



Lighthouse Park Management Plan

CATHERINE BERRIS ASSOCIATES INC.

June 2004

west vancouver

A C K N O W L E D G E M E N T S

Planning Task Group:

Corinne Ambor, Project Manager for Management Plan
Phil Baudin, Parks and Environment Advisory Committee
Marja de Jong Westman, Lighthouse Park Preservation Society
President
Michael Evison, West Vancouver Chamber of Commerce
Elaine Graham, Lighthouse Park Attendant and Naturalist
Hugh Hamilton, Parks and Environment Advisory Committee and WV
Streamkeeper
Ann Jackson, Dog Behaviorist
Sue Ketler, Recreation Supervisor Outdoor Programs
Karen Kristensen, Park Design Planner
Doug Leavers, Manager, Parks & Environment
Glen Minaker, Park Operations Manager
Eva Nagy, Vancouver Natural History Society; David Cook, Alternate
Marny Peirson, Heritage Advisory Committee

With input and assistance from:

Robert Fontaine, West Vancouver Police Department
Don Steinbart, West Vancouver Fire Department
Jeff Jenken and Jim Wild, Fisheries and Oceans Canada

Consultants:

Catherine Berris Associates Inc.

Catherine Berris, Principal in Charge
Heather Breiddal, Report Layout and Graphics

Special Thanks:

To all of the lovers of Lighthouse Park who contributed their ideas, thoughts and knowledge to the development of the Lighthouse Park Master Plan.

Photographs in this report were taken by: Elaine Graham, Catherine Berris, and Maurice Jassak (www.seethenorthshore.com).

Quotes in the left margin are from letters and comment sheets submitted by the public.

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	i
1.0 INTRODUCTION	1
1.1 Context for a Plan.....	1
1.2 Purpose of the Plan.....	2
1.3 Planning Process	4
1.4 Values of Lighthouse Park	5
1.5 Current Management Regime	8
2.0 ISSUES AND IMPACTS	11
2.1 Issue Identification.....	11
2.2 Site Analysis	22
3.0 GUIDING STATEMENTS	25
3.1 Vision.....	25
3.2 Acknowledgements and Principles.....	26
3.3 Goals and Objectives	28
4.0 MANAGEMENT PLAN	32
4.1 Park-wide Recommendations.....	32
4.2 Recommendations by Location.....	43
BIBLIOGRAPHY	46
Map 1: Site Inventory	
Map 2: Site Analysis	
Map 3: Concept Plan	

EXECUTIVE SUMMARY

Introduction



Lighthouse Park, 75 hectares in size, is a nationally¹ significant natural park within West Vancouver. It has important natural and cultural resources, and very high levels of use by local residents and tourists. There has never been a management plan for Lighthouse Park.

Lighthouse Park is a biologically rich and unique resource, considered by many to be the “jewel” of West Vancouver’s park system. The highly diverse animal and plant species of the drier Douglas-fir zone that occurs in the park are at risk because of the limited distribution of this habitat. Of equal importance is the fact that Lighthouse Park is one of the few remaining examples of an old growth coastal forest² in the Lower Mainland. The park has been noted by ecologists as being unique in British Columbia and Canada.

The cultural history of the site is rich. Use of the park by First Nations goes back thousands of years. The lighthouse and light station grounds at Point Atkinson, a National Historic Site, enhance the park’s importance. The park was used for various military purposes, including a military defence position during World War II.

In 1999, in response to public concerns about the impacts of the film industry on the park, the District of West Vancouver initiated a management planning process. The first phase involved preparation of a detailed ecological study and environmental assessment, *Ecological Study of Lighthouse Park* (Entech, 1999). This was followed by a visitor survey by Synovate (2002). Both reports were summarized along with other relevant information in a *Background Document* (2003).

“We love it for its natural beauty, location and the spiritual refuge it offers.”

It is clear that the community of West Vancouver and people living beyond municipal boundaries appreciate Lighthouse Park. The challenge is to develop a plan that will protect the resources and manage the impacts so that the park will remain a highly valued resource for years to come.

¹ B.Coates and C. Mondor, An Assessment of the National Significance of Lighthouse Park. [Note: Full references are provided in the Bibliography.]

² For the purposes of this plan, “old growth forest” is defined as stands of forest that have been untouched by man or fire for 150 years or more.

The primary purpose of the Management Plan for Lighthouse Park is to develop a publicly supported Plan that will provide guiding statements and recommendations for the long-term management of the park's natural, cultural and recreational features.



This Management Plan was prepared with the guidance of a Planning Task Group composed of municipal staff and diverse community interest groups. Two public meetings were held; the first to view a first draft of the plan and some options; and another to view a more complete draft plan. A significant amount of informal consultation with the community also occurred.

Despite the lack of a formal management plan, maintenance activities within the park have included habitat restoration, trail and signage improvements, and a Fire Preparedness Plan. The Lighthouse Park Preservation Society and other community members have been involved in stewardship activities.

Issues

Many of the issues facing Lighthouse Park result from the very high levels of human use causing impacts on the sensitive environmental resources. Others result from incremental changes in the park having been made in the absence of a long-range management plan.



The key **environmental** issues include:

- reduction and loss of natural vegetation,
- decline in both viable habitat and animal and plant diversity,
- erosion,
- fire hazard,
- the competitive success of invasive non-native species,
- illegal fishing, and
- soil contamination around the light station.



The primary **park use** issues include social and environmental impacts related to:

- the number of visitors,
- dogs and their management,
- commercial uses (recreational and non-recreational),
- group use, and
- public education and interpretation.



The main **cultural and heritage** issues include:

- protection of cultural and heritage resources,
- public education and interpretation on cultural and heritage resources, and
- public access to the lighthouse and light station grounds.



Operations and maintenance issues include:

- a lack of building and maintenance standards,
- hazards and risks,
- illegal park use,
- the condition of the parking lot, septic system and signs,
- trail maintenance, and
- available funding.

Land status issues include:

- future ownership and management of the park, and
- future ownership and management of the light station grounds.

Site Analysis

A detailed review was conducted of information available on the park's resources, and a field review was completed to determine current conditions. Based on this information, a Site Analysis was prepared (see Site Inventory map and Site Analysis map). The Site Analysis divides the park into discrete areas and provides a summary of the opportunities and constraints of each area. This analysis helps to guide the recommendations.

Vision

The plan is based on a vision that was developed in collaboration with the Planning Task Group. The vision is expressed in the present tense since it represents how the Planning Task Group hopes the park will be described in the future.



*Lighthouse Park is **significant ecologically** and is a natural sanctuary from the surrounding urban environment. The park preserves and protects a natural coastal old growth rain forest and marine shoreline ecology; resources that are more commonly found in a wilderness setting. It is an educational and recreational resource where visitors can come to learn about the natural world of British Columbia's coastal forests and view representations of our cultural heritage.*

*The **community is knowledgeable** about the significance of Lighthouse Park and supports protection of the natural and cultural values within the park. There is a high level of community leadership and involvement in its stewardship. The park is an enjoyable setting and also provides physical and spiritual renewal. Access is easy and pedestrian and vehicular circulation routes are clear. Park visitors are encouraged to treat the park with respect. The park is so appreciated that it will always be respected and protected while being enjoyed for passive recreation activities like walking, hiking and picnicking.*



*Lighthouse Park is a **precedent** demonstrating exemplary management of natural resources while balancing the many demands on it. Habitat restoration and enhancement initiatives complement the facilities that support the park as a regional natural, recreational and cultural attraction. The park establishes a foundation for interconnected natural areas supporting biodiversity³ through West Vancouver. The land has been secured as a park in perpetuity.*

The Lighthouse Park Management Plan outlines acknowledgements and principles that guide the plan. Elaborating upon these are goals and objectives which are categorized into five groups: environmental, park use, culture and heritage, operational and maintenance, and land status.

³ Biodiversity includes ecological diversity, species diversity and genetic diversity within each species.

Park-wide Recommendations

A key recommendation is to develop an Implementation Strategy for the Lighthouse Park Management Plan, including an Implementation Task Group, who will assist in determining the priorities and address the recommendations.

The park-wide recommendations for Lighthouse Park are listed under the following key points:

Environmental

- Rename the park “Lighthouse Nature Park”.
- Develop and implement a vegetation management plan.
- Initiate habitat restoration and enhancement projects, including application of the Federal Species at Risk Act if required⁴.
- Develop and implement an invasive non-native species management plan.
- Develop and implement a wildlife management plan.
- Compile the results of environmental monitoring two years after plan adoption and assess the environmental benefits and impacts of the Management Plan.
- Support environmental research and studies in the park.
- Work with others to obtain better protection for the park’s biological health.



Park Use

- Adopt policies for management of non-commercial recreational use within the park that include:
 - All recreational use only on designated trails and use areas,
 - Code of conduct for all recreational uses within the park,
 - Contacting organizations who bring groups to visit the park,
 - Investigation of a dog education and certification program,
 - Managing new recreational activities as they occur, and
 - Working to obtain public access to the light station grounds.
- Adopt additional policies for management of commercial recreational use that include a permit system for certain commercial and group uses only, where there is a demonstrated benefit to the park.
- Modify the program and operating parameters of the District of West Vancouver day camp programs to have an environmental focus.
- Develop a park interpretive plan that expands upon existing information.
- Continue and enhance trail management efforts.

Culture and Heritage

- Develop a plan for managing the Park’s cultural resources, including assessment, strategy and implementation.

⁴ For details on the Species at Risk Act, see footnote #32.



Operations and Maintenance

- Develop an approach to securing appropriate finances and resources.
- Ensure that systems are in place for monitoring and enforcement.
- Continue to improve procedures for fire protection.
- Develop appropriate construction and maintenance standards and guidelines.
- Develop and implement a formal sign plan with sign standards.

Land Status

- Work with the federal government and First Nations to identify options for protecting the land as a park in perpetuity.

Recommendations by Location

The following is a summary of key recommendations by location (see Concept Plan map):

Park Entry Area

- Improve safety along Beacon Lane.
- Improve the organization of the parking lot and upgrade it.
- Provide a fully accessible new park visitor hut with washrooms near the parking lot.
- Consolidate and improve all signs including park entry sign.
- Develop a Handi-Dart loading area in the parking lot and a universally accessible trail from the visitor hut along a portion of the Juniper Loop trail.

Service Road Area

- Ensure that users of the road are aware of the multiple uses.
- Develop and promote a new “Lighthouse Loop” trail that includes the service road and the Valley Trail.

Park Buildings

- Continue to support existing uses of Sk’iwitsut House and Phyl Munday Nature House.
- Enhance the displays, infrastructure and visiting hours for Phyl Munday Nature House.
- Assess the other buildings to determine their potential for restoration and adaptive uses.
- Improve the layout of this area.
- Add complementary features.



Lighthouse and Light Station Grounds

- Work with others to obtain public access to the light station grounds and lighthouse, and provide interpretive facilities.
- WHEN the above is achieved, create a risk management plan to eliminate potential hazards prior to improving the site.
- Provide a new loop trail to the lighthouse along the shoreline.

West Side

- Encourage use of designated trails with directional signs.

West Waterfront

- Define use areas more clearly, and pockets for restoration.

East Side

- Maintain lower levels of use of this area to minimize impacts.
- Implement discrete but clear trail signs, including naming of trails to enhance ability of rescue and fire responses.

East Waterfront

- Restore damaged areas as required.

1.0 INTRODUCTION

1.1 Context for a Plan



Lighthouse Park, 75 hectares in size, is a nationally⁵ significant area accessible to visitors in the Lower Mainland. The combination of the prominent seaside setting, the natural resources, the cultural history, and the size of the park make Lighthouse Park a unique natural entity in an urban setting.

The park contains a relatively undisturbed mixed growth forest with outstanding examples of several mature tree species. The rock outcrops and steep rocky slopes along and above the shoreline also host rare plants. These areas are particularly sensitive to a variety of impacts.

The cultural history of the site is rich. Use of the park by First Nations goes back thousands of years. The lighthouse and light station grounds at Point Atkinson, a National Historic Site, enhance the park's importance. The park was used for various military purposes, including a military defense position during World War II.



Lighthouse Park is a regional attraction and visitors come from a wide range of locations, national and international, to enjoy the natural setting and the lighthouse. Advertising for Lighthouse Park is found in brochures and on the Internet, and it is described as “one of the last remaining coastal old growth forests⁶ found in the Lower Mainland in an urban environment” (Entech, 1999). For local residents, Lighthouse Park is very important for its natural history, beautiful location, easy access and tranquility.

Lighthouse Park is owned by the federal government and is leased to the District of West Vancouver until 2026; thus the long-term future of the park is uncertain. The light station grounds are not included in the lease. This area is managed by the District of West Vancouver based on a letter of permission from Canadian Coast Guard. Four First Nations have land claims on lands that include Lighthouse Park.

There is currently no management plan for Lighthouse Park. Historically all management has been done following policies and guidelines adopted over the years by Council and Parks staff.

⁵ B.Coates and C. Mondor, An Assessment of the National Significance of Lighthouse Park. [Note: Full references are provided in the Bibliography.]

⁶ For the purposes of this Plan, “old growth forest” is defined as stands of forest that have been untouched by man or fire for 150 years or more.

Lighthouse Park became a focus of Municipal Council in 1998 when the public raised concerns about the impacts of the activities of the film industry on the park. Filming in the park was banned by Council in 1998.

Following considerable public debate, the District of West Vancouver initiated an Ecological Study of the park as the first phase of management planning. A detailed report entitled *Ecological Study of Lighthouse Park* (Entech, 1999) was prepared. The study is an inventory and summary of the park's natural resources and the condition of those resources.

"This park is for people to enjoy the forest, ocean, view ships, sailboats etc. This love for the natural beauty forms character and makes a better society with higher moral values."

As part of the preparation for a Management Plan, the municipality was also interested in obtaining a greater understanding of the visitors and uses within the park. The *Lighthouse Park Visitor Survey Summer and Winter 2002* by Synovate provides important information on the visitors and current uses in the park in summer and winter.

The two reports above were subsequently summarized along with other relevant information into a *Background Document* (District of West Vancouver, 2003). The Background Document organizes and summarizes relevant information on the park, including its history, natural and cultural resources, public and commercial uses, management practices and current issues.

Once the Background Document was completed, the municipality initiated a Management Plan process for Lighthouse Park, which is described in this report. A Planning Task Group composed of municipal staff and diverse community interests was established to help guide the process.

1.2 Purpose of the Plan



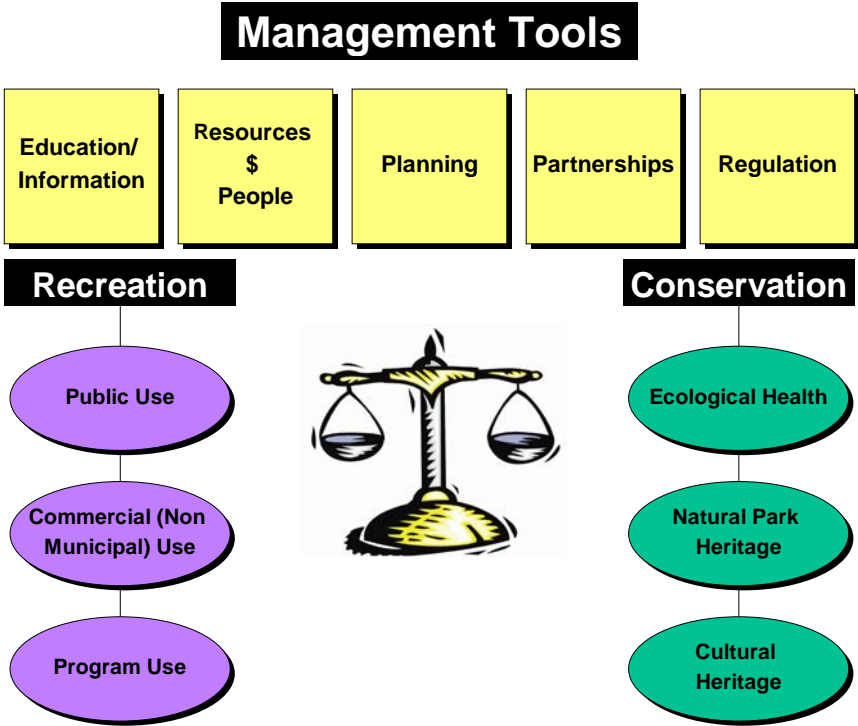
It is clear that the community of West Vancouver and people living beyond municipal boundaries appreciate Lighthouse Park. The challenge is to educate all park users about the park's ecological significance and to develop a plan that will protect the resources and manage the impacts so that the park will remain a highly valued resource for years to come.

The primary purpose of the Management Plan for Lighthouse Park is to develop a publicly supported Plan that will provide principles and recommendations for the long-term management of the park's natural, cultural and recreational features.

The Management Plan is intended to guide development of park management policies for the stewardship of the park's natural, cultural

and recreational features. The plan describes park opportunities and values, and attempts to resolve issues through management recommendations. The plan clearly defines what the future role of the park is with regard to environmental protection and recreational uses.

The following graphic provides a summary of the challenge inherent in this planning process. A variety of management tools can be implemented to balance the recreation demands and conservation values of Lighthouse Park.



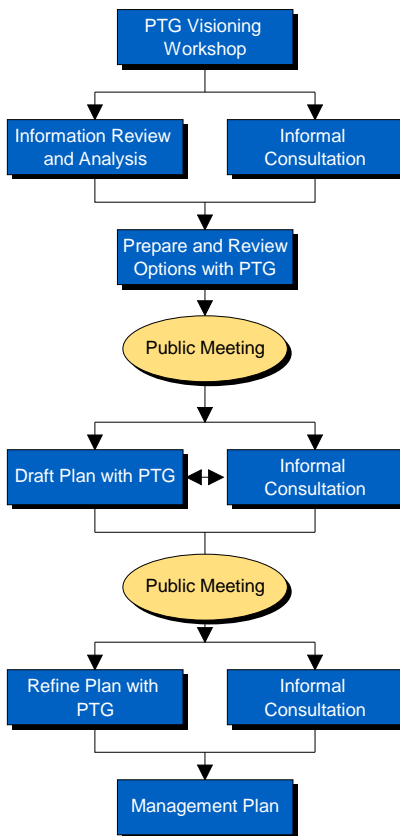
The Management Challenge

1.3 Planning Process



The Lighthouse Park Management Plan was prepared by a consultant guided by a multi-interest Planning Task Group. The park Management Plan process has given the Lighthouse Park user, community, and general public influence in the creation of the plan. It has involved them in the process of identifying uses, preferences, issues and values; generating and evaluating options; and providing feedback on various drafts of the plan.

The planning process began in July 2003, and involved the following key steps:



- Workshop with the Planning Task Group (PTG) on a vision, goals and objectives, and principles for the park.
- Review of existing information (including the Background Document, the *Ecological Study of Lighthouse Park* by Entech, and the *Lighthouse Park Visitor Survey Summer and Winter 2002* by Synovate), overview inventory and analysis of the park, and preparation of guiding statements for the plan based on the workshop.
- Informal consultation with interest groups not represented on the Planning Task Group (via letters and notifications about the planning process at its outset and invitations to public open houses).
- Workshop with the Planning Task Group to review the guiding statements and develop management plan options.
- Preparation of draft management plans including options (first draft) and recommendations (subsequent drafts).
- Presentation and discussion of the options and draft recommendations at two public open house meetings.
- Evaluation of public comments and additional information with the Planning Task Group.
- Preparation of a final draft of the management plan.
- Submission to Council for approval and adoption.



1.4 Values of Lighthouse Park



“While we, like others, enjoy Lighthouse Park’s recreational opportunities, we believe that protection of its now scarce coastal old-growth rain forest and marine ecology should come first in management plan decisions.”

Ecological Values

Lighthouse Park is a biologically rich and unique resource, considered by many to be the “jewel” of West Vancouver’s park system. The park falls within the Coastal Western Hemlock biogeoclimatic zone, one of 10 such zones within Canada. Within this zone, the park has two subzones. The drier of these is the Douglas-fir-Western Hemlock subzone, and the wetter one is the Western Hemlock subzone. In British Columbia as a whole, the animal and plant species of the drier Douglas-fir zone are at risk because of the limited distribution of this habitat. It is naturally restricted to a few pockets in southern B.C., and has been further reduced due to pressure from urban development. It is designated as an ecosystem at risk in BC.⁷

Of equal importance is the fact that Lighthouse Park is one of the few remaining examples of an old growth coastal forest in the Lower Mainland. Many of its majestic Douglas-fir and Western Redcedar trees are 500 years old, and there are also record-sized Broadleaf Maple, Bitter Cherry, Arbutus trees, and seaside stands of Shore Pines.

It is a classic coastal forest with typical understory habitats such as complexes of Sword Fern, Salal, and Skunk Cabbage. The richness of plant species is an indication of the diversity of habitats occurring in the park; from the sensitive rocky outcrops supporting Reindeer Lichens, mosses and lilies to the wetland muds supporting Skunk Cabbage and its companion species. Plant habitats and their condition determine the distribution and abundance of animals both globally and locally.

Previous Significant Studies

The book *Nature West Coast* by the Vancouver Natural History Society provides important information on the environmental resources within the park. That source documented 250 species of plants, at least 80 species of birds, 30 mammals, 4 reptiles, and up to 5 species of amphibians.⁸ These numbers do not take into account the significant numbers of terrestrial invertebrates and marine life also inhabiting the

⁷ B.C. Ministry of Environment, Lands and Parks, Coastal Douglas-fir Ecosystems.

⁸ Kathleen M Smith and Nancy J. Anderson. Nature West Coast. References are from 1988 edition, pp 157 – 225.

park. Lighthouse Park supports 29 species of rare and significant plants.⁹



In 1978, a review called *An Assessment of the National Significance of Lighthouse Park* was prepared (B. Coates and C. Mondor, National Parks Branch). The authors commissioned Dr. L.K. Wade¹⁰, Botanist and Ecologist, to review the vegetation of the park. The following are some quotes from Dr. Wade's assessment:

- “few if any other areas of comparable size (185 acres) in the Strait of Georgia Lowlands exhibit as great a variety of plant associations”
- “Lighthouse Park is the only remnant natural site in the Strait of Georgia Lowlands (Natural Region 2), the Province of British Columbia, and Canada combining edaphically¹¹ dry sites complete with virgin Coastal Douglas Fir zone vegetation and virgin Coastal Douglas Fir Zone/Coastal Western Hemlock Zone ‘transition’ forest”.

The *Ecological Study of Lighthouse Park*, by Entech Environmental Consultants (1999), is a thorough inventory and summary of the park's natural resources and the condition of those resources. This study was done at the request of Council to establish if there was ecological degradation as a result of filming activity at the park during the 1990s. The Ecological Study found that in addition to filming, a broad spectrum of human activity was having impacts on Lighthouse Park.

There are indications that the diversity of species in Lighthouse Park is diminishing¹². The 1999 Ecological Study documented the degradation of habitats and noted that many species of flora and fauna that were noted in *Nature West Coast* are no longer found in Lighthouse Park.¹³ Amphibians such as tree frogs and salamanders have not been seen since 1997. Night-hawks, Black-tailed Deer, Ruffed Grouse, Northwestern Chipmunk, Cougar, Black Bear, Saw-Whet Owl, Screech Owl and the Northern Alligator Lizard are scarce. Fifty-seven plant

⁹ Entech, *Ecological Study of Lighthouse Park*, Volume 1, pp 94 - 98 and Volume 2, Appendix III, IIIA, IIIB & IIIC; *Nature West Coast*, 1988, pp 29 – 156.

¹⁰ Dr. Wade is a biology instructor in the Pure and Applied Sciences Division at Capilano College, kwade@capcollege.bc.ca

¹¹ Edaphic means the biological influence of soil conditions on plant communities.

¹² Recent research by Dr. Geoff Scudder (Department of Zoology, University of BC, scudder@zoology.ubc.ca) shows that the areas of greatest species-richness and habitat variety in BC lie in southern Vancouver Island, the Okanagan and the Lower Mainland. However, these biodiversity “hot spots” have very little area (primarily in the form of park land and green space) available to support their inherent biodiversity.

¹³ Entech, pp 86 - 105 and 106 - 118.

species documented in 1973 have not been seen recently. In addition, the park now supports 53 introduced plant species, some of which out-compete native plants¹⁴.

Recreational Values



"The reason Lighthouse Park is so highly prized by our community is that it is a wilderness park right in the centre of an urban setting. We value it precisely because we have access to it and can incorporate the recreational use of it into our daily lives."

Large numbers of people visit Lighthouse Park year-round, with particularly high visitation in the summer. The park is commonly used for outdoor recreational activities such as hiking, dog walking, nature viewing, picnicking and bird watching. Other recreational activities include sport fishing and rock climbing. A number of commercial activities may also occur in the park, only some of which are condoned by the municipality.

Lighthouse Park is an internationally recognized attraction within the Lower Mainland because of its unique character and convenient location. It is also highly treasured by local residents, many of whom visit the park frequently. Lighthouse Park provides opportunities for healthy outdoor recreation. Visitors also appreciate the park as a natural sanctuary from the urban environment, citing the spiritual values offered by the experience of towering trees and delicate mosses.

As the Lower Mainland's population continues to grow, recreation demands on natural areas such as Lighthouse Park will continue to increase, while the relative amount of accessible natural areas will decrease.

Cultural and Heritage Values

"Cultural heritage of the park (first nations, military, coast guard, educational use, community pride and use, regional pride and use) is perhaps strongest of all West Van parks; what does that mean to us and its future? What opportunities for collaboration exist with others that see the park and its resources of extraordinary significance? and can help with the stewardship/ costs/ opportunities?"

The cultural and heritage resources¹⁵ in Lighthouse Park are among the most significant of any park in West Vancouver. First Nations have been using the Point Atkinson area for thousands of years and the Squamish refer to it as Sk'i-wit-sut. There is evidence that the First Nations used fire to improve the berry crop and deer habitat. Four First Nations groups include Lighthouse Park within their traditional territories.

The lands comprising Lighthouse Park were originally set aside by the federal government as a lighthouse reserve to provide a source of fuel for the steam-powered foghorn in the lighthouse. Light keepers, their families and assistants kept a watchful eye over Vancouver's harbour from Point Atkinson for over 120 years.

¹⁴ Ibid

¹⁵ For the purposes of this plan, "cultural and heritage resources" are defined as the buildings, structures, sites, traditional places, and landscapes that illustrate the physical and social history of Lighthouse Park including its associations with First Nations, the military, and the community of West Vancouver.



Vestiges of World War II can be found near the lighthouse. At that time, concern about a military attack led to a number of B.C. light stations being used for surveillance, including Point Atkinson. Two search lights, a gun emplacement, Battery Observation Post and military barracks were installed there. According to the Point Atkinson Fort Record Book, these installations functioned as a "Port War Signal Station" and an "Examination Battery". The Port War Signal Station, operated by the Royal Canadian Navy, identified all ships that came into the harbour. If the Navy was not satisfied with the identification of a particular ship, the Examination Battery could be called upon to fire a shot to stop them.

Some of the buildings that still stand are the former mess and kitchen building, now the Phyl Munday Nature House; the former Other Ranks Quarters building, now known as Sk'iwitsut House; the searchlight engine room; and No. 2 searchlight emplacement.

1.5 Current Management Regime

Existing Park Management Direction



Despite no formal management plan for Lighthouse Park, park management has been carried out following policies and guidelines adopted over the years by Council and Parks staff. The municipality's current management policy for Lighthouse Park is "... to leave the indigenous plant community in a natural state and that all non-native plants introduced to the Park are to be removed."¹⁶ Trees are to be left where they fall, unless they pose a safety issue or hinder trail use.

Park regulations, including a prohibition of fires and barbeques year-round, are outlined in the Background Document. The District of West Vancouver Parks Bylaw provides further direction on regulatory matters including activities permitted and prohibited in West Vancouver parks.

Since 1999, in response to issues identified in the Ecological Study, the Parks Department has carried out trail improvements in several areas of the park. Tertiary trails have been decommissioned, directional trail signs improved, a hazard tree assessment conducted, and new information signs installed on the kiosks in the parking lot. A new self-guided trail brochure was also produced.

The *Community Charter of BC* (most recently the *Local Government Act of B.C.*) provides "spheres of municipal responsibility", but no specific

¹⁶ West Vancouver Parks Department, Lighthouse Park Phase 1 - Background Document. Page 25.

mandate to conserve natural areas as park land.¹⁷ Therefore, if it chooses to do so, the municipality may look to other protective legislation and cooperative management, like the *Species at Risk Act* (national legislation) or the *Streamside Protection Act* (provincial), to protect natural areas as municipal parks.

Community Involvement

Over the years, community involvement has been evident at Lighthouse Park. The local community has assisted with invasive species removal, worked on the improvement of directional signs, and provided input on trail and safety improvements. Park visitors also regularly call when trees are down across trails or when there is damage or a potential safety concern in the park.

The Phyl Munday Nature House is open at least once per week to the public throughout the year, staffed by volunteers with the Girl Guides, who also maintain this educational resource.

“No one park can be all things to all people, therefore Lighthouse Park can concentrate on being a natural, native forest.”

In 1998, a group of residents formed the Lighthouse Park Preservation Society. Its stated goals are to: “work to protect the natural integrity of the park given its unique natural history and vulnerability to urban pressures; promote public awareness of the natural features of Lighthouse Park and to promote public support for its preservation; support the development of biological zones along the park boundaries and to work to prevent development encroaching on the park.”¹⁸ The Society holds monthly meetings, occasional work parties (e.g., invasive species removal), regular lectures on matters ranging from historical slide shows on the park to natural history, and have recently begun to publish a regular newsletter. The lectures, publicized in the park, are open to members and the public.

Fire Preparedness

The municipality has in place a Fire Preparedness Plan for all municipal parks. Given the importance of Lighthouse Park and its proximity to residences, a subsection of the Park Fire Preparedness Plan pertains uniquely to Lighthouse Park.



¹⁷ Two “spheres” (public health and **protection of natural environment**) are areas of **concurrent** authority with the Province, which provides a more flexible mechanism for determining provincial interests in these spheres. Province of B.C. Community Charter: Key Elements of the Draft Legislation.

¹⁸ Lighthouse Park Preservation Society membership form.



The entire park is served by a series of hydrants and standpipes, both wet and dry. The hydrants on the west side of the park are serviced by a 4 inch buried metal waterline; the standpipes are serviced by smaller diameter PVC line fed off the metal mainline. The east side of the park is serviced by a partially buried PVC line leading to hydrants. The east side hydrants are fewer in number and are dry hydrants, meaning that they must be charged by a pumper unit when their use is required. A forest fire equipment “cache” in the park contains pumps and hose specifically designed for forest fire protection. Water can also be pumped from the ocean.

The level of emergency preparedness in the park is based on the fire weather index. That index is calculated from daily weather readings in the park during the fire season. There are five danger classes ranging from “very low” to “extreme” that guide decision making. This is identical to provincial forest fire hazard ratings.

During times of high and extreme fire hazard, increased park security and patrols are implemented to enhance fire danger awareness and prevention. As the fire danger level increases, the Parks Forest Fire Suppression Team preparedness, in conjunction with the Fire Department, also increases in accordance with the level of fire danger. Consulting with the Fire Chief, the Community Forester implements progressively higher security and patrols in accordance with the Fire Preparedness Plan, including 24 hour patrols, gate control, “extreme fire hazard” signs and possible park closure after two days of extreme hazard. It is important to note that Lighthouse Park is the only park area in the community that is treated in this manner.

In addition to the fire season security provisions, risk management and fire preparedness in Lighthouse Park benefit from the location of a West Vancouver Fire Hall in very close proximity to the park, a year-round resident park caretaker, and the existence of the municipal Forest Fire Suppression Team trained in forest fire-fighting and equipped with an “initial attack” pumper truck, extra pumps and hose. Fire preparedness for all municipal assets including Lighthouse Park is constantly reviewed and upgraded.

2.0 ISSUES AND IMPACTS

The *Background Document*, the *Ecological Study of Lighthouse Park*, *Nature West Coast* and *The National Significance of Lighthouse Park* documents provide detailed information on the resources and uses of Lighthouse Park. This section provides an overview of the issues and impacts.

2.1 Issue Identification

The issues in Lighthouse Park are categorized into five groups: environmental issues, park use issues, culture and heritage issues, operational and maintenance issues, and land status issues. This brief summary and comments on the issues are based on the *Background Report* supplemented with information from the Planning Task Group and site review.

Environmental Issues



Issue	Comments
<p>Reduction in Vegetative Diversity</p> <ul style="list-style-type: none"> The forest and other vegetation in the park have changed over time to include fewer species of trees, shrubs and herbs (e.g., 57 plant species from 1973 inventory not seen recently).¹⁹ 	<ul style="list-style-type: none"> This has resulted partly from a lack of fire, and partly from visitor impacts.
<p>Loss of Animal Diversity and Habitat Fragmentation</p> <ul style="list-style-type: none"> There has been a decline in several animal species and their habitat, e.g., species no longer present include bear, cougar, grouse, deer and chipmunks.²⁰ Habitat fragmentation occurs 	<ul style="list-style-type: none"> The major contributors are: <ul style="list-style-type: none"> Increased development around Lighthouse Park cutting off animal movement corridors,²¹ The number of park users, The type of use the park

¹⁹ See pages 5 and 6 for more information

²⁰ Entech.

²¹ This results in isolation and reduced genetic diversity.



Issue	Comments
<p>when an ecosystem becomes isolated in smaller “island” habitats thereby supporting a reduced number of species.</p>	<p>receives, which has been changing over the years.</p> <ul style="list-style-type: none"> • Increased density from smaller properties around the park could exacerbate this. • The park itself is a habitat fragment²² isolated by the residential development around the park; the trail network and road contribute to further habitat fragmentation within the park.
<p>Reduction in Natural Vegetation</p> <ul style="list-style-type: none"> • A highly intricate network of trails, damage to tree roots, trail braiding, and trampling of vegetation in viewpoints and use areas have significantly reduced the amount of natural vegetation. • Lack of protection for old trees. 	<ul style="list-style-type: none"> • Causal factors include: poor trail locations, lack of coordinated user patterns, lack of directional flow of water off the trails, inadequate signage, lack of definition of sensitive areas.
<p>Erosion</p> <ul style="list-style-type: none"> • There is severe soil erosion along some trails. • Parking lot erosion may be having a negative effect on the skunk cabbage wetlands. • Some areas of the park are significantly disturbed. 	<ul style="list-style-type: none"> • Trails in gullies are most susceptible to erosion. • Erosion from the parking lot is caused partly by vehicle use, and by the amount of rain combined with the slope of the parking lot. • Vehicles have encroached

²² Habitat Fragmentation happens when smaller forest fragments become susceptible to what is called the 'edge effect'. Forest edges are usually warmer than the deep forest, and the plant composition reflects this. Edge communities are composed of more light demanding (shade-intolerant) pioneer and secondary forest species, while the cooler, deeper forest core comprises shade tolerant, primary forest species. The size of the forest determines the microclimate (humidity and temperature), and hence the proportion of periphery and core species. As such, due to insulation and warm wind effects, a small forest (even at the core) will be warmer, and this will be reflected in the different wildlife communities compared to the original, natural forests. In this respect, forests permanently segmented into smaller patches are expected to have less biological diversity, and in the long-term, may not recover.

“The number one danger to the park is fire.”



Issue	Comments
	<p>farther into the forest over time.</p> <ul style="list-style-type: none"> • Examples of disturbance include trampling of vegetation on rock bluffs, uncondoned trails and trail braiding. Disturbed sites can provide opportunity for invasive non-native species (see footnote #23).
<p>Fire Hazard</p> <ul style="list-style-type: none"> • With the exclusion of fires over the last 70 years, there has been a build-up of fuel in the forest, which constitutes a fire hazard during extended periods of dry weather. 	<ul style="list-style-type: none"> • The build-up of debris in the forest will continue unless abated due to disease-weakened and other trees blowing down in storms. The proximity of homes and buildings and park values necessitate ongoing risk management and fire control.
<p>Invasive Non-native Species</p> <ul style="list-style-type: none"> • Invasive non-native species are displacing native vegetation in some areas of the park. The primary species of concern are English Ivy, Scotch Broom and Holly. Introduced grasses also occur on heavily trampled rock outcrop areas. 	<ul style="list-style-type: none"> • The species of concern tend to out-compete native vegetation²³. The sooner vegetation management occurs, the easier it will be to eliminate invasive non-native species.
<p>Fishing</p> <ul style="list-style-type: none"> • Illegal fishing continues within the East Beach marine protected area. • The remainder of the marine area may have values that require protection from fishing. 	<ul style="list-style-type: none"> • East Beach is the only portion of the marine area that is currently protected, and where fishing is not allowed. This is confusing to users and difficult to enforce.

²³ Disturbed sites are subject to occupation by opportunistic plant species which may grow more rapidly and be more tolerant of disturbance than native species. Plants (flora) determine the distribution of animal (fauna) species on a local and global scale; thus managing non-native plant species in Lighthouse Park is key to the maintenance of native fauna.

Issue	Comments
<p>Soil Contamination</p> <ul style="list-style-type: none"> • The Federal Government discovered soil contamination around the lighthouse and on the light station grounds in 1996. • There is a possibility of fuel leaks in the parking lot affecting the skunk cabbage wetlands. 	<ul style="list-style-type: none"> • If necessary, remediation plans will be formulated to address potential soil contamination concern on the light station grounds. Discussions with DFO are ongoing. • No system is currently in place to manage the oil and fuel spills in the parking lot

Park Use Issues



Issue	Comments
<p>Number of Visitors</p> <ul style="list-style-type: none"> • Increasing numbers of park users are causing a variety of environmental impacts (e.g., erosion, compacting soil, trampling vegetation) and social concerns (e.g. conflicts, crowding). 	<ul style="list-style-type: none"> • Use will continue to increase with population, and without management, the issues will escalate. • To date, recreational use of the foreshore includes beach use and occasional stops by kayakers in Starboat Cove. Kayaking use does not appear to be sufficient at this stage to warrant dedicated facilities to minimize the distribution of impacts.



“There are really two types of people who use Lighthouse Park. Those of us who use it on a regular basis, often walking our dogs, care deeply about the changes that have occurred and that are gradually spoiling the park. We are the ones who pick up the garbage after the visits from the other group of users.”

Issue	Comments
<p>Dogs</p> <ul style="list-style-type: none"> • Social issues related to dog use are: owners not cleaning up after their dogs; dogs occasionally disturbing park users; unsupervised dogs. • Environmental issues related to dog use are: trampling and breaking of vegetation especially beside and off trails, and disturbance²⁴ to birds and other wildlife, especially during breeding, nesting and rearing season. Many birds forage on the ground for food. 	<ul style="list-style-type: none"> • Relevant statistics show that dog ownership in the Lower Mainland continues to increase.²⁵ • Current municipal bylaw establishes Lighthouse Park as an off-leash park²⁶. Dog owners are on record as strongly supporting continued off-leash dog walking opportunities in Lighthouse Park year round.
<p>Commercial Non-recreational Use</p> <ul style="list-style-type: none"> • Commercial non-recreational uses have included: filming (currently banned from the park), commercial dog walkers (not permitted by the municipal Animal Control Bylaw), and facility rentals. The social, environmental and economic impacts of these uses include: <ul style="list-style-type: none"> • Ecological concerns related to damage of soil, plants and fauna; • Inconvenience and disruption of public park use; 	<ul style="list-style-type: none"> • There is a lack of standards for the determination of appropriate commercial uses and management of these uses within the park. • The result of this is environmental impacts on the park, displacement of informal recreation, social conflicts, and minimal benefit to the municipality, since currently commercial users are not controlled and provide no financial compensation to the Municipality. • A filming ban was placed on

²⁴ Disturbance consumes limited energy reserves in wild animals. The energy allocated to fleeing or flight makes less energy available for reproduction.

²⁵ Lower Mainland population is increasing at almost 1.5% per year; use of Regional Parks is increasing at 4 to 4½ % per year (Source: GVRD Parks, Park Planning and Research Department; figures are for years 2000 through 2002).

²⁶ Research shows that West Vancouver has more off-leash dog parks than any other Lower Mainland municipality except the City of Vancouver (Canine Conundrum: Report of the Inter-Municipal Work Group on Dog Management in Parks, GVRD Parks, 4330 Kingsway, Burnaby, BC V5H 4G8, 2001).



“Let people explore! And feel the joy of discovery... Most people can be directed to the already well-used areas giving the remainder of the park respite from ever increasing traffic.”

Issue	Comments
<ul style="list-style-type: none"> • Automobiles and trucks within the park; • Parking problems near the huts and at the parking lot; • Concerns of reseeding (introduction of non-native vegetation); • Destruction of roadways and side roads, making them muddy; • Use of foreign substances; • Lack of revenue from some of the uses. 	<p>Lighthouse Park due to the many concerns and complaints issued by park users.</p>
<p>Commercial Recreational Use / Large Group Use</p> <ul style="list-style-type: none"> • Commercial and group recreational uses include day camps and other programs run by the municipality, commercial tour groups, other groups (e.g., day camps from outside West Vancouver) and non-profits (e.g. Girl Guides). These can have similar impacts to those mentioned for non-recreational uses. 	<ul style="list-style-type: none"> • There are no standards for the determination of appropriate commercial recreation uses and management of these uses within the park, e.g. maximum group size, delineation of appropriate locations for group uses, limits on noise or vehicular use. • Municipal day camp use could have lower impact if it had an environmental focus.
<p>Informal Group Recreational Use</p> <ul style="list-style-type: none"> • Informal group recreational uses include orienteering, rock climbing, and most recently tree climbing. These uses can have significant environmental impacts, especially when groups are large. 	<ul style="list-style-type: none"> • These activities are ongoing. The lack of management guidelines and codes of conduct combined with a lack of communication with these groups has led to uncontrolled use with the subsequent impacts.



Issue	Comments
<p>Public Education and Interpretation</p> <ul style="list-style-type: none"> • Minimal interpretive services or educational signage exist in Lighthouse Park on the environmental resources. • For the last ten years, the nature room in the Girl Guide Phyl Munday Hut has been opened to the public for two hours every Sunday by volunteers, attracting between 20 and 150 people per hour depending on the season and weather. 	<ul style="list-style-type: none"> • There is an opportunity to increase the public's knowledge of the park's natural history, and to encourage behaviour that benefits the overall health of the park.

Cultural and Heritage Issues



Issue	Comments
<p>Protection of Cultural and Heritage Resources</p> <ul style="list-style-type: none"> Cultural and heritage resources are currently lacking protection and stewardship. 	<ul style="list-style-type: none"> There is much interest from the community in preserving the considerable cultural and heritage values of Lighthouse Park.
<p>Public Education and Interpretation on Cultural and Heritage Resources</p> <ul style="list-style-type: none"> Minimal interpretive services or educational signage exist in Lighthouse Park on the cultural and heritage resources. 	<ul style="list-style-type: none"> There is an opportunity to increase the public's knowledge of the park's cultural and heritage resources.
<p>Public Access to Lighthouse and Light Station Grounds</p> <ul style="list-style-type: none"> There is no public access to the Point Atkinson lighthouse or the light station grounds. The public can go as far as the upper garden of the station for the closest "view" of the tower. 	<ul style="list-style-type: none"> Access to the light station grounds, a designated National Historic Site, is an unrealized opportunity. The interpretive tours of the light station from 1986 to 1990 were extremely popular.²⁷

²⁷ The Fisgard Light and Fort Rodd Hill National Historic Site in Victoria is an example of the interpretive potential of Point Atkinson.

Operational and Maintenance Issues

Issue	Comments
<p>Lack of Construction and Maintenance Standards</p> <ul style="list-style-type: none"> • There are no current standards for building maintenance for the many historical World War II buildings that remain in Lighthouse Park. • There are no standards for construction or maintenance of the other facilities in the park, e.g., trails, benches, signs. 	<ul style="list-style-type: none"> • Some buildings have been adapted for new uses, some need maintenance and one is condemned. • Park improvements and repairs have tended to be independent projects not related to an overall plan for the park.
<p>Exposure to Risks</p> <ul style="list-style-type: none"> • Some of the potential risks in Lighthouse Park include: tree conditions at significant viewpoints and around the parking lot, steep and rocky trail surfaces, minimal use of railings, and deteriorating buildings. 	<ul style="list-style-type: none"> • Risk management is ongoing. This is an issue due to the liability exposure. While safety is important, it is also impossible to eliminate all risks within this type of park. • Hazard tree removal has occurred where necessary. • Many trail surfaces have been repaired in Lighthouse Park in the past few years and more need attention. All trails require ongoing maintenance. • Risk assessment studies have been conducted for the light station grounds and surrounding park area.²⁸
<p>Illegal Park Use</p> <ul style="list-style-type: none"> • Illegal park use, such as fishing in the marine protected area, mushroom and berry picking, log booming, partying and lighting fires, has been 	<ul style="list-style-type: none"> • There is minimal enforcement of park rules due to limited resources.

²⁸ Morrow Environmental. Screening Level Human Health Risk Assessment. EVS Environment Consultants. Screening-Level Ecological Risk Assessment.



Issue	Comments
ongoing over the years.	
<p>Condition of Parking Lot</p> <ul style="list-style-type: none"> There are no standards on how the parking lot should be maintained. Some issues are: water runoff into the swamp, potholes, loose gravel, environmental damage to the surrounding tree roots, and visitors not knowing how to park. 	<ul style="list-style-type: none"> The parking lot condition leads to safety, use and environmental concerns.
<p>Signs</p> <ul style="list-style-type: none"> There are sparse and confusing signs throughout Lighthouse Park. This includes directional, informational, and interpretive signs. 	<ul style="list-style-type: none"> The lack of directional signs has caused an increase in trail erosion and forest degradation as users try to find their way back to a known location. Recent work has included two new kiosks, an updated trail map, and new directional signs.
<p>Condition of Septic System</p> <ul style="list-style-type: none"> The septic system at the washrooms needs to be upgraded. 	<ul style="list-style-type: none"> There are three older septic systems in Lighthouse Park, and there are concerns about their integrity.
<p>Trail Maintenance</p> <ul style="list-style-type: none"> There is a lack of consistency in trail maintenance throughout the park. 	<ul style="list-style-type: none"> Although the primary official trails receive constant maintenance, methods have varied, e.g., materials used for steps, walkways and barriers are not consistent.
<p>Available Resources</p> <ul style="list-style-type: none"> There is a limited amount of funding available to operate and maintain the park. 	<ul style="list-style-type: none"> The park has a high level of use and is a tourism draw. It competes for funding with other parks and services provided by the municipality.

Land Status Issues

Issue	Comments
<p>Future Ownership of the Park</p> <ul style="list-style-type: none"> • There is uncertainty regarding the ownership of Lighthouse Park after 2026. <p>Future Ownership and Management of the Light Station</p> <ul style="list-style-type: none"> • Future ownership of the light station grounds (which includes the lighthouse) is also uncertain. This area is not part of the park and therefore not part of the municipality's lease from the federal government. It is managed by the District of West Vancouver based on a letter of permission from Canadian Coast Guard. 	<ul style="list-style-type: none"> • The lease from the Federal government expires in 2026, which affects management. • Four local First Nations Bands also have land claims that include Lighthouse Park within their traditional territory. • The Lighthouse is a National Historic site, but is currently considered unsafe and the public has no access.

2.2 Site Analysis

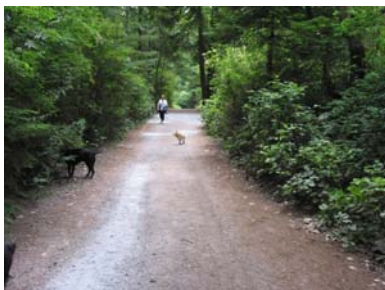
A significant amount of detailed inventory and analysis of park resources and conditions has been completed in previous studies (see Site Inventory map for a summary). For the purpose of the management plan, a site analysis summary was prepared. The park property was divided into areas with similar characteristics (see Site Analysis plan). The following describes the opportunities, constraints, and potential plan ideas and options for each area illustrated on the plan.

Park Entry



Opportunities	Constraints
<ul style="list-style-type: none"> • Significant area already disturbed • Trees in parking lot provide park character • Gravel surface minimizes stormwater runoff impacts • Narrow winding nature of Beacon Lane is complementary, calms traffic • Parking supply is limited, thus limiting park use 	<ul style="list-style-type: none"> • Minimal sense of arrival and information • Washrooms not evident or convenient • Circulation pattern is confusing • Gravel is dusty in dry weather • Potholes are a safety issue • Cars are encroaching farther into forest over time • Parking supply doesn't always meet demand at peak periods • Emergency access difficult at times • Access along Beacon Lane is inconsistent with a park entry (residential); sight lines limited; sometimes congested • Multiple duplicate signs at park entry • Main park identification signs difficult to see • Security issues (e.g., break-ins in parking lot)

Service Road



Opportunities	Constraints
<ul style="list-style-type: none"> • Attractive corridor • Allows for vehicular access with as little impact as possible • Provides emergency, service and disabled access to park buildings 	<ul style="list-style-type: none"> • Vehicles on road disturb park visitors • Safety concerns with vehicles and pedestrians due to limited sight lines in some locations

Park Buildings



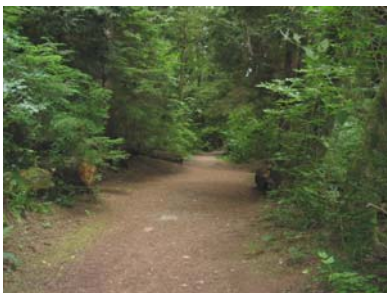
Opportunities	Constraints
<ul style="list-style-type: none"> • Buildings have historic interest and value²⁹ • Concrete slab of previous garage could support a new use, e.g., covered shelter for groups 	<ul style="list-style-type: none"> • No heritage assessment of the buildings has been found • No public information on the history of the buildings • Former officer's hut requires immediate demolition • Location so far from the park entry limits potential uses • Area is confusing, lacks organization and focus

Lighthouse and Light Station Grounds



Opportunities	Constraints
<ul style="list-style-type: none"> • Major landmark feature with scenic and historic interest and value • Former radio room has an exhibit that could be restored 	<ul style="list-style-type: none"> • No public access • Lack of control due to federal ownership • Site not currently safe for public use, e.g., railings, steps, rubble • Radio Room needs maintenance and requires repairs and restoration

West Side



Opportunities	Constraints
<ul style="list-style-type: none"> • Interesting and diverse forested areas, including wetland, rock outcrops, old growth forest • New directional trail signs help with way-finding • Ecologically sensitive areas have been identified (Entech, 1999) 	<ul style="list-style-type: none"> • Extreme number of uncondoned trails • Very high levels of trail braiding and erosion

²⁹ A map from the Pt. Atkinson Fort Record Book has been obtained, showing the layout and names of the buildings. Correct names of buildings and features have been added to the Background Document.

West Waterfront



Opportunities	Constraints
<ul style="list-style-type: none"> • Interesting and important rock outcrops and bluff ecology • Magnificent views • Numerous special feature viewpoints (see map) • Variety of activities, e.g. climbing, swimming, picnicking 	<ul style="list-style-type: none"> • Extreme trampling of sensitive vegetation • Loss of moss and lichen habitat at key use areas

East Side



Opportunities	Constraints
<ul style="list-style-type: none"> • Interesting and diverse forested areas, including rock outcrops, old growth forest • Several special feature viewpoints (see map) • Opportunity as a conservation area due to the low use • Ecologically sensitive areas have been identified (Entech, 1999) 	<ul style="list-style-type: none"> • Several uncondoned trails • Small amount of trail braiding and erosion • East side of park has relatively low use (also an opportunity)

East Waterfront



Opportunities	Constraints
<ul style="list-style-type: none"> • Interesting rock outcrops • Excellent views • Several special feature viewpoints (see map) • Beach access at Starboat Cove and East Beach 	<ul style="list-style-type: none"> • Trail braiding and uncondoned trails near use areas • Trampling of vegetation at key use areas • Difficult to access water for much of east side

3.0 GUIDING STATEMENTS

3.1 Vision

The plan is based on a vision that was developed in collaboration with the Planning Task Group, with input from the public. The vision is expressed in the present tense since it represents how it is hoped the park will be described in the future.

Vision



*Lighthouse Park is **significant ecologically** and is a natural sanctuary from the surrounding urban environment. The park preserves and protects a natural coastal old growth rain forest and marine shoreline ecology; resources that are more commonly found in a wilderness setting. It is an educational and recreational resource where visitors can come to learn about the natural world of British Columbia's coastal forests and view representations of our cultural heritage.*

*The **community is knowledgeable** about the significance of Lighthouse Park and supports protection of the natural and cultural values within the park. There is a high level of community leadership and involvement in its stewardship. The park is an enjoyable setting and also provides physical and spiritual renewal. Access is easy and pedestrian and vehicular circulation routes are clear. Park visitors are encouraged to treat the park with respect. The park is so appreciated that it will always be respected and protected while being enjoyed for passive recreation activities like walking, hiking and picnicking.*



*Lighthouse Park is a **precedent** demonstrating exemplary management of natural resources while balancing the many demands on it. Habitat restoration and enhancement initiatives complement the facilities that support the park as a regional natural, recreational and cultural attraction. The park establishes a foundation for interconnected natural areas supporting biodiversity³⁰ through West Vancouver. The land has been secured as a park in perpetuity.*

³⁰ Biodiversity includes ecological diversity, species diversity and genetic diversity within each species.

3.2 Acknowledgements and Principles

The following acknowledgements and principles were developed during the public planning process. They helped to guide the development of the Lighthouse Park Management Plan, and are intended to be used to guide future management of the park:

Acknowledgements

1. The Management Plan will be most effective if it is based on a cooperative, knowledgeable approach involving the community, neighbourhood, other interest groups, staff and Council.
2. Some biological losses have occurred in Lighthouse Park and some of these changes cannot be reversed. We must ensure further losses are minimized.
3. There is increasing demand for use and the park cannot accommodate all demands without compromising resource values.
4. Many of the residents who live near the park and other park users care deeply about it and participate in stewardship actions.
5. There is a long-standing tradition of dog walking in Lighthouse Park.
6. There is a direct cause and effect relationship between Lighthouse Park and the broader land use planning context within the municipality, especially in regard to wildlife corridors.
7. A phased approach is required to address park management issues.
8. There are limited budgets and a variety of means will be required for implementation of the Management Plan.

Principles

1. Nature's voice is respected and acknowledged.
2. The long-term biological wealth of the park is paramount.
3. The environmental/ ecological resources of Lighthouse Park will be no less in the future than they are today.
4. Balance between the protection of resources and accommodation of human use is key and the biological and physical capacity of the park is recognized in obtaining that balance.

5. A minimum level of intervention will be used to meet the goals and objectives using the precautionary principle as a guide.³¹
6. The park as a coastal forest ecosystem has its own intrinsic value and plays an important role in peoples' lives.
7. All users have a role to play in reducing their environmental impacts on the park.
8. The park's cultural heritage resources contribute to the park's significance.

³¹ The precautionary principle is a response to uncertainty, in the face of risks to health or the environment. In general, it involves acting to avoid serious or irreversible potential harm, despite lack of scientific certainty as to the likelihood, magnitude, or causation of that harm.

3.3 Goals and Objectives

Elaborating upon the vision and the principles are goals and objectives. These are categorized into five groups: environmental, park use, culture and heritage, operational and maintenance, and land status.

Environmental



GOAL #1: Maintain and enhance the biological health of Lighthouse Park:

- Protect the diverse habitats and resources.
- Improve the diversity of the vegetation and promote forest health.
- Improve habitats to support and enhance wildlife habitation of the park.
- Restore degraded areas and improve ecological diversity.
- Encourage the growth of original species and representative habitats, recognizing the role of successional processes.
- Recognize that fire suppression has arrested some of the long-term ecological processes in the park
- Research and stay abreast of possible implications of the Federal *Species at Risk Act* (SARA) on Lighthouse Park.³² The park remains federal land under lease to the Municipality.

³² The SARA is federal legislation passed by the Canadian Parliament in 2002. In 2003, two-thirds of the Act came into force, and on June 1, 2004, the remaining sections of the Act will be enacted. While it applies to all lands in Canada, it will apply to federal lands first.

The *Species at Risk Act* provides a framework for actions across Canada to ensure the survival of endangered or threatened wildlife species and the protection of Canada's natural heritage. It sets out how to decide which species are a priority for action and what to do to protect a species. It identifies ways governments, organizations and individuals can work together, and it establishes penalties for a failure to obey the law. SARA is one of several federal, provincial, territorial, and international laws that share the goal of protecting wildlife species.

Since Lighthouse Park has several blue-listed species documented, research into possible implications of the SARA for West Vancouver will need to be undertaken.

GOAL #2: Promote the park as an educational and research resource:

- Provide the public with greater understanding about the natural history of the park, its ecological significance and special restoration projects.
- Encourage and co-ordinate environmental research and studies in the park.

GOAL #3: Recognize and support the importance of Lighthouse Park within the surrounding area, and the influences of the surrounding area on the park:

- Take steps to prevent impacts from surrounding development and use.
- Promote the protection of the entire marine portion of the peninsula.³³
- Explore opportunities to reconnect the park with other green corridors to support wildlife movements.



Park Use

GOAL #1: Provide for a limited range of recreation and tourism opportunities with appropriate supports and regulations:

- Determine which recreation and tourism activities the park has the capacity to support.
- Develop guidelines and codes of conduct, one set for recreational and another set for tourism uses within the park, and ensure that these are communicated to all park users, particularly groups.
- Consider the opportunities available in other parks when developing plans for recreation use.
- Provide for public access and interpretation at the light station grounds.
- Provide access for persons with disabilities to the highest standard possible, especially in any new buildings, respecting the need to minimize environmental disruption to the park.

³³ Currently, only a small section of Starboat Cove is protected by a Fisheries and Oceans Canada fishing closure.

GOAL #2: Limit the impacts of park use on environmental resources:

- Limit the extent of access as required to protect ecology and biodiversity.
- Support low-impact activities and discourage high-impact activities.

GOAL #3: Establish a clear set of policies related to commercial use within the park:

- Commercial uses should closely relate to park benefits.
- Commercial uses should not have negative impacts on the park's ecology or biodiversity.

GOAL #4: Increase the park's role in public education regarding natural and cultural /heritage resources:

- Provide for a small visitor hut near the park entry.
- Provide public education about the park's natural history and national ecological significance.
- Provide natural and cultural interpretive signs throughout the park, e.g., on trails and at special sites.
- Acknowledge the park's historical and cultural associations, including those with aboriginal groups.
- Offer educational programs, e.g. school programs, ecological tours.
- Develop environmental stewardship programs.

Culture and Heritage

GOAL #1: Improve protection of and communication about the park's cultural and heritage resources:

- Identify and assess the significance of the cultural and heritage resources.
- Develop a plan for protecting the cultural and heritage resources.
- Improve interpretation and education about the cultural and heritage resources.
- Identify partnership opportunities for stewardship of the cultural and heritage resources.



Operations and Maintenance



GOAL #1: Secure and sustain resources to achieve plan objectives:

- Review existing level of Municipal funding for adequacy
- Explore diverse sources of funding.
- Pursue opportunities for partnerships.

GOAL #2: Develop and implement a clear set of construction and maintenance standards and guidelines for this park:

- Base standards on environmental best management practices³⁴ and respect for heritage and cultural values.
- Develop standards for all construction and maintenance of park facilities including buildings. Accessibility considerations should form part of any construction or upgrade project in the park.
- Continue development of a system of signs, including design and maintenance standards.
- Provide adequate sanitary services.

GOAL #3: Improve safety, security, monitoring and enforcement within the park:

- Improve enforcement capacity and effectiveness.
- Educate the public regarding park rules and code of conduct.
- Implement a permit system for group uses.
- Continue to ensure optimal fire response capability through an ongoing partnership between the Fire and Parks Departments.

Land Status

GOAL #1: Secure the Lighthouse Park land in perpetuity as parkland:

- Explore options for achieving this goal in consultation with all levels of government, including First Nations.

³⁴ To be defined by the municipality's Environmental Strategy when approved.

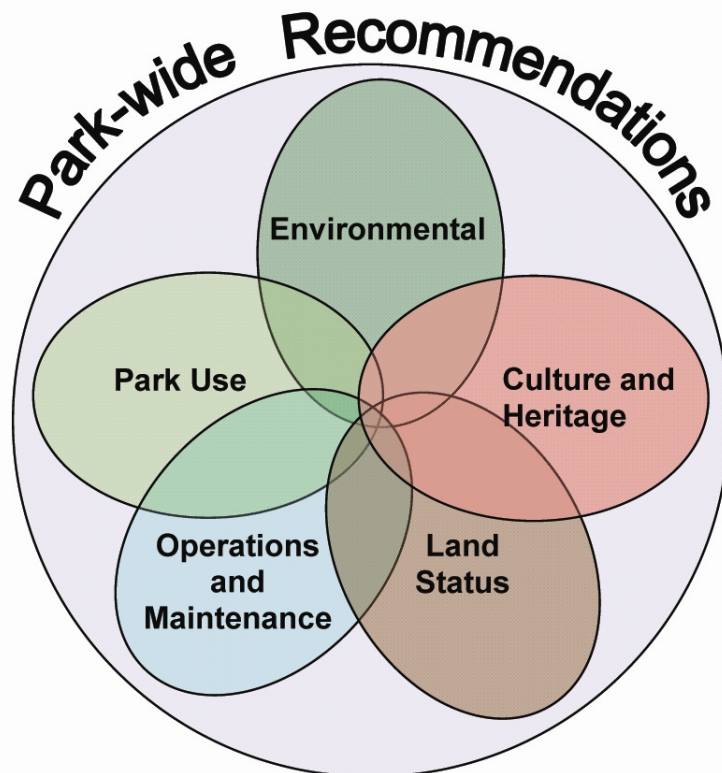
4.0 MANAGEMENT PLAN

Two types of management recommendations are provided in this plan. The park-wide recommendations address key topics and are to be implemented throughout the park. Section 4.2 provides additional recommendations that relate to specific locations within the park.

An **Implementation Strategy**³⁵ will need to be developed for the Lighthouse Park Management Plan, to be guided by an **Implementation Task Group** who will determine the priorities and address the recommendations.

4.1 Park-wide Recommendations

The following are the park-wide recommendations based on the guiding statements and existing impacts. The graphic illustrates the key topics of the recommendations and their inter-relationships.



³⁵ An implementation strategy provides a work plan for implementation of the Management Plan, outlining timelines, responsibilities and funding requirements.

Environmental

“The park is beaten up. We need to nurture it.”

- Develop and implement a **vegetation management plan**.
 - Continue to collect information and update over time the **identification and mapping of rare and significant plants**, special features and sensitive habitats (initiated by *Ecological Study of Lighthouse Park*). Develop a **system for monitoring** these changes to vegetation.
 - **Delineate and monitor environmentally sensitive areas and features** to be protected and develop a plan for protection of each of these areas (could include rerouting of trails, low barriers, signs, etc.)
 - **Develop vegetation management practices** to be applied within each of the biogeoclimatic stratum. These should address: approach to succession, potential use of fuel management, response to fire and fallen trees (old trees and blowdown), and other relevant topics.
 - **Protect existing large trees** (e.g., divert paths away from trees, low railings, other barriers).
- Initiate **habitat restoration and enhancement projects**.
 - Review and update the map of **park impacts and disturbances** (*Ecological Study of Lighthouse Park*).
 - Identify **candidate areas for habitat enhancement**, the priority of each and a phasing plan. The *Species at Risk Act* (see footnote #36) may provide guidance.
 - For each habitat enhancement area, **develop a prescription** including: site preparation (e.g., removal of non-native species, tilling, addition of organic matter, seasonal burning), planting (e.g., species list, method of planting, seeds or size of plants, timing), maintenance (e.g., weeding, watering, monitoring), and site protection (e.g., fencing, railing, signs, no public).

- Develop and implement an **invasive non-native species management plan**.
 - Develop a map that **identifies the primary extent** of each invasive, non-native species, and update this map over time through monitoring.
 - Identify **candidate areas for species management**, the priority of each and a phasing plan.
 - For each species, develop a **prescription for management** including: plant removal (e.g., pulling, cutting, digging), plant disposal (e.g., chopping, transport, disposal method), monitoring (e.g., annual review of species), and revegetation (if applicable).
 - Provide **information and education** to the community and local nurseries regarding invasive non-native species that are affecting native vegetation, and encourage the disuse of these species.

- Develop and implement a **wildlife management plan**.
 - Continue to collect **information on the wildlife species** that use the park (summarized by Ecological Study of Lighthouse Park).
 - **Monitor habitation and use over time** to determine changes in population and use.
 - Delineate **environmentally sensitive habitats** to be protected and develop a plan for protection of each of these areas (e.g., restricting public access at specific times, where and when required for conservation).
 - Develop recommendations for support and encouragement of **specific wildlife populations**

- Support **environmental research and studies** in the park.
 - Based on the information derived from the above tasks, identify appropriate **research topics and ideas**.
 - Work with scientists and educational institutions to **coordinate and support such projects**.

- Compile the results of environmental monitoring two years after plan adoption and **assess the environmental benefits and impacts** of the Management Plan.

- Work with others to obtain better **protection for the park's biological health.**
 - Work to reconnect the park with other green corridors and spaces throughout West Vancouver (e.g., buffer zone, wildlife corridors, riparian corridors, conservation covenants).
 - Conduct an **intertidal and subtidal marine survey** around the park.
 - Work with the Department of Fisheries and Oceans on the potential **protection of the entire marine portion** of the peninsula.

Culture and Heritage

- Develop a plan for managing the park's **cultural and heritage resources.**
 - Identify the park's cultural and heritage resources (including the huts) and **assess their significance.**
 - Identify the **opportunities and constraints** related to the preservation and interpretation of the cultural resources.
 - Develop **strategies** for preserving and interpreting the cultural resources, and possible partners for **implementation efforts.**

Park Use

"It is give and take... balance...for all users of the park. It's not just our park. It has regional and international importance... Everyone is going to be limited in some shape or form."

The park use section has been the most challenging portion of this plan on which to obtain consensus. Those who are most knowledgeable and concerned about the environmental resources believe that some uses should be moderated, while recreational users, including dog walkers, have a strong interest in continuing to use the park as they do now. Most regular visitors see themselves as park stewards.

The following recommendations for park use attempt to balance recreational demands with the environmental objectives and principles stated previously. As a key component of the planning process, it is recommended that **on-going monitoring be conducted** to document the effectiveness of these policies at minimizing social and environmental impacts in Lighthouse Park. If impacts continue to increase, adaptive management may be required to modify park use recommendations.

“While the park is a pleasant place for people to walk their dogs, it does not provide good opportunities for dogs to run and play without damage to the surrounding terrain and wildlife.”

“We hope that through education and cooperation, all park users would be willing to modify their behaviour, as needed, for the health of the park because of their appreciation of its special qualities.”

- Adopt the following **policies for management of non-commercial recreational use** within the park:
 - All recreational use shall take place **on designated trails and in use areas only**. “Trail” means the trail surface itself. This applies to all recreational uses, including walking, nature appreciation, picnicking, and dog walking, and could be summarized as “all feet and paws on trails only”.³⁶
 - Develop a **code of conduct** for all recreational uses within the park, and ensure that this is communicated to all park users, particularly organized groups. Include a voluntary code of conduct for dog and dog walker behaviour.³⁷
 - **Contact organizations** which are known to bring groups to visit the park. If the groups are non-commercial, provide information on the code of conduct. If the groups are commercial and the use is considered acceptable, inform these groups about the need to acquire a permit.³⁸
 - Identify **new (current and potential) recreational activities** as they occur, on the upland and the foreshore, evaluate their appropriateness, and work to manage the use in keeping with the overall park objectives.
 - Work with the federal government, the West Vancouver Historical Society and the Maritime Museum to obtain **public access** and to collaboratively develop interpretive facilities and programs at the **light station grounds**.

³⁶ Observations undertaken during this planning process indicated that single dogs off-leash accompanied by regular park users tend to remain on trails. When two or more dogs are off-leash together they tend to veer off the trail as part of their socializing; off-leash dogs unfamiliar with the park go off the trails as part of their exploration of a new environment. These latter situations will be the most challenging to manage with the proposed policy.

³⁷ A dog behaviour code of conduct, suggested by and to be created in conjunction with local dog walkers, could include: all paws and feet remain on trails; dog waste must be picked up (note bin locations); wetland, restoration areas and environmentally sensitive areas are off-limits to all users.

³⁸ See footnote #39.

“It is a natural peaceful temple – please don’t commercialize it.”

- Adopt the following **policies for management of commercial recreational use** within the park, in addition to the above policies for non-commercial use:
 - Implement a **permitting system for commercial and group uses** that establishes conditions of use, best practices and which may include payment for the permit, under a Commercial Use in Parks Policy process.³⁹
 - Allow certain uses only, where appropriate and where there is a demonstrated benefit to the park. The following are examples (not an all-inclusive list) of appropriate commercial uses:
 - Renting Sk’iwitsut Hut
 - Eco-tours – small, led by educated, knowledgeable guides, using vans for transportation to parking lot, no buses
 - Historic tours/ cultural tours
 - Community Centre programs (see additional information below)
 - School/ college tours
 - Climbing – in designated areas only
 - Use by community groups such as Girl Guides, Scouts, and church groups

The following are examples (not an all-inclusive list) of inappropriate commercial uses:

- Commercial dog walking
 - Rock concerts
 - Orienteering
 - Scuba diving from shore
 - Canopy climbing
 - Mountain biking
 - Camping
 - Film productions
- Modify the program and operating parameters of the District of West Vancouver **day camp programs** to have a focus on natural history and environmental stewardship:
 - Include **environmental stewardship** awareness and activities within the day camp program.

³⁹ A Commercial Use Policy will address municipal parks in general as well as specific parks. Policy may address items such as: maximum group size, avoiding sensitive areas or in designated areas for group activities, maximum vehicle size, maximum number of vehicles, limits on vehicle access to building area. Some uses may need to pay for a permit to operate in municipal parks.

- Develop a **new orientation program** specifically for Lighthouse Park day camp staff, advising them about appropriate codes of conduct due to the environmental sensitivity of the park.
 - Hire **day camp staff** with interests or background in natural history if possible.
 - **Change the description** of the day camp program for the Leisure Guide based on the new natural history and environmental stewardship focus.
 - Develop a method through which day camp staff can assist in **monitoring use** within the park, e.g. form that reports other group use, infractions of the code of conduct.
- Develop a **park interpretive plan** that expands upon existing information.
 - Develop a **visitor hut** (e.g., 20' x 10') within the park (e.g. similar to the one at Maplewood Park in North Vancouver), providing a visible, accessible park headquarters to enhance communication with all park users, including staff, volunteers and visitors.
 - Develop **textual and graphic information** on the natural and cultural resources of the park suitable for: display at the park visitor hut, display at key viewpoints and use areas, and production within a brochure.
 - Develop **interpretive programs** suitable for delivery by park staff or volunteer tour leaders. These could be targeted to different types of audiences (e.g. school groups, tourist groups, seniors, special interest groups) and include different tour durations (e.g., one hour to 3 hour) and different topics (e.g., intertidal/ forest ecology, geology, bird life, heritage and cultural resources).
 - Support volunteer groups in park **interpretation and environmental stewardship activities**, e.g., guided tours, restoration work parties. Encourage volunteers to wear badges or some other form of identification.
 - Work with the **federal government and First Nations** to incorporate their historical and cultural information in interpretive strategies and efforts.

“Provide as much information as possible on the history, ecology, impact of humans, fire. People usually react much more positively when they understand the underlying problems.”

- Continue and enhance **trail management** efforts:
 - Identify the **key trails to be retained** based on their location, terrain, adjacent resources, and condition. As part of this exercise, identify areas where access will be excluded.
 - Ensure that there are **directional signs** on all designated trails.
 - Revise the trail plan on the **brochure and kiosks** to reflect the new plan.
 - **Maintain or improve designated trails** as required to reduce erosion, braiding, and damage to vegetation, using methods such as resurfacing, wood or rock steps and edges, culverts, rerouting or channeling of watercourses, railings, and boardwalks. Use existing natural materials such as logs and rocks to better define the edges of trails, especially where widening or braiding is occurring or starting to occur.
 - **Close and restore trails** that are not to be retained. Use barriers, planting and signs if required to restore these areas in the short term.

Operations and Maintenance

- Develop an approach to securing appropriate **finances and resources**.
 - Develop **capital and operating cost estimates**.
 - Explore **potential sources of funding**, e.g., endowments, grants, federal funding agreements, annual fund-raiser.
 - Develop a **phasing plan** for implementation based on available resources.
 - Pursue opportunities for **staff/volunteer partnerships** as one way of achieving operations and maintenance objectives.
 - **Increase the presence** of staff and other park stewards, especially at peak times.
- Ensure that systems are in place for **monitoring and enforcement**.
 - Identify **clear programs, guidelines and policies** for monitoring the impacts of use and enforcement of the codes of conduct. Potential resources include: volunteers, staff, and students. The following are some specific suggestions:
 - Develop a “**park watch**” program that involves volunteer groups protecting and overseeing the park, e.g., monitoring of use,

reminders about codes of conduct, reporting of infractions or risks, clean-up activities. Work particularly to engage the frequent Lighthouse Park users in this effort. Encourage volunteers to wear badges or some other form of identification.

- Establish a **park ranger** within the park. The first priority is to engage the ranger from April to September
- Consolidate the **environmental monitoring programs**, e.g. native vegetation, invasive species, wildlife use, and develop a coordinated system for monitoring, potentially involving biology students in this program.
- Identify what the **responsibilities** of the various staff and volunteers will be. There will likely be different levels of monitoring and enforcement depending on the role of the person involved.
- Provide **training** for all parks staff and volunteers on the park's resources and their sensitivity.
- Provide **information to the public** regarding the rules and code of conduct on the park signs and brochure.

- Continue to improve procedures for **fire protection**.
 - Support **planning for fire protection** within the park by continuing to work closely with the Fire Department and the Parks Forest Fire Suppression Team.
 - Review the section of the **Forest Fire Preparedness Plan** that pertains to Lighthouse Park and upgrade it where necessary.
 - In conjunction with the West Vancouver Fire Department, constantly review and upgrade the **fire protection infrastructure** to ensure fire response capability in the park.
 - **Ban smoking** in the park during fire season.
 - Improve the **system for reporting** the location of incidences within the park, e.g., numbering hydrants and standpipes, signing all trails.
 - Consider **reducing fuel loads** on an ongoing basis, especially close to trails and high use areas.
 - **Communicate emergency response plan** procedures with all staff, volunteers, commercial users, and non-commercial groups. The primary recommendation is to call 911.
 - Ensure that **fire preparedness and response is thoroughly addressed in the Implementation Strategy** which follows the Management Plan process.

- Develop appropriate **construction and maintenance standards and guidelines.**
 - Use Municipal **environmental best management practices** for all construction and maintenance, specifically designed for application in this park.
 - Develop **design standards** that respect heritage and cultural values as and where appropriate, e.g. around heritage structures.
 - Develop a consistent set of **standards for all construction and maintenance** within the park, including parking lot, buildings, trails, signs, benches, railings, etc.
 - Continue to refine and follow responsible **risk management** procedures, recognizing that all risks cannot be mitigated in a natural setting.
 - Develop a **Hazard Tree Protocol** tailored to Lighthouse Park.
 - Provide for construction and maintenance of appropriate **sanitary services.**
 - Explore the potential for a **dog waste disposal facility**, e.g., direct to sewage treatment, composting facility

- Develop and implement a formal **sign plan with sign standards.**
 - Develop the **list of signs** to be included in the park: interpretive, directional, instructional (including waiver regarding risks). Combine information on signs to reduce number needed, e.g. interpretive and instructional information together where possible.
 - Develop **text and graphics.**
 - Design the **mounting systems**, e.g., building, kiosk, rail-mounted, bollard.
 - Develop a **phasing plan** for implementation.
 - Ensure that **maintenance** is addressed in the signage program.
 - **Remove** all signs from trees.
 - Provide a **new single plaque** for the Viewpoint Cairn listing all light-keepers to 1996.
 - Develop a special sign/monument as a **tribute to Don Graham** with information about his role as the last light keeper and his contributions to mariners. In the short term, this might be located near the red gate or at the lookout area above the lighthouse. In the longer term, locate this at the lighthouse.



Land Status

- Work with **all levels of government** including First Nations to identify options for protecting the land as a park in perpetuity.
 - Meet with the **federal government and First Nations** to establish common objectives.
 - Work with the federal government to **obtain access** to the light station grounds and lighthouse.

4.2 Recommendations by Location

The following are recommendations related to specific locations within the park (see Concept Plan map).

Park Entry Area

- Improve vehicular and pedestrian safety along Beacon Lane.
- Improve the organization of the parking lot by designing one loop road with parking spaces off of it (double loaded where possible).
- Provide a moderate upgrade to the parking lot, e.g., new logs or log rails around edges to define parking areas and protect trees, non-toxic permeable stabilizer on driving lanes to reduce dust and define circulation pattern, improved drainage swales with oil/water separators to ensure that there are no impacts from stormwater on surrounding vegetation, designated disabled parking area.
- Provide a fully accessible small park visitor hut with washrooms near the parking lot. The specific location requires more detailed study. Develop interpretive displays and code of conduct information for display on or within the hut.
- Provide a Handi-Dart loading area in the parking lot.
- Consolidate and improve signs including park entry sign.
- Develop a universally accessible (to the highest standard possible without compromising environmental resources) trail from the visitor hut along the northern relatively flat portion of the Juniper Loop trail.

Service Road Area

- Ensure that users of the road are aware of the multiple uses; pedestrians, dogs, and vehicles.
- Develop and promote a new “Lighthouse Loop” trail, using existing trails, that includes the service road and the Valley Trail, taking advantage of the “self guiding” interpretive trail. Improve the Valley Trail to enable it to accommodate increased use safely and minimizing impacts to resources: reroute water off the trail, define the edges of the trail using wood edges or boardwalks where required, take measures to keep dogs out of the creek. Restore creekside habitat where damaged.

Park Buildings

- Continue to support existing uses of Sk'iwitsut House and Phyl Munday Nature House. An alternative use for Phyl Munday House may be possible after the new visitor hut is constructed.
- Enhance the displays and infrastructure (e.g. add heat), and increase the visiting hours for Phyl Munday Nature House.
- Assess the other buildings to determine their potential for restoration and adaptive uses.
- Improve the layout of this area, e.g. central meeting area, better defined walkways, buildings clearly marked, relocated washrooms.
- Add complementary features, e.g. covered outdoor shelter for group use, labelled native plant garden.

Lighthouse and Light Station Grounds

- Work with the federal government, the West Vancouver Historical Society, and the Maritime Museum to secure public access and to provide interpretive facilities, including the tribute to Don Graham. When access to the light station for the public is achieved:
 - create a risk management plan based on the Screening Level Human Health Risk Assessment prepared for Fisheries and Oceans Canada to eliminate potential hazards prior to improving the site,
 - research and consider a range of appropriate public uses including a new loop trail from the building area that includes East Beach, the light station grounds, and West Beach.

West Side

- Encourage use of designated trails with directional signs (in progress).

West Waterfront

- Define use areas more clearly.
- Delineate pockets for restoration as subtly as possible (this will vary depending on the location), e.g., with logs, rocks, low rails, discrete signs. Restore these areas with appropriate plantings.

East Side

- Maintain lower levels of use of this area to minimize impacts.

- Implement discrete but clear trail signs, including naming of trails to enhance ability of rescue and fire responses.

East Waterfront

- Restore damaged areas as required. Where necessary delineate these areas to inform the public of the restoration.

B I B L I O G R A P H Y

B.C. Ministry of Environment, Lands and Parks. Coastal Douglas-fir Ecosystems, 1999.

Canadian Kennel Club. Canine Good Neighbour Program.
<http://www.citizencanine.org/cgn12.htm>. For information on the Canadian Kennel Club, refer to <http://www.ckc.ca>.

Coates, B. and Mondor, C. An Assessment of the National Significance of Lighthouse Park. National Parks Branch, Parks System Planning, 1978.

District of West Vancouver Parks Department. Lighthouse Park Phase 1 - Background Document, 2003.

Entech Environmental Consultants Ltd. Ecological Study of Lighthouse Park. District of West Vancouver, 1999.

EVS Environment Consultants Ltd. A Screening-Level Ecological Risk Assessment. Fisheries and Oceans Canada, 555 W. Hastings Street, Vancouver B.C. V6B 5G3.

GVRD Parks Department. Canine Conundrum: Report of the Inter-Municipal Work Group on Dog Management in Parks, 2001.

Morrow Environmental Consultants Inc. Screening Level Human Health Risk Assessment. Fisheries and Oceans Canada, 555 W. Hastings Street, Vancouver BC V6B 5G3, February 2004.

Province of British Columbia. Community Charter: Key Elements of the Draft Legislation, May 2002.
http://www.westside.ca/government/Charter%20Bill%2014/Key_Elements.pdf

Smith, Kathleen M. and Anderson, Nancy J. Nature West Coast. Vancouver Natural History Society, First printing 1973; Second printing (revised) 1988.

Synovate. Lighthouse Park Visitor Survey Summer and Winter, 2002. District of West Vancouver, 2003.