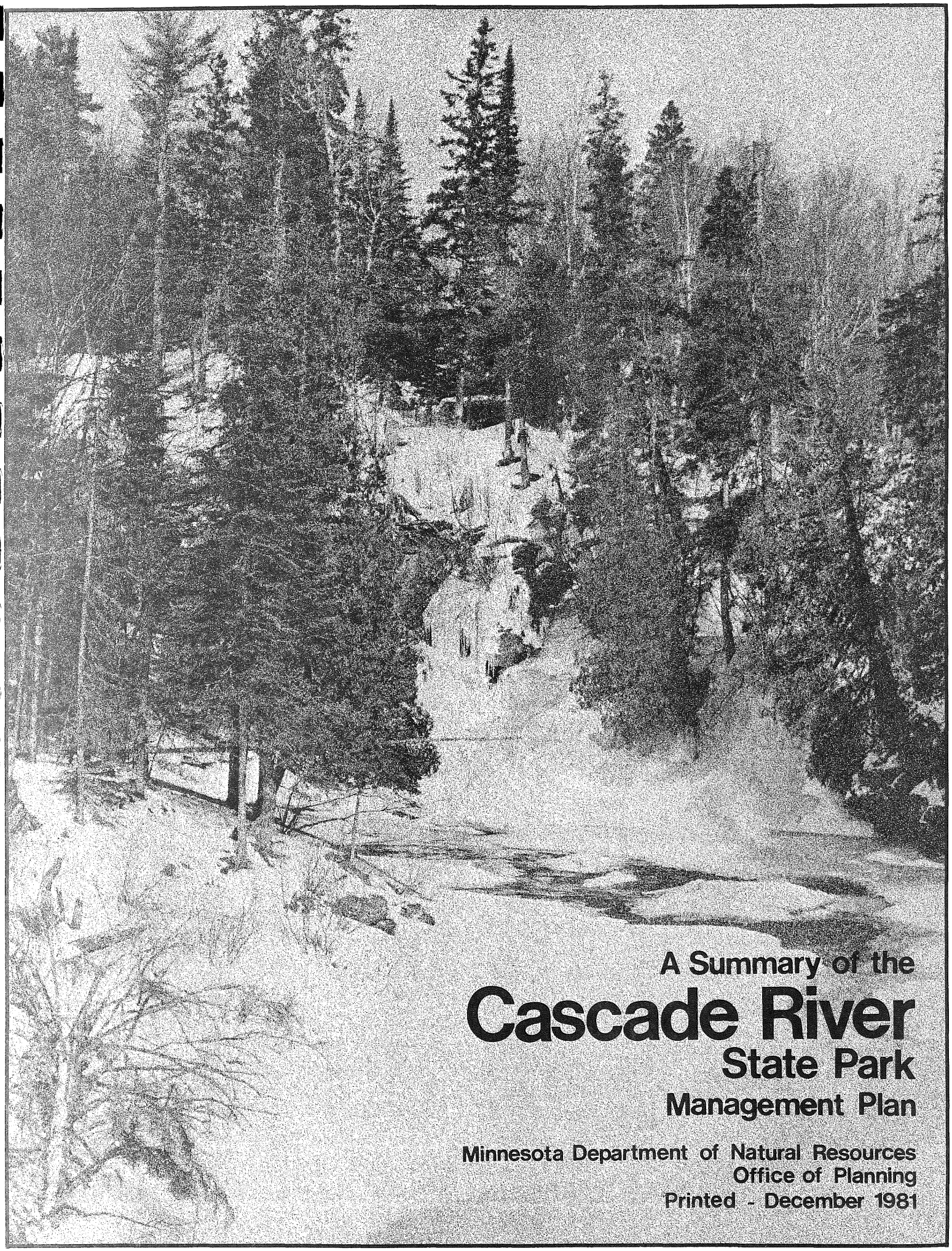


A Management Plan for Cascade River State Park

Minnesota Department of Natural Resources

This document is a summary of the Cascade River State Park management plan. All recommendations, both resource management and physical development are included here. The detailed inventory data and specific instructions for implementation of resource management and facility development have been compiled into a comprehensive management plan with technical appendices. These documents are on file in the:

Office of Planning
Department of Natural Resources
Box 10E Centennial Office Building
St. Paul, Minnesota 55155



A Summary of the

Cascade River State Park Management Plan

Minnesota Department of Natural Resources
Office of Planning
Printed - December 1981

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Planners Tom Polasik
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Introduction

OVERVIEW OF CASCADE RIVER STATE PARK

Cascade River State Park is located in Cook County on the North Shore, 9 miles southwest of Grand Marais. The park was established by the Minnesota State Legislature in 1957, with a statutory boundary encompassing 2813 acres.

The park consists of a 10.5 mile strip of land approximately one half mile wide. Elevation ranges from 602 ft at the surface of Lake Superior to just under 1200 ft along the northern boundary. The major topographic feature of the park is the steep-walled Cascade River gorge which was formed by the Cascade River eroding through volcanic bedrock ledges. In the final quarter-mile stretch, the river plunges 120 ft through the deep, twisting gorge to Lake Superior, forming the spectacular series of cascades for which the river was named.

Original vegetation communities were comprised primarily of Norway and white pine stands and spruce-fir communities, interspersed by aspen, birch, and white cedar. Today, as a result of logging and extremely hot wild fires followed by nearly total fire supression, vegetation is dominated by a mixture of aspen-birch and spruce-fir. Very few pine and some isolated stands of white cedar can still be found.

Vehicular access into the area is via Trunk Highway 61 (TH 61) which parallels Lake Superior through the park. The only public transportation into the area is commercial bus service, with stops at Lutsen and Grand Marais. No direct public transportation is available to the park. Food and lodging are available adjacent to the park at several year-round resorts.

Existing organized recreational activities include camping, picnicking, hiking, skiing, and snowmobiling. There are unlimited opportunities for unstructured activities such as fishing, wildlife observation, rock hounding, photography, and sight seeing.

Day use visitor attendance has increased from just over 7,000 in 1958 to approximately 100,000 in 1979.

THE PLANNING PROCESS

In 1975 the Minnesota State Legislature passed the Outdoor Recreation Act (ORA). The intent of this legislation is to ensure, through long-range planning, the protection and perpetuation of Minnesota's outstanding resources. Also included in this legislation is the mandate to provide recreational facilities which are desired by the citizens of Minnesota but which do not compete with the private sector. The Park Planning Section of the DNR, Office of Planning was established to formulate long range resource management and recreation development plans for 82 state parks, recreation areas, and waysides. Funds for these plans are appropriated biennially by the Legislative Commission of Minnesota Resources (LCMR).

The park planning process consists of six steps:

1. An inventory of natural resources, visitor use, and existing facilities is compiled. Specialists from other DNR divisions and sections assist in collecting pertinent data. At this point the first public workshop is held.

2. Alternatives for park management and development are developed. A second public workshop may be held to review these alternatives and invite further public comment. These alternatives are then reviewed by the Park Planning staff and the DNR, Division of Parks and Recreation.

3. The recommendation for park classification is made, the park goal is developed, and the draft plan is written. This step culminates in the first interdepartmental review.

4. The draft plan is revised as the result of the interdepartmental review. The revised plan is made available to the public for a 30 day review period, after which the final public meeting is held.

5. The draft plan is revised according to information received from the public review. The plan is then sent to the Department of Energy, Planning, and Development for a 60 day reviewal period. (This management plan was approved in March 1981.)

6. The plan is implemented by the DNR, Division of Parks and Recreation.

A SUMMARY OF MANAGEMENT AND DEVELOPMENT PROPOSALS

Resource Management

Conduct site and boring soil surveys.
Remove down, diseased vegetation.
Perform regular sanitation cuts.
Rock rake and plant conifers.
Perform special site cutting and planting.
Reforest the east part of the campground.
Create permanent wildlife openings.
Maintain brush and small tree runways across existing grass openings.
Post additional deer crossing signs on TH 61.
Study deer roadkill problem.
Drill wells in new campground, shop, and manager's residence.
Continue fish stocking and maintenance programs.
Stock steelhead fry in Indian Camp Creek.
Conduct an archaeological study.

Physical Development

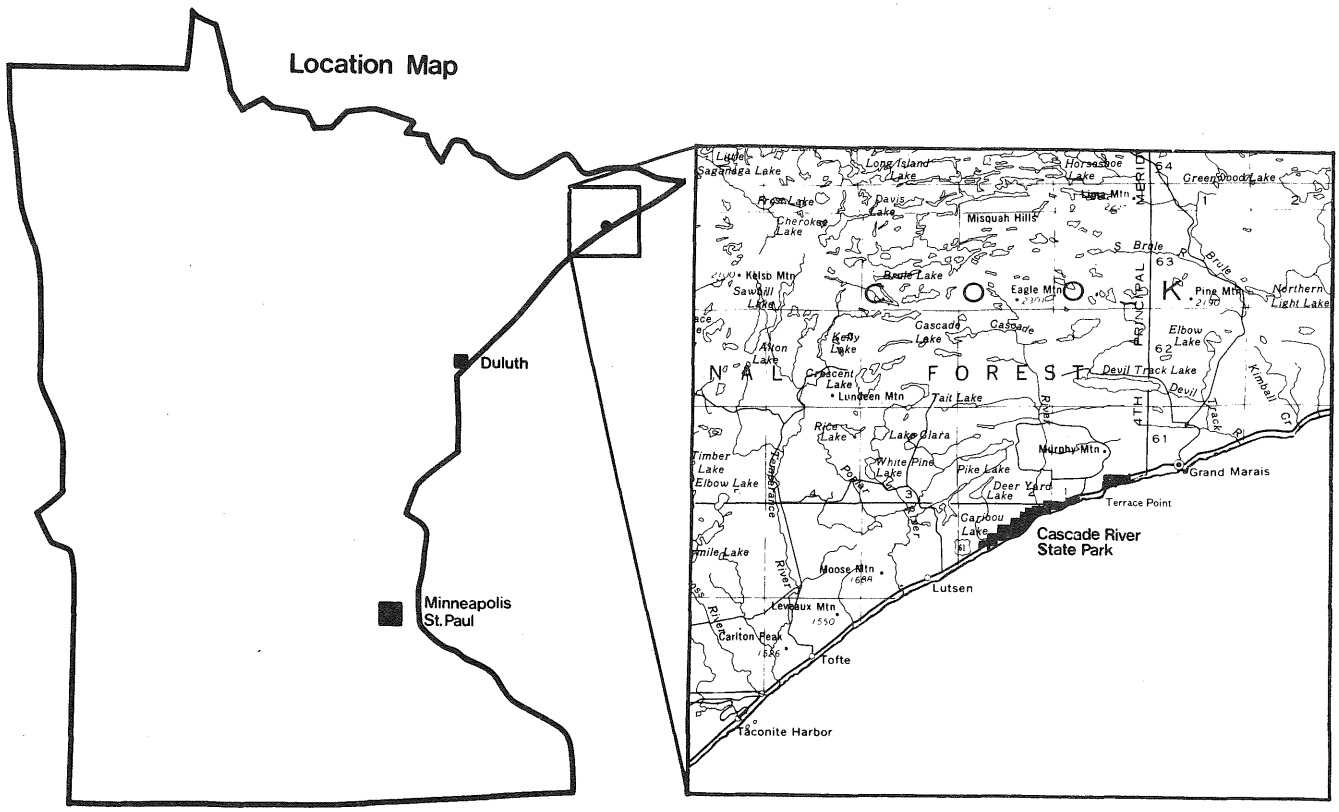
Conduct sewage and water systems studies.
Develop internal road system.
Rehabilitate existing campground by obliterating unused campsites and converting to a picnic area.
Develop walk-in picnic sites along Lake Superior.
Winterize water and waste systems.
Develop a primitive campground.
Develop walk-in campsites.
Develop three group campsites.
Redesign and expand the hiking/skiing trail system.
Rebuild trails between trail center and the river bridge.
Develop a snowmobile trail from TH 61 to the Pike Lake road.
Develop connecting trails to the North Shore Trail.
Construct an additional bridge over Cascade River.
Construct two new trail bridges over Cascade Creek.
Construct small bridges over intermittant streams.
Construct a carry-in small boat landing near river mouth.

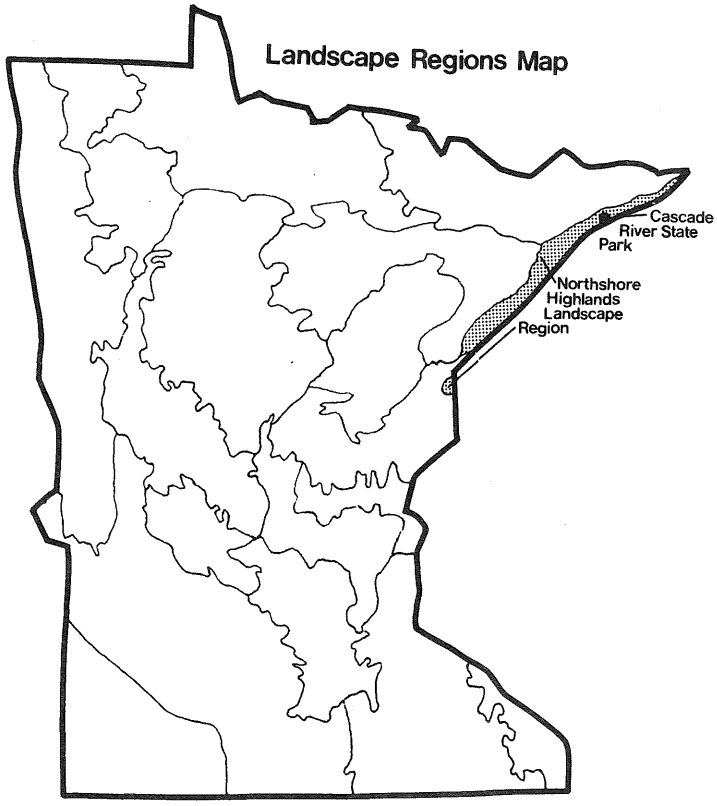
Administrative Support Facilities

Develop a comprehensive signing system.
Construct a contact station/park office
Redesign and relocate park entrance road.
Complete service area buildings and pave the courtyard.
Remodel manager's residence and construct 2-car garage.

Interpretive Program

Expand interpretive program and develop a self-guided interpretive trail system.





North Shore Highlands Landscape Region

This region is famous for its bare rock cliffs along the Lake Superior shore. During the Ice Age, the Lake Superior basin was scoured, the cliffs were sheared off, and parts of the upland areas were covered by glacial deposits. The shoreland escarpment of 500 to 1000 ft is broken by numerous steep-walled valleys with cascading streams which flow into the lake. The northern half of the region was, at the time of European settlement, covered with spruce-fir forest. The southern half was covered by a mixture of pine and northern hardwoods. The dominant forest cover today is aspen-birch regrowth.

Classification

CLASSIFICATION

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. Inappropriate development can result in irreparable damage to the resource. To help ensure this recreation/resource balance, the Minnesota State Legislature established, through the Outdoor Recreation Act of 1975 (ORA), a classification process whereby each unit in the state recreation system can be identified as one (or more) component in the system. These components are: natural state park; recreational state park; state trail; state scientific and natural area; state wilderness area; state forest and state forest sub-area; state wildlife management area; state water access site; state wild, scenic, and recreational rivers; state historic site; and state rest area. Included in this legislation are general criteria for classifying, planning, and managing each of these components.

Criteria for a Recreational State Park Designation

DNR policy identifies four criteria based on ORA which a park must substantially meet to qualify for classification as a recreational state park. Cascade River State Park meets these criteria.

> "Possess natural resources, or artificial resources in a natural setting, with outstanding outdoor recreation potential.
>
> "Provide outstanding outdoor recreational opportunities that will attract visitors from beyond the local area.
>
> "Contain resources which permit intensive recreational use by large numbers of people and be of a size sufficient to provide for effective management and protection of the natural and/or artificial outdoor recreational resources, so that they will be available for both present and future generations.
>
> "Be located in areas where they appropriately accommodate the outdoor recreational needs of the state populations, provided that they complement but are not in place of recreational service normally offered by local or regional units of government or the private sector."

Recommended Classification

Cascade River State Park is recommended for classification as a recreational state park because it meets DNR policy and ORA criteria for this classification.

GOAL FOR THE PARK

The goal for Cascade River State Park follows the overall goal for recreational state parks as stated in the DNR policy.

> "It is the goal of the Department of Natural Resources in recreational state parks to:
>
> "Provide lands and waters which offer a broad selection of outdoor recreational activities in a natural setting and which may be used by large numbers of people."

Park Resources

GEOLOGY/TOPOGRAPHY

The topography of Cascade River State Park was formed by continental glaciation of ancient volcanic rock formations which date back over one billion years. Lava flows forced their way into fissures in the older rock and cooled to different hardnesses. The softer flows eroded away, and the harder flows collapsed, creating the Lake Superior basin and its shoreline cliffs. The two surface geology types in the park are exposed or thinly covered bedrock and lake clay.

Thomsonite, a mineral belonging to a group known as zeolites, is found in the park. It is the only gem-quality Thomsonite in the world. The portion of the park that has most of the Thomsonite has been proposed as a scientific and natural area.

The park terrain gradually slopes toward Lake Superior with steep gorges cut by the Cascade River and its tributaries. The elevation ranges from 602 ft mean sea level (msl) at the lakeshore to 1000 ft msl along the inland ridges. If the park is expanded inland, the highest point will be over 1200 ft msl.

CLIMATE

The following temperatures are from information collected at Two Harbors, Minnesota and should reflect the temperature variations to be expected near Lake Superior in the park. The inland portion of the park will be somewhat cooler.

Temperature Variations

Mean January Maximum	22°F
Mean January Minimum	2°F
Mean July Maximum	76°F
Mean July Minimum	53°F

Mean Average Extremes/Frequency

Less than 0°F 55 days/year
More than 90°F 0 days/year

Precipitation

Annual Total 28 in.
Annual Snow 65-70 in.

Prevailing Winds

Northeast - exceed 30 mph an average of 30 days from May-September.

The climate of Cascade River State Park is ideal for recreation year-round. The cool summers along Lake Superior make the area ideal for picnicking, hiking, and camping. Lake Superior has a moderating effect which extends the summer recreation season well into the fall. Winter recreation conditions are ideal with mild temperatures and abundant snowfall, usually from the beginning of December to mid April.

SOILS

The soils of Cascade River State Park are dominated by the Barto-Mesaba complex of gravelly silt loams. In many areas of the park, the bedrock is exposed. The shallow depth and stoniness of the soils create problems for park development, especially building construction. There are, however, level areas with good drainage that are suitable for development.

VEGETATION

The original pre-settlement vegetation in Cascade River area was a mixture of northern hardwoods (aspen and birch) and conifers (white and Norway pine, balsam, fir, spruce, and white cedar). The present vegetation in the park is still a mixture of northern hardwoods and conifers, but the portion of aspen-birch is much greater. The proposed boundary changes will reduce the vegetative diversity considerably. Aspen will no longer be found in the park, the total acreage of cedar will be significantly reduced. The main vegetative problem in the park is blowdown of overmature trees. Balsam fir is the primary victim, however, spruce and cedar are also susceptable.

WILDLIFE

Most of Cascade River State Park is included in the Cascade Management Area. This area is a unit cooperatively managed by three DNR divisions - Parks and Recreation, Forestry, and Fish and Wildlife. It includes most of the largest winter deer concentration area on the North Shore--The Jonvic Deeryard. This area will continue to be managed jointly, but it is recommended that some changes be made in the area that each division manages (see Boundary Modification, pp 29 and 30 for further discussion.)

The deciduous-conifer forest of the North Shore flyway, provides habitat for northern warblers and many species of waterfowl and raptors, including harlequin duck, black scoter, Cooper's hawk, bald eagle, peregrine falcon, great gray owl, boreal owl, and gryfalcon.

Most of the northern forest mammals are known to inhabit the Cascade River area. Some of the more interesting species include moose, timber wolf, snowshoe hare, little brown bat, cinerous and short-tailed shrews, woodland deer mouse, and boreal red back vole.

The major wildlife problem in the park is deer roadkill along TH 61. Roadkills are common along the North Shore, but a significant percentage occurs along the 7.35 mile stretch through the park. There are two explanations for this. Lake Superior acts as a giant insulator keep. The narrow band of land along the shore is warmer, receives less snow, and has more available food during the winter than inland areas. The deer move across the highway in large numbers to these better conditions. The second explanation is that people who live adjacent to the park feed the deer. Though their motives are good, feeding tempts the deer to cross the highway increasing the chances of roadkill. The roadkill problem is complicated and finding an answer seems remote, however a study will be undertaken in an attempt to improve the situation.

GROUNDWATER

Groundwater supply and quality are extremely variable all along the North Shore. The existing well in the park is a flowing artesian well of unknown depth which provides an adequate supply. The water contains concentrations of salt, not high enough to be harmful. The manager's residence is the only facility in the park with a winter water supply.

SURFACE WATER

Surface water in Cascade River State Park includes Lake Superior and Cascade River. Indian Camp, Deer Yard, (or Spruce), Cutface (Good Harbor) creeks, and five unnamed creeks also pass through the park. Boundary adjustment would remove most of the minor creeks from the park.

The Cascade River is the park's main attraction. The cascading falls drop 120 ft in a narrow, twisting gorge through the park. Deer Yard and Cutface are typical North Shore streams with falls, cascades, and steep banked gorges. Indian Camp Creek has gently to moderately sloped, soil-covered banks. All three are classified trout streams and are actively managed by the Section of Fisheries. Five streams are not actively managed and no information is available on them.

The one surface water problem in the park is in the campground where a natural seepage (spring) keeps the surface wet nearly all summer. The campground roads and spurs have been built up with gravel so they stay reasonably dry. But they act as barriers to the natural drainage. Ditches and culverts have been constructed to drain the water off.

FISHERIES

Chinook salmon have been stocked at the Pike Lake road since 1974. The river has good spawning areas, but needs more pools. The natural trout reproduction has been good in Indian Camp Creek. Deer Yard Creek has good spawning conditions with plenty of gravel, but lacks the pools to complement the riffle areas. An initial stocking of steelhead fry was done in 1980.

RESOURCE MANAGEMENT OBJECTIVES

Resource management objectives for all recreational state parks are included in the DNR Manual, Section 1.8-9. They are designed to give direction to the management of resources in all recreational state parks.

RESOURCE MANAGEMENT

Action	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Total	
Soils							
1 Conduct site and boring surveys.	Covered in the cost of each development						
Vegetation							
2 Remove down, diseased vegetation and plant conifers.	$ 6,400 25,300	$ 6,400 25,300	$ 6,400 25,300	$ 6,400 25,300	$ 6,400 25,300	$ 32,000 126,500	C* PS*
3 Perform regular sanitation cuts.	1,200	1,200	1,200	1,200	1,200	6,000	
4 Rock rake and plant conifers.	2,500	2,700	2,600	1,700	900	10,400	
5 Convert part of stand to conifers.	2,000 9,100	2,000 9,100	2,000 9,100	2,000 9,100	2,000 9,100	10,000 45,500	C* PS*
6 Perform sanitation and special site cutting and planting.	Cost included in Proposed Development, Camping, Action # 1						
7 Reforest east part of campground.	700	700		700	700	2,800	
8 Create permanent wildlife openings.	1,900 12,000	300 1,400	200 1,400	400 1,500	400 1,500	3,200 17,800	C* PS*
9 Maintain brush and small tree runways across existing grass openings.	No Development Cost						
10 Temporarily close or relocate sections of trail.	Operations Budget						
11 Post additional deer crossing signs.	1,000	1,000			2,000		
12 Study deer roadkill problem.	DNR, Division of Fish and Wildlife						

*For explanation see bottom of page 20.

Action	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Total
Groundwater						
13 Drill well in new campground.	Physical Development, Camping, Action #9					
14 Drill well for shop and manager's residence.	Physical Development, Administrative/Support Facilities, Action #24					
15 Winterize campground waste system.	Physical Development, Camping, Action #8					
Fisheries						
16 Continue stocking programs.	DNR, Section of Fisheries					
17 Continue maintenance programs on Indian Camp and Deer Yard creeks.	DNR, Section of Fisheries					
18 Stock steelhead fry in Indian Camp Creek.	DNR, Section of Fisheries					
19 Construct a carry-in small boat landing near river mouth.	DNR, Section of Fisheries					
Resource Management Total	$ 14,700 50,800	$ 14,300 41,400	$ 13,400 40,600	$ 12,400 39,500	$ 9,800 38,700	$ 66,400 C* 211,000 PS*

*Two sets of costs are shown to indicate difference between two approaches to vegetation management. C is contracted timber sales or issuance of firewood permits and PS means the work will be done by crews from the existing staff.

Physical Development and Recreation Management

EXISTING DEVELOPMENT

Development in the park includes a 36 site semi-modern campground, a sanitation building with flush toilets and showers, a 4-site picnic area, 15 miles of hiking trail, 2 miles of multiple-use trail, and 14 miles of ski touring trail. All park trails adjoin trails on adjacent public lands. This adds 18 miles of hiking trail, 12 miles of multiple-use trail, and 16 miles of ski touring trail to the Cascade system. Administrative development includes the shop/maintenance building, wood storage building, the manager's house/office, a trail center, and a contact station.

RECREATION MANAGEMENT OBJECTIVES

To coordinate park development with private and other public facilities and resources in the vicinity

To limit park development to that which is necessary for efficient management and for the public to experience, study, and enjoy the natural resources

To locate park development where it will have the least impact on sensitive natural, archaeological or historic resources, will not detract from the enjoyment of other users, and will allow easy access to areas of high scenic or study value

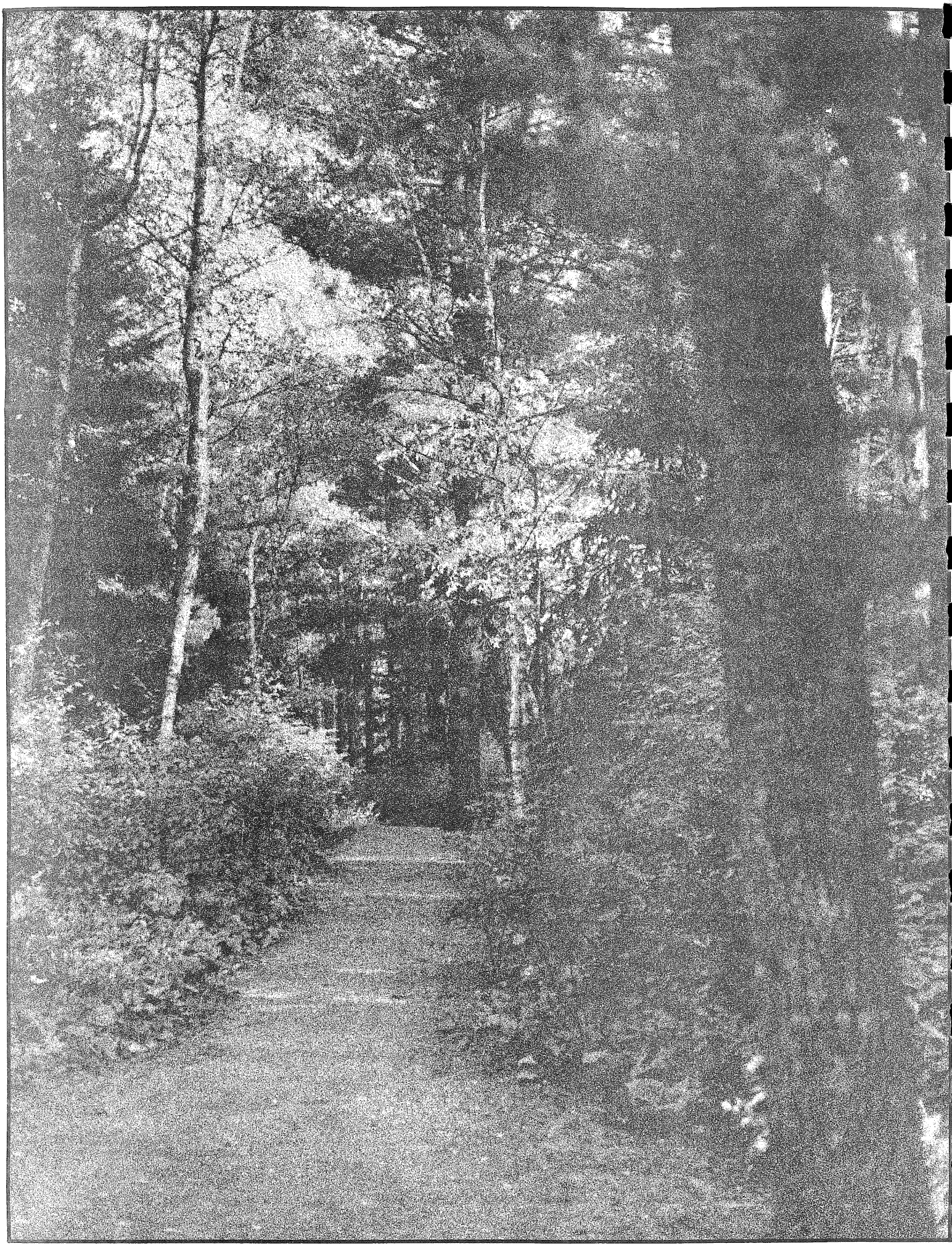
To ensure physical accessibility and program usability of new developments by special populations (i.e. persons with physical disabilities, the elderly, and the very young)

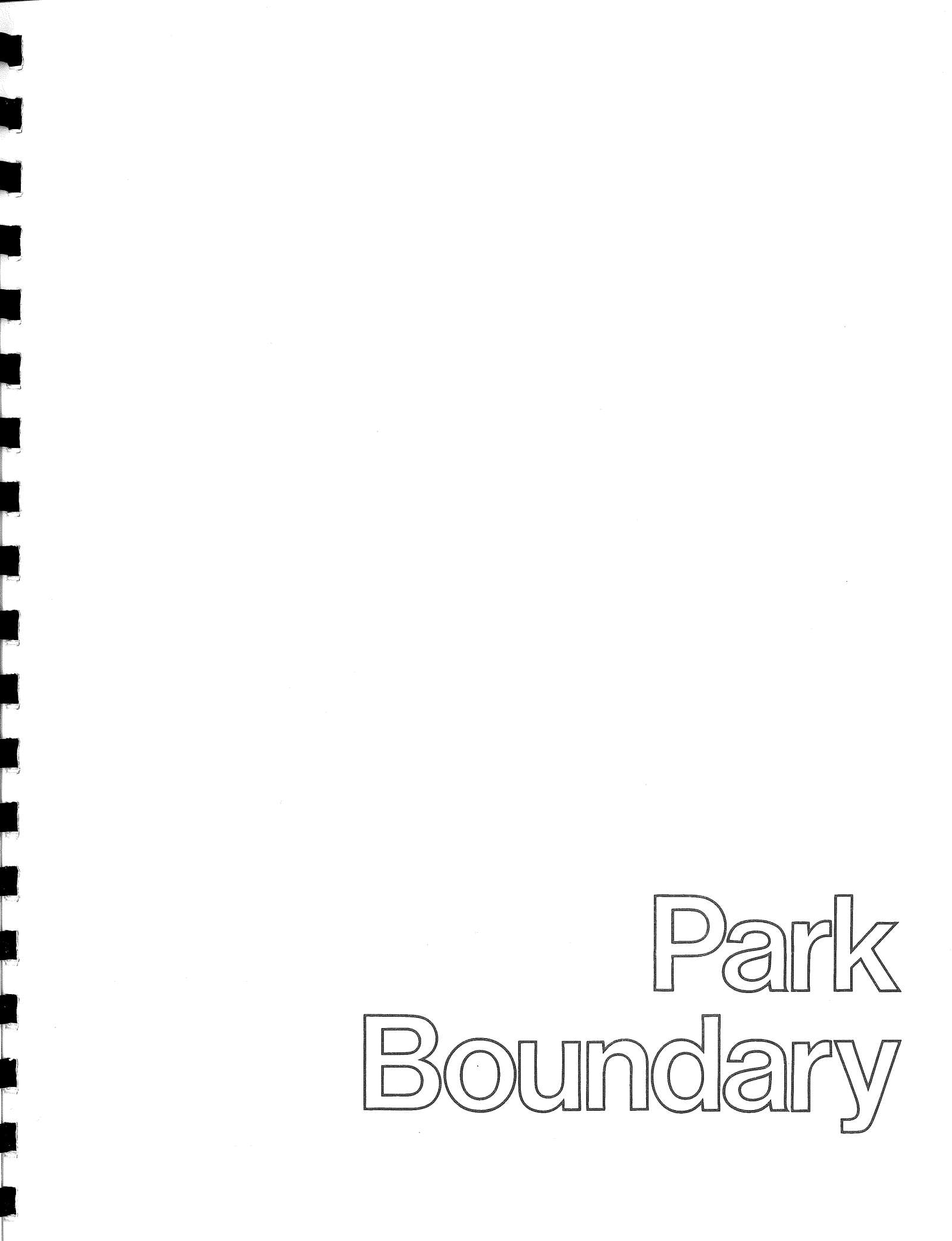
PROPOSED DEVELOPMENT (see map, p 37)

Action	Phase 1	Phase 2	Phase 3	Phase 4	5	Total
Research						
1 Sewage system study.	DNR, Bureau of Engineering					
2 Water system study.	DNR, Bureau of Engineering					
3 Archaeological study.	DNR, Bureau of Engineering					
Roads						
4 Redesign and relocate park entrance road.			$105,000			$105,000
5 Provide access to new park facilities.		$ 75,000				75,000

Action	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Total
Camping						
6 Rehabilitate existing campground.			$ 44,000			$ 44,000
7 Obliterate unused campsites.			2,000			2,000
8 Winterize water system.	Contingent upon DNR, Bureau of Engineering Study					
9 Develop a primitive campground.		$ 88,000				88,000
10 Develop walk-in campsites.		5,000	10,000			15,000
11 Develop three group campsites.			20,000			20,000
Picnicking						
12 Convert 1/3 of campground to a picnic area.			5,000			5,000
13 Provide walk-in picnic sites along Lake Superior.		5,000				5,000
Trails						
14 Develop a snowmobile trail alignment from TH 61 to the Pike Lake road.	$ 2,500					2,500
15 Redesign and expand hiking/skiing trail system.	20,000					20,000
16 Rebuild trails between trail center and existing river bridge.	5,000					5,000
17 Develop connecting trails to the North Shore State Trail.		DNR, Trails and Waterways				
18 Construct additional bridge over Cascade River.		75,000				75,000
19 Construct two trail bridges over Cascade Creek.		40,000				40,000

Action	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Total
20 Construct small bridges over intermittant streams.		$ 5,000				$ 5,000
21 Develop signing system.	$ 3,000					3,000
Water Activities						
22 Develop small carry-in boat landing.	DNR, Section of Fisheries					
Administrative/Support Facilities						
23 Construct contact station/park office.			$115,000			115,000
24 Complete service area buildings.	32,000			$ 60,000		92,000
25 Pave service area.				25,000		25,000
23 Remodel manager's residence.	8,000					8,000
24 Construct 2-car garage for manager's residence.	13,000					13,000
25 Landscape service area and manager's residence - includes oblitering existing entrance.			10,000	5,000		15,000
Visitor Services						
26 Expand interpretive program at trail center.	5,000					5,000
27 Develop self-guided interpretive trail system.	5,000					5,000
Physical Development Total	$ 93,500	$293,000	$311,000	$ 90,000		$787,500




Park
Boundary

BOUNDARY MODIFICATION

Major boundary changes are proposed for Cascade. The Boundary Adjustments Map and the Ownership Map, pp 39-41 illustrate the following proposals:

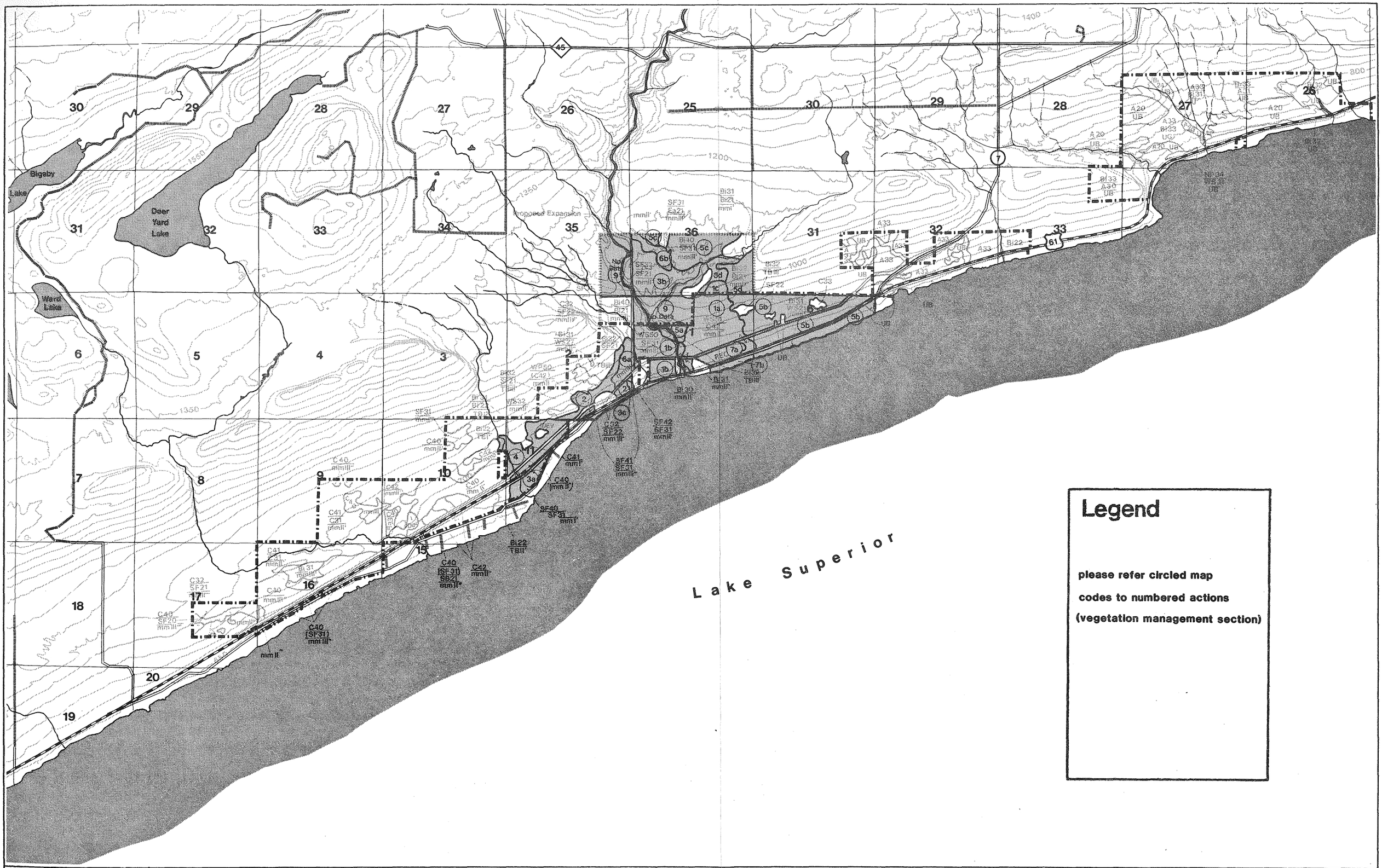
Parcel #1 - Add to the statutory boundary. This area is proposed for addition in order to increase the amount of river in the park by 3/4 mile. It would also add an area for the proposed primitive campground. It is primarily trust fund land and will not be added to the park boundary until the divisions of Forestry and Parks and Recreation agree on a system of reimbursing the school district.

Parcel #2 - This area will not be added to the park. It should be managed to protect the scenic quality of Lookout Mountain and the Cascade gorge under the cooperative management of the Cascade Management Area.

Parcels #3 and #4 - Delete from the statutory boundary. These areas are proposed as scientific and natural areas and are being deleted so a specific management plan can be developed. This area is called Thompsonite Beach and is the only area in the world where a large rock outcropping containing the semi-precious gem Thompsonite can be found. (Thompsonite of lower quality is found in several places throughout the world.) The proposed plan for this area will include a plan dealing specifically with amateur rock hounding, a practice not legal in state parks.

Parcel #5 - Delete from the statutory boundary. This area is known as the Good Harbor Bay. It has no real park value since it is so far removed from the main portion of the park. This area has been identified in the North Shore Recreation Study (DNR, 1978) as a suitable site for a class II highway rest area. The US Forest Service (USFS) has also expressed interest in finding a site west of Grand Marais to locate a Boundary Waters Canoe Area (BWCA) permit station to relieve congestion at the Gunflint District Ranger Station. A portion of this site will be offered to the Mn/DOT for a rest area. If they choose not to develop a rest area, it will be offered to the USFS in exchange for other USFS land. If neither the Mn/DOT or the USFS wants the site, it will continue to be administered by the DNR as wildlife land.

Maps



Legend

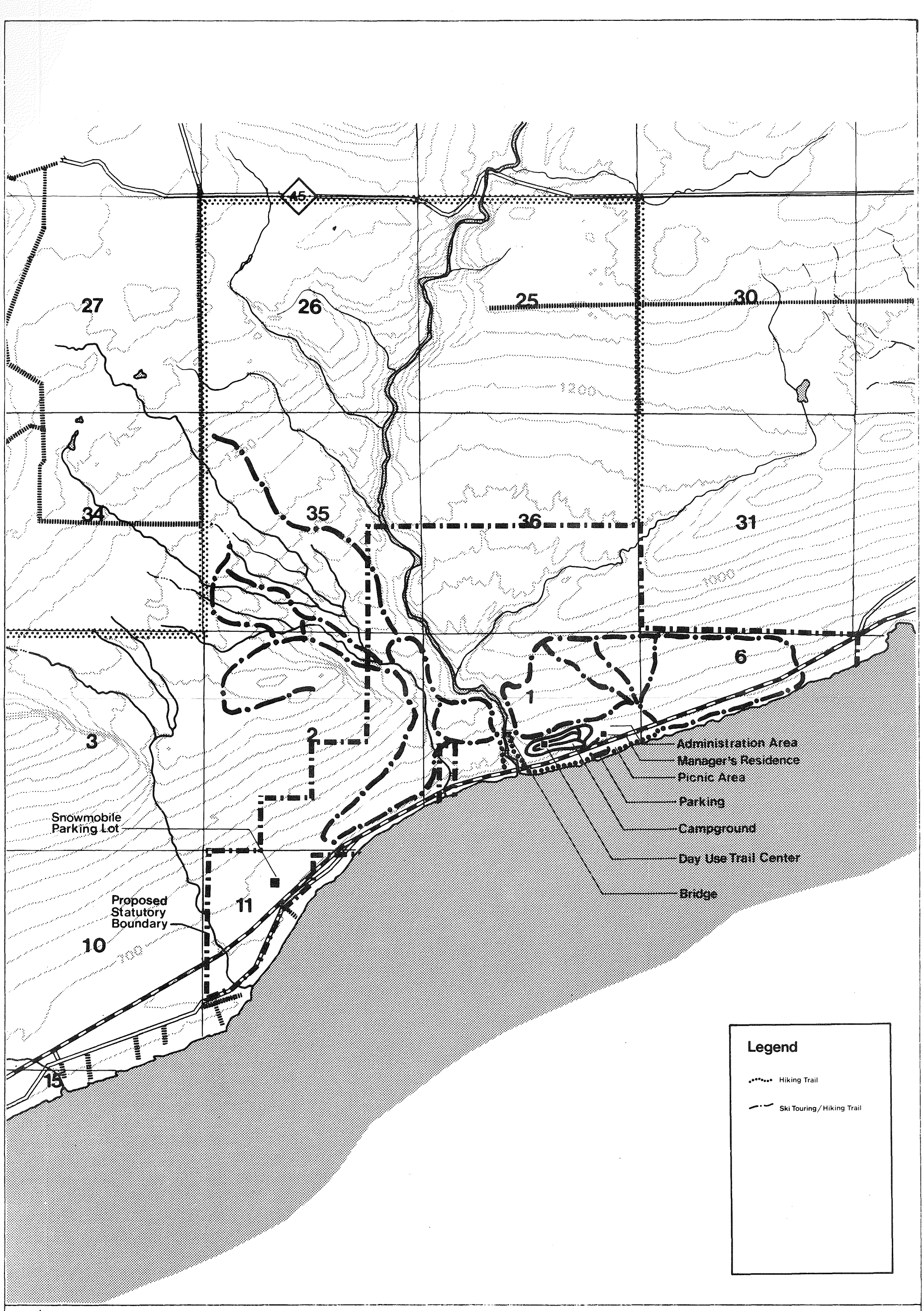
please refer circled map codes to numbered actions (vegetation management section)

Cascade River State Park

Vegetation Management

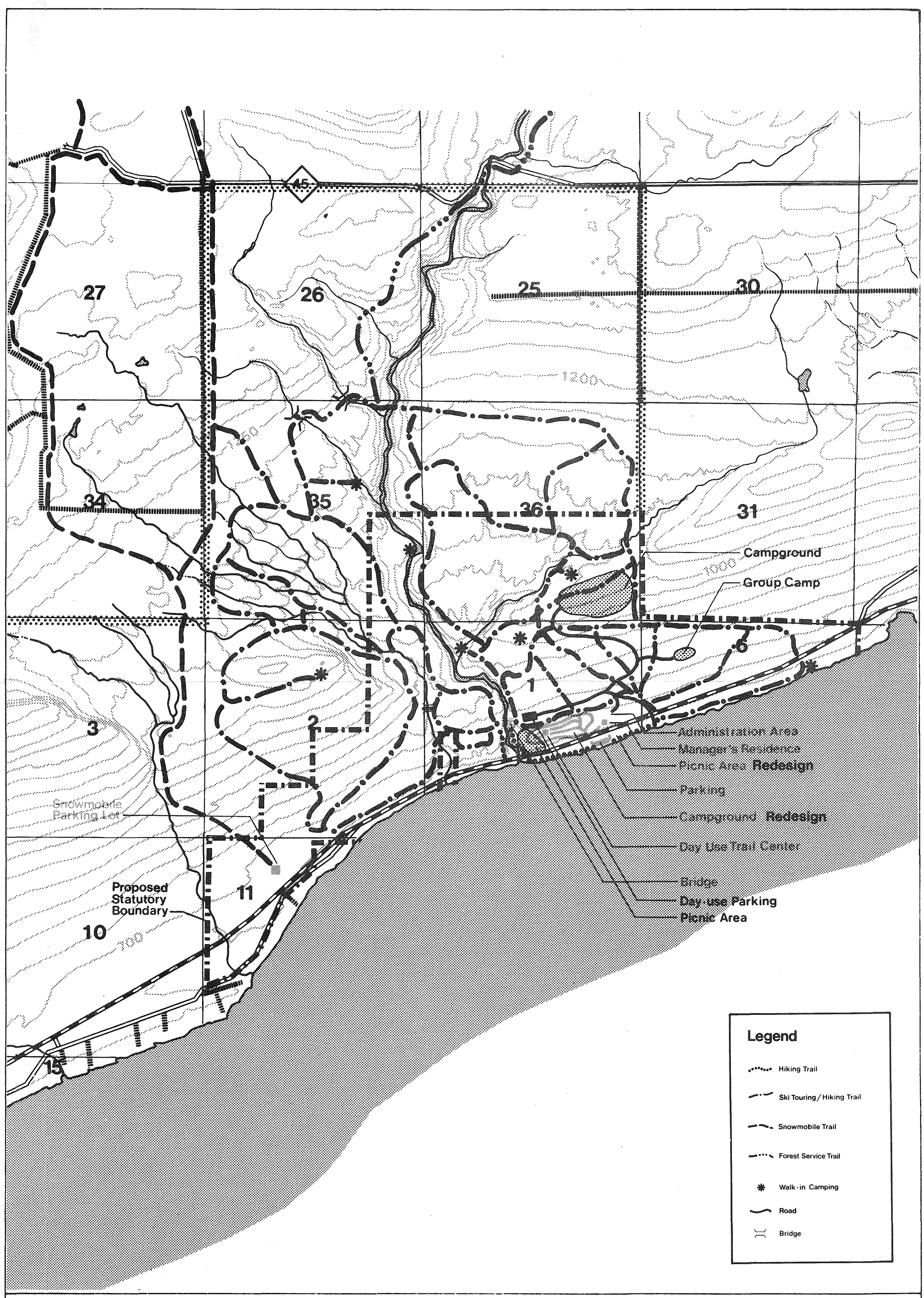
N

0 500' 1/4mi. 1/2mi. 1mi.
Miles
Kilometers
0 500m 1km



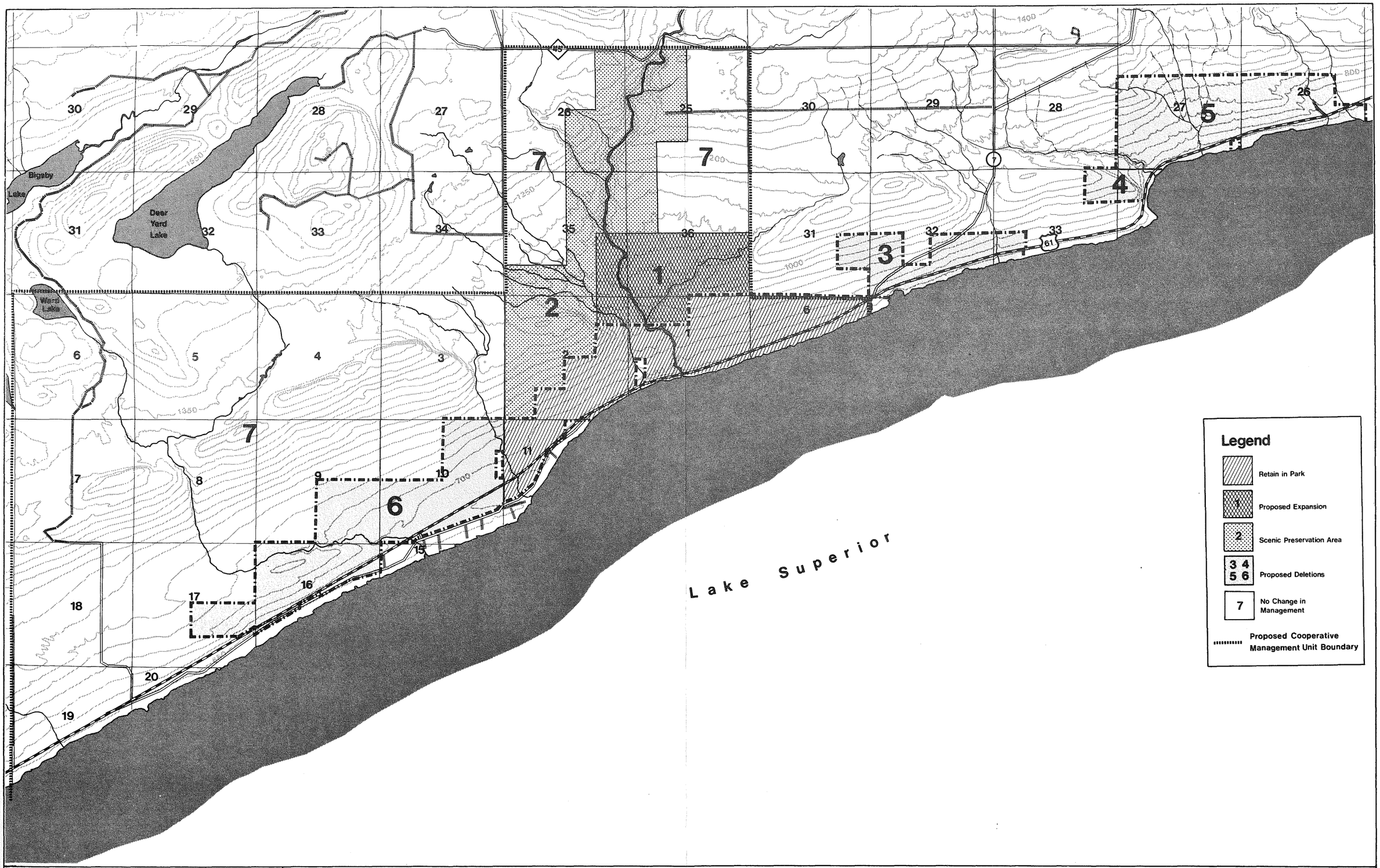
Cascade River State Park

Existing Trails & Development



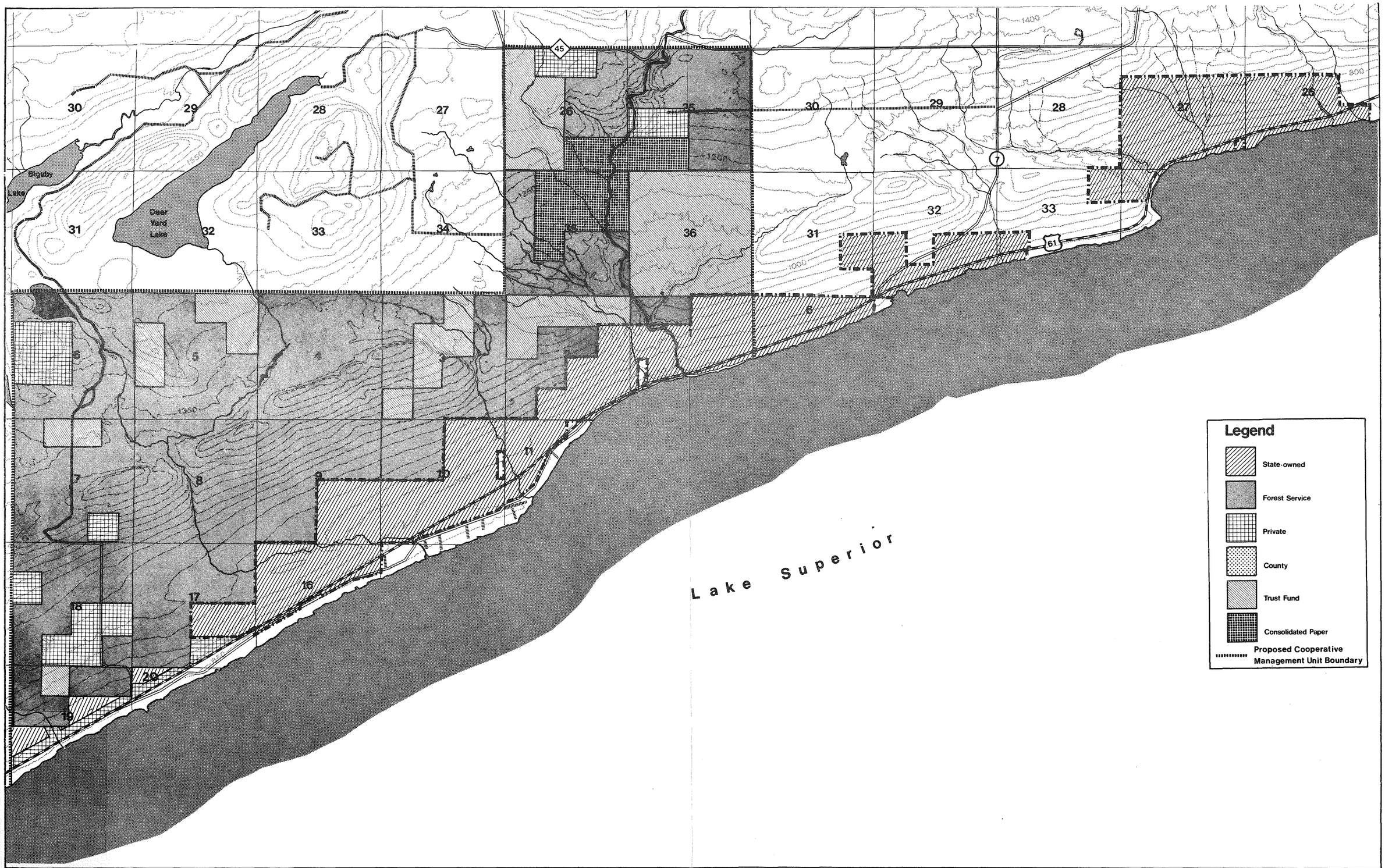
Cascade River State Park

Proposed Trails & Development



Cascade River State Park

Boundary Adjustments



Cascade River State Park | Ownership