



CHAPTER 6: THE NATURAL ENVIRONMENT

6.1 PROTECTION OF THE NATURAL ENVIRONMENT: A SHARED RESPONSIBILITY

Port Moody residents place a high value on environmental protection. This strong focus on environmental awareness and initiatives is evident in the number of dedicated volunteer groups which play an important role in educating the general public on the importance of environmental stewardship and the need to embrace change to more sustainable behaviour.

The protection of the natural environment is complex and a responsibility shared by the Federal, Provincial, Regional (Metro Vancouver) and local governments through a variety of strategies and regulations. While the focus of this chapter is on policies and initiatives within the jurisdiction of municipalities, there is a recognition of the City's role in collaborating with senior agencies and other stakeholders on strategies that are not strictly within the mandate of local governments.

6.2 THE NEED FOR BALANCE

As Port Moody continues to grow there will be competing demands for open spaces, including the need for active recreation areas, sports fields and facilities, civic parks and gardens, waterfront access and housing. There are also increasing pressures on natural resources as well as opportunities for protection.

The policy directions chosen must address the inseparable linkages between the natural environment objectives in the Environmentally Sensitive Areas (ESA) Management Strategy and other goals and objectives within the OCP to meet the City's long term needs.

6.3 CHANGING LEGISLATION

Recent changes in provincial legislation have passed some control and responsibility over to municipal governments in order to

protect aspects of the natural environment. Along with other municipalities in British Columbia, Port Moody has taken a more active role in this area. An example is the protection of riparian habitat including the setback distance required for buildings around fisheries sensitive streams. To meet the requirements of the provincial Fish Protection Act (1997) and the associated Riparian Area Regulation (2004), the City has incorporated streamside setback requirements into the Port Moody Zoning Bylaw.

The City will endeavour to work with provincial and federal agencies to ensure environmental protection legislation is adequate and adhered to.

6.4 ENVIRONMENTAL ISSUES AND POLICIES

This section provides an overview of the issues and policies associated with the natural environment. Specifically discussed are: the ESA management strategy, the importance of wildlife corridors, contaminated sites management, brownfield redevelopment, hazardous wastes, the Naturescape program, urban forestry, streams and riparian habitat, marine protected areas, wetland areas, biodiversity and species at risk, hazardous lands and the importance of community involvement in environmental planning.

The specific policies outlined in this section are prefaced with a number of general policies regarding the natural environment.

GENERAL POLICIES

1. The City will participate in environmental initiatives at the federal, provincial, and regional government levels, wherever possible, ensuring that senior governments maintain responsibilities for funding where appropriate.
2. The City will strive to preserve sensitive ecosystem areas, their living resources and connections between them in a natural condition and maintain these areas free of development and human activity to the maximum extent possible.

3. All development proposals that involve a change in zoning, should incorporate the objectives and guidelines of current Best Management Practices. For example:

- Develop with Care: Environmental Guidelines for Urban and Rural Land Development in British Columbia;
- Best Management Practices for Amphibians and Reptiles in Urban and Rural Environments in British Columbia;
- Standards and Best Management Practices for Instream Works;
- Riparian Areas Regulation Assessment Methods;
- Stream Stewardship: A Guide for Planners and Developers;
- Access Near Aquatic Areas: A Guide to Sensitive Planning, Design and Management; and
- Community Green Ways Linking Communities to Country and People to Nature.

ENVIRONMENTAL POLICY STATEMENT

The City has developed an Environmental Policy statement through the Environmentally Sensitive Area Management Strategy which includes a commitment to:

- Preserve and protect our natural environment;
- Encourage the stewardship of our natural environment by all levels of government, Port Moody's residents, businesses and visitors;
- Include environmental considerations when making municipal decisions;
- Seek to involve the residents and businesses of Port Moody in the establishment of policies and strategies that work towards meeting the City's environmental objectives where Council deems it appropriate; and
- Identify opportunities to promote environmental consciousness within the City in order to act as an example for the community.



6.5 ENVIRONMENTALLY SENSITIVE AREAS (ESA) MANAGEMENT STRATEGY

In 2003, a new management strategy for environmentally sensitive areas (ESAs) was developed to play a key role in the City's long range planning framework and to help balance the pressures of population growth with the protection of the natural environment. ESAs in Port Moody include critical habitat for fish, birds, amphibians, wildlife and plant species. As part of the ESA process, natural areas within the City were inventoried and 33 candidate ESAs were identified. In addition, management prescriptions were developed to protect specific areas, provide information to land owners of sites requiring specific care and ensure that proposed land development projects include appropriate mitigative features. Protecting designated ESAs on private land requires a management approach which takes into account both the public benefit of protecting critical habitat and the private property owners' interests. The management recommendations included in the Strategy will assist applicants in preparing development plans and addressing potential mitigation measures and compensation options within these areas.

Many of the ESAs in Port Moody have already been designated as parks and open space. These areas have a higher degree of protection as they are secured by public ownership. In order to provide environmental protection on privately owned lands, ESAs have been designated as having high or medium levels of sensitivity each with corresponding requirements for protection and management. High and Medium Sensitivity ESAs are designated as Development Permit Areas (DPAs) requiring development permit approval by Council prior to any development activity. A detailed set of Development Permit Guidelines for High and Medium Sensitivity ESAs is included in Appendix 2 accompanies and forms part of the OCP.

6.5.1 ESA MANAGEMENT PRINCIPLES

The ESA Management Principles and Guidelines deal with the following:

- Broad landscape level management to conserve biodiversity and provide for a network of greenbelts that connect the upland forested areas with marine areas using wildlife corridors and riparian areas;
- Watershed management recommendations including the need to plan for integrated storm water management;
- Guidelines to preserve and protect specific ecosystems, notably:
 - forested areas;
 - watercourses and riparian areas;
 - lakes and freshwater wetlands;
 - intertidal and subtidal marine areas and special features;

- species at risk consideration;
- raptor and heron bird nesting sites;
- wildlife habitats;
- unique plant associations (generally found in old growth forests); and
- unique landforms (eg. rock bluffs).

ESA POLICIES

4. The City will continue to identify and provide protection for High and Medium Sensitivity ESAs by requiring development permits for proposed development activity and by requiring environmental impact assessments in cases where proposed developments may negatively impact the ESA.
5. The City will continue to integrate the ESA Management Strategy with the City's Parks and Open Spaces strategy so that ESAs with the potential for multiple benefits such as linkages to the trails system can be acquired if necessary.
6. The City will protect environmentally significant land by retaining or acquiring ownership of such lands, reserving or dedicating such lands, through the registration of section 219 Land Title Act covenants or through the use of management agreements.
7. Areas with unique environmental character shall be preserved and enhanced. The design of new development shall consider: landscaping using Naturescape principles and tree retention, replanting, viewscales, buffering of nearby properties, the retention of watercourses and wildlife corridors, and the safety aspects of trees which have been retained.
8. The City recognizes that areas outside of designated ESAs also contribute to the ecological and environmental values of the City of Port Moody. When redevelopment is proposed for those areas, consideration should be given to restoring the natural environment. For example, barriers to fish movement should be removed (e.g. poorly designed or installed culverts) and watercourses should be daylighted.
9. The City will consider using one or more of the following measures to protect and preserve sensitive ecosystems, where appropriate:
 - a. dedication as a city park or trailway component if the area complements the goals and objectives of the city's park or trailway systems. Sensitive ecosystems acquired as parks or trailways will be managed to protect their sensitive features from public use;
 - b. dedication to a private land trust or non-government organization that is eligible to receive donations of land under the Federal Ecological Gifts Program for conservation purposes;
 - c. use of conservation covenants to preserve the natural values of sensitive ecosystems. The covenants may be held by the City, the Province and/or a non-government organization eligible to hold conservation covenants;
 - d. registration of a statutory right-of-way under the Land Title Act;
 - e. adoption of bylaws to exempt eligible riparian property from property taxes if a property is subject to a conservation covenant under section 219 of the Land Title Act; and/or
 - f. density bonusing or other development incentives to facilitate the protection of all or a significant portion of sensitive ecosystems.
10. The City will continue to update ecological information on ESAs and, where significant gaps exist, establish an ongoing system of data collection. The City will enlist the assistance of individuals, community groups and educational institutions in this data gathering.
11. The City will continue to work with local stewardship groups, community organizations and education institutions on conservation and enhancement programs and projects within the City.
12. The City will continue its efforts to raise public awareness and educate its residents and visitors on the importance of ESAs. The City will continue to develop interpretative signage on specialized environmental topics.
13. The City will continue to work with its neighbouring municipalities on environmental issues, particularly in the protection and conservation of those ESAs that border Anmore, Belcarra, Burnaby and Coquitlam.
14. The City will continue its efforts to restore and enhance habitat based on community priorities and available resources, particularly in areas of the city where natural areas have been modified or ecological functions have been impaired. Of particular relevance are access for fish populations, the restoration of watercourse and riparian vegetation and the daylighting of creeks.
15. Restoration plans prepared by a qualified environmental professional are required where environmentally sensitive areas have been disturbed through unauthorized activities.
16. Stewardship groups should be consulted in the planning of daylighting streams to take advantage of their considerable local knowledge base.

6.6 WILDLIFE CORRIDORS

Our network of parks and greenways plays a vital role in maintaining our City's ecological integrity. In addition to providing habitat for plants, fish and wildlife, greenways can serve as corridors for wildlife travel including mammal migration. Additional land acquisition may be required in the future to ensure the connectivity of wildlife habitat and where practical, wildlife corridors will be constructed to facilitate the safe movement of wildlife across roadways in the City. Policies specific to wildlife corridors are included in the ESA Strategy and are considered in the review of development projects and city capital projects.

WILDLIFE CORRIDOR POLICIES

17. The City recognizes the importance of wildlife corridors and other measures such as underpasses and fences to mitigate the effects of development on wildlife as part of an overall environmental assessment. New developments and roads should be sited and designed in order to facilitate and improve wildlife movement and access, particularly from the north shore upper watersheds to the lower reaches of the north shore drainages from Turner Creek westward to North Schoolhouse Creek, to minimize disruption to known and suspected wildlife corridors.
18. The City will continue to provide opportunities to educate the public on ways to prevent and reduce conflicts between people and black bears in the community.

19. The City shall require all new garbage storage areas in multi-family developments to be bear-resistant as appropriate.

6.7 BIRD FRIENDLY DESIGN GUIDELINES

Birds exist naturally in urban areas. However, migratory species can become confused in urban environments by the combination of light pollution and the reflection of glass during flyover. This can result in a significant number of birds colliding with buildings and unnecessary deaths. A set of bird friendly design guidelines and an accompanying rating system was developed in 2007 by the City of Toronto as part of that city's Green Development Standard. The use of these guidelines and rating system has been incorporated into the Port Moody Sustainability Checklist for new development.

Light pollution is the artificial brightening of the night sky through excessive lighting, usually the result of inefficient and poorly designed light fixtures. To achieve bird-friendly buildings, light pollution from external lighting can be minimized by implementing a number of building design features and operational practices including the installation of lighting that projects downward and reducing spill lighting.

Migratory birds are less likely to be drawn into a building site within an urban area if light pollution levels are reduced and glass is treated with a visual marker. This can be achieved by designing glass features in such a way to create visual barriers and reduce glass reflection and by employing bird friendly site ventilation grates (e.g. with mesh covers).

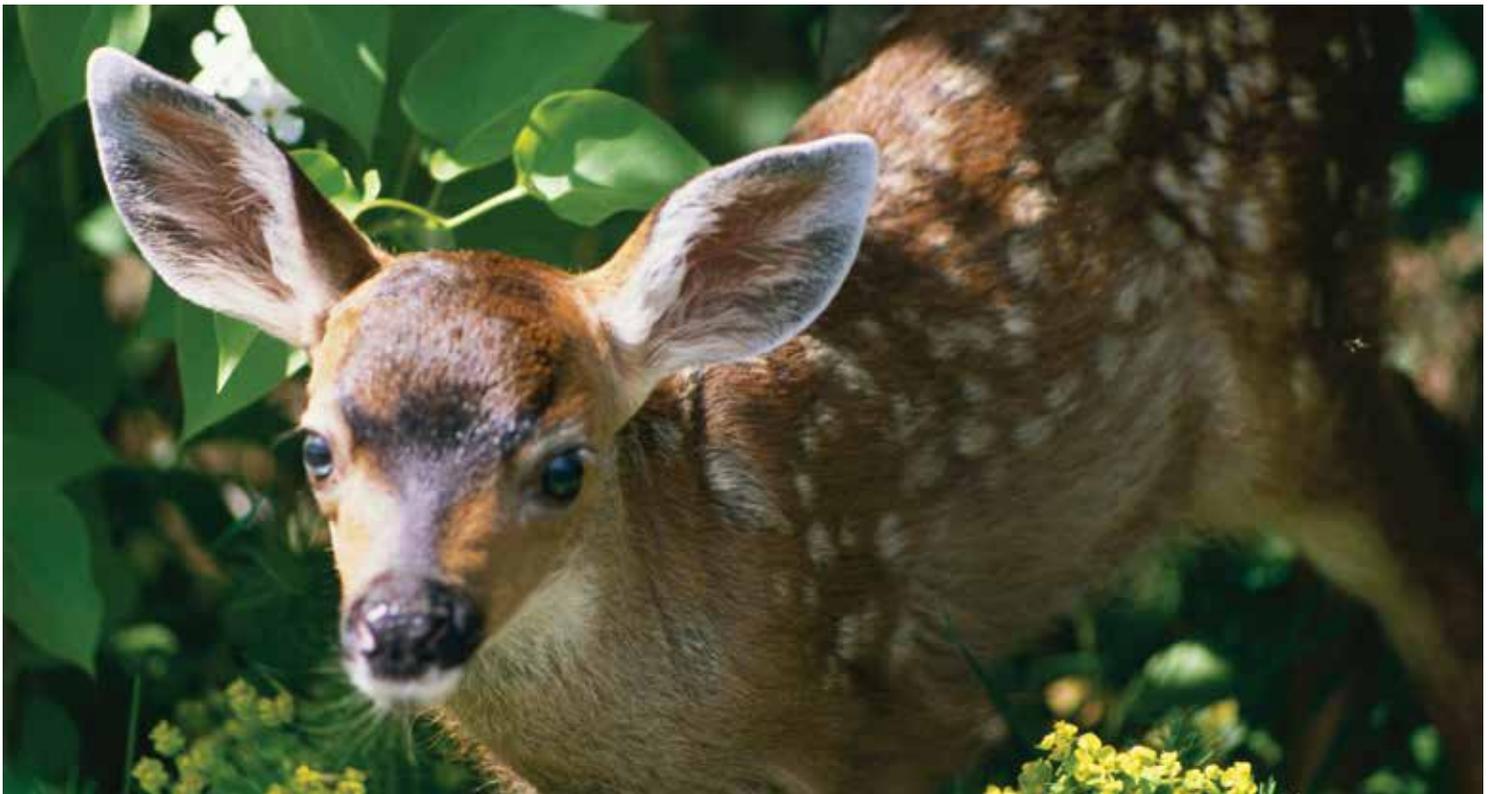


Photo detail from the Peter Hulbert Collection



BIRD FRIENDLY DESIGN POLICIES

20. The City recognizes the importance of Burrard Inlet and surrounding forested areas in Port Moody as part of the Pacific Flyway and for providing habitat for migratory bird species and will require the evaluation and use of mitigative design strategies to reduce the potential for bird strikes as a result of proposed developments depending on the location and scale.
21. The City supports the use of light pollution reduction techniques to reduce light trespass from buildings and sites and its impact on the nocturnal environment.

6.8 CONTAMINATED SITES MANAGEMENT

Past or present activities on some industrial and commercial sites may have resulted in spills or deposits of chemicals or hydrocarbons onto land. To address historic contamination the Provincial Contaminated Sites Regulation (CSR) came into effect April 1, 1997.

This regulation is designed to protect human health and the environment from toxic chemicals at potentially contaminated sites. It is used on a site-specific basis where toxic chemicals in soil, water or air may exist. Upon redevelopment of potentially contaminated properties, site profiles are required as per provincial legislation.

The following outlines the City's contaminated sites policies:

22. The City of Port Moody requires site profiles in accordance with the Provincial Contaminated Sites Regulation as part of the development approval process.
23. The City will minimize impacts of hazardous spills through spill response preparedness.
24. The City will increase public awareness to reduce environmental damage and human health hazards related to the discharge of toxic substances into the water, air and soil.

6.9 BROWNFIELD REDEVELOPMENT

Brownfields are abandoned, vacant or underutilized commercial and industrial properties with actual or perceived site contamination issues. The cleanup and redevelopment of brownfield sites has many benefits including:

- reducing the pressure for urban sprawl;
- improving public and environmental health;
- revitalizing underutilized neighbourhood areas;
- increasing property values; and,
- concentrating redevelopment efforts in locations with existing services and in close proximity to transportation infrastructure.

BROWNFIELD REDEVELOPMENT POLICIES:

25. The City will promote the cleanup and redevelopment of brownfield sites and to utilize the expert assistance of provincial environmental staff on a project-by-project basis as outlined in the provincial brownfield renewal strategy (2008).
26. The City will encourage the integration of green building technologies in the redevelopment of brownfield sites.

6.10 HAZARDOUS WASTES

The Provincial government has stewardship programs for electronic products, waste paints, used motor oils, antifreeze and automobile batteries. The City supports continued development of stewardship programs to reduce the negative impacts to our natural environment when hazardous wastes are disposed of illegally. The illegal disposal of hazardous wastes affects storm water quality, water quality at regional treatment plants and their receiving waters, leachate at regional landfills or the contamination of soils on public property. It is the City's position that special and household hazardous wastes are a provincial responsibility as the Province has the legislative authority through the Hazardous Waste Regulation and the BC Environmental Management Act to ensure hazardous wastes are managed safely.

HAZARDOUS WASTE POLICIES

27. The City will continue to encourage the Province to provide effective management and disposal of hazardous wastes.
28. The City will work to reduce the generation of hazardous wastes through purchasing policies and operating practices.
29. The City will provide information to assist in the safe and convenient disposal of household hazardous wastes.

PROVINCIAL WASTE MANAGEMENT PROGRAM

The Province's Waste Management Program is responsible for providing advice on policy and standards for the program reflected in the Environmental Management Act and the Hazardous Waste Regulation. The Program works with generators, carriers and receivers of hazardous waste to ensure that they handle, store, transport treat and dispose of hazardous waste according to the Hazardous Waste Regulation and ensure the safety of human health and the environment is not compromised.

Wastes may be "hazardous" for many different reasons:

- they are corrosive, ignitable, infectious, reactive, and toxic (the "acute" hazard characteristics)
- they have the potential to harm human health or the environment in a subtle manner over long periods of time (the "chronic" hazards)
- they may range from paints, oils and solvents to acids, heavy metal-containing sludges and pesticides.

Due to their inherently hazardous nature these wastes must be handled or disposed of properly to prevent harm to human health and safety and to the environment.

6.11 NATURESCAPE B.C. PROGRAM

Naturescape is a Provincial program that focuses on the use of native species in landscaping. Native plants are recognized as providers of food and shelter for wildlife and have naturally adapted to our climate and soil conditions, pollinators, predators and disease.

In 1997, Port Moody became the first municipality in B.C. to adopt a policy to follow the principles of the Naturescape program for all publicly owned lands and encourage its use on private land where appropriate. The Naturescape program is used in landscaping for restoration, maintenance, improvement and preservation of wildlife habitat.

In 2003, Port Moody became the first municipality in Western Canada to adopt a Pesticide Use Control Bylaw to prohibit the use of pesticides, herbicides and other chemicals for cosmetic purpose in Port Moody.

NATURESCAPE POLICIES

30. The City will regulate and restrict the use of pesticides within its jurisdiction through the Pesticide Use Control Bylaw and provide public education on pesticide-free gardening.
31. The City will continue to develop demonstration sites to promote sustainable landscaping practices and will expand into xeriscaping and rain garden landscapes.

NATURESCAPE STEWARDSHIP PRINCIPLES

- Restore, maintain and enhance the natural habitat on your property;
- Care for and co-exist with the species you have attracted to your property; and
- Improve your living environment by recycling and composting.

6.12 URBAN FORESTRY

There is a growing realization among the public that trees and forests provide more than aesthetic and recreational value. The increase in air pollution and the degradation of watercourses in other parts of the region have awakened people to the value of forests as a key component of the health of an urban ecosystem. In addition, well designed landscaping will allow development areas to regain their green qualities and can assist with the energy management of buildings.

Since 1999 the City of Port Moody has a tree retention bylaw in place to help preserve the scenic qualities and significant forested areas within development sites. The bylaw has been updated to include the protection of trees within streamside protection and enhancement areas. A comprehensive review of the City's Tree Protection Bylaw is planned.

In order to maintain the City's green character, there is a need at the neighbourhood and building design level to replace trees and plants removed during construction. The nursery stock used for replanting must also be considered to ensure an appropriate mix of species and sizes. Larger trees used for replanting must overcome barriers such as drought or lack of nutrients more so than smaller trees.

Trees can be subject to blow-downs causing significant property damage. Port Moody includes significant forested areas within close proximity to residential areas highlighting the need to ensure that forests are managed in a safe manner, particularly along the forest edge. Risks associated with invasive plant species and wildfires must also be considered to ensure the health and longevity of forested areas.



URBAN FORESTRY POLICIES

32. The urban forest policy will include the development of a management plan to investigate the short and long term survival of street trees and protect them from pests, diseases and urban impacts. The development of an urban street tree management plan will form part a component of the overall urban forest management strategy.
33. Street tree planting and other landscaping will be required in new neighbourhoods and with redevelopment. Naturescape principles will be utilized where appropriate.

34. The City will endeavor to maintain the forested character of the city by preserving ravines and escarpments, wildlife habitat and corridors, and policies relating to tree retention, replanting and pre-planting in newly developed areas.
35. All new developments and redevelopments within the City shall be evaluated to see if and how, parts of the lands under discussion, can be used to develop or maintain urban forest values where considered appropriate.
36. The City will encourage and regulate the retention and replanting of trees through applicable City bylaws and policies.

37. Decisions about whether to retain or remove trees within designated tree retention areas require assessment by an certified arborist, registered professional forester, worksafe/ ISAPNW certified hazard tree assessor or other professional. In order to have the best information available, the City will have such trees assessed prior to making a decision. Where tree removal is required, the arborist's assessment will recommend a replanting ratio, species type, and size with a preference for native species.
38. Wherever possible, the City will maintain or enhance the ecological viability of the urban forest, and in designing larger areas for tree retention, a minimum width of at least two tree heights will be utilized as a basic planning guideline. The City will also retain a network of protected lands that will allow the urban forest to serve as connections to adjacent forested lands.
39. The City recognizes that trees on private lands make a significant contribution to the urban forest and wishes to encourage sound planning and management of all trees on private land. Wherever possible, private landowners will be encouraged to retain trees that are not a hazard, and to replant trees that will match the existing forested character of the area.
40. The City will seek to protect private lands that possess significant environmental, urban forest or recreational value by covenant when associated with rezoning or subdivision applications. The City will also encourage joint public and private ownership of such areas.
41. The City will encourage salvage replanting prior to clearing and development where possible.
42. The City will develop a long term re-forestation plan and urban forest management plan to guide the maintenance and renewal of the City's treed areas including the promotion and recognition of street trees.
43. The City will endeavor to protect nesting birds by restricting tree cutting and vegetation removal during nesting season.
44. The City will review its tree retention policies as part of the Urban Forest Management program and require windthrow assessments by a qualified registered professional forester when development/re-development is resulting in the removal of a significant number of trees.
45. The City will seek to establish long term city-wide tree cover targets within an Urban Forest Management Strategy.

46. The City will set annual tree planting targets and will investigate the use of carbon sequestering as part of community energy and emissions planning.
47. The City will continue to involve Port Moody Fire and Emergency Services in the planning and development process for projects that may pose a wildland interface threat in accordance with the City's Community Wildfire Protection Plan.
48. The City recognizes the value of mature trees for habitat for wildlife, improved air quality, carbon storage, and cooler temperatures in summer and will strive to ensure that intact treed areas are preserved and enhanced as part of redevelopment.

6.13 STREAMS AND RIPARIAN HABITAT

The City of Port Moody is fortunate to have a number of fish bearing watercourses that flow into Burrard Inlet (with the exception of the headwaters of Stoney Creek which flow into the Brunette Basin in the Fraser River system). These watercourses provide critical spawning and rearing habitat for a variety of species including coho, chum, chinook, and pink salmon, as well as rainbow and coastal cutthroat trout. Fish populations are sensitive to land use changes within their watersheds and many populations which are at risk are supported by artificial propagation by volunteer run hatcheries.

Watercourses have been inventoried, mapped and assessed as part of the ESA Strategy completed in 2003. In keeping with the provincial Streamside Protection Regulation (2001) under the Fish Protection Act, the City of Port Moody has established streamside protection and enhancement areas in residential, commercial and industrial zones. Regulations within the Port Moody Zoning Bylaw outline conditions under which different Streamside Protection and Enhancement Area widths are required.

The City of Port Moody's watercourse protection objectives are:

- to maintain and enhance, wherever possible, the ecological, recreational, aesthetic and economic values of Port Moody's streams;
- to develop and implement policies which would maintain or improve the quality of the natural environment including fish habitat and water quality; and
- to establish and implement policies which would integrate the conservation of natural resources with other community values.

SALMON COME HOME

The habitat requirements for salmonids are linked to their life history cycles, and include: a continuous supply of clean, well oxygenated water; an optimum ratio of pools and riffles; the provision of large, woody debris, clean gravel substrates for spawning, benthic food production; and a healthy riparian habitat.

Because watersheds do not recognize municipal boundaries, Port Moody initiated the North East Sector Stream Stewardship Committee (now the North East Sector Environmental Stewardship Committee) whose mandate includes the development of a common regulatory approach to watershed protection and the communication of shared issues.

STREAM PROTECTION POLICIES

49. The City will work with the Federal and Provincial Governments to promote public awareness and to advise development proponents that all developments are to be planned on the basis of achieving no net loss of fish habitat and be in accordance with senior government legislation.
50. The City of Port Moody will require streamside protection measures as outlined in the City's Zoning Bylaw and Development Permit Guidelines in Appendix 2.
51. The City will manage Streamside Protection and Enhancement Areas by avoiding the disturbance of soils and the creation of impervious surfaces within the riparian area. Impacts will be strictly limited or mitigated by: retaining or replanting or maintaining vegetation in streamside protection and enhancement areas to meet fish protection objectives; and avoiding the placement or creation of harmful substances in streamside protection areas.
52. The City will maintain a stream classification system which will assist in implementing watercourse and streamside protection policies.
53. The City of Port Moody shall strive to manage all Class A and B natural watercourses as open streams (no culverting). Any proposals for culverting or realignment of streams shall require approval from all applicable authorities, in addition to City Council.
54. The City will require all road crossings over Class A and B streams to be in the form of open-span bridges that allow for the natural movement of the channel within the floodplain. The City will require a daylighting feasibility study for developments that contain culverted sections of a watercourse that is fish-bearing or potentially fish-bearing with the removal of barriers.
55. The City will encourage the restoration of natural habitats to enhance ESAs, particularly those which are under City control.
56. The environment and habitat of all fish-bearing watercourses shall be maintained in order to protect them as fish-bearing watercourses.
57. Prior to trail development occurring adjacent to any watercourse, verification will be required to ensure that important fish habitat and associated riparian zones will not be damaged. New trails should not be situated within any areas that are designated as streamside protection and enhancement areas.
58. In existing developed neighbourhoods and for infill development on sites less than 2 hectares (5 acres) in size, a Streamside Protection and Enhancement Area of a minimum of 15 metres from any development to the top-of-bank of a stream shall generally be maintained, provided that areas may in places be less than the said 15 metres where incentives are used to encourage greater overall protection or enhancement of streamside areas. In areas of new development and for redevelopment parcels greater than 2 hectares in size, the Streamside Protection and Enhancement Area shall be established in accordance with the provisions of the Zoning Bylaw.
59. In ravine areas, a minimum of the first 15 metres from the top-of-bank, and the ravine itself, shall, where possible through the rezoning or subdivision processes, be reserved in public ownership. In shallow areas, a minimum of the first 15 metres from top-of-bank and the stream itself, shall, where possible through the rezoning or subdivision processes, be reserved in public ownership.
60. The minimum building or structure setback in areas adjacent to Mossom and Noons Creek shall be 30 metres from the natural boundary of these creeks as defined in the Zoning Bylaw.





- 61. The City encourages the stewardship of Port Moody's streams by volunteer associations and will consider variances to setback areas required in the Zoning Bylaw for fisheries enhancements when these enhancements meet senior government legislation and are supported by Council.
- 62. The City recognizes the ecological importance of the Mossom Creek and North Schoolhouse Creek watersheds and will strive to ensure their long term enhancement and protection e.g. through the development of integrated stormwater management plans (ISMPs).
- 63. The City will work towards the development of integrated stormwater management plans for all watersheds within the City in partnership with local stewardship groups and the broader community.

SPEA DEFINITION

The Streamside Protection and Enhancement Area (SPEA) is defined as an area adjacent to a stream that links to terrestrial ecosystems and includes both the riparian area vegetation and the adjacent upland vegetation that exerts an influence on the stream, the width of which is determined to meet the requirements of the Streamside Protection Regulation 10/2001 for the City of Port Moody.

WATERCOURSE CLASSIFICATION

Class A: Watercourses inhabited by salmonids year round and/or rare or endangered fish species or potentially inhabited by such fish with access improvements (e.g. removal of culverts)

Class B: Watercourses that are a significant source or a potentially significant source of food and nutrients to downstream fish populations. These watersheds are characterized by no fish presence and no reasonable potential for fish presence through flow or access enhancement.

Class C: Watercourses that provide an insignificant contribution of food or nutrients to downstream areas supporting or potentially supporting fish populations. No documented fish present and no reasonable potential for fish. These are usually man made watercourses aligned parallel to roadways.

Class D: Watercourses for which there is a lack of adequate fisheries or flow information to permit classification.

6.14 MARINE PROTECTED AREAS

The City of Port Moody does not have direct jurisdiction over marine areas, but does work in partnership with other agencies in managing these areas. For this reason, only the prominent intertidal areas including the mud flats at the head and sides of Port Moody Arm are categorized as ESAs. The City does have regulatory authority over land uses within upland areas that may have downstream effects on the marine environment.

For example, development in the watersheds can affect water quality in streams that discharge into Burrard Inlet. The City has taken the proactive step to protect sensitive mud flats at the head of Port Moody Arm by entering into a lease agreement with the Port Metro Vancouver to include these areas within Tidal Park.

64. In light of the ending of the Burrard Inlet Environmental Action Program (BIEAP), the City will explore alternative strategic planning processes for ensuring that upland use decisions protect and enhance the intertidal foreshore and marine environment of Burrard Inlet.

6.15 WETLAND AREAS

Port Moody has both saltwater coastal wetlands and freshwater inland wetlands. These areas are a source of biodiversity and provide breeding grounds and habitats for a variety of wildlife species.

Two inland wetlands on the north shore of Port Moody are tributaries of Hett Creek and Mossom Creek. Inland wetlands play an important ecological role by providing food and habitat for plants, waterfowl and wildlife. They improve water quality by serving as a filter. During storms, wetlands reduce flooding and erosion by absorbing water and controlling downstream creek flow. In dry periods, a wetland is a valuable source of water, gradually releasing it to groundwater reserves or nearby creeks. The coastal wetlands of Port Moody's Shoreline Park protect the quality of our marine waters by diluting, filtering, and settling out sediments, excess nutrients and pollutants.

The ESA Strategy outlines a number of proposed management principles, guidelines and best management practices for the protection of wetland areas.

WETLAND POLICY

65. The City has identified and mapped wetland areas as special features within the ESA Management Strategy and will require the identification of new wetlands as part of development review process where applicable.

6.16 BIODIVERSITY AND SPECIES AT RISK

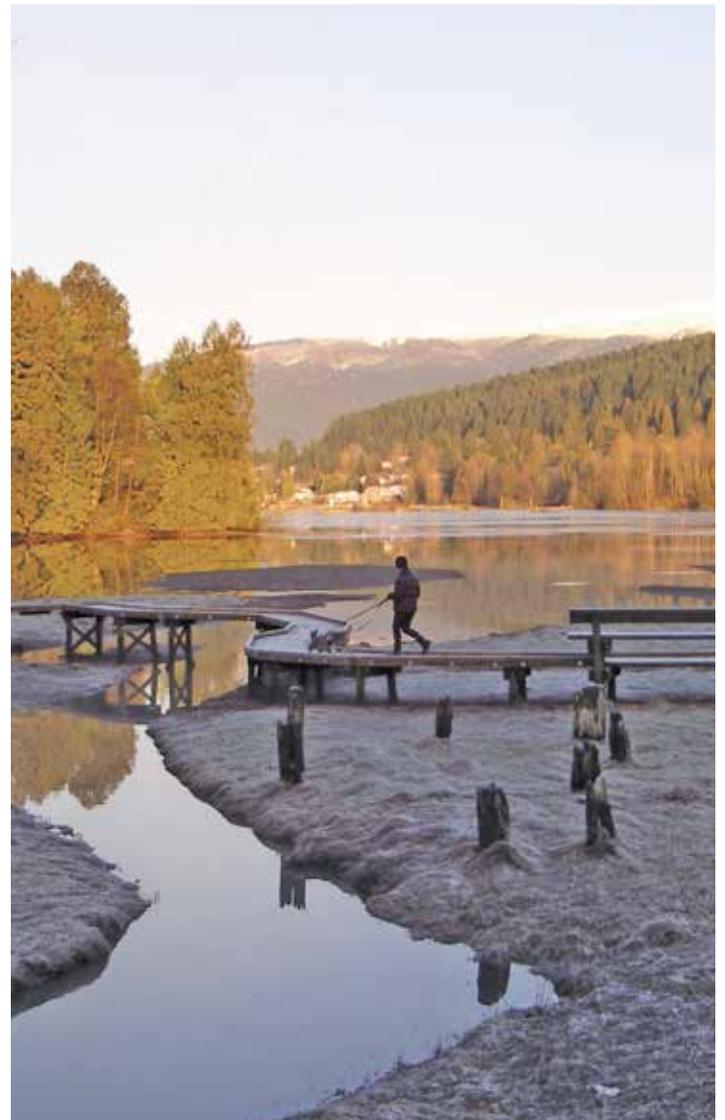
The City of Port Moody has been recognized with a United Nations Livable Communities Award for its long term planning. A key component of this planning has been concentrating new development within existing brownfield and urban infill areas (Inlet Centre) and a movement away from continued sprawl and encroachment into environmentally sensitive areas. The identification and preservation of environmentally sensitive habitat is the most effective way to ensure the continued biodiversity of local species and to meet the requirements of the federal Species at Risk Act and the provincial Wildlife Act.

With increasing threats to biodiversity as a result of climate change, the need to ensure habitat requirements are adequately addressed becomes even more important.

The Environmentally Sensitive Areas Management Strategy (2003) documents fourteen known species of conservation concern within Port Moody and classifies them as red, blue, and yellow listed species according to their level of vulnerability. This list has since grown and will be updated as additional areas are studied. Requirements for development within areas identified as containing species at risk are included in Development Permit Area 4 (Chapter 16) and detailed in the Port Moody Development Permit Area Guidelines (Appendix 2).

BIODIVERSITY AND SPECIES AT RISK POLICIES

66. The City will monitor threats to its local biodiversity and consider the development of invasive plant management strategies as part of the urban forest management program.



67. The City will work in partnership with stewardship groups, federal and provincial authorities to maintain habitat, nesting colonies, plant communities or related ecosystem attributes that support red and blue listed plants or animals as identified in the provincial Wildlife Act, the federal Species At Risk Act and by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

68. The City will require consideration of species at risk and habitat protection as part of the development review process where applicable.

6.17 HAZARDOUS LANDS

The natural environment which has endowed Port Moody with a long shoreline, numerous watercourses, and treed slopes with magnificent views also poses certain hazards which need to be considered when reviewing applications for development. Hazardous lands include land that is subject to or is likely to be subject to flooding, mud flows, debris flows, debris torrents, erosion, land slip, rockfalls, earthquake, subsidence or avalanche. Maps 14 and 15 identify known hazardous lands in Port Moody and Development Permit Area 5 guidelines (Chapter 16 and Appendix 2) outline requirements for development in these areas.

HAZARDOUS LANDS POLICY

69. The City will apply a risk management framework for assessing the suitability of proposed development on hazardous lands.

6.18 SEISMIC EVENTS

Greater Vancouver's location places it at some risk from earthquakes. The Provincial Building Code and the City's Building Bylaw require for all new buildings used for assembly, personal care, detention, or high hazard industrial use, and for all new residential, commercial or industrial buildings, that the foundations and building structures be designed to resist earthquake forces to a level specified in the BC Building Code, as amended from time to time.

The nature of local soils and geography influences the degree of risk. Most of Port Moody is covered by soils, typically tills, that were consolidated in the most recent glaciation and these are considered excellent foundation materials and stable, if not disturbed by excavation or erosion.

The Geological Survey of Canada identifies a rim of lands around the head of Burrard Inlet composed of unconsolidated sediments that may be susceptible to liquefaction in an earthquake of sufficient severity. Liquefaction refers to a loss

of strength that may occur in loose soils lying below the water table, when exposed to prolonged shaking from a major earthquake. Areas where liquefaction may possibly occur are shown on Map 14. The geology of these areas is complex and the specific risk on any particular site can only be determined by sub-surface investigation.

SEISMIC POLICY

70. Where an application is made for subdivision or the construction of a new principal building within the areas as identified on Map 14 as moderate to high risk of earthquake soil liquefaction, it is prudent to require submission of a geotechnical report that includes subsurface investigation. Such report may recommend measures to reduce risk of injury or property damage. Development Permit Area 5 guidelines implement this policy and include situations when exemptions may apply (Chapter 16 and Appendix 2).

6.19 FLOODING, STEEPLAND AND DEBRIS FLOW HAZARDS

Where watercourses traverse steep slopes, there is natural potential for flooding, erosion, landslides and debris flows. The Geological Survey of Canada's surficial geology mapping indicates several areas along the Chines hillside and Harbour Heights escarpment where significant landslide activity has occurred in historic times. These locations are shown by the symbol "RS" on Map 14.

In more recent times, ravine erosion and debris flows along the Chines hillside have caused property damage (e.g. Ottley Creek, 1979). A thorough study of the Chines hillside by Dayton and Knight in 1988 concluded that:

- inappropriate placement of fill and drainage outlets at the crest of slope in Coquitlam was a contributing factor;
- certain areas at the base of the slope were subject to hazard of debris flow and flooding, as shown on Map 14;
- basins and barriers to intercept debris flows, and drainage improvements, should be constructed.

Since then, Metro Vancouver has worked with the City of Port Moody and City of Coquitlam to manage this inter-municipal issue. Most of the physical improvements recommended by Dayton and Knight as a high priority have been constructed. These measures have reduced risk, particularly with regard to debris flow, but a residual risk remains, especially with respect to flooding. The City continues to work with the City of Coquitlam and Metro Vancouver to manage drainage and debris concerns in the Chines area.

Past studies of North Shore watercourses (McElhanney, 1982) identify areas that are susceptible to flooding (see Map 13). In addition to the mapped flood hazard areas, localized flooding may occur during a storm event due to blockage of drainage works by debris or limited conveyance capacity of the downstream system. Metro Vancouver in coordination with the City of Port Moody and the City of Coquitlam has completed the Chines Integrated Stormwater Management Plan (ISMP). The objectives of this Plan, and other ISMPs, are to identify strategies to manage flows effectively to prevent major storm event flooding, stream erosion, and slope instability and protect and enhance stream and watershed health.

Any steep ravine has the potential for erosion and debris movement which could block culverts and negatively affect drainage patterns necessitating review of all new development and redevelopment in steep ravine areas. Streamside protection and enhancement area regulations and the City's tree retention bylaw also work collectively to reduce disturbance to natural vegetation and drainage patterns in these areas.

Another potentially hazardous area is the east flank of Burnaby Mountain, which takes the form of an escarpment wrapping around the Harbour Heights neighbourhood. Because of the composition of soils and groundwater conditions, this slope may be susceptible to gully erosion and landslides where seepage flows occur or are opened by excavation. This area is labelled "Steepland Sediments" on Map 14.

FLOODING, STEEPLAND AND DEBRIS FLOW HAZARDS POLICY

71. Where application is made for a subdivision or a new principal building is proposed on lands shown on Map 13 as being at some hazard from debris flow or flooding, or within the Harbour Heights escarpment, it is prudent that a report prepared by a professional engineer or professional geoscientist with demonstrated expertise and experience in geotechnical study be submitted, assessing risk specific to the site, and making recommendations to reduce the risk of injury and property damage. This report will be reviewed in the context of the City's accepted risk management framework. Development Permit Area 5 guidelines deal with this in greater detail (Chapter 16 and Appendix 2).

6.20 STEEP SLOPES

Even where steeper slopes are stable in their natural condition, development activity can result in hazards. Such activity typically includes stripping vegetation, altering drainage patterns, excavation and placement of fill. When this occurs on steep slopes, potential is created for land slip, erosion, stream sedimentation, property damage and personal injury, particularly where excavation taps groundwater zones. While many of the City's

steeper slopes are precluded from development by their designation as "Parks and Open Space" (e.g. ravine areas, Chines hillside, North Shore Escarpment), there are steep slopes on some lands with development potential, mainly in the North Shore Development Area, but also in scattered locations in other parts of the City. On some of these lands, it is important that geotechnical investigation take place, and resulting recommendations be incorporated into development plans, before any site clearing or earth moving takes place.

STEEP SLOPES POLICY

72. Where application is made to subdivide or develop on any site, a substantial portion of which exceeds 20% (11°) grade, a geotechnical investigation should be undertaken. Development Permit Area 5 guidelines deal with this in greater detail including application requirements and situations when exemptions may apply (Chapter 16 and Appendix 2).

6.21 COMMUNITY INVOLVEMENT

The City of Port Moody values and promotes community involvement in the protection of our natural environment. Community involvement can take many forms, including active stewardship groups that conduct public education programs, as well as other activities aimed at protecting and enhancing the natural environment. These programs are important in teaching residents how our daily activities impact the City's natural setting.

COMMUNITY INVOLVEMENT POLICIES

73. The City will encourage public education processes directed at protections of the natural environment, waste reduction and reduced energy consumption.

74. The City will continue to support community involvement and partnerships in environmental stewardship by:

(a) Supporting community events such as Port Moody's Ecological Society's Fingerling Festival and other such events;

(b) Encouraging public participation in greening the City through initiatives such as the Naturescape Policy and the annual Environmental Awards Program

75. The City will continue to support participation in community stewardship through the existing Volunteers in Parks policy.