A Self-guided Interpretation System for the Riding Mountain Parkway Corridor, Riding Mountain National Park.

A Practicum submitted to the Faculty of Graduate Studies in partial fulfillment of the requirements for the degree of Master of Landscape Architecture.

by
Keith B. Koroluk

Department of Landscape Architecture
University of Manitoba
Winnipeg, Manitoba
September, 1981.

abstract

Self-guided interpretive tours, on-site exhibits, and interpretive trails in national parks offer valuable opportunities for Canadians to experience, understand, and enjoy their natural heritage.

The basic concept being developed for the parkway corridor in Riding Mountain National Park is that all aspects of interpretation should be considered as parts of a system. The goal of the proposed interpretation system is to provide park visitors with at least a "threshold park experience" by showing the interrelatedness of various park ecosystems, as well as the historical significance of man's activities and attitudes toward the park landscape. In order to achieve this goal, smaller scale resources within the parkway corridor are related to the broader interpretive themes for the park as a whole.

An important outcome of this study has been the development of detailed design proposals for the 'Boreal Island' interpretive exhibit located at mile 21 on the Riding Mountain Parkway. Through careful consideration of siting, scale, access, and visitor use patterns, the design attempts to take advantage of a previously disturbed site and provide a high quality interpretive experience. In order to guide the development of future interpretive facilities within the parkway corridor, a series of development guidelines have been established. The intent of the guidelines is to identify various environmental, visual, and interpretive criteria that will be useful to interpretive planning teams in the understanding and application of some of the basic principles used in the site planning and design process.

acknowledgements

This practicum has been prepared in conjunction with my work as a volunteer (benevole) in Riding Mountain National Park. I would like to acknowledge the financial assistance provided through the Parks Canada Volunteer Program, and the opportunity of working with the Park Naturalists and members of the Boreal Island Exhibit planning team. I would like to give special thanks to Mr. Randy Mitchell, Superintendent of Riding Mountain National Park, and to Mr. Celes Davar, Chief Park Naturalist. Special thanks are also extended to those individuals in the Interpretation Division and the Engineering and Architecture Section of Parks Canada, Prairie Regional Office, who supplied valuable resource material and time.

I would also like to thank my advisors within the Department of Landscape Architecture at the University of Manitoba - Professor Charles H. Thomsen and Professor Carl R. Nelson Jr. - for their perceptive and constructive criticism.

Finally, I wish to thank my family and friends for their continued support and encouragement. Thanks Mom.

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1. INTRODUCTION

1.1 Background

Riding Mountain National Park is a richly varied mosaic of central Canadian environments; remnant grasslands and boreal bogs, aspen woodlands and coniferous forests, eastern deciduous forests of maple, oak and elm, and open-grown white spruce in grassy clearings. It includes the expanse of deep water of Clear Lake and the pattern of shallow ponds, wet meadows and aspen forests that comprise the prairie pothole country. Being near the centre of North America, it is a meeting place for biological elements representative of many parts of the continent; boreal forest and moose from the north, grasslands and badgers from the southwest, and deciduous forests and grey squirrels from the southeast.

Riding Mountain National Park is also a prairie mountain that adds dramatic topography to the level expanse of the interior plains. Situated on a rolling plateau that forms part of the Manitoba Escarpment, it has been shaped and moulded by the ice of glaciers and the flowing of water. In Riding Mountain, the escarpment rises abruptly for more than 400 metres. Because the horse was the easiest means of penetrating the rugged highlands, early traders and travellers adopted the name "Riding Mountain", and later settlement patterns developed on the fertile plain at the base of the escarpment.

Today, Riding Mountain National Park is an island of wildness in a sea of man-altered environments. Although it is 2978 square kilometres in extent, it is completely surrounded by agricultural lands. Due to the higher elevation of the Manitoba Escarpment, the area experiences colder winters and a much wider annual temperature range than most other areas of similiar latitude. The park also contains a smaller island of boreal forest on the exposed heights of the escarpment, encircled by the plants and animals of the warmer growing environments of its lower elevations.

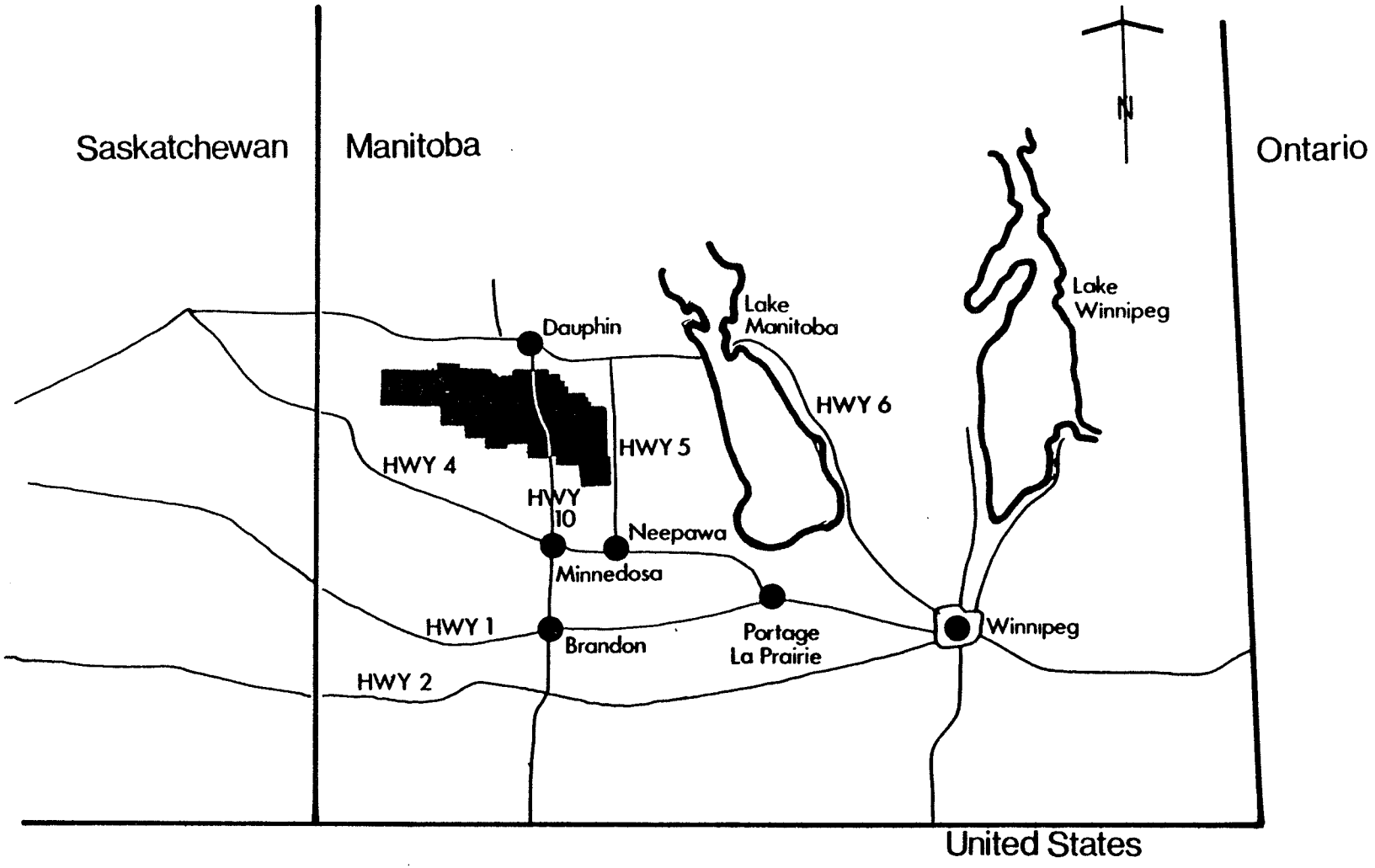


Figure 1. Riding Mountain National Park, Regional Context.

Source: Riding Mountain National Park Interpretive Plan

Riding Mountain National Park is located in west-central Manitoba, 260 kilometres northwest of Winnipeg, and 100 kilometres north of Brandon. It is easily accessible by public and private transportation, and the majority of visitors travel to the park via No. 10 Highway from either the Trans-Canada Highway (100 kilometres south) or the Yellowhead Route (50 kilometres south). Over one million people live within a 500 kilometre radius of the park.

The existing development pattern in Riding Mountain National Park reflects the fact that an original objective of the park was to provide a wide variety of outdoor recreational opportunities for park visitors within the context of a natural environment. The high potential of Clear Lake in conjunction with the numerous urban-oriented recreational facilities available in the Wasagaming townsite has led to a concentration of development there. The more inherent values of the park, such as the wild backcountry and wildlife viewing opportunities, have become apparent to park visitors only relatively recently.

The approved Master Plan for Riding Mountain National Park (1977) has established a broad conceptual framework for the operation and management of the park over the next ten to fifteen years. Besides providing zoning information for various areas, the Master Plan also indicates a conceptual trail circulation system, and the location of specific facilities. For example, the escarpment area bounded by the Riding Mountain Parkway and Highway 19 was identified as an integral unit within the park, and a more detailed area plan was prepared for it. This information which is presented in Figure 2, shows an escarpment trail aligned northwest-southeast with two additional trail systems paralleling Highways 19 and 10. A number of on-site interpretive exhibits and other facilities are also proposed, the conceptual locations of which are shown in Figure 2.

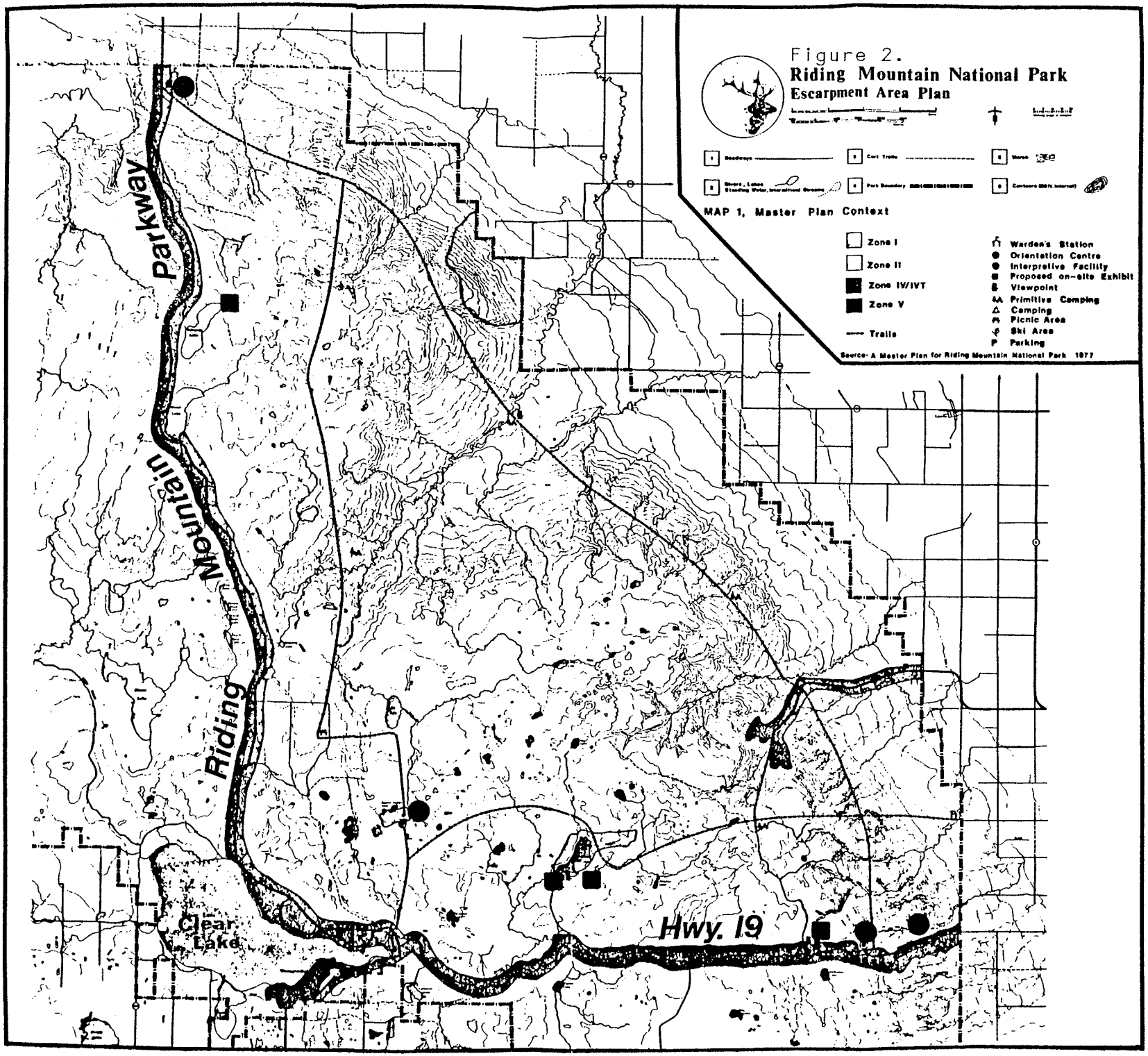


Figure 2.
Riding Mountain National Park
Escarpment Area Plan
MAP 1, Master Plan Context
Zone I
Zone II
Zone IV/IVT
Zone V
Trails
Warden's Station
Orientation Centre
Interpretive Facility
Proposed on-site Exhibit
Viewpoint
Primitive Camping
Camping
Picnic Area
Ski Area
Parking
Source: A Master Plan for Riding Mountain National Park 1977
Parkway
Mountain
Riding
Clear
Lake
Hwy. 19

1.2 Study Area

The unit of the park included within this study is the Riding Mountain Parkway, a corridor zone approximately 1200 metres (4000 feet) wide X 54.2 kilometres (33.7 miles) long, extending along the existing No. 10 Highway and bounded at either end by the north and south park boundaries.

This area was selected for study following consultation with Parks Interpretive Staff, and was chosen because of the priority attached to this unit by the Interpretive Plan, and the number of facilities planned in conjunction with the Riding Mountain Parkway.

The Riding Mountain Parkway will continue to serve as a major corridor for various aspects of park appreciation, and a notable opportunity which exists along this road is the development of a 'Boreal Island Theme' on-site interpretive exhibit to provide opportunities for park visitors to learn about the boreal resources of the park through personal contact and park-sponsored interpretation programs. Although the Boreal Island theme has been identified as a major topic for interpretation within the parkway corridor, the linkages and relationships to existing interpretive facilities along the route will also be considered as the basis for a self-guided interpretation system that best reveals the nature and structure of the park landscape.

1.3 Study Objectives

The fundamental goal toward which this study is directed is an integrated system which provides park visitors with the optimum volume and variety of overall benefits to be derived from environmental interpretation. Ancillary to this is the development of an understanding of the ecological processes which affect the study area, the historical significance of man's activities including resource extraction and agricultural land uses, and the current visitor use, characteristics and preferences with regard to existing interpretive facilities. The study involves three specific objectives which relate to these goals.

i) To develop a rational planning framework for a self-guided interpretation system in conjunction with the Riding Mountain Parkway.

ii) To establish an environmental analysis methodology for site selection and to provide detailed design proposals for the 'Boreal Island' on-site interpretive exhibit.

iii) To establish practical guidelines that will be useful to interpretive planning teams in the understanding and application of some of the basic principles used in the site planning and design process.

1.4 Methodology

In response to the importance and complexity of the proposed Parkway Corridor Interpretation System and the particular requirements of the Boreal Island Exhibit, care was taken to establish a methodology which is sound, logical and sequential. The methodology set out in the original project proposal attempts to meet these requirements by focusing on seven key elements. These elements include data and site review; data update; preliminary concept plan; input; Boreal Island Exhibit Plan preparation; Parkway Corridor Plan; and development guidelines.

i) Data and Site Review

The initial task of this study was to review previous and related planning reports within the context of Riding Mountain National Park, and to identify those resource mapping techniques and criteria upon which a number of interpretive concepts have been defined. For example, the Interpretive Plan for Riding Mountain National Park (1977) has identified twenty interpretive units within the park by the use of overlay mappings of the most significant park resources such as wildlife distributions and vegetation types, and mappings of other classifications such as landscape types, visitor use patterns, topography, and watershed boundaries. Close attention was paid to the particular interpretive units within the parkway corridor and their relationship to the major interpretive themes expressed in the Interpretive Plan. Other data including Parks Canada Policy, the Riding Mountain National Park Master Plan (1977), the Escarpment Area Plan (1974), the Riding Mountain Parkway Biophysical Inventory and Visual Analysis Study (1974), research reports, related case studies, and other relevant data was also carefully considered in this initial phase.

ii) Data Update

At present, interpretive work in Riding Mountain National Park is centred on the Riding Mountain Parkway where it intersects the Agassiz, Notches and Headwaters interpretive units. In consultation with Parks Interpretive Staff, the Headwaters unit was identified as a priority for interpretation within the park, and terms of reference for the 'Boreal Island' on-site exhibit were prepared and reviewed.

Five potential sites were considered for the Boreal Island Exhibit and an environmental analysis methodology was developed to select the most suitable location. Issues considered in the site selection process included the proximity to existing interpretive facilities, representative flora, 'Headwaters' value, environmental impact, reclamation required, visitor accessibility, safety, and the relationship to the Riding Mountain Parkway.

Upon selection of the site for the Boreal Island Exhibit, detailed base maps were prepared for the project area. This involved air-photo interpretation and photo enlargement at 1:500 scale to establish the locations of all surface features including the locations and species of trees, water courses, and general topography. On-site surveys and measurements were conducted to confirm base map information, which formed the basis of final site development plans. A thorough site analysis was also conducted during this phase to determine vegetation types, soils, landform and drainage features, and other relevant site data.

iii) Preliminary Concept Plan

On the basis of site surveys and site analysis, plans and sketches were prepared to illustrate various components of the overall layout of the Boreal Island Exhibit. Alternative schemes were prepared to show design intent, materials to be used in construction, and preliminary cost estimates. Issues considered in the site layout include environmental impact, management, Parkway access (sight lines), parking, circulation, site graphics and interpretive information, and the visitor experience.

iv) Input

Throughout the site selection and site design process, input from Parks Staff and designated members of the planning team was facilitated by means of an on-going review process. This involved planning and design workshops with Parks Interpretive Staff, and presentation to the Park Superintendent and members of the practicum committee to discuss design alternatives and to facilitate decisions regarding the best 'fit' in any particular situation. The end result of this process of review, refinement, and integration was the final site development plan.

v) Boreal Island Exhibit Development Plan

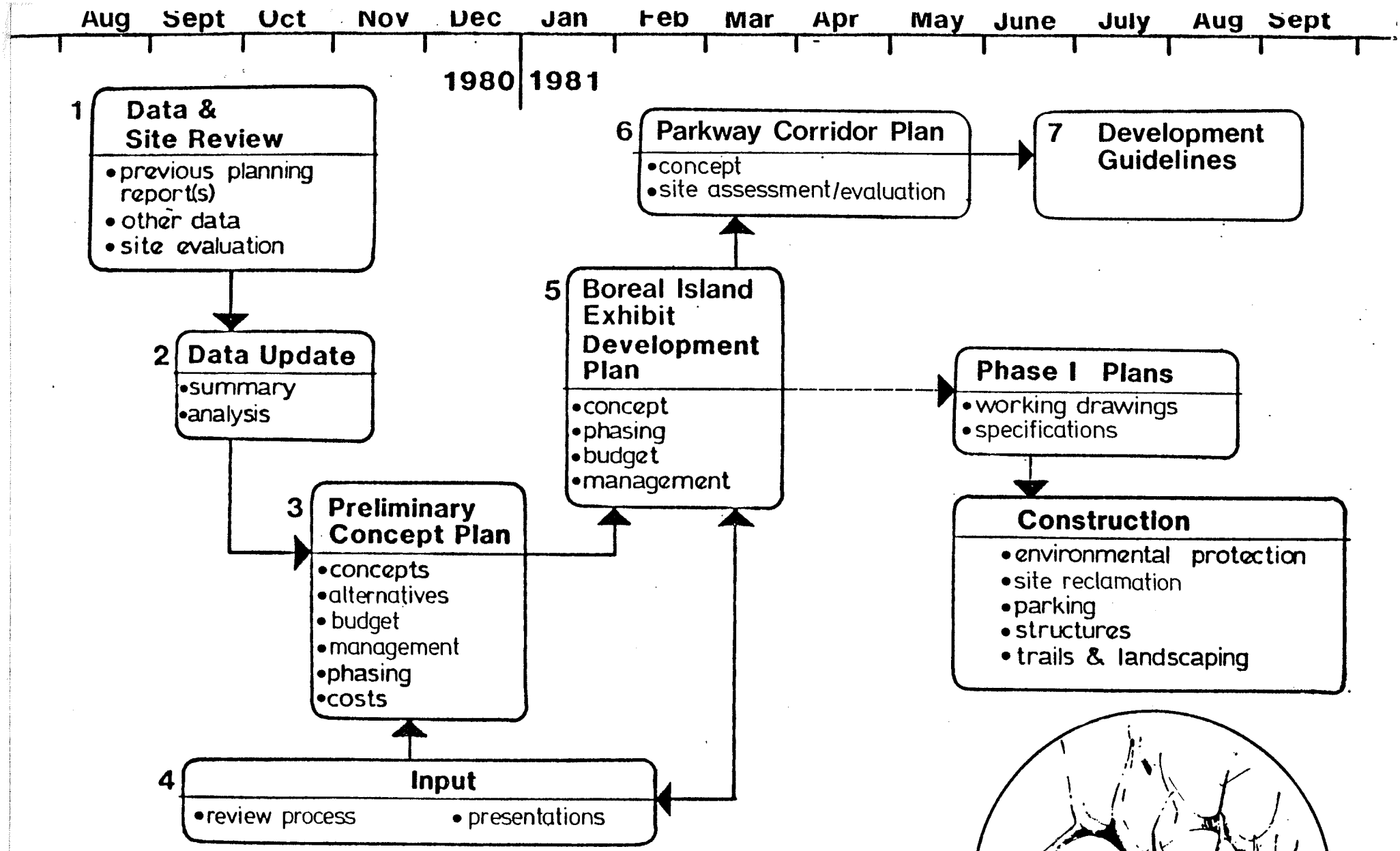
Upon approval of the preliminary concept plan, a design development plan was prepared to illustrate the overall layout of the project complete with project budget and supporting documentation.

vi) Parkway Corridor Plan

Concurrent with the development of detailed design proposals for the Boreal Island Exhibit was the formulation of a combined interpretive unit plan which encompasses the entire parkway corridor. This involved the definition of unifying themes and the reassessment of all existing and potential sites within the corridor. The proposed Parkway Corridor Interpretation System employs a range of means and interpretive media with emphasis on self-guided tours and activity packages as part of a specifically designed experience.

vii) Development Guidelines

In order to guide implementation of interpretive facilities and trails within the context of the Parkway Corridor Plan, a series of development guidelines have been established. The intent of the guidelines is to identify various environmental, visual, and interpretive criteria that will be useful to interpretive planning teams in the understanding and application of some basic principles used in the site planning and site design process.



METHODOLOGY

RIDING MOUNTAIN NATIONAL PARK
PARKWAY CORRIDOR INTERPRETATION SYSTEM

Figure 3. Activity Flow Diagram

2. THE INTERPRETIVE PROCESS

If one can view the biosphere as a single microorganism, then the Naturalist considers that man is an enzyme capable of its regulation, and conscious of it. He is of the system and entirely dependent upon it, but has the responsibility for management derived from his apperception. This is his role - steward of the biosphere and its consciousness.

Ian L. McHarg, Design with Nature.

2.1 Interpretation in National Parks

While there have always been activities in parks and reserves which generally relate to interpretation, the concept of interpretation as currently understood is relatively new. The first large scale interpretive programs were established in the United States in 1916 when the U.S. National Parks Service established an education section. In the early years of the U.S. National Park Service, "education" was both the word used and the objective, in terms of imparting information and enlarging the knowledge of park visitors. Later, although no precise date can be established, the U.S. National Park Service turned more and more to the word and concept of "interpretation" as expressed by Freeman Tilden in his book Interpreting Our Heritage (1957).[2] Tilden's position is that the chief aim of interpretation is "not instruction, but provocation"; and he defines it terms of an educational activity which aims to reveal meaning and relationships through the use of original objects, by first hand experience, and by illustrative media, rather than simply to communicate factual information.

Tilden's definition has since come to be regarded as a classic, and serves as the basis for most interpretation programs operating in North America today. In Canada, it was not until the 1940's that the province of Ontario began the first officially organized interpretation program. This was followed by British Columbia in the 1960's,[3] and the federal National Parks Branch in the early 1960's.[4] In Riding Mountain National Park, a park interpretation service supervised by a park naturalist was not established until 1965.

2.2 Parks Canada Policy

In 1930 the Parliament of Canada approved the National Parks Act. The Act provided legislative protection for national park lands and clarified that these places were to be used by the public so as to leave them unimpaired.

Section 4 of the Act stated:
The Parks are hereby dedicated to the people of Canada for their benefit, education and enjoyment... .

Aside from introducing the word "education", the statement does not clarify what the aims of education should be. This lack of direction by the legislators reflected a general feeling of the time that parks were primarily "pleasure grounds" and not places that contained much of an element of the classroom. For almost thirty years (1930-1960) there was little specific effort to educate the public who visited national parks in Canada.[5]

During the 1960's, Canadians became more aware of their natural environment and developed a renewed interest in land conservation. The numbers of visitors to national parks increased sharply, leading to a growing concern about park protection and appropriate use. As a result, policies were prepared and issued for national parks in 1964. This long-awaited statement reflected changing times; greater emphasis was placed on protection of natural and historic resources, interpretation and educational activities, and professional planning.[6]

The educational role of national parks is considered in Section 8 (Education and Interpretation) of the 1964 policy:

1. Educating the public in the purposes of national parks and how to use, know and enjoy them is recognized as one of our basic purposes.

2. Interpretive services and qualified naturalists are essential to encourage and assist the public to understand, appreciate and enjoy all forms of nature which are preserved in these sanctuaries.

3. Education and interpretation will involve planned and coordinated use of various aids, such as publications, photographs, special structures, etc., and the assistance of wardens and others.

4. Museums where desirable should exemplify and illustrate natural history and historical values directly related to the park and its purposes. Museums should be provided and administered by the Department.

The 1964 policy statement makes it clear that the educational role of national parks was interpreted in a relatively narrow sense by the National and Historic Parks Branch. The first item of policy refers to *educating the public in the purposes of national parks and how to use, know and enjoy them...* . Since many urban Canadians now know and appreciate the value of national parks, what is required is to provide park visitors with an opportunity to experience their natural heritage so that they can relate to and understand the challenges of conserving that heritage. Given these opportunities, people will be in a much better position to work out their own attitudes to conservation generally, and on the problems of wanting, simultaneously, the benefits of both conservation and economic progress.[7]

The current Parks Canada Policy (1979) does address these broader educational objectives, and offers guidance for planning and management of each park. It also provides the framework for the development of more specific and more detailed policies which will guide the day-to-day efforts of Parks Canada personnel.[8]

Section 4.0 (Public Understanding, Appreciation and Enjoyment of National Parks) states:

In responding to visitor needs for services, facilities and outdoor recreation activities, Parks Canada must act with care and imagination. All Canadians have a right to appreciate their natural heritage but the means of doing so and the facilities provided will depend on the sensitivity of the environment to human impact. National parks offer rare and outstanding opportunities to experience and learn about the natural environment in a wilderness setting. They cannot, however, provide for every kind of use requested by the public. Because national parks are dedicated to future as well as present generations, impairment by overuse, improper use and inappropriate development must be avoided. As a general guideline, simplicity in facilities and self-reliance on the part of visitors will be encouraged.

Parks Canada also has the responsibility to inform the Canadian public about their national parks and to provide programs which encourage a better understanding of these natural areas of Canadian significance. Co-operative action with many agencies, groups and citizens concerned about national parks can supplement Parks Canada's own efforts to increase public awareness of national parks objectives and issues. In these ways, public support and wise use, which are necessary for continuing protection of national parks, may be achieved.

Section 4.2 (Information and Interpretation) further states:

4.2.1 Accurate information about national parks will be made available to all Canadians as well as to park visitors so as to encourage and assist them to appreciate and enjoy national parks.

4.2.2 Parks Canada will provide information to make visitors aware of the opportunities for understanding, appreciation and enjoyment of a national park, such as programs, facilities and services available, relevant regulations and necessary skills and equipment.

4.2.3 Parks Canada will present accurate on-site interpretation programs which will promote understanding and appreciation of the park's natural, cultural and historical values and which will develop an awareness of man's relationship to and dependence on the natural environment.

Given the challenge of wise use and preservation of our natural resources, the current Parks Canada policy is clear. National parks must provide opportunities for Canadians to experience, understand and enjoy their natural heritage, and to develop an awareness of man's place in nature.

2.3 The Riding Mountain National Park Interpretive Plan

The interpretive plan for Riding Mountain National Park (1977) is a comprehensive statement of the direction which the interpretation program should follow in order to attain the broad goals of the park and of the national parks system as a whole. These broad goals involve the preservation of the natural environments in a relatively unaltered condition and the provision of a range of opportunities to enjoy the recreational, educational and less tangible benefits of experiencing those environments.[9]

Twenty interpretive units have been defined within the park by the use of overlay mappings of the most significant park resources such as wildlife distributions and vegetation types, and mappings of certain other classifications such as landscape types, visitor use patterns, topography, and watershed boundaries.

When these units were analyzed to determine their relevance to major interpretive topics, their relative accessibility, their general attractiveness, and their national significance, six areas of the park were ranked most highly. These included the Birdtail Valley, the prairie pothole terrain between the south boundary and Whitewater Lake and Lake Audy, the grasslands of the Lake Audy Plain and the Strathclair Trail, and a large unit of land in the east-central portion of the park that includes most of the Riding Mountain Parkway and two units comprised by the steepest slopes of the escarpment. These units, which are shown in Figure 4, are to receive the first priority with regard to more detailed individual unit planning.[10]

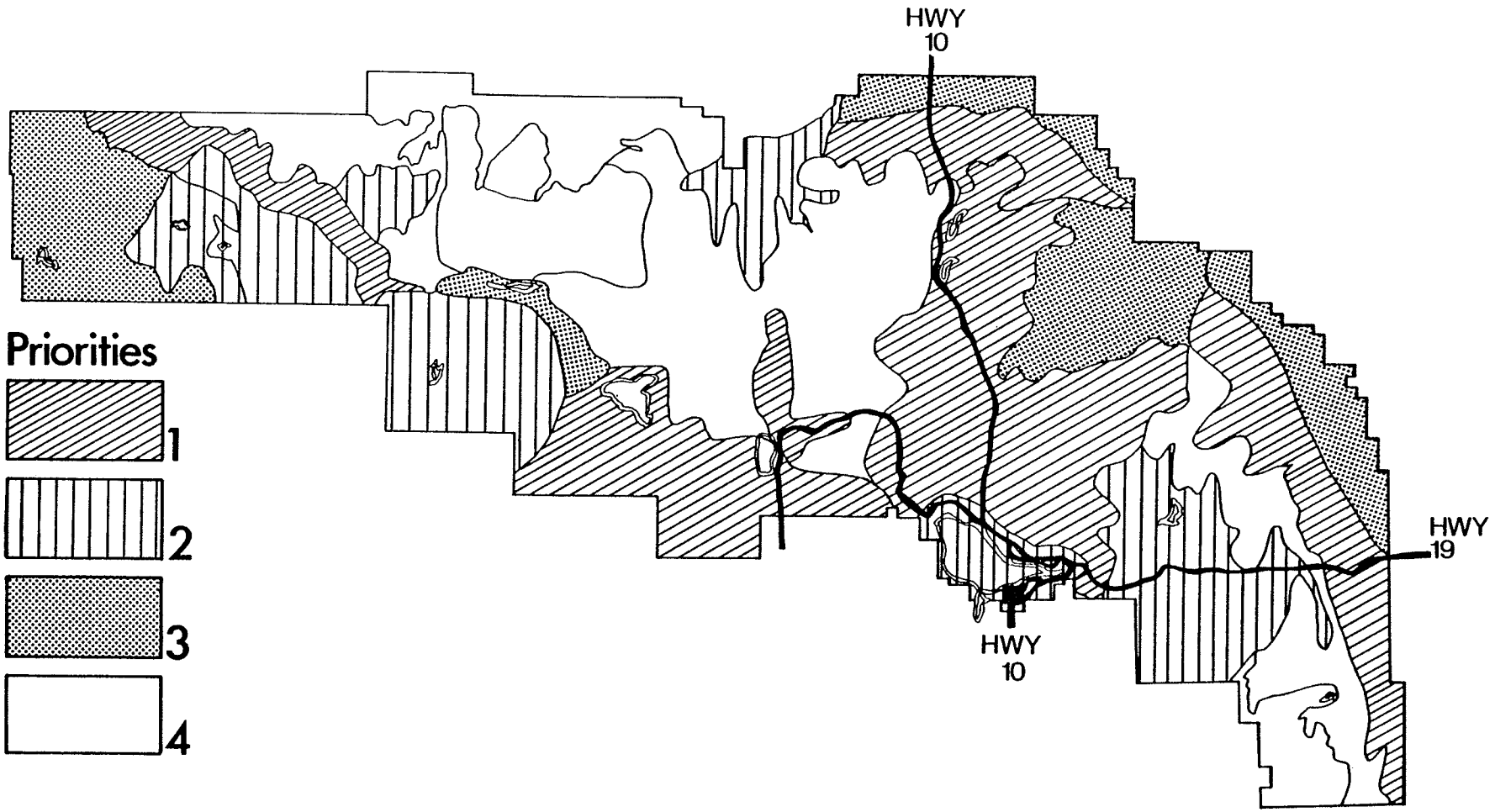


Figure 4. Overall Relevance of the Interpretive Units.

Source: Riding Mountain National Park Interpretive Plan

The Interpretive Plan has also organized the basic resource data for the park into seven major interpretive message topics, which in turn have been broken down into thirty-one constituent ideas. The seven major interpretive topics are as follows:

i) The Manitoba Escarpment.

ii) The Prairie Pothole Terrain.

iii) The Conjunction of Eastern, Western and Northern Flora and Fauna Types in the Park.

* iv) The Boreal Island.

vi) Glaciation.

vii) The Park as an Island of Natural Environments in a Man-Altered Landscape.

2.4 The Park Visitor

The communication of interpretive messages to park visitors is most effective when those messages and the means of communicating them are tailored to fit the activity patterns of the various park users as closely as possible.[11] A knowledge of park visitor characteristics such as the length of their visit, their distribution in the park, their place of origin, and the nature of the personal goals they have set for their park visit, are important in the selection of effective interpretive media.

The length of time visitors spend in the park ranges from several months spent by the few summer residents of Wasagaming to the portion of one day spent by day users. Between these two extremes are cottagers and owners of portable cabins who probably spend a total of many weeks in the park, and campers and visitors using commercial accomodations who may spend a few days to a few weeks in the park. Peaks of activity amoung summer users occur on weekends during the months of June, July, August and September. Most of the relatively small but steadily increasing number of winter park users are day users only. Attendance during the winter is strongly weekend oriented.[12]

With regard to the general distribution of users, it is clear that Wasagaming attracts a very large proportion of the whole population of park visitors most of whom do not travel far from the townsite once they arrive. The Lake Katherine Campground is the most important activity site outside the Clear Lake area, while campgrounds at Moon Lake, Whirlpool Lake, Deep Lake and Lake Audy are less important. The Riding Mountain Parkway is the busiest road in the park, but much of the activity on it consists of through traffic.[13]

A very large percentage of park visitors are Manitobans from major urban centres such as Winnipeg, Brandon, Dauphin, and Portage La Prairie. Although there appears to be a trend away from strictly regional use of the park, the number of visitors from other parts of Canada and the United States only represents about twenty percent of the total number of visitors.[14] Although local visitors may, through repeated exposure become familiar with park resources and interpretive facilities, non-local visitors may know virtually nothing about the park, and will require some fundamental information and orientation at park entry points.

Visitors who camp at locations in the park other than Wasagaming, for example, Moon Lake, Lake Audy or Lake Katherine are most frequently interested in fishing. However, visitors who tend to view the camping experience as an end in itself rather than a means to some other activity would also camp outside of the Clear Lake area. They are probably more inclined to participate in activities such as hiking and nature study and are more likely seeking a natural park experience rather than one attainable by making use of the more urban-oriented facilities at Wasagaming.[15]

Large numbers of regional school groups use the park, especially during the spring and summer. These educational users, whether they are day users or campers, are usually strongly oriented towards some form of natural history education and usually seek out interpretation. This type of user may at times overburden the park interpretive staff because of the time and manpower that must be expended to meet its demands.[16]

2.5 The Interpretive Media

Interpretive media are traditionally divided into two categories:

a) personal (guided) services
b) nonpersonal (self-guided) services

a) Through personal or guided services, the visitor comes into direct contact with the interpretive specialist or naturalist through the medium of (1) information duty, (2) conducted activities, (3) talks to groups, or (4) living interpretation and cultural demonstrations.[17]

b) Through nonpersonal or self-guided services, the visitor comes into contact with the interpretive specialist or naturalist only peripherally, if at all. Instead the visitor is informed by a variety of interpretive techniques including audio devices, signs, written material, publications, and self-guided activities such as auto tours, on-site exhibits, and interpretive trails. These self-guided media are important interpretive services with numerous advantages and, of course, some disadvantages. They should be considered not as a replacement for personal contact, but as means of expanding the interpretive program beyong the capabilities of individual interpreters.[18] The self-guided auto tour, for example, is a highly effective method of interpretation. It has the advantage of providing an initial broad exposure to a high volume of visitors, and may stimulate visitor interest in other interpretive opportunities such as viewpoints, wayside exhibits and interpretive trails. A successful self-guided system depends on a well-planned travel corridor and interpretive layouts that need only be supplemented by well-designed signs, maps, and guide literature.

3. THE RIDING MOUNTAIN PARKWAY

Figure 5. Aerial View of the Riding Mountain Parkway, mile 20.5

3.1 History and Development

As far back as the late 1800's there was a demand for an improved route over the Riding Mountain to link the Minnedosa settlers with the Dauphin Valley. The result, the Cameron Trail, served the area as a Forest Reserve, but when Riding Mountain was established as a National Park in 1930, the demand for a motor road soon followed.[19]

The improvement of the existing route to the north boundary was commenced in 1930. It incorporated a road around the north shore of Clear Lake to Lake Audy and a section of the "Strathclair" road which had served since the 1880's in providing access across the mountain. The development of a modern highway from Clear Lake to the north boundary which would provide a shorter route to Dauphin also was undertaken and the clearing of the right-of -way was completed in 1931. Construction was carried on through the following four years and the road, known as the No. 10 Highway, was completed in 1935.[20]

The creation and development of Riding Mountain National Park coincided with the economic depression of the early 1930's, and funds voted by Parliament for unemployment relief not only provided economic assistance to a great many unemployed persons, but also permitted rapid development of roads, buildings and amenities that might have been deferred for some years. Four work camps were established in the park in 1930, and throughout the next five years, hundreds of men were engaged on projects that exemplified the craftsmanship of many of the individuals given employment.[21]

Figure 6. Road Construction Crew, (c. 1930)
(Courtesy of Riding Mountain National Park)

3.2 Biophysical Inventory and Visual Analysis

Since the original paving of the No. 10 Highway in 1952, continuous deterioration of the roadway led to plans for reconstruction of a new road to be known as the Riding Mountain Parkway. In October, 1973, Parks Canada, Prairie Region entered into a contract with the Lombard North Group Ltd., Environmental Planners and Resource Development consultants, to provide a "resource and visual assessment of No. 10 Highway through the Riding Mountain National Park." The objectives for this study were:

1) To complete a biophysical inventory of the PTH #10 corridor in the stretch miles 24 to 33.7 through the Riding Mountain National Park, and to prepare an ecological baseline for an environmental monitoring program.

2) To develop a preliminary monitoring program of No. 10 Highway for measuring environmental impacts resulting from highway construction and to develop a national framework for using low-level infrared photography as a scan for monitoring.

3) To prepare a biophysical and visual inventory, and analysis, of miles 0 to 24 of the No. 10 Highway corridor within Riding Mountain National Park. This would include the identification and classification of all landscape features within the study area.

4) To develop a rational framework for incorporating visual landscape values as an integrated part of the parkway development. This would include; (a) identification of areas of potential conflict between proposed alignment and the resource values identified under item 3; (b) recommendations for revisions in alignment to incorporate these values where practical; (c) locations for borrow areas, viewpoints and pulloffs; and, (d) recommended areas for selective clearing.

The visual inventory of the existing No. 10 Highway was prepared using the "Litton technique". This technique, as applied by the Lombard North Group, was portrayed by a series of graphic notation symbols. The notation symbols used, and their application to the highway landscape are as follows:

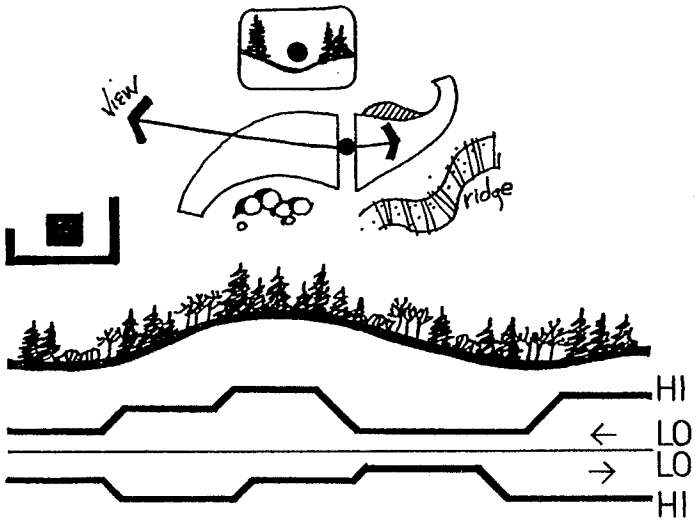
1) observer position

2) sequential notation

3) spatial definition

4) profile

5) intensity of interest



Upon analysis of the inventory information, the visual design of the parkway was achieved by manipulating the alignment through the landscape to create pleasant views, view sequences, an understanding of the landscape, a sense of position and direction in that landscape, and by controlling associated land uses to insure that the visual intent was preserved. Specific recommendations related to wetland preservation, selective clearing to major views, treatment of gravel borrow pits, and right-of-way clearing and planting.

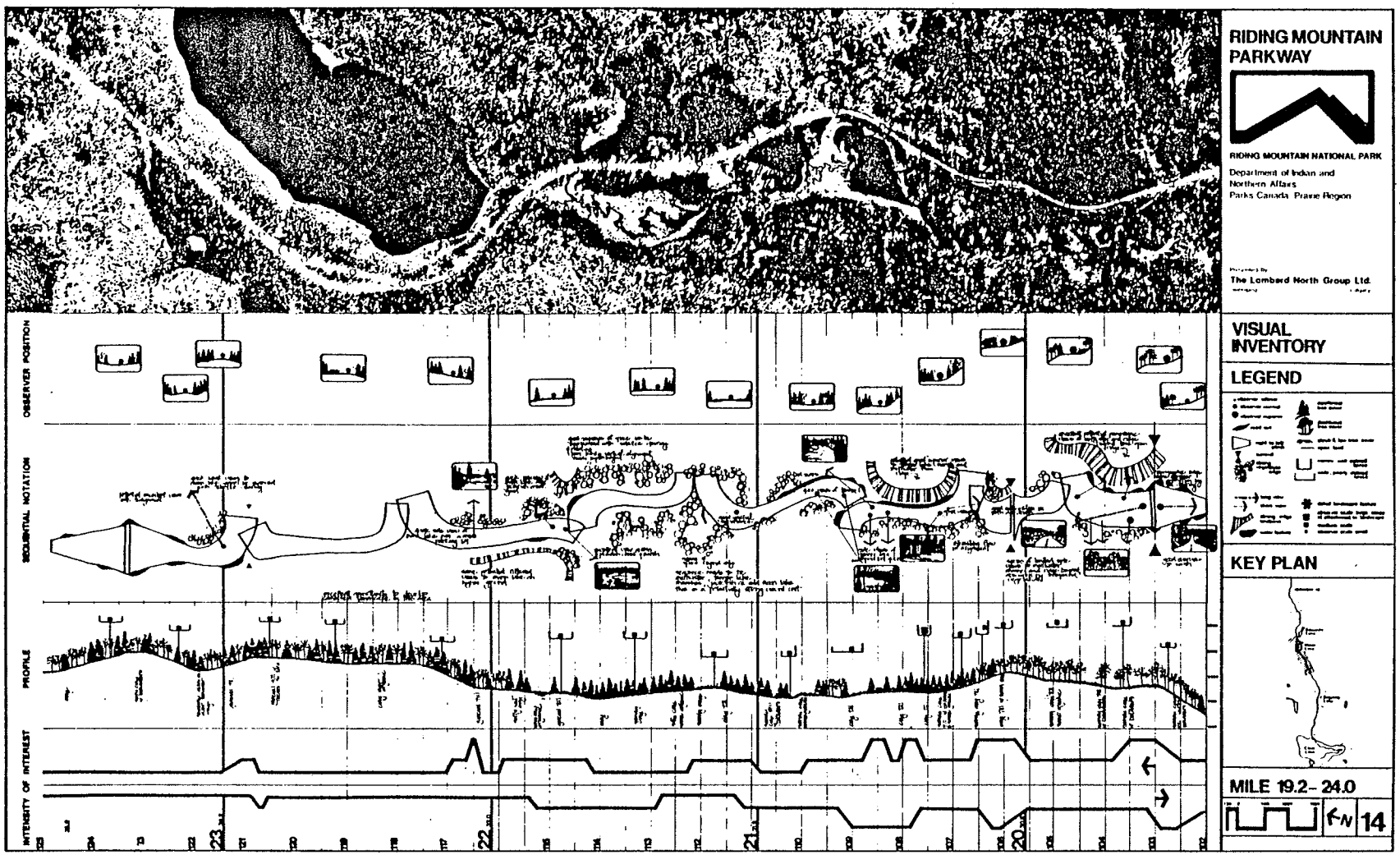


Figure 7. Riding Mountain Parkway, Visual Inventory (Mile 19.2-24.0)

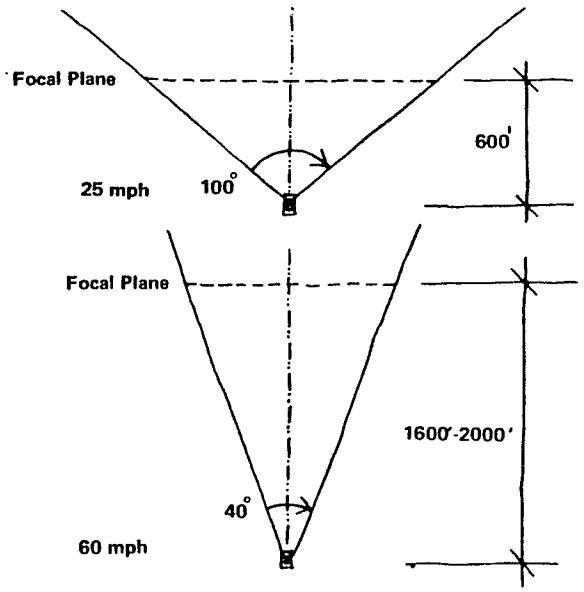
It should be noted that the visual inventory information prepared by the Lombard North Group provided a valuable reference in the selection of the site for the proposed Boreal Island interpretive exhibit (Mile 21.1). Careful consideration was given to approach views and view sequences to take advantage of alignment locations which encourage the motorist to stop and explore.

3.3 The Parkway Experience

In a regional context, the Riding Mountain Parkway presents primarily a forest road experience in sharp contrast to the open prairie roads of southern and central Manitoba. For the park visitor, this sharp transition from an open to an enclosed landscape provides a pleasant change, notwithstanding the quality of the forest road experience.[22]

In order to understand how the motorist percieves the park landscape, it is significant to note that the roadbed dominates the field of view at higher speeds.

At 25 miles per hour (40 kph) a drivers angle of vision is approximately 100 degrees, focused about 600 feet (183 metres) ahead of his vehicle. The roadbed occupies about 8 percent of his field of view, and the roadside 80 percent. The balance is sky. At 60 miles per hour (97 kph), the angle of vision is reduced to 40 degrees, and the focal plane is about 2000 feet (610 metres) ahead of the vehicle. The roadbed expands to 10 to 15 percent, and the roadside occupies approximately 50 percent of the field of view. In flat terrain, the roadside can be reduced to as little as 15 percent, with the balance taken up by sky.[23]



It therefore follows that the alignment of the road and the roadbed itself are critical scenic design elements. The motorist is enclosed by the car and perceives the landscape as broad patterns and impressions. The road points the way like a finger and can dramatize or negate the visual qualities of the landscape through which it passes.[24]

Earlier visual analysis studies as undertaken by the Lombard North Group (1974) described the existing No. 10 Highway alignment in terms of its overall relationship to the major park landscape structure. The subsequent re-alignment of portions of the route may also be evaluated in terms of the interpretive units as identified in the Riding Mountain National Park Interpretive Plan, and the level to which the parkway experience fosters an understanding of the major interpretive themes of the park. These interpretive units are as follows:

a) Clear Lake Unit - mile 0 to mile 9

b) Headwaters Unit - mile 9 to mile 28

c) Notches Unit - mile 28 to mile 32

d) Agassiz Unit - mile 32 to mile 33.7

a) Clear Lake Unit

This unit includes the south approach to the park, the Wasagaming townsite, and a portion of the parkway, some 8 miles in length, which travels around Clear Lake to the Lake Audy intersection. Although right-of-way clearing and highway re-alignment is currently under construction within the park boundary, uncontrolled development outside the park (cottages, gas stations, signs, etc.) seriously detract from the pleasant open landscape and from the sense of entry into a national park. The existing park entry neither reinforces the park image nor introduces the Riding Mountain Parkway on which it is situated. Without prior knowledge or map, the observer is totally unaware of Clear Lake, the most important visual feature in this section of the park.[25] Beyond the townsite, the parkway does create an awareness in the driver that he is going around a lake, however, views to the lake are very brief. There is not an opportunity to appreciate the scale of the lake, or establish his position relative to the lake or the townsite.

b) Headwaters Unit

This is a large area of typical boreal mixed wood flora on knob and kettle relief. For the observer driving miles 9 to 28 the landscape appears more or less flat, the gently rolling terrain being hidden by vegetation. The major visual landscape features within this unit are Grayling Lake, Ochre Valley, Bead Lakes, Tanner Lake, Moon Lake, and Edwards Lake. While side views of Grayling Lake are possible in both directions, a brief glimpse of the Ochre Valley is possible going north only. In many instances most drivers may not notice the Ochre Valley at all. The Bead Lakes and meltwater channel are not visible from the road in either direction. Views to Tanner Lake and Moon Lake are of short duration,

and there is no opportunity to relate the various secondary water features as being part of any overall landscape drainage pattern. With the exception of a short sequence of views from the twin alignment on the Lake Tanner ridge, the major portion of the parkway in the Headwaters Unit is a relatively non-variable experience that encourages high speed travel. The higher speeds not only reduce safety but further detach the driver from the landscape.

c) Notches Unit

This unit includes the Manitoba escarpment with its panoramic views, steep slopes and creek valleys. Boreal forest is found on the highland while deciduous forests grow at lower elevations below the escarpment. At the top of the escarpment, major views from the parkway to the plains of the Dauphin Valley serve to relate the park landscape with the prairie landscape.

d) Agassiz Unit

This unit includes the transition landform between the base of the escarpment and the Manitoba Lowlands. A series of beach ridges formed by Glacial Lake Agassiz is the major landscape feature, however, for the parkway observer these ridges are concealed by dense vegetation. While access to the north park entry gate has been improved by the construction of two one-way alignments which provide a pleasant canopied landscape, the lack of visual control outside the north park boundary has resulted in development which is out of context with the approaching parkway experience.

3.4 Imageability

In order to achieve maximum usage and enjoyment by park visitors, the Riding Mountain Parkway should pass through an "imageable" environment wherever possible. Although there are no set characteristics for an area to qualify as being imageable, it is apparent that certain portions of the route present a relatively non-variable experience where views to major landscape features are both short and confusing. The partial implementation of the station-by-station program for visual improvements as prepared by the Lombard North Group (1974) has greatly improved the quality of the parkway experience, however, potential exists to emphasize the natural character of the route. The following considerations are important to the casual auto tourists who appreciate the imageability, and to the through-traffic commuters who desire the added variety.

a) Additional screen planting is required on the abandoned highway right-of-ways to control views from the new alignment. Previous planting on the old cutlines is only partially effective, and natural forest regeneration has been minimal.
b) Additional spruce planting is required to screen the day use parking area at Moon Lake. Uncontrolled views to the parking area are particularly distracting for the observer travelling north at mile 22.
c) Mulching, seeding and screen planting is required in disturbed areas and borrow pit sites as a result of the current parkway re-alignment and construction (mile 0 to mile 12).
d) Following the completion of parkway construction, complete implementation of the station-by-station program for selective clearing to major views and water features as recommended by the Lombard North Group (1974) should be further considered.

3.5 Interpretive Opportunities

The following Table identifies the interpretive opportunities within the Parkway Corridor. Of the eleven interpretive features shown, six are existing facilities, four are planned for the near future, and one has been identified as warranting further consideration and study. Table 1. also indicates whether self-guiding brochures or interpretive signage are available for the feature, and describes the rationale behind designating the feature as an interpretive resource.

Figure 8., which supplements Table 1., identifies the interpretive units mapped within the Parkway Corridor, and shows the approximate location of the interpretive facilities or features.

Table 1. Interpretive opportunities - Parkway Corridor, Riding Mountain National Park

Feature	Status	Self-Guiding Information	Purpose/Remarks
1. North End Orientation Centre	Planned	No	To provide orientation to R.M.N.P. in general and the parkway in particular.
2. Beach Ridge Trail	Existing	Yes	Interpret the Lake Agassiz Beach Ridge on-site.
3. Crawford Creek Trail	Existing	No	Hiking trail providing access to north escarpment.
4. Agassiz Tower	Existing	Yes	Observation tower to interpret northern segment of the park (ie. escarpment & beach ridges).
5. Kippan's Mill	Planned	No	On-site exhibit utilizing site of abandoned saw mill.
6. Moon Lake	Existing	No	Interpretive hikes and illustrated talks provided at this centre of visitor activity. Documented evidence of archaeological resources in this area.
7. Boreal Island	Planned	No	On-site exhibit to interpret the boreal resources of the park.
8. Bead Lakes Trail	Existing	No	Hiking trail providing access to Bead Lakes and meltwater channel.
9. Grayling Lake	Potential	No	On-site exhibit in connection with existing picnic site.
10. Old Forestry Station	Planned	No	Interpret old forestry station.
11. Ma-ee-gun Trail	Existing	Yes	Interpretive trail (usable by the visually handicapped).

Distance: 3.7 km (2.3 mi.)

Situated on the north side of the park, 1.2 km south of the north park boundary along the Riding Mountain Parkway, a short access road leads to the trail head. This trail meanders through several differing forest communities associated with the beach ridges left as a reminder that this area was once covered by glacial Lake Agassiz. A hazel and oak-covered ridge parallels a former hay meadow now flooded by a beaver colony.

Distance: 28.8 km (18 miles) return

Following an old road up the escarpment through the diverse vegetation afforded by different elevations, this trail rises very rapidly for the first 6 kilometres. The remainder of the course wanders through highland vegetation.

Distance: 9.6 km (6.0 mi.)

Starting from the west side of the day use area or north of the main washroom in the Moon Lake Campground, the trail circles the lake following the shoreline then retreating into the forest cover. The generally rolling terrain with several steep inclines and gullies is covered with stands of spruce, fir, aspen and birch interspersed with hazel brush. Evidence of elk, moose, bear and beaver can be seen throughout.

Distance: 3.2 km (2 mi.)

This trail is located on the west side of the Riding Mountain Parkway, 26 kilometres north of Wasagaming. Travelling through mature mixed forest over hilly terrain this loop trail proceeds west to the Bead Lakes and descends the steep bank to lake level. An excellent hike for observing elk, deer and possibly bear. Wolves can often be heard howling in the vicinity.

Distance: 0.9 km (0.6 mi.)

An Ojibway word for "wolf" gives the trail its name. This shy animal appears here occasionally in winter. His smaller cousin, the coyote, can be seen in any season. The trail loops through a forest of spruce and fir and open clearings. The ground cover consists of shrubs and saplings on dry ground, and mosses and sedges on lower wet soils. The observant hiker can feel resin sticky scars on some of the trees where elk have rubbed the velvet from their antlers or scraped the bark with their teeth. A special sawdust surface with tell-tale planks at stops allows the visually handicapped to follow the trail in relative safety. A large print text and self-guiding brochure are available at the trail head. Access to the trail is from Camp Manito or along the Riding Mountain Parkway 6.9 kilometres north-west of the junction with Highway #19.

Distance: 24 or 36 km (15-21 mi.)

The largest lake in the park, Clear Lake, covers 23.8 square kilometres and is 33.5 metres deep in places. The clear blue water is a result of many factors. The depth of the water filters out much of the sun's spectrum and only the blue wave-length is reflected back to the surface. The cold water inhibits the production of great amounts of plant life, resulting in relatively pure water. No large river drains into the lake, so the water remains free of silt. Access to the trail begins at North Shore Drive, immediately west of the Bubbling Spring Wishing Well, or from the Boat Cove west of Wasagaming. The trail winds 24 kilometres around Clear Lake. It can be extended to a 36 kilometre hike circling the lake by using Wasagaming Drive to connect the two embarkation points.

The Clear Lake Trail is especially rewarding, scenically and botanically, during the months of June, July and September. A number of picnic sites and scenic viewpoints are located along this trail. It crosses a gravel ice-push ridge which separates Clear Lake from South Lake, a former bay. Ducks, grebes and terns are abundant on nearby South Lake and ospreys and bald eagles are regular visitors. Beaver and muskrat may also be observed.

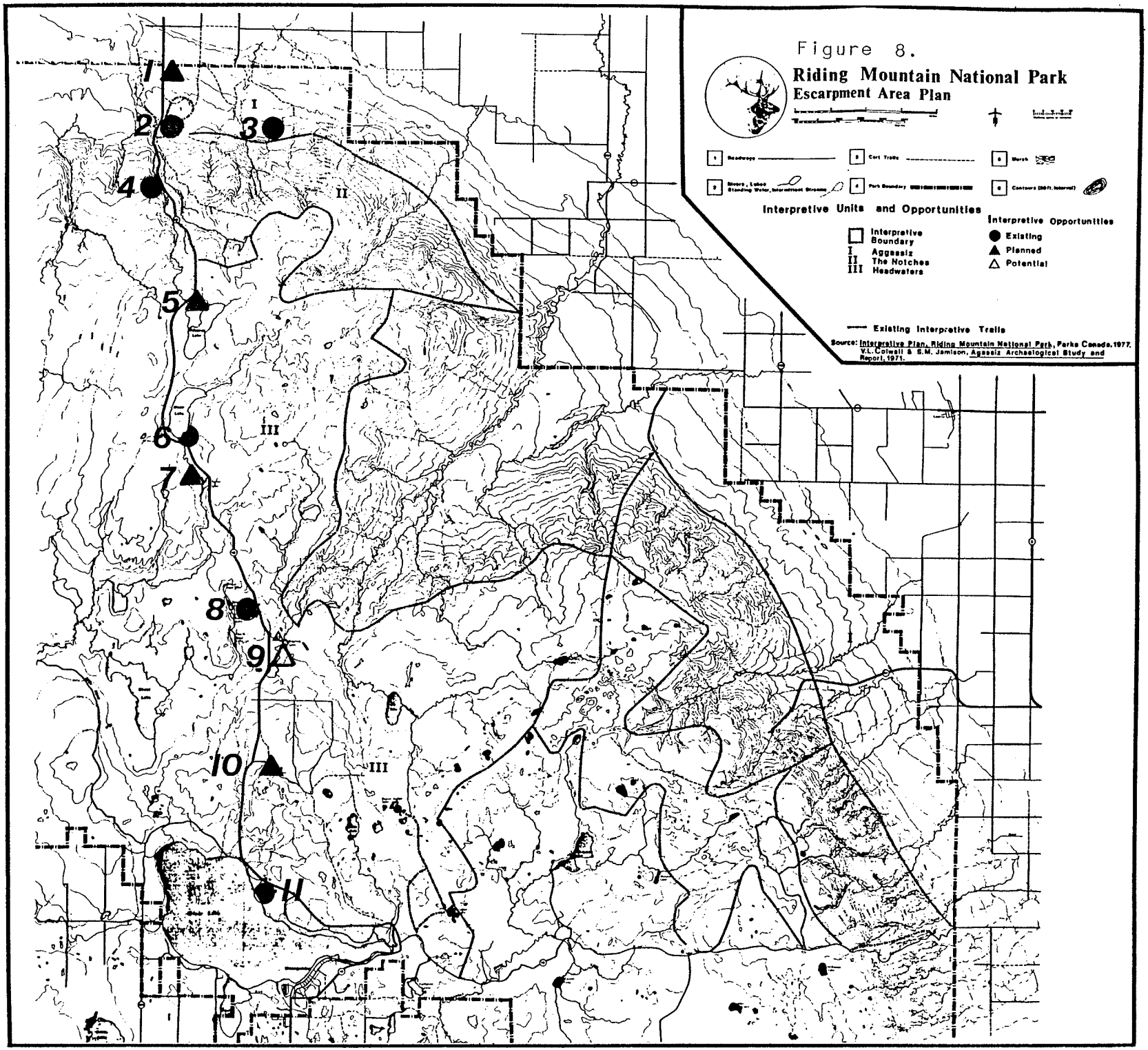


Figure 8.
Riding Mountain National Park
Escarpment Area Plan
Interpretive Units and Opportunities
Interpretive Boundary
I Aggassiz
II The Notches
III Headwaters
Interpretive Opportunities
Existing
Planned
Potential
Existing Interpretive Trails
Source: Interpretive Plan, Riding Mountain National Park, Parks Canada, 1977.
V.L. Colwell & S.M. Jamison, Agassiz Archaeological Study and Report, 1971.
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III

4. THE BOREAL ISLAND EXHIBIT PLAN

Figure 9. Landsat Image of Riding Mountain National Park.

(Courtesy of Riding Mountain National Park)

4.1 Introduction

At present, interpretive work in Riding Mountain National Park is centred on the Riding Mountain Parkway where it intersects the Agassiz, Notches, and Headwaters interpretive units. In consultation with Parks Interpretive Staff, the Headwaters unit was identified as as a priority for interpretation in the park, and terms of reference for the 'Boreal Island' on-site exhibit were prepared as follows.

Terms of Reference

The general purpose of this planning endeavor is to provide details for the establishment of an on-site exhibit (OSX) to interpret the boreal resources of Riding Mountain National Park.

Specific Objectives are:

i) to determine the messages to be communicated on-site.

ii) to determine the modes of communication.

iii) to determine the site for the exhibit.

iv) to recommend the conceptual layout and identify supporting amenities on-site.

4.2 Planning Team

Coordinator - Dan Weedon , Assistant Park Naturalist, RMNP.

Celes Davar and RMNP Interpretive Staff,

for review and critique of interpretive aspects.

Al Sturko and local Wardens,

for resource conservation and visitor information.

PRO Exhibit Designers,

for generating ideas for interpretive modes and graphic art production.

PRO Engineers & Architects,

for advice and critique of site plans.

Keith Koroluk (Volunteer/Landscape Architecture Masters Student),

for site design planning and drawings.

Dr. W. O. Pruitt (University of Manitoba),

for scientific critique.

Dr. K. Johnson (Manitoba Museum of Man & Nature)

for scientific critique.

4.3 Site Selection

Five potential locations within the parkway corridor were considered for the proposed Boreal Island Exhibit. In order to determine the most suitable location, a site selection matrix was established. This matrix is an assessment of the individual site characteristics in relation to various environmental, visual, and interpretive criteria. The following are examples of the particular criteria and factors that were considered.

a) Representative Flora

- Flora community present in site locality.
- Flora community prevalent.
- Flora community located on-site (touching distance).

b) Headwaters Interpretive Value

- Intrinsic value to headwaters message.
- Running water vs. standing water.
- Proximity of water to exhibit site.

c) Proximity to Other Facilities

- Sequence and spacing of other interpretive opportunities within the parkway corridor.
- Driving distance to major visitor service facility.
- Possible linkages to recreation trails (hiking, bicycling, cross-country skiing).

d) Constraints

- Environmental impact.
- Constraints to construction.
- Safety standards.

e) Reclamation Required

- Impact of previous highway construction.
- Amount and type of reclamation required.

f) Attractiveness

- Visual relationship to the parkway.
- Carrying capacity.
- Relative cost for development.

Table 2. Site Selection Matrix - Boreal Island Exhibit, Riding Mountain National Park

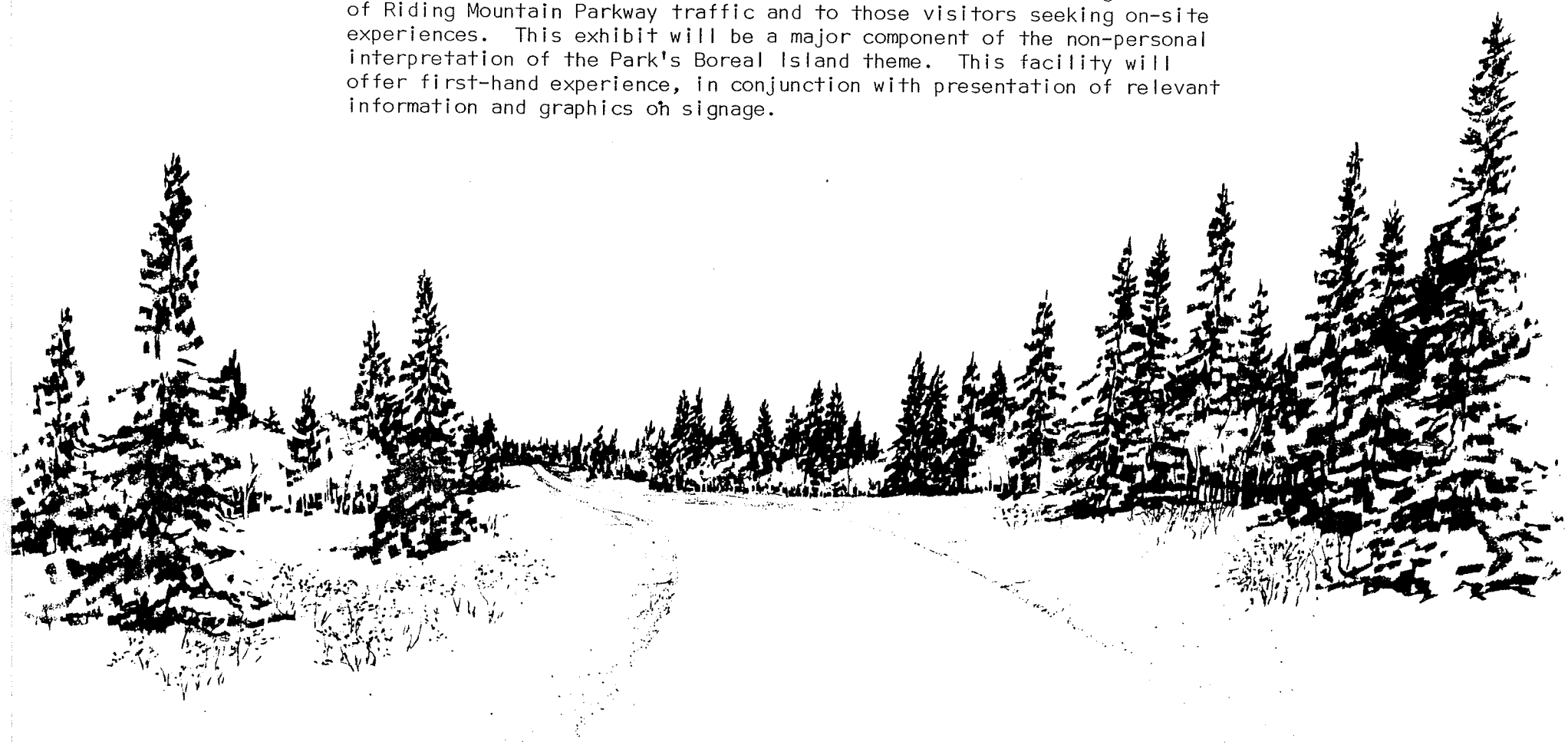
Selection Criteria	Location				
	Moon	Tanner	Bead	Grayling	Forestry
a) Representative Flora					
i. Mature W/Sp	3	3	3	3	3
ii. Jackpine	1	1	1	1	1
iii. Mixed Woods	3	3	3	3	3
iv. B/Sp - Tamarack	2	3	2	3	2
v. Bog	1	3	2	3	1
b) "Headwaters" value	3	3	1	3	2
c) Proximity to major facility	3	3	1	2	1
d) Constraints					
i. Environmental	3	3	3	2	3
ii. Construction	3	3	3	2	2
iii. Safety	2	2	2	2	2
e) Reclamation required	3	2	3	2	2
f) Attractiveness	2	3	2	2	1
Total	29	32	26	28	23

*The ranking values for each criteria are based on a scale of three, with three considered the high value, and one considered the low value. Independent of the criteria used, a high value implies a positive score (ie/ a requirement is fulfilled or a constraint is not significant at that site).

*For additional information concerning ranking values, reference should be made to Chapter 6, Development Guidelines, Section 6.1.3, Site Selection (p. 91).

4.4 Exhibit Function

This facility will provide interpretive opportunities to the high volume of Riding Mountain Parkway traffic and to those visitors seeking on-site experiences. This exhibit will be a major component of the non-personal interpretation of the Park's Boreal Island theme. This facility will offer first-hand experience, in conjunction with presentation of relevant information and graphics on signage.



4.5 Objectives

A. Messages:

i. to create an awareness of the islanded landscape dominated by boreal forest vegetation.
ii. to provoke an appreciation of why the island of wild boreal forest persists in Riding Mountain National Park.
iii. to interpret the importance of snow in the boreal forest environment.
iv. to interpret the influences of coniferous trees to the biotic and abiotic components of the boreal forest ecosystem.

B. Visitor Experience:

i. to encourage Parkway traffic to stop and utilize the interpretive facility.
ii. to provide a safe, casual and enjoyable on-site experience in the boreal forest.
iii. to increase visitor perception and appreciation of boreal island story of Riding Mountain National Park.

C. Management:

i. to provide non-personal service for Parkway visitors, so as to improve their Parkway experience.
ii. to utilize a previously altered site on the Parkway, in order to conserve the remaining natural resources along the Parkway corridor and to reclaim an existing construction scar.
iii. to minimize impact by proper reclamation and directing the visitor flow through pathways and viewing platforms.
iv. to develop an attractive and useful facility requiring minimum maintenance and policing for vandalism or abuse.

4.6 Visitor Analysis

The Boreal Island on-site exhibit will be established on the Riding Mountain Parkway which exposes the facility to a diverse visitorship. Upon initial study three main types of visitors were identified:

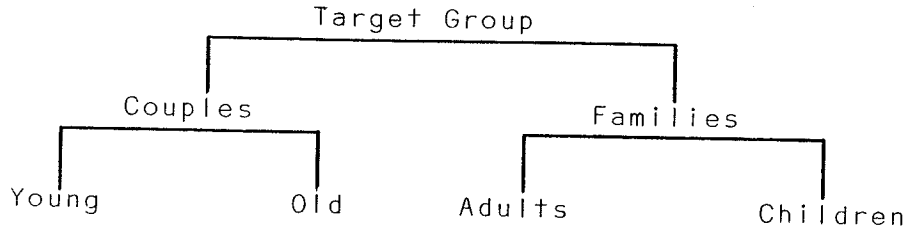
a) Parkway traffic passing through the Park.
b) Park visitors using other facilities along the Parkway.
c) Exhibit destined visitors.

The visitorship on the Parkway have very diverse motives for travelling the Parkway. The largest percentage is through traffic using the Parkway for the scenic drive or simply for a short-cut. The second visitor type, who are using other facilities along the Parkway corridor, are involved in a variety of recreational activities. Moon Lake Campground and day-use area (located one mile from the proposed exhibit site) is a major destination as well as the Agassiz Tower and various trails.

This breakdown of the visitorship only identifies the need to design the interpretive facility such that it is both appealing and useful to the high volume of Parkway users, yet also provide sufficient interpretation to those who will make the exhibit their destination.

The 1980 visitor survey in Riding Mountain National Park has shown that 70-80% of the visitorship consists of families and couples. Of the family groups surveyed, 50-60% had one or more children.

This data, combined with field observations of Riding Mountain National Park staff, has resulted in establishing the main target group as families and couples. This target group can be broken down in the following way:



By designing the on-site exhibit for this target group, the interpretive facility will still serve the other 20-30% of visitors (i.e. school groups, young and old individuals).

4.7 Storyline

The Riding Mountain s are located in the centre of North America. The climate typical of this region is known for its extensive winters and limited precipitation, of which snow is a very significant factor. The higher elevation of the Riding Mountains lengthens the winter season, shortens the growing season, and induces greater precipitation on the top of the mountain than that which falls on the surrounding plains. It is these abiotic (non-living) factors created by the Park's location on the continent and the mountain effect which has brought about an islanded landscape on the Riding Mountains.

The islanded landscape can be viewed from two perspectives - natural and cultural. In the natural realm, the environmental conditions on the Riding Mountains (i.e. shorter growing season and extra precipitation, combining longer winters) have created an "island" of boreal forest in a "sea" of grassland and parkland vegetation. In the cultural realm, those same environmental conditions, combined with the rough topography, made the Riding Mountains unsuitable for settlement, creating an "island" of hinterland in a "sea" of agricultural land.

When the Riding Mountains were made into a national park in 1930, the islanded landscape became more pronounced. The national park status ensured that this island of boreal forest was protected from the fate of other natural forests of Southern Canada. (It is noteworthy and unfortunate that the woodland caribou and wolverine had been extirpated from the island.) Simultaneously, the land around the Park was becoming more and more intensively farmed, making the island of hinterland in Riding Mountain National Park more valuable.

The word boreal is derived from borealis which crudely means northern. The top of the Riding Mountains is covered with boreal forest vegetation because environmental conditions are like that of northern Canada. These conditions result from extremely harsh winter weather and the non-intermittant snow cover that persists for almost half the year.

Snow is one of the single most influencing elements of the boreal forest. It is both a help and a hindrance to life. Its insulating properties protect the soil as well as small mammals from the extreme cold. The increasing depth of the snowpack as winter elapses helps the snowshoe hare as it elevates them to fresh browse supply. At the same time though, the increasing snowpack is a hindrance to the mobility of the larger mammals. Some mammals cannot cope with the snow or cold and survive only through their ability to hibernate.

The most outstanding life-form of the boreal forest ecosystem is coniferous vegetation. Coniferous trees dominate because of their ability to cope with short, cool summers and long, harsh winters typical of the boreal environment.

Conifers not only occupy the majority of the space, but they also greatly influence their co-inhabitants of the boreal forest. The influences are direct and indirect. For example, the conifers are a significant block to solar radiation striking the forest floor. There is not only limited light for photosynthesis, but limited solar radiation to warm the soil. This affects all life, from soil microbes who need warmth to be active, to moose who need shrubs which require abundant light.

Conifers influence the boreal environment by affecting the snowpack. When conifers are densely populated, they can catch and suspend a significant snowload. When spaced apart, the snow which settles to the ground is shielded from wind and sunshine. This produces a dry and fluffy snowpack which greatly influences animal behaviour and mobility.

One could go on further to notice that the shed needles of conifers create an acidic condition in soils which ultimately affects the water. This one influence by the conifers results in less niches and reduced productivity of the boreal forest community. This is what gives the open water its brown color and limits the plant life on land to acid tolerant plants.

The coniferous trees that inhabit Riding Mountain National Park are White Spruce, Jackpine, Balsam Fir, Tamarack and Black Spruce. These trees distribute themselves in relation to topography, drainage and fire history.

Black Spruce and Tamarack inhabit the lowlands where drainage is poor to non-existent. On the other extreme on ridgetops, Jackpines thrive in the dryer soils. The dryer ridges are also where fire frequency promotes Jackpine dominance. These trees captalize on the clearing effect made by forest fires. Should fire not occur for a long enough time, White Spruce, along with Balsam Fir, regenerate under the canopy of Jackpines (and/or Poplars) and eventually take over dominance of the forest.

4.8 Approach

The following outlines the interpretive approach on-site and lays out the sequencial experience for the visitor.

Stage One:

- Pre-advertising and awareness through interpretive, warden and visitor service staff or through written communication.
- Parkway views of the wild, boreal forest environment.
- Highway signage.
- Entrance sign.
- Convenient parking space with sightlines to the exhibit fixture and potential views.

Stage Two:

- Views from upper observation deck.
- Panel A: "Islanded Landscape"
- Views from lower observation deck.
- Panel B: "Boreal Forest Community"
- Panel C: "Dominating Elements in the Boreal Forest"
- Relaxing on or near the deckwork overlooking Jackfish Creek and the boreal forest panorama.

Stage Three:

- Descending boardwalk to creek edge.
- Close contact with boreal stream.
- Panel D: "Headwaters Story"

*At this point, the visitor has experienced the main portion of the exhibit and may return to the parking lot (or go on to stage four).

Stage Four:

- Self-guiding trail into the different plant communities of the boreal forest. (Signage along route to interpret salient features and messages.)
- Trail leads into close contact with:

  i. Mixed forest (White Spruce/Poplar/Birch)
  ii. Mature White Spruce forest
  iii. Black Spruce/Tamarack Bog
  iv. Open Bog

- Trail ends at viewpoint looking across the bog to Tanner's Lake.

*At this point, the visitor is surrounded by all the components of the boreal environment, including the lake, the creek, and all the diverse boreal vegetation.

- The trail then loops back and converges with the boardwalk which leads to the starting point.

  (Total trail length = approx. 1 km)

Stage Five:

- Post exhibit parkway experience.
- Supportive interpretation through other means (i.e. Interpretive Centre, Trails and/or Events).

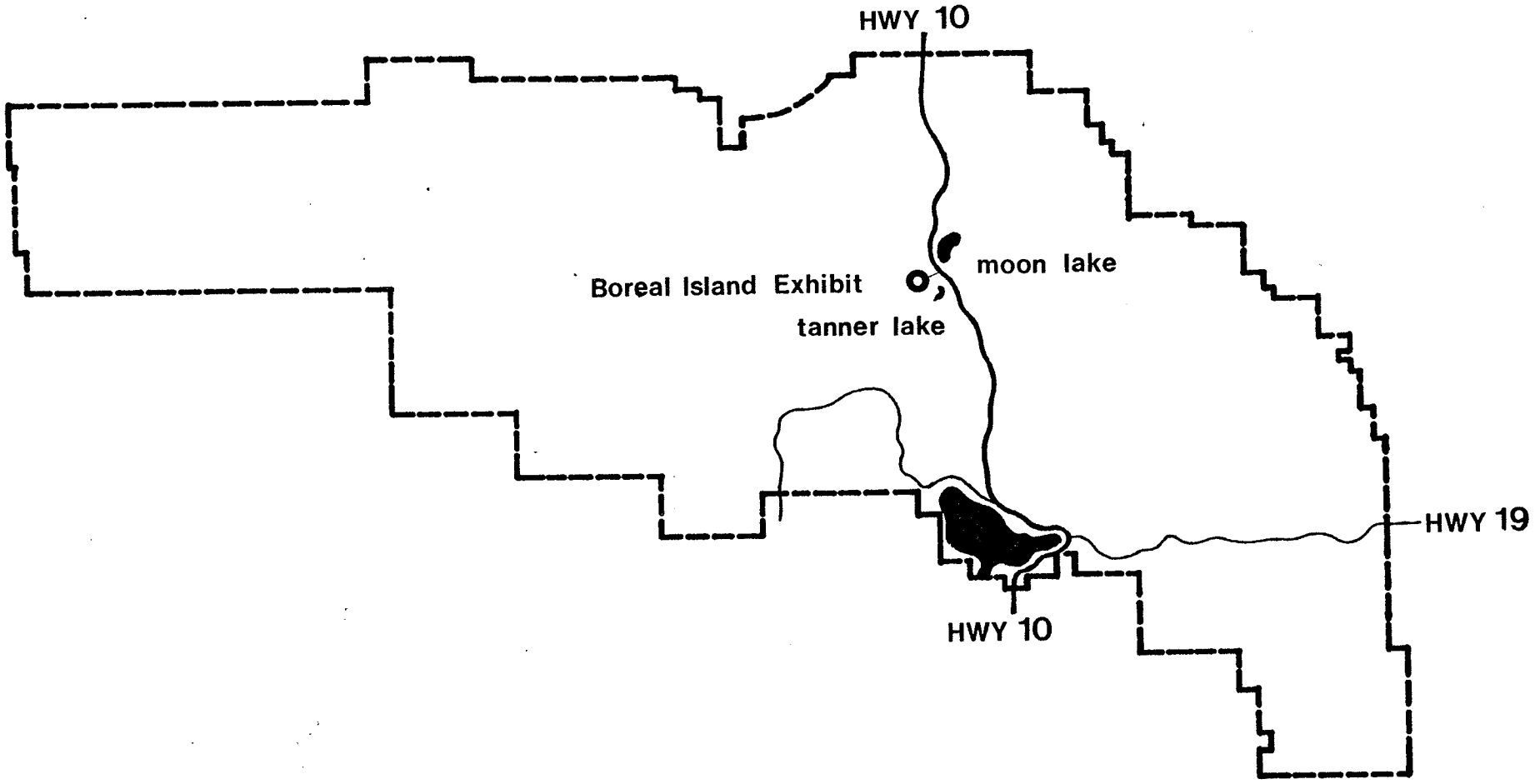
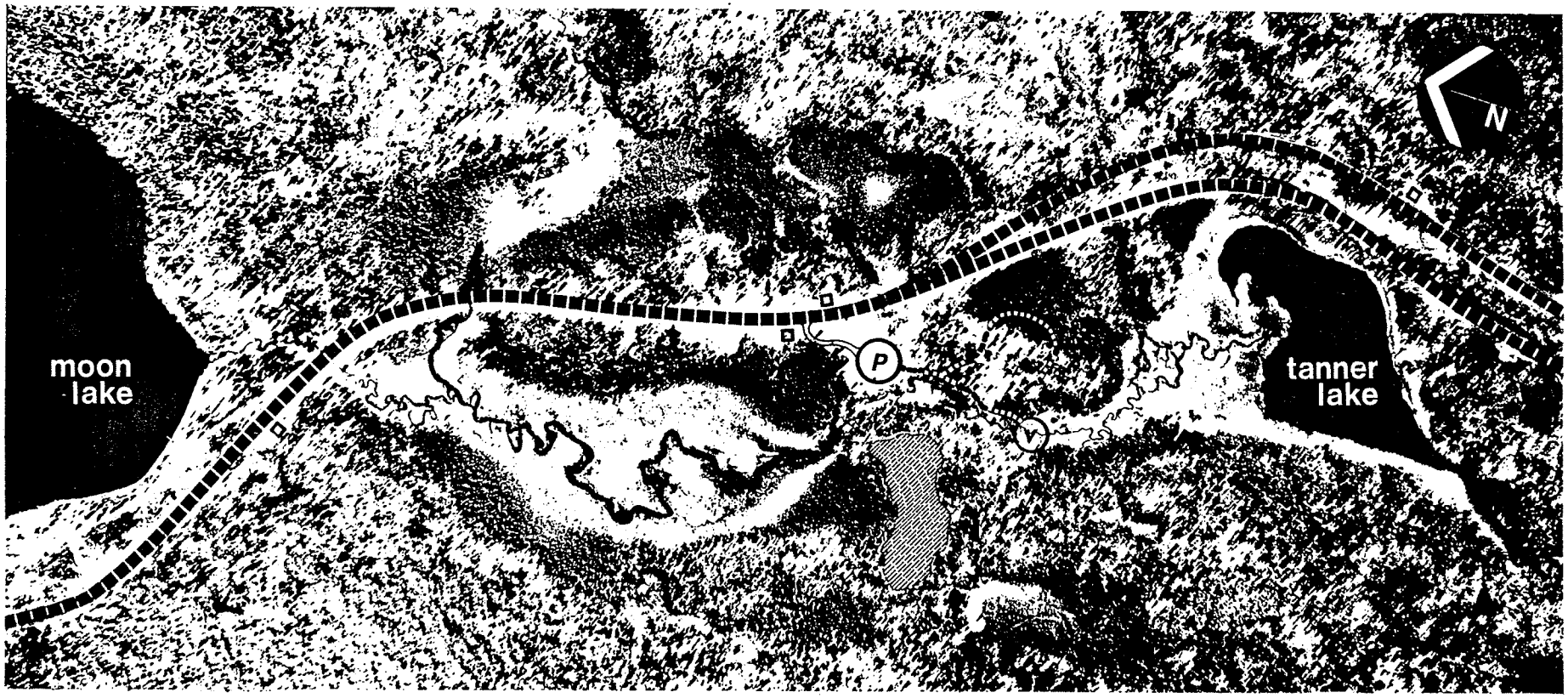


Figure 10.

EXHIBIT LOCATION



LEGEND

- ***highway signage***
- ***parking area & observation deck***
- ***interpretive trail***
- ***viewpoint to Tanner Lake***
- ***abandoned borrow pit***

Figure 11.

KEY PLAN

0 250 500m

Figure 12. Aerial View of the Proposed Boreal Island Exhibit Site, Mile 21.1

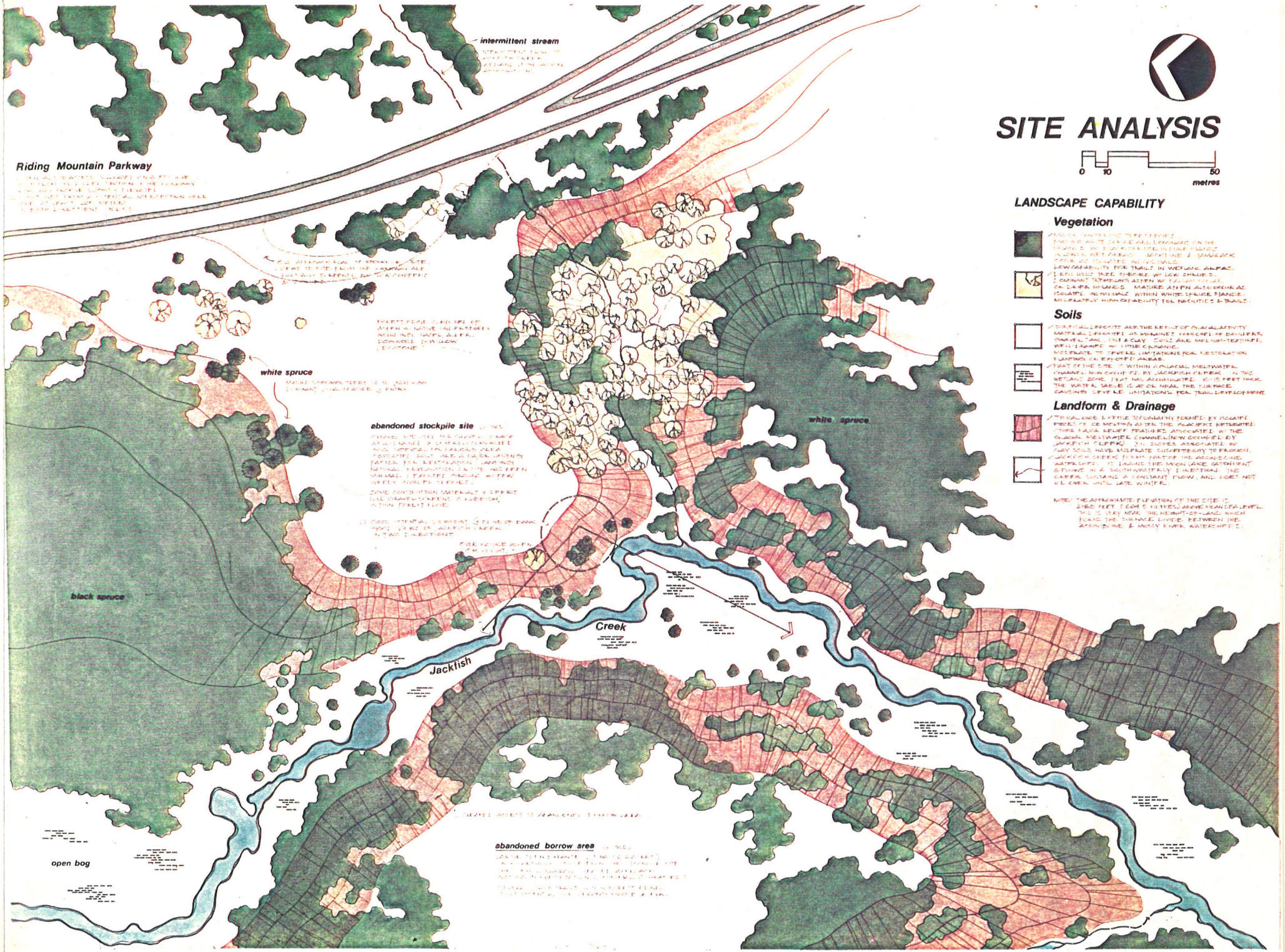

SITE ANALYSIS
0 10 50
metres
LANDSCAPE CAPABILITY
Vegetation
Soils
Landform & Drainage
intermittent stream
Riding Mountain Parkway
white spruce
abandoned stockpile site
white spruce
black spruce
Jackfish
Creek
abandoned borrow area
open bog

Figure 13.

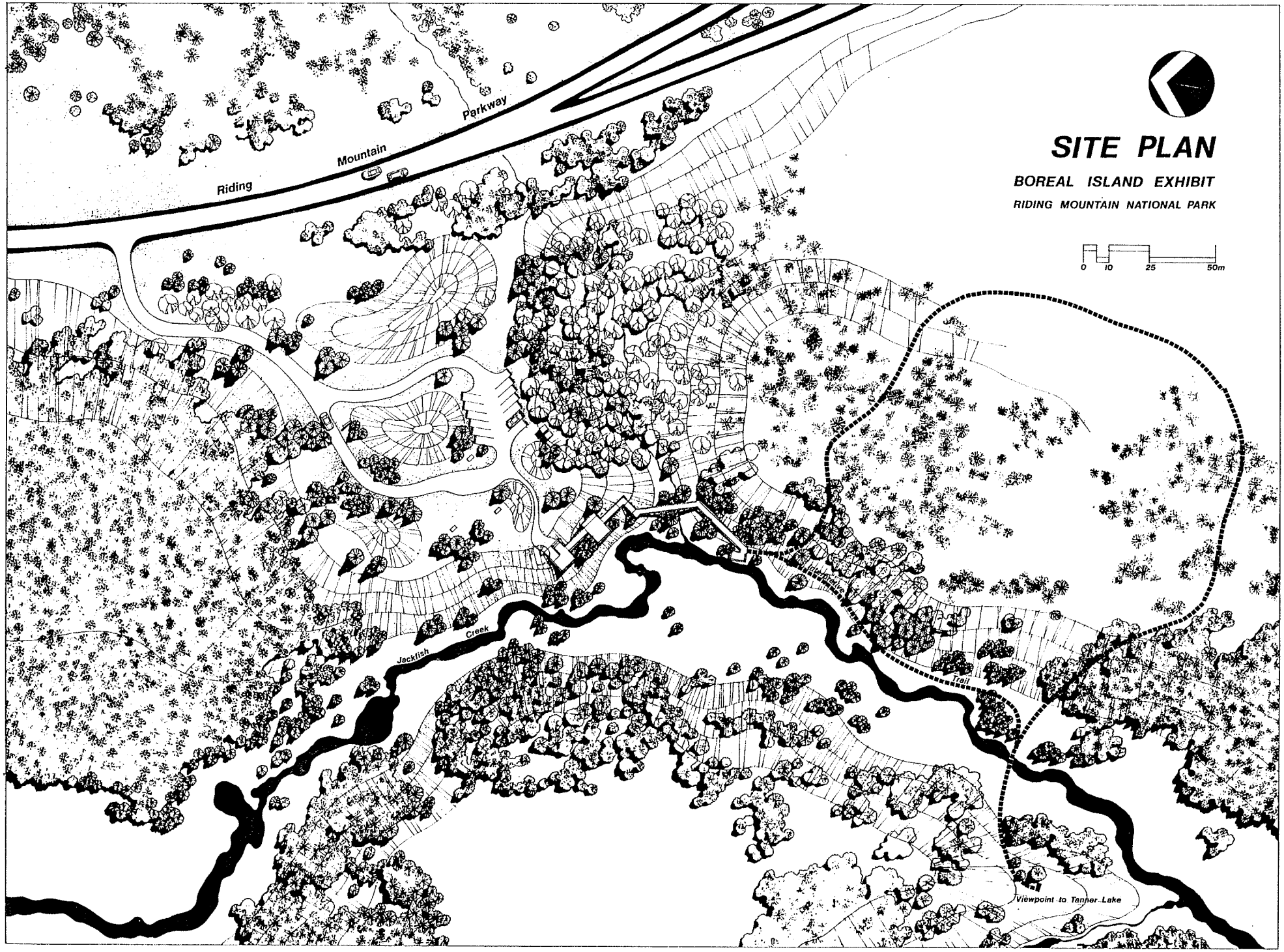
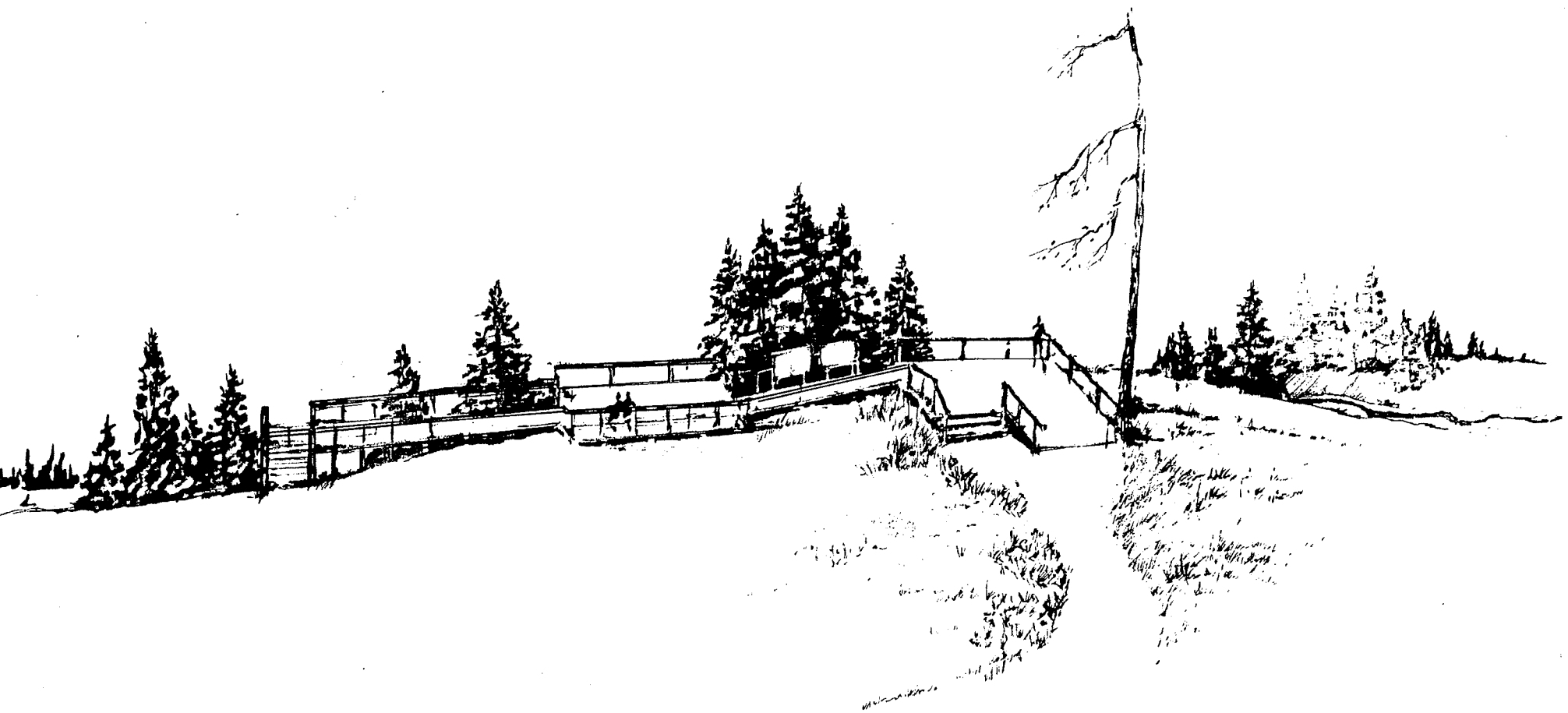
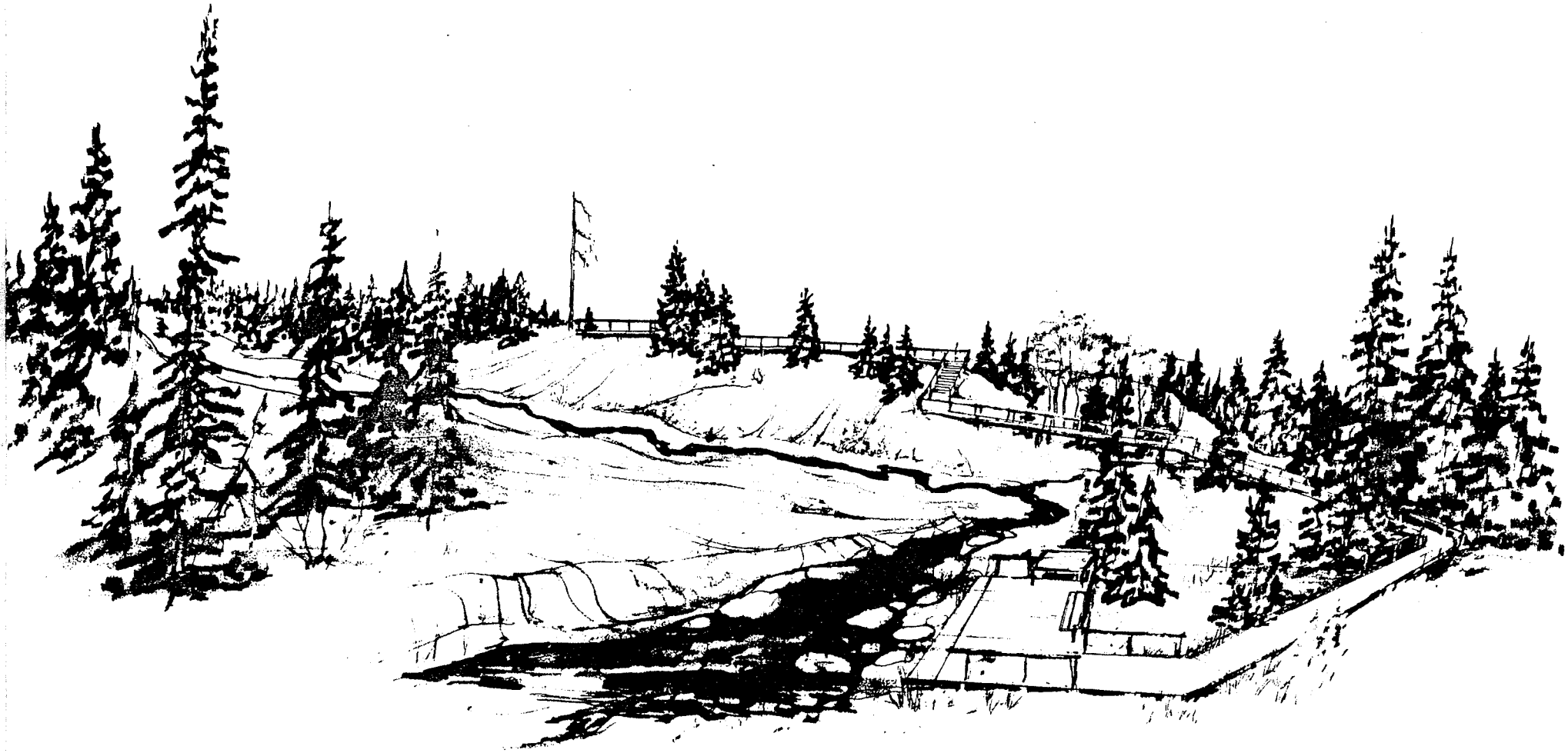

Riding Mountain Parkway
SITE PLAN
BOREAL ISLAND EXHIBIT
RIDING MOUNTAIN NATIONAL PARK
0 10 25 50m
Jackfish Creek
Trail
Viewpoint to Tanner Lake

Figure 14.



The Boreal Island Exhibit
Upper Observation Deck

Figure 15.



The Headwaters

Figure 16.

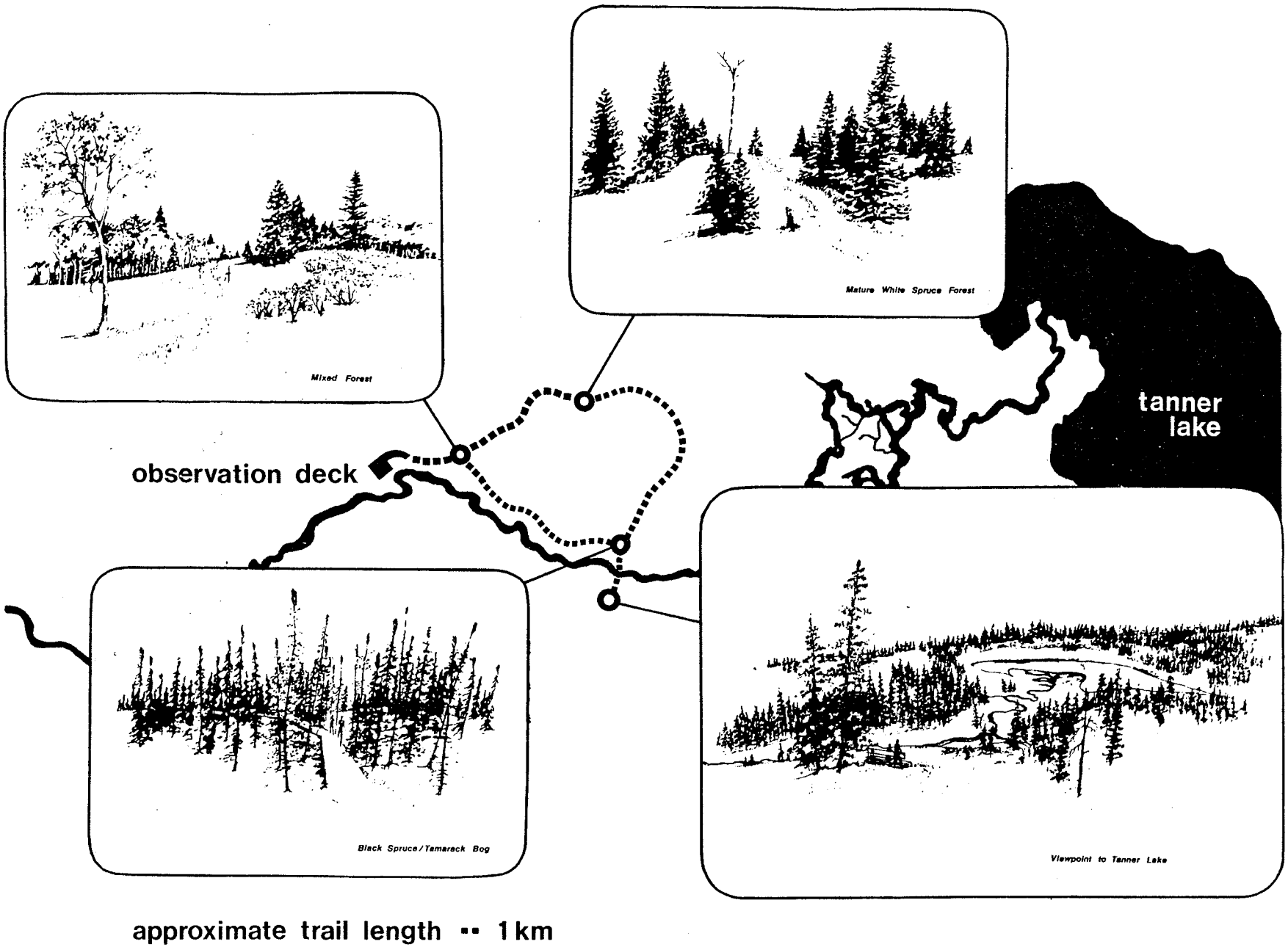

Mixed Forest
Mature White Spruce Forest
tanner lake
observation deck
Black Spruce/Tamarack Bog
Viewpoint to Tanner Lake
approximate trail length ▪▪ 1 km
TRAIL LAYOUT

Figure 17.

4.15 Phasing

Phase One:

- Build berms and contour site.
- Build access and parking lot.
- Reclamation and initial landscaping.

(Completed by 81/82 year)

Phase Two:

- Complete access and parking space.
- Secondary landscaping.
- Cut hiking trail.
- Construct observation deck and boardwalk.
- Design and fabricate signage.

(Completed by 82/83 year)

Phase Three:

- Finish landscaping.
- Finish hiking Trail.
- Install signage.

(Completed by June, 1983)

Phase Four: (Optional)

- Construct Moon Lake hiking trail access to exhibit.

(Completed by 84/85 year)

4.16 Recommendations

i. Reclamation of the site should start as soon as possible for environmental and aesethic concerns.

ii. Reclamation and development should be done "in-house" by Riding Mountain National Park forces.

iii. Some selective planting of shrubs should be done on the old borrow pit site across the creek from the exhibit site.

iv. Maximize use of native plant species for reclamation and landscaping.

v. Unless public demand warrants and/or Park operations deem feasible, the exhibit should be closed and panels removed during the winter season.

vi. Construction should enable use by handicapped visitors. (Trail excluded unless funds available and public demand warrants.)

vii. One or two uniquely designed picnic tables be provided for visitors desiring to stay on site longer.

viii. On the long term, a trail should be constructed so as to provide hiking access for visitors using the Moon Lake Campground and day-use area.

5. THE PARKWAY CORRIDOR INTERPRETATION SYSTEM

5.1 Introduction

The basic concept being developed for the parkway corridor is that all aspects of interpretation should be considered as parts of a system. The goal of the interpretation system is to provide corridor users with as least a "threshold park experience" by showing the interrelatedness of various park ecosystems, as well as the historical significance of man's activities and attitudes toward the park landscape. In order to achieve this goal, smaller scale resources and interpretive features within the corridor should be related to the broader interpretive themes for the park as a whole. This approach will enable on-site interpretation to occur within a broader, more relevant context. For example, the boreal resources of Riding Mountain are directly related to the conjunction of eastern, western, and northern flora and fauna in the park, and may be interpreted as evidence of the relationship between altitude and the orderly process of floral community change.

The parkway corridor contains an excellent cross-section of the broad pattern of landscape features that exist within the park as a whole, and the opportunity for holistic interpretation should not be overlooked. Since the largest percentage of parkway users consist of through-traffic, a self-guided auto tour is considered the most effective means of establishing interpretive contacts. On-site exhibits and interpretive trails should be incorporated as part of a specifically designed experience. Within the overall system, they will all contribute to the building of an interpretive program which is both comprehensive and balanced.

5.2 Parkway Themes

The Riding Mountain National Park interpretation program attempts to increase visitor's understanding, appreciation and enjoyment of the park. Although most people are familiar with the basic means and media employed in program presentations, they are not familiar with the major themes around which both individual presentations and the entire interpretation program is structured. Park themes are the main subject areas about which some form of public communication is required.

The Riding Mountain National Park Interpretive Plan has identified seven major interpretive topics or themes based on an assessment of the basic resource data for the park. Out of these seven major themes, three are considered to be most relevant to interpretation within the parkway corridor. These themes were selected as follows:

a) The Manitoba Escarpment.

b) The Conjunction of Eastern, Western, and Northern Flora and Fauna.

c) The Island Landscape.

a) The Manitoba Escarpment

The Riding Mountain scene can be considered from a geological perspective. The parkway corridor contains an excellent cross-section of physiographic features found in the park, and the construction of the present landscape provides a unifying theme. This theme can be unfolded in the following manner:

(i) the escarpment profile, glacial features and watershed characteristics.
(ii) the escarpment's influence on human history, resource use, and management of the park.
(iii) geology related to flora and fauna through soils.

b) The Conjunction of Eastern, Western and Northern Flora and Fauna

Riding Mountain National Park has a varied and fascinating flora and fauna. An ecosystem approach can be used to illustrate this theme in the following manner:

(i) the relationship between altitude and the orderly process of floral community change within the parkway corridor.
(ii) the Boreal Island.
(iii) the wildlife resource: conspicuous fauna and their ecological niches.

c) The Island Landscape

Man's role, past and present, and his relationship to and dependence upon the natural environment is a major theme. Communication of this message topic may be structured as follows:

(i) aboriginal culture and early explorers.
(ii) resource extraction, lumbering and agriculture.
(iii) creation of Riding Mountain National Park.
(iv) resource management.
(v) preservation of natural ecosystems and endangered wildlife species.
(vi) the role of research in the park.

5.3 Information Service and Interpretive Media

The interpretation system as envisioned for the parkway corridor as a whole employs a range of means and interpretive media. Emphasis is placed on self-guided tours and activity packages designed to distribute use within the corridor, and to communicate the selected parkway themes. The components of this self-guided interpretation system are as follows:

a) Information-Orientation Service
b) Self-Guided Auto Tours
c) On-Site Interpretive Exhibits
d) Interpretive Trails

a) Information-Orientation Service

The parkway corridor information-orientation service is of critical importance to park visitors. The concept of the interpretation system depends on the information-orientation service "delivering" people to activity locations as part of a specifically designed experience. To this extent, the existing park entry gates are only partially effective. Special facilities are required to orient visitors to the park in general, and the parkway in particular. These facilities can be manned during periods of peak demand and provide information on a self-serve basis at other times.

b) Self-Guided Auto Tours

The self-guided auto tour provides the opportunity for a holistic approach to interpretation within the parkway corridor. It has the advantage of providing an initial broad exposure of the park landscape to a high volume of visitors, and is an effective medium for the development of selected interpretive themes. The self-guided auto tour encourages family participation, and enables handicapped visitors to participate without the need for specialized facilities.

Several options are also available when planning a self-guided auto tour. These include the traditional sign and pull-off, a printed brochure and marker posts, and various audio devices such as cassette recordings and sequenced radio transmitters. Within the parkway corridor, it is recommended that a printed brochure be made available at the information-orientation centre which illustrates the theme or themes of the tour. A key map should also be provided as a reference for visitors to take with them.

c) On-Site Interpretive Exhibits

An additional aim of the parkway corridor interpretation system involves getting people out of and away from their automobile. This can be accomplished by incorporating a series of on-site exhibits as part of the self-guided auto tour. Adequate parking facilities should be provided off the main road to eliminate traffic congestion, and highway traffic should be screened to maintain the quality of the on-site experience. Once the visitor leaves the highway and is on foot, his whole experience is reduced to a smaller scale. It is at this scale that he may be introduced to various aspects of the interpretive exhibit to examine its components in a more leisurely manner.

d) Interpretive Trails

The layout of the interpretive exhibit should be designed to encourage visitors to take advantage of major views and graphic information, and to participate in a short interpretive trail. Access to the trail from the exhibit is critical to provide ease of movement, orientation and clarity of direction. The trail head should be well-defined and should attract the undecided visitor. A map or description indicating the trail length is desirable. The trail layout should be determined by the level of interest potential, the energy demands on the user, and the length of time required for completion. Trails should be looped, returning to the point of origin, and should generally not exceed one kilometre in length.

5.4 Site Assessment and Evaluation

This section deals with the current and proposed facilities as identified in Table 1 (p.38), and examines their relationship to the major parkway themes, their current accessibility, and their overall relevance to the proposed interpretation system. General recommendations have been provided which outline an approach to on-site interpretation within the parkway corridor. It should be emphasized, however, that the specific locations for interpretive development, as well as the detailing of suitable media and storylines will require more extensive analysis.

1. North End Orientation Centre

The intention of the orientation centre is not to replace interpretive facilities elsewhere in the park, but to provide an essential coordinating link and a key distribution point for self-guided auto tours and interpretive activities within the corridor. While the orientation centre should be designed specifically for communication, the nature of its appearance should also convey a strong interpretive "presence" which complements the character of the park. The basic strategy is to provide information and orientation while providing an experience which relates more to the landscape than to a building presentation. This can be accomplished by the use of an information kiosk or pavilion which serves to introduce the parkway themes through graphic displays and three-dimensional models. As a man-made development within the park, the facility should also draw attention to the relationship of man to his environment and reflect the latest approaches to environmentally sensitive design, structure and function.

2. Beach Ridge Trail

The Beach Ridge Trail is an existing interpretive facility situated 1.2 kilometres (0.7 miles) south of the north park boundary. A short access road leads from the east side of the parkway to the parking area and trail head. The trail itself is 3.7 kilometres (2.3 miles) in length and the time required for completion is approximately 70 to 90 minutes. This time factor may deter the majority of day users. It is recommended that a small on-site exhibit be established at the trail head to provide an opportunity for visitors to relate the Beach Ridge site to the broad pattern of landscape features within the parkway corridor. Emphasis should be placed on the processes leading to the creation of the beach ridges and the relationship between conspicuous flora and fauna and their relative position on the escarpment profile.

3. Crawford Creek Trail

This hiking trail provides interior access to the northern escarpment via an old road. The total length of the return trip is 28.8 kilometres (18 miles). Self-guiding information should be provided at the trail head to interpret the change in flora and fauna types at different elevations along the trail. Access to the trail should be for interior users only, and the trail head should not be developed as part of the self-guided auto tour.

4. Agassiz Tower

The Agassiz Tower is an existing interpretive facility situated 6.0 kilometres (3.7 miles) south of the north park boundary. While the observation tower provides an excellent opportunity to interpret the escarpment and the island landscape themes, potential exists to improve the quality of the visitor experience without eroding the natural character of the site. The scale of the parking area should be reduced by enlarging the central islands with earth berms and by the use of indigenous plant material. Access to the trail leading from the parking area to the tower should also be emphasized by the use of rough-cut timber edges and railings. Materials and finishes should be similar to those used in the construction of the tower. Uncontrolled access to Edward's Creek should not be allowed to continue. A safe alternate access to the creek should be provided in the form of a short interpretive trail. The interpretive trail should emphasize the characteristics of the Edward's Creek watershed and the active processes associated with drainage basin formation. A reference should also be made regarding the on-going research at the Wilson Creek Experimental Watershed located on the east escarpment.

Figure 18. Aerial View of the Agassiz Tower, Mile 30.0

5. Kippan's Mill

Kippan's Mill is an abandoned saw mill site near Edward's Lake situated 12.4 kilometres (7.7 miles) south of the north park boundary. The site provides a valuable opportunity to interpret human history within the context of the island landscape theme. One limitation of the existing parking area, however, is the proximity to the parkway and the lack of an experience and setting typical of the Riding Mountain scene. The fully exposed parking area also detracts from the quality of the parkway experience per se. It is recommended that the existing approach be retained and the parking area be relocated within the large cleared meadow near the site of the original homestead. The new parking area should be placed in visual context with the proposed on-site exhibit and the feature to be interpreted. The interpretation of this historic site should aim at using the site as an example of the influences of man in the alteration of park ecosystems by timber production, grazing and agriculture. In addition, emphasis should be placed on the land ethic of the people involved, the creation of Riding Mountain National Park, and the need to preserve natural ecosystems in an unaltered state. This site, once completed, will become an important feature of the self-guided auto tour.

Figure 19. Kippan's Mill (c. 1930)

(Courtesy of Riding Mountain National Park)

6. Moon Lake

The Moon Lake campground is an important centre of visitor activity situated 17.2 kilometres (10.7 miles) south of the north park boundary. The existing hiking trail starts from the west side of the day use area and circles around the lake for a distance of 9.6 kilometres (6.0 miles). The average time spent on the trail is 2.9 hours. Self-guiding information should be provided at the trail head to interpret the glacial processes leading to the creation of Moon Lake and the knob and kettle terrain of the surrounding area. Self-guiding information should also be made available to cross-country skiiers during the winter months.

7. Boreal Island

The proposed site for the Boreal Island on-site exhibit is situated 2.9 kilometres (1.8 miles) south of the Moon Lake campground. Once completed, this site will provide an excellent opportunity to interpret the boreal resources of the park, and their relative position on the escarpment profile. This site should be included as part of the self-guided auto tour.

8. Bead Lakes Trail

The Bead Lakes trail is located on the west side of the Riding Mountain Parkway, 26 kilometres (16.2 miles) north of the Wasagaming townsite. The trail itself is 3.2 kilometres (2 miles) in length and requires aproximately 50 to 70 minutes for completion. The aim of interpretation here should emphasize the glacial processes leading to to the creation of the Bead Lakes meltwater channel. A reference

should also be made regarding the Birdtail and Rolling River valleys which were also sculpted by the great volume of glacial meltwater which flowed through them when the last continental glacier melted. Information may be provided by a small on-site exhibit at the trail head. This site should be included as part of the self-guided auto tour.

9. Grayling Lake

The existing Grayling Lake picnic site is located on the east side of the Riding Mountain Parkway, 24.4 kilometres (15.2 miles) north of the Wasagaming townsite. One limitation of this site is the proximity to the parkway. Further to the recommendations of the Lombard North Group (1974) regarding the parkway alignment and treatment, it is suggested that the present picnic site be relocated to the south shore and that an interpretive trail be provided from this point around the lake.[27] In addition, an overlook structure should be provided that offers views over Grayling Lake, and the Eutrophic Lakes, and views to the Ochre Valley wall. The access road to this picnic and interpretive site should be provided at that point where views to the Ochre Valley wall are emphasized.[28] The aim of interpretation here should emphasize the less conspicuous processes and species adaptions associated with the aquatic environments of the park.

10. Old Forestry Station

The old forestry station is located on the east side of the Riding Mountain Parkway 20 kilometres (12.4 miles) north of the Wasagaming townsite. Interpretive development of this site is not generally recommended. Human history interpretation within the parkway corridor should be directed instead to the Kippan's Mill site. The presence of unique butterflies in the area should be interpreted off-site.

11. Ma-ee-gun Trail

The Ma-ee-gun Trail is the only existing interpretive trail within the parkway corridor. The trail is 0.9 kilometres (0.6 miles) in length and is usable by the visually handicapped. Access to the trail from the parkway is 12 kilometres (7.5 miles) north of the Wasagaming townsite.

5.5 The Parkway Corridor Plan

The proposed interpretive development plan for the parkway corridor focuses on ten general locations to provide an optimum mix of interpretive opportunities. Of these ten general locations, seven on-site interpretive facilities may be incorporated within a self-guided auto tour to present all of the major resources associated with the selected interpretive themes. The seven locations for on-site interpretation are as follows:

i) Beach Ridges

ii) Agassiz Tower

iii) Kippan's Mill

iv) Boreal Island

v) Bead Lakes

vi) Grayling Lake

vii) Ma-ee-gun

Adequate interpretive orientation to the parkway corridor will require three facilities. These facilities will provide key distribution points for self-guided auto tours and an essential coordinating link for various interpretive activities elsewhere in the park. The three general locations for orientation facilities are the north end of the Riding Mountain Parkway, the Lake Audy turn-off, and Wasagaming.

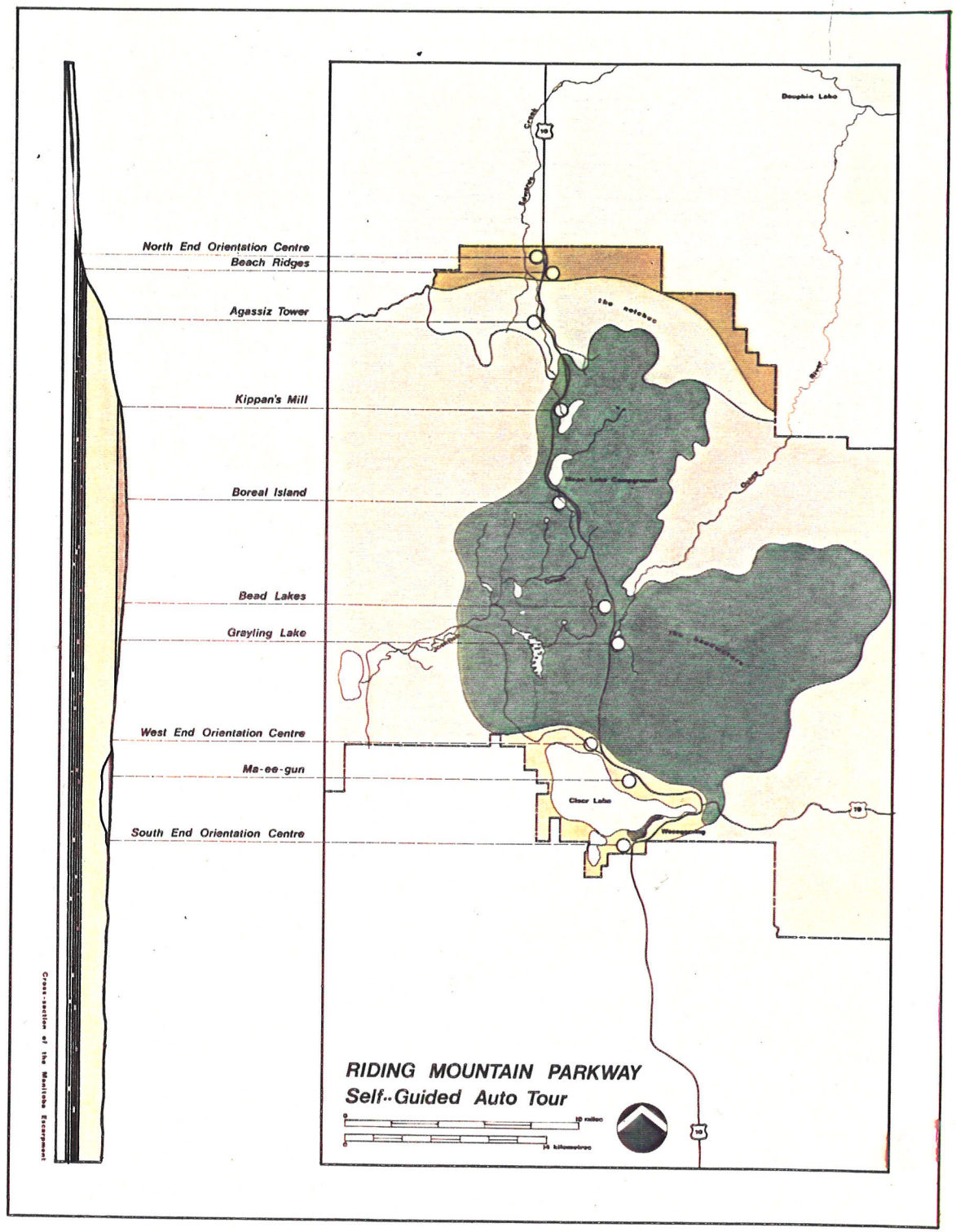

North End Orientation Centre
Beach Ridges
Agassiz Tower
Kippan's Mill
Boreal Island
Bead Lakes
Grayling Lake
West End Orientation Centre
Ma-ee-gun
South End Orientation Centre
Cross-section of the Manitoba Escarpment
Dauphin Lake
Clear Lake
RIDING MOUNTAIN PARKWAY
Self-Guided Auto Tour

Figure 20.

6. DEVELOPMENT GUIDELINES

Introduction

There is a considerable amount of information in various manuals and publications on the subject of interpretation, and some valuable experience has been accumulated in the preparation of the Boreal Island Exhibit Plan. An attempt is made here to bring this information together to establish practical guidelines for the development of future interpretive facilities and trails within the context of the Parkway Corridor Interpretation System.

The intent of the guidelines is to identify various environmental, visual, and interpretive criteria that will be useful to interpretive planning teams in the understanding and application of some of the basic principles used in the site planning and design process. It should be emphasized that the intent of the guidelines is not to set design and construction standards, nor provide detailed technical information. Situations should be assessed individually, and the decision with regard to the application of the guidelines should rest with the planning team. Since the ideas expressed for the Parkway Corridor will continue to evolve, a degree of flexibility and discretion is also important so that design solutions can respond to the dynamic quality of the park landscape and the interpretive program.

For ease of reference, the guidelines have been organized in a step-by-step format which includes three major sections. Section 6.1, Site Planning Guidelines, describes a general procedure for developing a site selection matrix and a conceptual site plan. Section 6.2, Design Guidelines, describes the factors to be considered in the site development plan, and makes recommendations based on various landscape design principles. Section 6.3, Construction and Maintenance Guidelines, describes various considerations, and makes recommendations to minimize environmental impacts caused by construction and concentrated use of interpretive facilities.

6.1 SITE PLANNING GUIDELINES

6.1.1 Planning and Design Team

Planning and design of interpretive facilities and trails should be carried out by a team with a variety of expertise. The team should include an interpretive planner (responsible for coordination with the master plan); a visitor services officer (knowledge of use requirements); a warden (knowledge of resource, resource management and public safety); an interpretive specialist (knowledge of resource and interpretive techniques); a works officer (responsible for construction and maintenance); an engineer (knowledge of technical details, traffic flows and constraints to construction); a landscape architect (knowledge of site planning and visual aspects of design).

6.1.2 Project Definition

The project definition should be derived from the interpretive plan for the Parkway Corridor which outlines the basic role of the project within the overall interpretation system. The objectives to be achieved by the development should be clearly stated. They should indicate the type of interpretive facility required, its purpose, the type of users for whom it is intended, and any themes and features to be emphasized.

Once there is a common understanding amoung all members of the planning team, a list of project requirements can be defined. This list should attempt to identify the functional and aesthetic requirements of the project. Functional requirements are concerned with quantitative aspects such as sight distances and safety standards for site access roads, road grades, parking space requirements, trail length, and other factors which

can affect user safety and comfort. Aesthetic requirements are concerned with qualitative aspects such as landscape character, spatial definition, and scenic and interpretive features which can affect the quality of the on-site experience.

Environmental constraints and economic constraints including financial and time budgets should also be considered as part of the project definition.

6.1.3 Site Selection

Upon completion of the project definition, potential interpretive sites which satisfy the functional and aesthetic requirements of the project should be identified.

Where possible, existing approach roads and relatively flat, well-drained sites should be considered which preclude the destruction of natural areas caused by road construction and the need to create level parking areas. Abandoned right-of-ways, stockpile sites, and borrow pits should not be overlooked in the initial site selection process.

Once potential sites have been identified, the next step is the formulation of a site selection matrix. The matrix is an assessment of the individual site characteristics in relation to various environmental, visual, and interpretive criteria. The following are examples of the particular criteria and factors that may be shown in the site selection matrix.

a) Representative Flora

Depending on the nature of the interpretive message to be communicated on-site, the presence of particular plant species or plant communities will be an important factor. These may include aquatic vegetation, wetland vegetation, terrestial vegetation, forested and non-forested, densely or sparsely wooded, immature, mature, decadent, coniferous forest, deciduous forest, mixed forest, or rare plant species.

b) Interpretive Value

Interpretive value refers to the "intrinsic" quality of the site in relation to the interpretive message or interpretive theme. The proximity of special interpretive features (touching distance, viewing distance, etc.) is an important factor. In addition, the site should provide enough variety to give an appreciation of its overall context. Where possible, there should be large scale vistas which reveal the nature and structure of the broad landscape. There should also be short range views which focus attention on the detailed landscape (natural, cultural or historic features).

c) Proximity to Other Facilities

The proximity of the site to other interpretive facilities should be considered within the context of the overall travel corridor. The sequence and spacing of interpretive opportunities is an important factor. Possible linkages and connections to other activity locations such as campgrounds and recreation trails (hiking, bicycling, cross-country skiing) is generally regarded as an asset.

d) Site Constraints

Three factors are important in the assessment of site constraints. These factors include environmental impact; constraints to construction; and safety standards. Environmental impact refers to possible conflicts with fragile or sensitive areas, or wildlife habitat conditions. Constraints to construction refer to the extent of construction or specialized construction techniques that will be required to provide site access roads, parking, and other facilities. Safety standards refer to the particular requirements of proposed highway intersections, such as sight distances and stopping distances. Consideration should also be given to hazards that exist within the vicinity of the site such as steep slopes, fast-running rivers, and bear habitat.

A careful assessment of site constraints is of critical importance in the site selection process. Therefore, it is often necessary and desirable to consult with a park warden, an engineer, a landscape architect, or other experts for advice and recommendations.

e) Reclamation Required

Potential interpretive sites which include abandoned right-of-ways, stockpile sites, borrow pits, or other disturbed areas, will require special measures to protect the site from future damage or erosion, and to re-establish native vegetation. Severely compacted sites have advantages for the construction of access roads and parking areas, but are a limiting factor for natural regeration and new planting. In the assessment of potential sites, the extent of disturbed areas, and the amount and type of reclamation required should be carefully considered.

f) Attractiveness

Attractiveness is a measure of the key characteristics of a site which provide satisfaction and enjoyment for users desiring the given interpretive activity or experience. It includes measures of carrying capacity, visual quality, and the relative cost of facilities for each activity. Attractiveness also depends upon the ability of the site to attract users from within the travel corridor. Approaching views from the parkway to the site should encourage corridor users to stop and explore.

In order to complete the site selection matrix, ranking values for each site should be applied on the basis of each criteria used. The ranking values are based on a numerical scale which may vary depending upon the desired complexity. A scale of three may be sufficient in most instances, with three considered the high value and one considered the low value. Independent of the criteria used, a high value implies a positive score (ie/ a requirement is fulfilled or a constraint is not significant at that site).

It should be noted that each criteria used may not be of equal importance. In the construction of the site selection matrix, the planning team may emphasize a particular requirement or constraint by the use of a multiplier factor. Ranking values should be adjusted accordingly.

*For a sample matrix, reference should be made to Chapter 4, The Boreal Island Exhibit Plan, Section 4.3, Site Selection (p. 46).

6.1.4 Inventory and Analysis

Once the most suitable site has been selected using the site selection matrix, a resource inventory should be compiled for the project area. This will involve air photo interpretation and the preparation of base maps, to establish the locations of all surface features including the locations and species of trees, water courses, and general topography. Topographic maps and air photos at 1:500 (metric) scale are most useful for recording detailed information and as base maps for final site development plans. Where 1:500 scale maps are not available, smaller scale maps or air photos can be photographically enlarged.

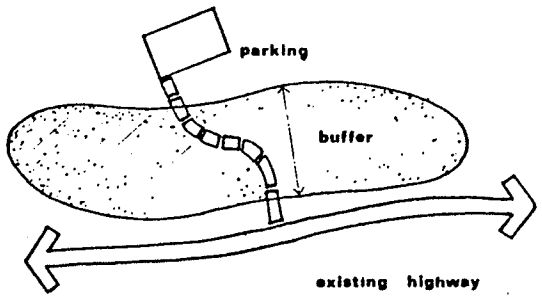
On-site surveys and measurements will be required to confirm base map information and to provide more detailed information about microclimates, plant communities, soils, slopes, drainage, wildlife habitat, interpretive features, views, spatial definition, and other relevant site data.

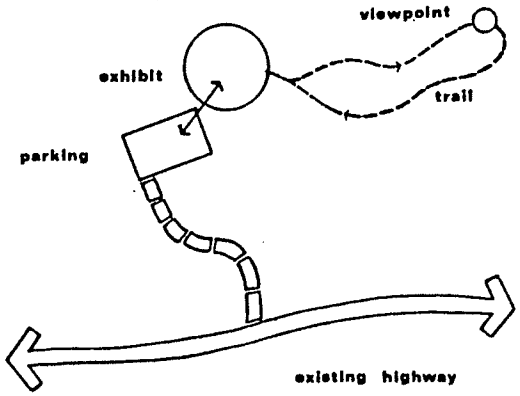
The next step is the analysis of the information gathered in the resource inventory and on-site surveys. This is an assessment of landscape capability or the qualitative measure of the site's potential to provide for a specific use or activity. The site analysis plan may be prepared using a color overlay technique which illustrates vegetation types, soils, landform and drainage patterns. The composite results of this overlay technique should be indexed with a concise description of sensitive environmental conditions and limitations for site development.

6.1.5 Concept Plan

The results or conclusions of the analysis plan are not meant to delineate the overall layout of the project, but should provide a framework upon which the concept plan can be developed. Plans and sketches should be prepared to illustrate the design intent and to show the sequence and variety of the on-site experience. In many cases, more than one concept will develop. The planning and design team should be prepared to discuss and evaluate alternative concepts by reviewing the project requirements, the site analysis, and by rechecking the proposals in the field.

Preliminary cost estimates should also be prepared and weighed against the benefits of alternative schemes.

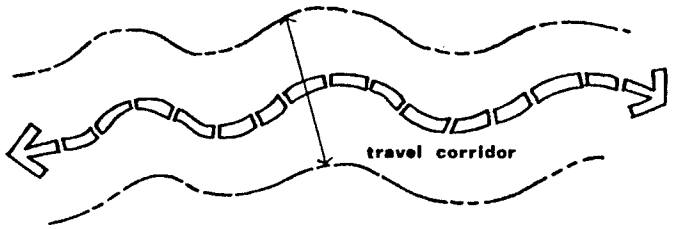




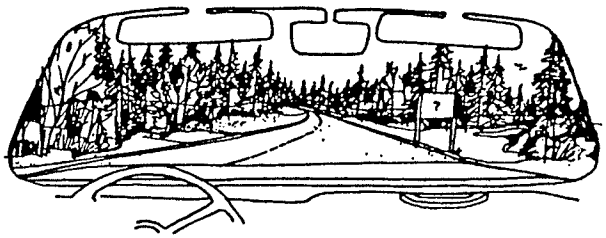
6.2 DESIGN GUIDELINES

6.2.1 The Travel Corridor

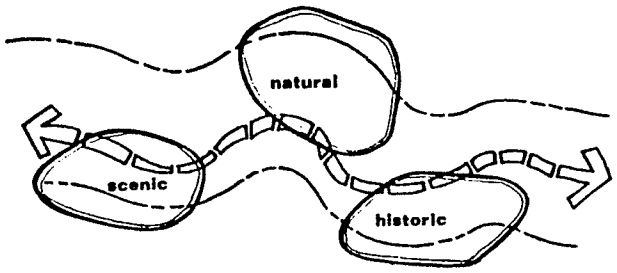
Since the interpretive program depends for its success on reaching the maximum number of people, potential interpretive sites should be identified within the travel corridor. In Riding Mountain National Park, this corridor zone is approximately 1200 metres (4000 feet) wide, centred on the Riding Mountain Parkway.



The view from the road can provide the motorist with an initial broad exposure to the park landscape. Interpretation at this scale should be directed to introducing the significance of the area he is passing through, and the major interpretive themes around which the entire interpretive program is structured.



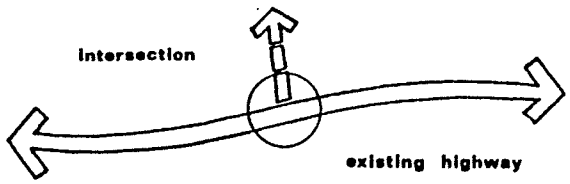
The sequence and spacing of interpretive opportunities within the travel corridor should be carefully considered. Potential interpretive sites should take advantage of road alignment locations which reveal scenic, natural, and historic features at reasonable intervals.



6.2.2 Access Roads

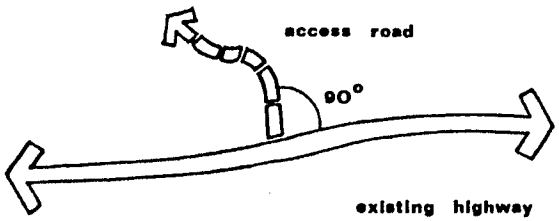
Certain principles are common to all access road location planning.

Intersections along a major highway may be restricted to a single point where adequate sight distances can be provided in both directions.



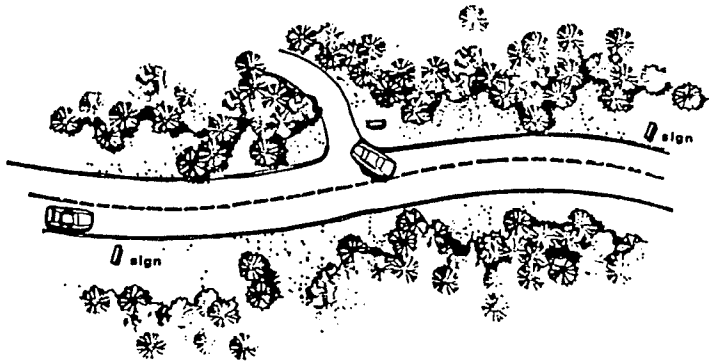
Intersections and access roads may be detrimental to the visual experience of motorists if they are not properly located with respect to the view from the road.

To reduce the visual impact of access roads, they should be curved as soon as possible after leaving the parkway. A short 90 degree tangent sufficient for two truck lengths should be provided.

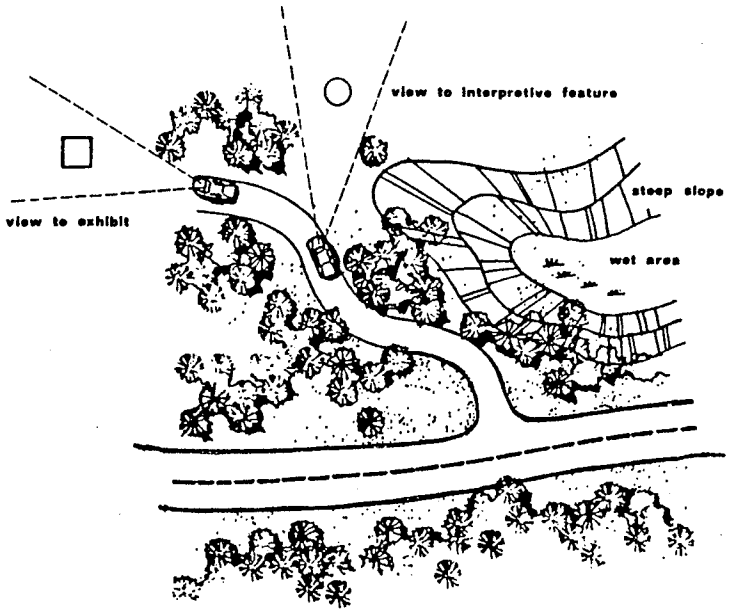


The objective should be to encourage the motorist to stop and explore.

The provision of well-marked stopping places is important to allow the driver to get off the road and view an exhibit or obtain information.

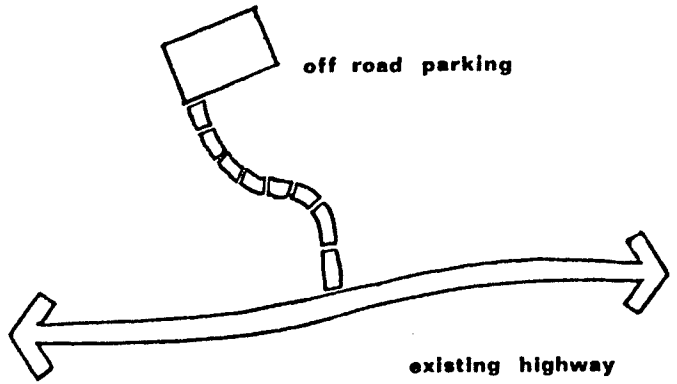


The location and treatment of roads on-site should respond to the detailed landscape, avoid steep grades and wetlands, and seek out opportunities to emphasize interpretive features. Where possible, the alignment location should direct views to the interpretive exhibit and supporting amenities.



6.2.3 *Parking*

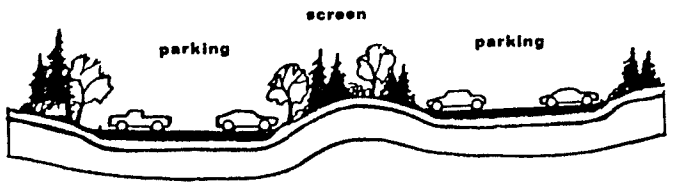
Parking can be an effective method of controlling public use of an interpretive facility. Well-designed parking permits access at one designated point and is important to the preservation of on-site resources.



Parking should be located off the main road and should be associated with gathering places, on-site exhibits, and trailheads.

Where possible, parking should be located on relatively flat, well-drained areas. Situations should be avoided which require extensive grading in order to create level areas.

Parking areas should be kept as small as possible to minimize the destruction of natural areas. In most cases, space for 10-15 cars will be sufficient for an on-site exhibit. Where greater use is anticipated, the visual impact of parking areas should be minimized by dividing lots into small components of 8-10 cars using vegetation or variations in topography as screening.



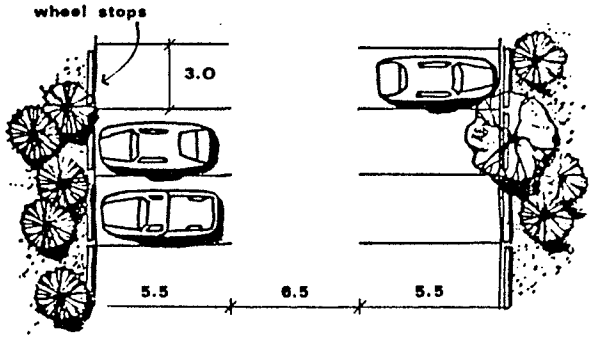
Parking layout will depend upon the interpretive facility being served, types of vehicles, and the physical conditions of the site.

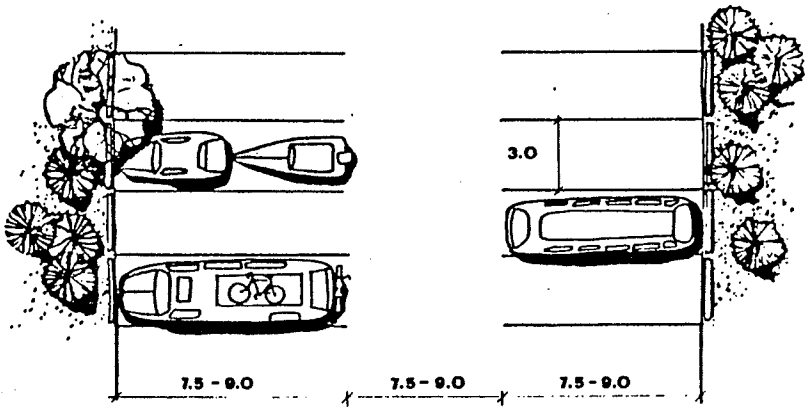
Automobiles require 5.5 X 3.0 metre spaces with 6.5 metre back-out and circulation space to manoeuvre.

Schoolbuses, mobile homes, campers, and cars with trailers require 7.5 X 9.0 metres with an equal amount of circulation space to manouevre.

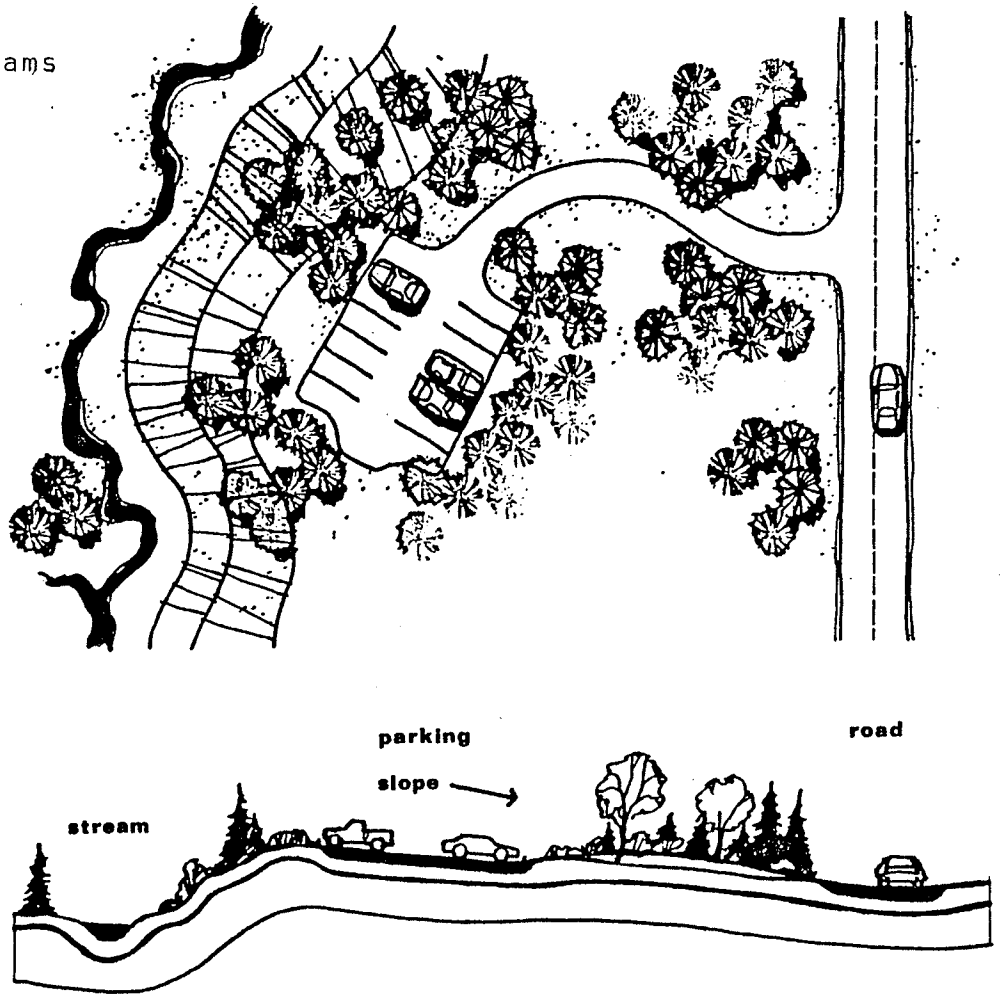
Individual parking spaces should be clearly defined using wheel stops to control circulation and protect adjacent vegetation.

Shaded parking is desirable.

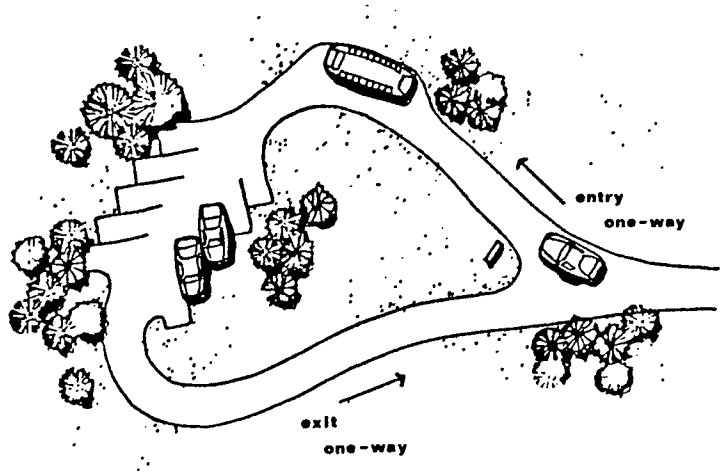




In situations where parking areas are located near streams or lakes, drainage from the parking area should be intercepted by swales or rolled surfaces to prevent uncontrolled run-off and avoid siltation of water bodies.

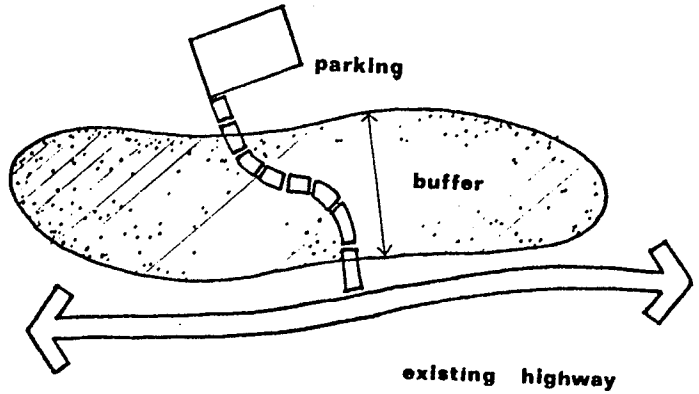


Consideration should be given to one-way entry and exit lanes to facilitate circulation. Angle park to prevent exit against on-coming cars.



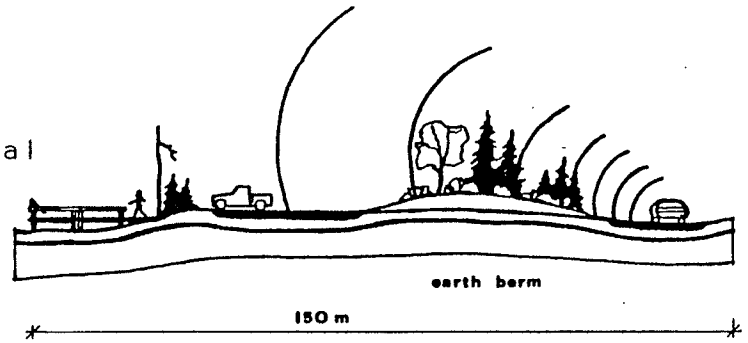
6.2.4 Experience Buffer

In order to maintain the quality of the on-site experience, highway traffic should be screened. A buffer area of at least 150 metres (500 feet) is desirable. Exact distances will depend upon actual site conditions such as topography, vegetation cover, and traffic volume on adjacent roads.



Traffic noise may be reduced by the presence of any obstruction that interrupts the line of sight between the noise source and the receiving point (however, trees and shrubs have been found to provide very little shielding).[29]

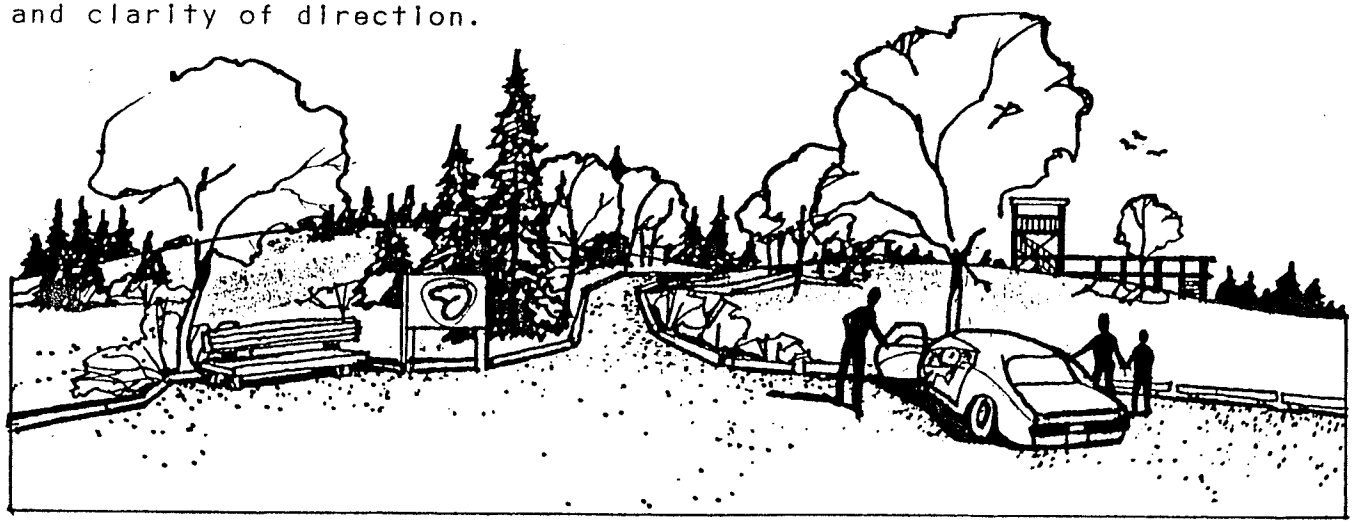
Natural landscape should be used to the best advantage. Rolling or hilly terrain may provide visual and accoustical benefits that are not available on flat or hollow sites. Where feasible, earth berms may be constructed to control views and reduce highway traffic noise.



6.2.5 On-Site Exhibits

Since detail can be appreciated to a much greater extent on foot than by car, effective on-site interpretation can occur within a relatively small area. The function of the on-site exhibit is to maximize interpretive opportunities and minimize adverse environmental impacts caused by intensive use.

Controlled circulation plays a vital part in the interpretive experience. The treatment of access from parking areas, gathering places, signs, walkways, and display areas becomes critical to provide orientation, ease of movement, and clarity of direction.



The approach view and access from the parking area should not be obstructed by parked vehicles.

Provision should be made for assembly areas for larger groups such as school children.

Walkways should be clearly defined by prepared surfaces, edges or railings. Shrub planting and earth berms may be utilized to control circulation and prevent shortcutting.

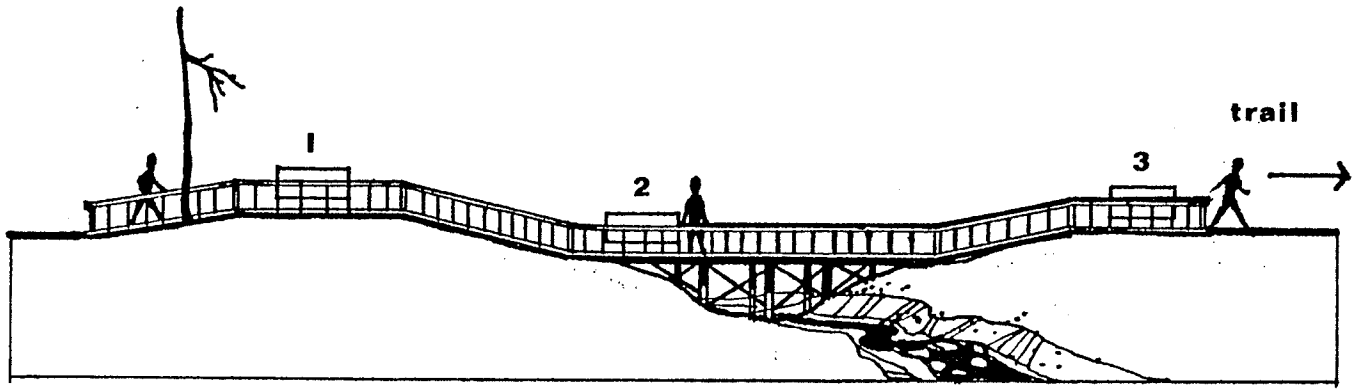
Barrier-free access should be provided for handicapped users.

Display areas where people congregate should be widened to facilitate circulation.

The exhibit structure should provide a degree of comfort and shelter. Location and orientation of display areas should provide protection from winds, warming sun or cooling shade as required.

The specific location of the on-site exhibit should enable a variety and sequence of views and display areas. The exhibit structure may create or take advantage of distant landscape views or short range views which direct attention to natural, cultural or historic features. The proximity of interpretive features (ie/ touching distance) may be an important consideration.

As the complexity and sophistication of exhibits increases, the need for controlled display areas also increases. The sequential display of information to achieve an integrated interpretive experience may be accomplished by locating display areas at intervals in relation to each other, and by controlling circulation.



6.2.6 *Interpretive Information and Signage*

The placement of interpretive information and signage is an integral part of the on-site exhibit. The exhibit structure or spaces should be designed to reveal only the features to be interpreted. The function of interpretive signage is to produce interpretive contacts as efficiently and effectively as possible by providing visitors with a sense of participation and self-discovery.

Interpretive signs should read in visual context of the feature to be interpreted.

Backlighting for major viewing points is desirable.

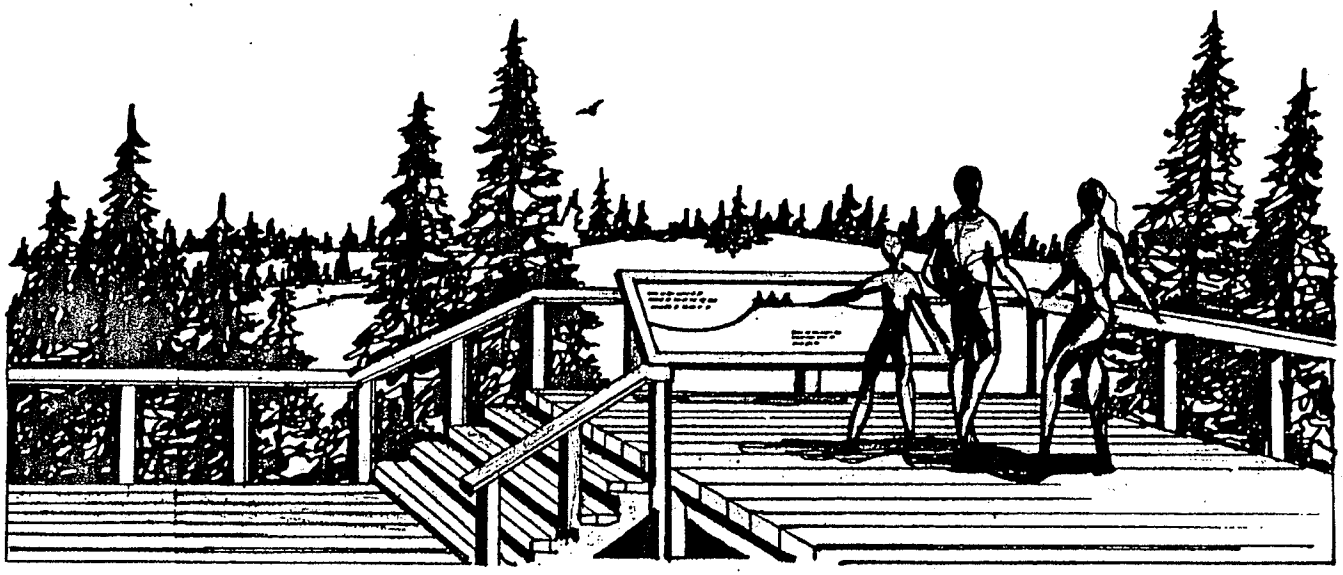
The angle of the reading surface should be about 90 degrees to the observer's line of sight.

Where graphics can supplement written words, they can enhance understanding of the elements of the feature.

Some provision should be made for viewing by small children.

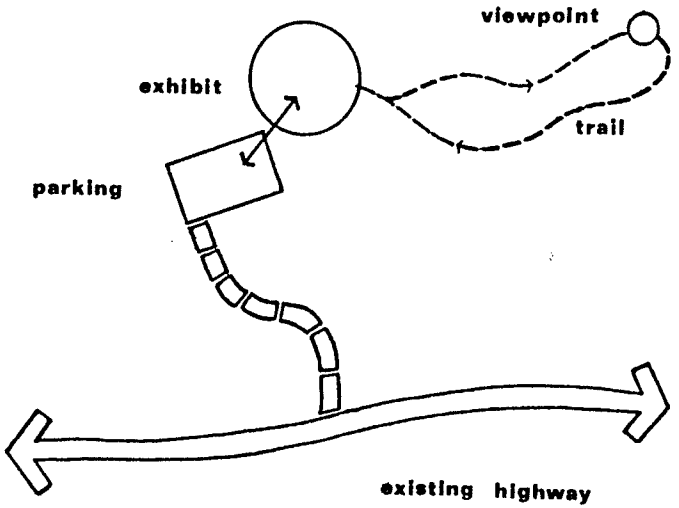
Care should be taken not to block the feature being interpreted by the sign.

For additional information, reference should be made to Parks Canada Policy and Procedures Manual, PRM 40-1, Volume 2, Interpretation, Section 4.10, Interpretive Signs.



6.2.7 *Interpretive Trails*

An important function of the interpretive trail is to provide non-destructive access to interpretive features which relate to and enhance understanding of the on-site exhibit theme. The trail layout should complement the exhibit sequence, and may provide additional interpretive information as required.



Access to the trail head from the exhibit should be clearly defined. A map or description indicating the trail length is desirable.

Trails should be looped, returning to the point of origin, and should generally not exceed one kilometre in length.

For detailed information concerning layout, media options, and trail materials and structures, reference should be made to Parks Canada Trail Manual, Part 4, Section 4.6, Interpretive Nature Foot Trails.

Reference should also be made to Parks Canada Policy and Procedures Manual, PRM 40-1, Volume 2, Part 4, Section 4.8, Self-Interpreting Routes.

6.2.8 Non-Interpretive Support Services

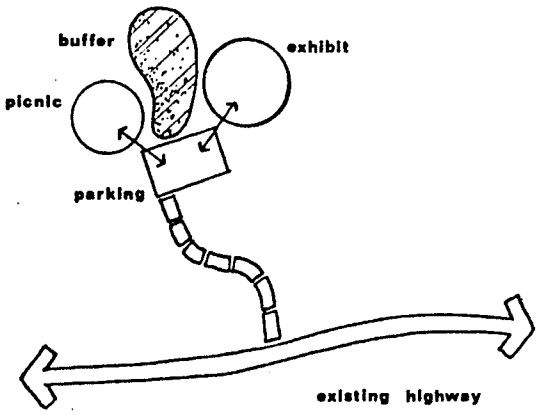
On-site interpretive exhibits and trails are frequently removed from access to essential services. Provisions for picnicking, garbage disposal, and basic toilet facilities may be incorporated to meet visitor needs. However, careful design to assure that there is no conflict between these and interpretive activities is essential.[30]

Where the need for picnicking facilities has been identified, access to picnic sites should be directly associated with parking areas.

A reasonably level, grassed area with partial shade should be provided within short walking distance from parked vehicles.

A buffer zone which utilizes natural topography or planting may be required to separate interpretive activities.

Garbage receptacles should be provided at each picnic site.



6.3 CONSTRUCTION & MAINTENANCE GUIDELINES

6.3.1 General

The construction of access roads, parking areas, exhibit structures, trails, and support services may disturb the environment in a number of ways. Similarly, human contact and concentrated use of interpretive facilities may result in environmental degradation unless effective maintenance operations and suitable management programs are implemented. In order to insure the success of the interpretive program, it is important that construction and maintenance requirements are carefully considered in the site planning and design process.

In general, similar principles will apply to the development of on-site interpretive facilites as apply to trails and trail structures. In order to avoid duplication of information, reference is made to Parks Canada Trail Manual, Part 3.0, Construction and Maintenance Guidelines. Additional information and guidelines have been provided where appropriate.

6.3.2 Materials and Structures

Types of materials and details for structural design should be determined by the particular needs of the activity. For example, exhibit structures, where there will be a wide range of users, should provide a high degree of comfort and safety. To facilitate use by handicapped visitors, ramps, non-slip surfaces, and handrails should be provided. Handrails are essential for elevated boardwalks and lookout points, and provide a satisfactory base for mounting interpretive display panels.

As a general guideline, natural materials and finishes are most suitable for exhibit structures and non-interpretive support services such as toilet facilities, garbage receptacles, picnic tables, seating, signposts, and wheelstops. Coordinated use of materials and construction details is also an effective method of providing an overall unity of elements within the development. For trail structures, however, it may be desirable to build structures using local materials such as timber from clearing operations rather than lumber imported to the site.[31]

Where possible, exhibit structures should be designed to be flexible. Provisions should be made for the replacement of vandalized display panels or for the rotation of seasonal information. The relative permanence of major structures should be considered with regard to future interpretive programs. The on-site exhibit may eventually become obsolete, and abandonment and/or relocation and site restoration will become necessary.

6.3.3 Selective Clearing

The removal of vegetation required for the construction of access roads and parking areas should be supervised by a landscape architect or other qualified personnel. In some instances, it may be desirable to transplant material.

Prior to actual clearing operations, large trees to be removed should be clearly marked, and provisions should be made for the access of mechanized equipment. Actual clearing should be limited to the development area, and protective measures such as snow fencing should be considered for adjacent vegetation. Clearing of sensitive sites such as steep slopes or water courses should be avoided.

Where feasible, the removal of topsoil, surface vegetation, or stumps by bulldozing operations should be avoided since this creates erosion problems and inhibits natural regeneration.[32]

Cleared areas should attempt to create natural forest openings with a natural edge condition. This has advantages for wildlife as well as visual benefits.

Selective clearing for viewpoints and exhibits should attempt to frame as well as expose scenic and interpretive features.

Cleared vegetation may be utilized for construction materials or disposed on-site by scattering.

6.3.4 Vegetation Management

Vegetation management is an important factor in reducing landscape maintenance costs.

In order to manage on-site exhibits effectively, it is necessary to identify a hierarchy of management areas. Since grassed areas are usually the most expensive to maintain, the amount of turf should be kept as small as possible. Areas where smooth mown turf are desirable are picnic sites and gathering places associated with parking areas and on-site exhibits. Rough mown areas may include highway ditches or other areas where unobstructed sight lines are desirable.

Ground-covers are an effective substitute for grass, and once established require very little maintenance.[33] Suitable locations include shaded areas and embankments. "Forest floor" mulch and leaf litter also provides a natural cover, and may encourage the growth of wildflowers and other native species which provide food for birds and other wildlife.

Shrub planting may be used to create an effective barrier to control circulation and to prevent shortcutting. Shrub planting normally requires the preparation of planting beds with an appropriate soil mix. Planting beds should utilize smooth corners to facilitate mowing equipment where necessary.

Another important factor in reducing landscape maintenance costs is to create natural areas through reforestation and natural regeneration. In addition to financial advantages, there are other benefits associated with reforestation such as more productive wildlife habitat, improved aesthetics through a more natural treatment, and wind and erosion control.

Reforestation is particularly suited to the creation of buffer areas between the interpretive exhibit and the highway environment. Planting technique should attempt to vary edges, leave openings, and vary spacing to create a more natural character. Native tree species should be used exclusively.

On compacted sites where natural regeneration is desirable, the area should be scarified and heavily cultivated.

6.3.5 *Preventive Maintenance*

Unmanned interpretive facilities are often subject to vandalism. The problems of vandalism and other depreciative behavior are more than a matter of deliquent behavior. Their complexity demands preventive measures designed to fit the particular situation.[34]

Regularly scheduled maintenance is perhaps the most important preventive technique. Where on-site exhibits, trails, and parking areas are kept in good repair and free of litter there is likely to be less vandalism.

High quality, durable, and attractive facilities are basic deterrents to vandalism. Wherever possible, design solutions should attempt to satisfy visitor needs. Careful consideration should be given to location, function, operational and supervisory procedures, ease of circulation, maintenance, appearance, and human nature.

Design solutions should also seek protective measures that are oriented toward attitude change. Explaining reasons for closing facilities is important to enlist public support for management programs.

Site design should enable easy surveillance by park wardens and others. Parking areas and on-site exhibits that are partially visible from the highway may discourage would-be vandals.

Prompt repair of facilities is a major deterrent to further damage.[35]

7. CONCLUSION

Figure 21. A Guided Hike on Ma-ee-gun Trail.

(Courtesy of Riding Mountain National Park)

A fundamental goal of this study has been to upgrade and expand the function of the Riding Mountain Parkway as an interpretive route, while minimizing the environmental and social impact of development. The parkway corridor contains an excellent cross-section of the broad pattern of landscape features that exist within the park as a whole, and potential exists to provide parkway users with at least a "threshold Riding Mountain experience" and to provoke a greater awareness of the nature and structure of the park landscape. Since the largest percentage of parkway users consist of through-traffic, a self-guided auto tour which incorporates a series of high quality on-site exhibits is considered to be the most efficient means of establishing interpretive contacts.

The proposed interpretive development plan for the parkway corridor has identified seven on-site interpretive exhibits to present the major interpretive themes for the park in a comprehensive and balanced manner. These major themes are the Manitoba Escarpment; the Conjunction of Eastern, Western, and Northern Flora and Fauna; and the Island Landscape. Adequate interpretive orientation to the parkway will also require three facilities. These facilities will provide key distribution points for the self-guided auto tour, and an essential coordinating link for interpretive activities elsewhere in the park.

The Boreal Island Exhibit is regarded as an appropriate first step towards the successful integration of the proposed interpretive plan for the parkway corridor. Through careful consideration of siting, scale, access, and visitor use patterns, the design attempts to take advantage of a previously disturbed site and provide a high quality interpretive experience. Using the Boreal Island Exhibit as an example,

a series of development guidelines have been established. These guidelines should relate to any interpretive facility which might be developed in conjunction with the proposed parkway corridor interpretation system. To insure that the Boreal Island Exhibit continues to meet its design objectives, a monitoring process should be implemented. This monitoring process should be aimed at assessing the physical impact of the development on park resources, as well as the impact of the interpretive program on park visitors. The results of this review process may be used to re-evaluate or add to the development guidelines for the corridor, and to guide future development.

Future development and the diversification of integrated interpretive opportunities within the parkway corridor can enhance the quality of visitor experience had by many who see the park mainly through their car windows. By providing an adequate choice of on-site interpretive facilities, the proposed interpretation system can become an efficient means of distributing use within the corridor so as to both spread the visitor load and focus activity in small geographic areas. Environmental impact can be relatively minor, particularly where previously disturbed and resilient sites are utilized. A systematic approach to interpretive design and development can also provide for more visitors and increase public support for park management policies by encouraging more sensitive, informed, and aware park users.

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