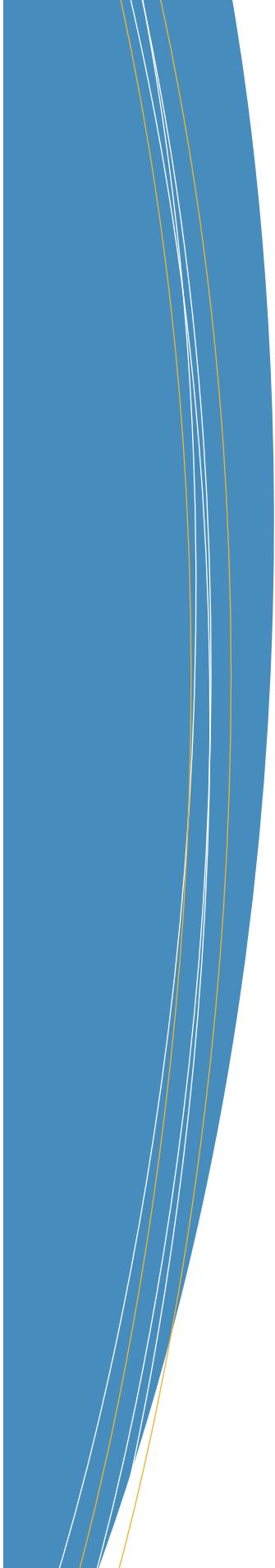




City of White Rock
Environmental Strategic Plan
September 2008



CITY OF
WHITE ROCK





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Project No. 1023421

September 4, 2008

David Pollock
Director of Municipal Operations
City of White Rock
15322 Buena Vista Avenue
White Rock, BC V4B 1Y6

Dear Mr. Pollock

Re: City of White Rock Environmental Strategic Plan

We are pleased to submit the final report for the City of White Rock Environmental Strategic Plan. This plan was developed with contributions from Council, staff, various stakeholders and the public, and with guidance from the Environment Committee of Council. It provides a framework and detailed implementation plan linking broad environmental objectives with ongoing City operations, services and policy and provides leadership for the community on environmental sustainability.

It has been a pleasure working with you and the Environment Committee on this visionary project. Please contact us if you require further information.

Respectfully submitted,

Jacques Whitford AXYS Ltd.



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Sustainability Specialist
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**Jacques
Whitford**

**An Environment
of Exceptional
Solutions**

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Appendix AImplementation of City of White Rock Environmental Strategic Plan
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Overview of the Environmental Strategic Plan

Development of the Environmental Strategic Plan

White Rock's City Council asked the City's Environment Committee to help develop an Environmental Strategic Plan to outline its commitments to maintaining a sustainable community for those who live here now and for the future of our children. The result is the community's first integrated environmental plan. In more clearly identifying the ways in which municipal operations, services and policies protect the natural environment and maintain a sustainable built environment, the City also provides leadership and supports the community in individual sustainability initiatives.

This Plan was over two years in the making, through the work of the Environment Committee and in consultation with City Council and the community. Community involvement and partnerships are essential in ensuring the ongoing success of the Environmental Strategic Plan. Residents and stakeholder organizations were surveyed in spring 2007, with over 80 responses to the questionnaire. The draft plan was presented to Council in November 2007 and public open houses were held in December 2007 and April 2008 to provide opportunities for people to discuss topics they consider important. Stakeholders consulted include federal and provincial governments, First Nations, environmental organizations and property owners associations.

Structure of the Environmental Strategic Plan

The plan provides nine broad objectives and an implementation strategy describing specific goals, actions, timelines, relative costs and ways of measuring progress in preserving the natural beauty and characteristics that help define White Rock. City operations, policies such as the Official Community Plan, Parks Master Plan and Strategic Transportation Plan, and commitments to climate change action were considered during Plan development.

The broad objectives are:

- Water** 1: Protect and Enhance Semiahmoo Bay
- 2: Manage Rainwater Runoff and Sanitary Waste Appropriately
- 3: Preserve the Drinking Water Source
- Land** 4: Protect Wildlife Habitat
- 5: Protect and Enhance the Tree Canopy
- 6: Eliminate Cosmetic Pesticide Use
- 7: Reduce Solid Waste and Promote Recycling
- Air** 8: Promote Energy Efficiency and GHG Reduction in City Facilities and Operations
- 9: Promote Energy Efficiency and GHG Reduction in the Community

This document contains four sections and two appendices: Water (Section 1), Land (Section 2), Air (Section 3) and Implementation of the Environmental Strategic Plan (Section 4). General objectives and goals are described in Sections 1, 2 and 3. Details about measurable parameters, actions items, recommended timelines and relative costs are provided in Section 4 and in the Implementation Plan (Appendix A). The questionnaire used in the public survey is provided in Appendix B.

Recommendations for Short Term Implementation

The City will be able to implement the Environmental Strategic Plan through planning, adjustments to existing operations, development of public awareness programs and ongoing dialogue with the community about what makes White Rock a wonderful place in which to live and work. Cost and operational efficiencies have been identified, which will help offset costs of new initiatives. One of the bonuses of considering environmental, social and economic costs and benefits together is that it is cost-effective in the short term and the long term.

With 9 objectives, 21 goals and 46 individual action items in the Implementation Plan, determining the highest priorities for the City is essential. A screening process was developed that ranked timelines for implementation and relative costs of individual action items. Three timelines were identified: short term (implement within 1 to 5 years); medium term (implement within 1 to 10 years); and longer term (implement within 1 to 15 years). Three broad classes of relative costs were used: minimal (up to approximately \$25,000); moderate (up to approximately \$100,000) and high (over \$100,000).

Following discussions with staff and the Environment Committee, eight action items have been identified as particularly important for implementation in the short term because of their high potential for immediate improvement in the environment of White Rock, links with current City initiatives and priorities, and encouragement of environmental awareness in the community. These priority items include:

- Working with partners to improve water quality and aquatic life in Semiahmoo Bay (Objective 1)
- Developing an Integrated Rainwater Management Plan (Objective 2)
- Continuing to improve sanitary waste infrastructure to reduce inflow and infiltration and prevent emergency overflows of the Metro Vancouver pump station to Semiahmoo Bay (Objective 2)
- Adopting the Tree Management By-law (Objective 5)
- Developing a Cosmetic Pesticide Use By-law (Objective 6)
- Evaluating options to expand the current solid waste management initiatives (Objective 7)
- Developing the Climate Charter for reduction in GHG emissions (Objectives 8 and 9)
- Initiating awareness and education initiatives to support City actions (all objectives)

Since discussions began in 2005, the City of White Rock has undertaken several initiatives in key areas that support this Environmental Strategic Plan. These initiatives reflect the City's commitments to being a sustainable community. Baseline terrestrial and aquatic habitat inventories have been completed, garden waste collection and other solid waste management services have been improved, the Tree By-law and Strategic Transportation Plan have been developed and integrated rainwater management planning is scheduled. Signing of the Climate Charter may be the most substantial commitment, and will lead to reduced energy costs as the City finds ways to reduce GHG emissions. This has implications for transportation, land use planning, infrastructure, and general environmental conditions.

A key element in developing this plan has been to listen to and work closely with residents and community groups, to seek their input and help identify community values and ways to protect those values. The consultation already undertaken for the Environmental Strategic Plan should be continued through the Implementation Phase.



1 WATER

Water is a defining characteristic of White Rock, whether the topic is protecting Semiahmoo Bay for its high wildlife and recreational values, assessing sources of contaminants in rainwater runoff, maintaining municipal infrastructure or the quality of drinking water for residents.

This section describes three broad objectives for protection of water and ten specific goals:

- Objective 1: Protect and enhance Semiahmoo Bay
- Objective 2: Manage stormwater and sanitary waste appropriately
- Objective 3: Preserve the drinking water source

1.1 Objective 1: Protect and Enhance Semiahmoo Bay

Semiahmoo Bay is part of the Boundary Bay Wildlife Management Area and offers a unique area for marine vegetation, intertidal productivity and birds. With over 4 kilometres of waterfront, White Rock is famous for its beautiful sandy beaches with warm swimming water, hosting thousands of visitors during the summer. The City is considering the development of a Pier and Foreshore Management Plan that addresses commercial, recreational and environmental interests.

Current and potential concerns about Semiahmoo Bay include:

- loss of marine habitat and related upland ravine areas
- litter on the beach
- contamination with fecal coliforms, which come from human and animal waste, and may result in beach closures (no closures in recent years) and prohibition of shellfish harvesting (in place since the 1970s)
- disturbance of wildlife by boats, dogs and people
- loss of eelgrass habitat
- impacts from boating (hydrocarbon spills, garbage, untreated sewage, human-vessel interactions)
- physical stability of the foreshore (geomorphology) and
- potential negative impacts resulting from the addition of waterfront amenities such as a marina, expanded pier or increased boat usage

Water quality of Semiahmoo Bay is directly linked with management of rainwater runoff and sanitary infrastructure (Objective 2). Efforts to improve quality of rainwater runoff will have a positive effect on the marine environment and all who depend on Semiahmoo Bay.

Goals to protect and enhance Semiahmoo Bay are provided in Table 1.

Table 1: Goals to Protect and Enhance Semiahmoo Bay

Goals	
1-1	Ensure White Rock has the best water quality of any beach in Metro Vancouver
1-2	Protect ecological values of Semiahmoo Bay
1-3	Protect the foreshore from erosion
1-4	Encourage waterfront activities that support environmental values and sustainability
1-5	Improve awareness of environmental values and protection of Semiahmoo Bay

NOTE: See Implementation Plan (Appendix A) for details

1.2 Objective 2: Manage Rainwater Runoff and Sanitary Infrastructure Appropriately

Rainwater runoff increases as land is developed. Increased flows and contaminants in the runoff have negative effects on water quality of Semiahmoo Bay. During development, buildings, roads and other paved surfaces (“impervious surfaces”) replace soils and vegetation. When it rains, untreated runoff quickly flows over the paved surfaces and enters storm drains, which empty into Semiahmoo Bay or the Little Campbell River. Under more natural conditions, soil and plants absorb the rainwater, filter out impurities and replenish the groundwater or feed local streams.

Runoff can contain heavy metals, oils and greases from roads and driveways, fertilizers and pesticides from gardens, and fecal coliforms from animal wastes and sewer cross connections. These contaminants end up in Semiahmoo Bay, where high coliform counts could contribute to public health concerns and the hydrocarbons and pesticides can accumulate in birds, fish and other wildlife.

The City of White Rock manages rainwater runoff on the roads through a system of storm drains and pipes, with more than 20 outfalls that discharge to Semiahmoo Bay or the Little Campbell River. The infrastructure services White Rock and areas in the City of Surrey, with some pipes conveying runoff from residential areas north of the City boundary and others discharging runoff in Little Campbell River.

Rainwater runoff and its associated problems can be managed more effectively by increasing the natural infiltration of rain. In the Lower Mainland, this is done through Integrated Rainwater Management Plans that link land use planning with infrastructure needs and protection of aquatic habitat. Low Impact Development strategies and Best Management Practices to increase natural infiltration of rain include maintaining deep layers of good quality soils and planting vegetation to help absorb water, purify it and release it slowly. The City is developing an Integrated Rainwater Management Plan, which should help improve conditions in Semiahmoo Bay.

Sanitary sewage from households and commercial properties is discharged to City-operated sanitary sewers and pumped to the Metro Vancouver wastewater treatment plant at Annacis Island. There are no known properties in the City that remain on private septic systems. No untreated sewage is discharged to Semiahmoo Bay, although emergency overflows occur may occur on an irregular basis from the Metro Vancouver pump station located at Marine Drive and Oxford Street. Metro Vancouver conducts coliform tests at White Rock beaches throughout the swimming season.

Goals to manage rainwater and sanitary waste are provided in Table 2.

Table 2: Goals to Manage Rainwater and Sanitary Waste

Goals	
2-1	Minimize the release of harmful substances into Little Campbell River and Semiahmoo Bay
2-2	Increase filtration of rainwater and decrease rainwater runoff rate
2-3	Eliminate sanitary sewer – stormwater system cross-connections

NOTE: See Implementation Plan (Appendix A) for details

1.3 Objective 3: Preserve the Drinking Water Source

The City of White Rock water supply comes from six high quality artesian wells that access the Sunnyside Uplands aquifer. This system, unique in the Lower Mainland, has been owned and maintained by EPCOR since 2005. EPCOR tests quality of the water weekly and distributes it directly, without chlorination or other treatment, to approximately 18,500 residents in White Rock, some adjacent areas in Surrey and the Semiahmoo First Nation. All residential and commercial water use is metered and there are restrictions on lawn sprinkling during summer months. The City works with EPCOR’s Citizen Advisory Panel on issues pertaining to the delivery of drinking water.

The issues for drinking water include:

- sufficient quantity (the key issue) – water usage is approximately 340 litres/person/day, sufficient for the current population; however, the growing population will put an increased demand on the water supply
- potential for contamination of the groundwater from various sources
- possible links between global warming and amount of water in the aquifer.

Goals to preserve the drinking water source are provided in Table 3.

Table 3: Goals to Preserve Drinking Water Source

Goals	
3-1	Preserve the amount of water and quality of the community’s aquifer resource
3-2	Reduce per capita and overall water consumption

NOTE: See Implementation Plan (Appendix A) for details



2 LAND

Quality of life in the City of White Rock is affected by human activities on the land. Forested areas provide habitat for wildlife and corridors that enable animals to move from one area to another. The urban tree canopy, which includes native and introduced trees, provides many benefits. In addition to providing wildlife habitat, trees help to purify air and water, absorb rainfall and add greatly to the aesthetics and property values in the City. Both humans and wildlife are healthier when toxic pesticide use is eliminated. Finally, waste generated by residents and businesses in the City must go somewhere, typically to a landfill. Since local disposal resources were filled long ago, White Rock currently uses the Burns Bog landfill. When Burns Bog reaches capacity, an alternative will need to be found, preferably one that does not simply involve transporting waste long distances for disposal.

This section describes four broad objectives and seven specific goals for protection of land:

- Objective 4: Protect wildlife habitat
- Objective 5: Protect and enhance the tree canopy
- Objective 6: Eliminate pesticide and herbicide use
- Objective 7: Reduce solid waste and promote recycling

2.1 Objective 4: Protect Wildlife Habitat

White Rock is home to many species of birds, marine life and wildlife such as deer, rabbits, raccoons and coyotes. Natural, park and upland ravine areas also provide habitat and migration corridors for birds and wildlife. Maintaining a diversity of native plant species and habitat types is essential for maintaining wildlife populations and facilitating their movement through and beyond White Rock.

The importance of bird habitat in Semiahmoo Bay cannot be understated, and is further discussed under Objective 1 (Protect and Enhance Semiahmoo Bay). Boundary Bay has been designated an ‘Important Bird Area’ (IBA) by Birdlife International and Semiahmoo Bay was designated as a site of hemispheric importance in 2005 as part of the Western Hemispheric Shorebird Reserve Network. More than 333 species of birds have been identified in Semiahmoo Bay, including shorebirds, waterfowl, raptors and songbirds, some of which are rare or endangered. Semiahmoo Bay hosts over 100,000 overwintering waterfowl, is a major stopover site for shorebirds on the Pacific Flyway and is home to the largest winter population of raptors in Canada. Birds come to Semiahmoo Bay because its rich ecosystem provides ample food resources, shelter and safety from predators. Eelgrass beds, mudflats and salt marshes provide habitat to a myriad of algae, marine invertebrates and fish that in turn feed many species of birds.

The City of White Rock proposes to preserve and manage Semiahmoo Bay as a natural area in accordance with the Fraser River Estuary Management Plan, and will work with other agencies (Environment Canada, British Columbia Ministry of Environment) and stewardship groups (such as Friends of Semiahmoo Bay Society, Little Campbell Watershed Society and Shared Waters Alliance) to raise awareness among residents and visitors about environmental sensitivity of Semiahmoo Bay.

Concerns regarding wildlife and wildlife habitat include:

- lack of connectivity between parks and natural areas and
- growth of invasive plants such as English Ivy, Himalayan blackberry, Scotch broom, Japanese knotweed and other species.

Goals to protect wildlife habitat are provided in Table 4.

Table 4: Goals to Protect Wildlife Habitat

Goals	
4-1	Provide healthy habitat for wildlife on private and public land

NOTE: See Implementation Plan (Appendix A) for details

2.2 Objective 5: Protect and Enhance the Tree Canopy

Trees are an important part of a healthy urban centre and provide many community assets. They take up carbon dioxide (a greenhouse gas), give off oxygen and help purify the air, provide habitat and food for birds and wildlife and, by taking up large quantities of water, contribute to rainwater management. Trees also contribute to neighbourhood aesthetics, create privacy, act as a sound barrier, offer protection from the sun and wind and provide stability to soils and slopes through their extensive root systems. Properly maintained dead trees can provide wildlife habitat and protection against erosion, although dead trees that present hazards should be removed.

The City of White Rock values its mature tree canopy cover for its ecological function, aesthetics and economic aspects and is developing a by-law to protect trees on public land, which may be extended to apply to private lands. This Tree Management By-law will include a permit process for removal of trees and a dispute resolution mechanism.

Concerns and issues with trees on private property in White Rock are associated with planting unsuitable trees for the space available and maintenance practices that stress the trees (topping, severe pruning, removal). Additional pruning or removal of trees is often done to maintain or create ocean views, to accommodate electricity wires or maintain sight lines at intersections or to make way for new development. Many problems can be avoided when residents are advised on selection and care of tree species suitable to the intended space.

Goals to protect and enhance the tree canopy are provided in Table 5.

Table 5: Goals to Protect and Enhance the Tree Canopy

Goals	
5-1	Conserve healthy trees on public and private land and increase the amount of tree canopy

NOTE: See Implementation Plan (Appendix A) for details

2.3 Objective 6: Eliminate Cosmetic Pesticide Use

Pesticides are often used to eliminate insect or rodent pests and control weed growth. Growing awareness of human health and environmental concerns about the use of these toxins and poisons is leading many communities to find alternative methods. The City has taken steps to protect public health by banning cosmetic pesticide use on public land since 2001, and encourages residents to follow suit. This initiative has implications for City budgets (e.g., higher staff costs for maintenance) and for overall appearance of gardens in public areas when pesticides are not used. Currently, the City uses only rodenticides and small amounts of herbicides under specific conditions. The Burlington Northern Santa Fe Railway (BNSF) uses herbicides on its right-of-way, an area that is not under City jurisdiction.

Rodents can be a problem along the waterfront in White Rock, as they are in many seaside communities. Large boulders and tall grasses provide habitat; litter and garbage containers provide food. The City uses a combination of traps, rodenticides, litter removal and habitat management to control the populations. Poison is the most common means of controlling rodent populations, but most poisons are toxic to other mammals. Alternatives for residents and businesses include eliminating habitat (tall weeds, firewood on the ground and near structures), screening areas to prohibit entry to buildings, and removing food sources (accessible garbage cans, open compost, garden debris, bird seed, pet food) and water sources (leaky taps, sweating pipes, open sources).

The organic gardening movement has helped publicize alternatives such as mulching, hoeing, using hot water or high powered water spray, and amending the soil naturally to promote healthy growth of plants. Healthy plants are less susceptible to insect damage. Gardening using organic methods and with native and drought-tolerant plants also assists in water conservation. Some residents and institutions continue to use toxic pesticides to control weeds and insects because they value a weed-free lawn or to deal with allergies to certain weeds. Round-up is the most commonly used herbicide, with a relatively low toxicity to mammals and fish, but it needs to be used as prescribed.

Goals to eliminate cosmetic pesticide use are provided in Table 6.

Table 6: Goals to Eliminate Cosmetic Pesticide Use

Goals	
6-1	Eliminate use of all cosmetic pesticides on private land
6-2	Reduce the use of rodenticides to control rodent populations

NOTE: See Implementation Plan (Appendix A) for details

2.4 Objective 7: Reduce Solid Waste and Promote Recycling

Solid waste includes all items typically discarded from households and businesses. Currently White Rock residents send 5.8 million kilograms (319 kilograms per person) per year to landfill and 1.6 million kilograms (86 kilograms per person) per year to recycling.

The three Rs (Reduce, Re-use, and Recycle) are important elements of any waste reduction program. A community saves tax dollars by reducing the amount of waste going to landfills and increasing the amount recycled. Product stewardship programs for paints, pesticides, tires, used oils, electronic waste and many other items place some responsibility for recycling back on the producers. Recycling options continue to expand in response to demands by consumers, communities and governments. An increasing number of kinds of plastics are now recyclable and there is growing awareness about the impacts of plastic bags on the environment and alternatives to their use.

As landfill options become limited (future closing of Burns Bog and Cache Creek) and transportation costs rise, there is an impetus for White Rock and other communities to reduce the amount of waste disposed and increase the options for recycling. In the process, disposal costs and greenhouse gas emissions will be reduced.

Currently, the City solid waste management program includes:

- weekly garbage collection (two can limit for single-family areas)
- biweekly yard waste pickup
- biweekly recycling collection from single and multi-family areas (newspaper, chip board, paper, glass, tins and some plastic containers)
- drop-off locations for cardboard recycling
- rubbish removal on request (for a fee)
- plans for a system to collect beverage containers along the Promenade.

The City also removes trash from parks and waterfront and debris from the beach. Unanticipated impacts of litter include encouragement of scavenging animals (rats, crows, etc.) and reduced aesthetic appeal of the beach and commercial areas.

Goals to reduce solid waste and promote recycling are provided in Table 7.

Table 7: Goals to Reduce Solid Waste and Promote Recycling

Goals	
7-1	Reduce the amount of solid waste entering landfills
7-2	Encourage organic waste recycling, eliminate green waste disposal to landfill
7-3	Improve public cooperation about litter in public areas

NOTE: See Implementation Plan (Appendix A) for details



3 AIR

There has been growing awareness among municipalities across the province about climate change and the leadership role municipalities can play in reducing emissions that contribute to climate change. Because energy efficiency and greenhouse gas emissions are so closely linked to air and air quality, these challenges and objectives are included in the Environmental Strategic Plan.

Living by the ocean, a community can take clean air for granted. In summer, a cool sea breeze blows inland and in winter, prevailing winds are from the southeast. However, air pollution from vehicle use and other sources (e.g., open burning, wood stoves, fireplaces, regional industrial activities, Cherry Point Refinery) contribute to reduced air quality in the City and in the Region. Bumper to bumper traffic along Marine Drive and in the commercial area, particularly during the busy summer season, contributes fine particulate matter and greenhouse gases.

The City of White Rock has been working to reduce environmental impacts on air for some time, and illustrated its strong commitment to address climate change by signing the Provincial Climate Charter with the province, the Ministry of Community Services, and over 100 other signatory municipalities in 2007. Addressing climate change will involve reducing greenhouse gas (GHG) emissions and providing opportunities to take up existing GHGs in the atmosphere.

This section describes two broad objectives related to climate change and the City and four specific goals:

- Objective 8: Promote energy efficiency and GHG reduction in City facilities and operations
- Objective 9: Promote energy efficiency and GHG reduction in the community

3.1 Objective 8: Promote Energy Efficiency and GHG Reduction in City Facilities and Operations

Canadians are among the top energy users in the world. Energy use, whether to heat buildings, turn on lights or move vehicles through the City, results in release of waste gases to the air, which can lead to reduced air quality and increased emissions of GHG. These have broad implications for human health, climate change and energy costs. Air quality and GHG emissions are strongly linked to City and Regional transportation plans, maintaining healthy tree canopy and working with partners in the wider airshed of Whatcom County and Metro Vancouver.

In signing the Provincial Climate Charter in 2007, the City has shown its strong commitment to addressing climate change. By improving energy efficiency in its own operations and providing information about these initiatives to its residents, the City will play a leadership role in the community. Objective 8 focuses on City operations and Objective 9 focuses on City opportunities to provide support and direction to the community.

The most useful approach to meet the complex challenge of reducing energy use and GHG emissions will be to develop a coordinated plan, for example through the Climate Charter. The plan should have links to related City plans and policies, such as the Strategic Transportation Plan, land use and neighbourhood plans, and operations. Key elements would include:

- a policy that defines the goals of reducing energy use and GHG emissions
- an inventory of current energy use in City operations, to provide a benchmark for future monitoring
- strategies to reduce energy consumption in public buildings and design more energy-efficient civic buildings
- consideration of alternative fuels in municipal fleets
- promoting its own initiatives for City Operations and describing cost-savings to taxpayers

Goals to promote energy efficiency and GHG reduction in city facilities and operations are provided in Table 8.

Table 8: Goals to Promote Energy Efficiency and GHG Reduction in City Facilities and Operations

Goals	
8-1	Reduce emissions of greenhouse gases by the City and become carbon neutral by 2012

NOTE: See Implementation Plan (Appendix A) for details

3.2 Objective 9: Promote Energy Efficiency and GHG Reduction in the Community

As discussed in Objective 8, there are many ways in which the City and community can work together to become more energy efficient, improve the environment and realize cost savings. The City can support the community in these initiatives by:

- providing clear policy on growth and development (smart planning initiatives that result in more compact, less car-dependent neighbourhoods) through the Official Community Plan, zoning, building permit requirements
- providing fast-tracking and other incentives for sustainable building construction
- ensuring there are transportation options in the City, such as bikeways, greenways, improved transit, and pedestrian-friendly developments (as described in the Strategic Transportation Plan).

The LEED® (Leadership in Energy and Environmental Design) certification program provides guidance to the construction industry and the public for three levels of sustainable building construction (bronze, silver, gold). These building standards incorporate energy efficiency and water conservation features.

Goals to promote energy efficiency and GHG reduction in the community are provided in Table 9.

Table 9: Goals to Promote Energy Efficiency and GHG Reduction in the Community

Goals	
9-1	Create more compact, less car-dependent neighbourhoods
9-2	Support green building initiatives in new public, residential and commercial buildings
9-3	Promote reduced use of vehicles and encourage creation of infrastructure to facilitate a variety of transportation modes

NOTE: See Implementation Plan (Appendix A) for details

4 IMPLEMENTING ENVIRONMENTAL STRATEGIC PLAN

The Environmental Strategic Plan was developed with practical, measurable actions in mind. Objectives and goals identified in the preceding sections are summarized in Table 10. Transforming these general statements into a functioning Environmental Strategic Plan requires additional details about how to proceed. This additional information is provided in the Implementation Plan (Appendix A), and includes:

- measurable parameters that identify data sources useful in evaluating progress (in many cases the actual benchmarks or criteria will be developed at a later date)
- actions that will achieve the goals (many of which are already part of ongoing City operations and policies, or are planned for consideration in future years)
- general categories for the proposed actions (City operations and capital budget, policy and by-law, education and awareness, partnership)
- a recommended timeframe for implementation (developed based on consultation with the Environment Committee, reflecting a combination of priority, urgency and existing City commitments, which are noted as ongoing in the Implementation Plan)
- relative costs of the proposed actions (very rough guides to costing, which will need to be refined before proceeding with the plan).

Definitions and criteria for general action categories, the recommended timeframe for implementation and relative costs are shown in Table 11.

Since the Environment Committee began working on the Plan in 2005, the City has undertaken several initiatives in key areas, which illustrates the dynamic nature of the City's work and its ability to identify and meet challenges. Baseline terrestrial and aquatic habitat inventories have been completed, garden waste collection and other solid waste management services have improved, the Tree By-law and Strategic Transportation Plan have been developed and integrated rainwater management planning is scheduled. Particularly notable is the signing of the Climate Charter and City commitments to find ways to reduce GHG emissions, which has implications for transportation, land use planning, infrastructure, and general environmental conditions, and will lead to reduced energy costs for the City.

Recommendations for Short Term Implementation





The Implementation Plan lists 9 objectives, 21 goals and 46 individual action items. Of these, eight action items have been identified as particularly important for implementation in the short term because of their high potential for immediate improvements in the environment of White Rock, links with current City initiatives and priorities, and encouragement of environmental awareness in the community. These high priority actions include:

1. Working with partners to improve water quality and aquatic life in Semiahmoo Bay
2. Developing an Integrated Rainwater Management Plan
3. Continuing to improve sanitary waste infrastructure to reduce inflow and infiltration and prevent emergency overflows of the Metro Vancouver pump station to Semiahmoo Bay
4. Adopting the Tree Management By-law
5. Developing a Cosmetic Pesticide Use By-law
6. Evaluating options to expand the current solid waste management initiatives
7. Developing the Climate Charter for reduction in GHG emissions
8. Initiating awareness and education initiatives to support City actions

Table 10: Summary of White Rock Environmental Strategic Plan Objectives and Goals

Water
<p>Objective 1: Protect and Enhance Semiahmoo Bay</p> <p>Goal 1–1: Ensure White Rock has the best water quality of any beach in Metro Vancouver</p> <p>Goal 1–2: Protect ecological values of Semiahmoo Bay</p> <p>Goal 1–3: Protect the foreshore from erosion</p> <p>Goal 1–4: Encourage waterfront activities that support environmental values and sustainability</p> <p>Goal 1–5: Improve awareness of environmental values and protection of Semiahmoo Bay</p>
<p>Objective 2: Manage Rainwater Runoff and Sanitary Waste Appropriately</p> <p>Goal 2–1: Minimize the release of harmful substances into Little Campbell River and Semiahmoo Bay</p> <p>Goal 2–2: Increase filtration of rainwater and decrease rainwater runoff rate</p> <p>Goal 2–3: Eliminate sanitary sewer – stormwater system cross-connections</p>
<p>Objective 3: Preserve the Drinking Water Source</p> <p>Goal 3–1: Preserve the amount of water and quality of the community’s aquifer resource</p> <p>Goal 3–2: Reduce per capita and overall water consumption</p>
Land
<p>Objective 4: Protect Wildlife Habitat</p> <p>Goal 4–1: Provide healthy habitat for wildlife on public and private land</p>
<p>Objective 5: Protect and Enhance the Tree Canopy</p> <p>Goal 5–1: Conserve healthy trees on public and private land and increase the amount of tree canopy</p>
<p>Objective 6: Eliminate Cosmetic Pesticide Use</p> <p>Goal 6–1: Eliminate use of all cosmetic pesticides on private land</p> <p>Goal 6–2: Reduce the use of rodenticides to control rodent populations</p>
<p>Objective 7: Reduce Solid Waste and Promote Recycling</p> <p>Goal 7–1: Reduce the amount of solid waste entering landfills</p> <p>Goal 7–2: Encourage organic waste recycling, eliminate green waste disposal to landfill</p> <p>Goal 7–3: Improve public cooperation about litter in public areas</p>
Air
<p>Objective 8: Promote Energy Efficiency and GHG Reduction in City Facilities and Operations</p> <p>Goal 8–1: Reduce emissions of greenhouse gases by the City and become carbon neutral by 2012</p>
<p>Objective 9: Promote Energy Efficiency and GHG Reduction in the Community</p> <p>Goal 9–1: Create more compact, less car-dependent neighbourhoods</p> <p>Goal 9–2: Support green building initiatives in new public, residential and commercial buildings</p> <p>Goal 9–3: Promote reduced use of vehicles and encourage creation of infrastructure to facilitate a variety of transportation modes</p>

Table 11: Criteria Used to Develop the Implementation Plan

	Symbol	Description
Category	 City operations and capital items	Day-to-day operations, such as waste management, building and infrastructure management and parks maintenance
	 Policy and by-law items	Straight-forward (e.g., dog waste, anti-idling) and more complex (e.g., tree) by-laws and enforcement to deal with specific issues Broader planning initiatives (e.g., the Climate Charter, smart growth provisions in land use planning) that guide the future of White Rock
	 Education and awareness items	Methods such as signage, website information and support for community awareness activities that provide residents with the practical information they need to support a clean and healthy environment
	 Partnership	Existing or potential relationships with businesses, agencies and stewardship groups, to provide an integrated approach for broader or cross-boundary initiatives (e.g., water quality and bird population monitoring in Semiahmoo Bay, working with EPCOR on water supply issues or with Metro Vancouver on coliform monitoring).
Timeline	1	Short term (implement within 1 to 5 years)
	2	Medium term (implement within 1 to 10 years)
	3	Longer term (implement within 1 to 15 years)
Relative Cost	\$	Minimal cost to implement (up to approximately \$25,000)
	\$\$	Moderate cost to implement (up to approximately \$100,000)
	\$\$\$	High cost to implement (over \$100,000)

Appendix A

Implementation Plan for the White Rock Environmental Strategic Plan

The following criteria were used to develop the Implementation Plan of the Environmental Strategic Plan.

	Symbol	Description
Category	■ City operations and capital items	Day-to-day operations, such as waste management, building and infrastructure management and parks maintenance
	■ Policy and by-law items	Straight-forward (e.g., dog waste, anti-idling) and more complex (e.g., tree) by-laws and enforcement to deal with specific issues Broader planning initiatives (e.g., the Climate Charter, smart growth provisions in land use planning) that guide the future of White Rock
	■ Education and awareness items	Methods such as signage, website information and support for community awareness activities that provide residents with the practical information they need to support a clean and healthy environment
	■ Partnership	Existing or potential relationships with businesses, agencies and stewardship groups, to provide an integrated approach for broader or cross-boundary initiatives (e.g., water quality and bird population monitoring in Semiahmoo Bay, working with EPCOR on water supply issues or with Metro Vancouver on coliform monitoring).
Timeline	1	Short term (implement within 1 to 5 years)
	2	Medium term (implement within 1 to 10 years)
	3	Longer term (implement within 1 to 15 years)
Relative Cost	\$	Minimal cost to implement (up to approximately \$25,000)
	\$\$	Moderate cost to implement (up to approximately \$100,000)
	\$\$\$	High cost to implement (over \$100,000)

WATER						
Goal	Measurable Parameter	Action Item	Category	Timeline	Relative Cost	
OBJECTIVE 1 PROTECT AND ENHANCE SEMIAHMOO BAY						
1-1	Ensure White Rock has the best water quality of any beach in Metro Vancouver	Summer fecal coliform counts Number of beach closures	a. Work with partners, to address water quality concerns in Semiahmoo Bay (monitoring programs, joint meetings, awareness re: coliforms and other contaminants, links with stormwater management planning)	Partnership	1 ongoing	\$\$
			b. Review dog waste by-law and consider signage. Ensure adequate resources and staffing to enforce it (penalties)	Bylaw/Policy	1	\$\$
1-2	Protect ecological values of Semiahmoo Bay	Overwintering/migratory bird counts Eelgrass health Status of shellfish closures	a. Work with other agencies on issues of bird populations, eelgrass habitat and shellfish status	Partnership	1/2	\$
			b. Ensure OCP and neighbourhood plans incorporate measures that will protect marine life in Semiahmoo Bay	Bylaw/Policy	2	\$
1-3	Protect the foreshore from erosion	Status at monitoring locations	a. Encourage partnership (Railroad, Shared Water Alliance) to assess current erosion status of foreshore and fund a new habitat engineering study of the foreshore	Partnership	2	\$\$
1-4	Encourage waterfront activities that support environmental values and sustainability	See above performance measures	a. Ensure the Pier and Foreshore Management Plan incorporates 'leave no trace' principles	Bylaw/Policy	2	\$
			b. Investigate the feasibility of a marine foreshore interpretation centre (e.g. kiosk)	Partnership	2	\$
1-5	Improve awareness of environmental values and protection of Semiahmoo Bay	See above performance measures	a. Develop or support education programs (content for City website and other communications about environmental values, eelgrass habitat, stormwater runoff, dog waste, etc.), install signs at beach describing values and "leave no trace" principles	Awareness	1	\$
			b. Develop City branding that links tourism with a healthy environment	Bylaw/Policy	3	\$
OBJECTIVE 2 MANAGE RAINWATER AND SANITARY WASTE APPROPRIATELY						
2-1	Minimize the release of harmful substances into Little Campbell River and Semiahmoo Bay	Levels of coliforms, metals, organic contaminants	a. Develop an Integrated Rainwater Management Plan to maintain or improve water quality of Semiahmoo Bay (determine whether rainwater discharges are a problem, monitor high risk areas, install oil/grit separators in high risk areas). Include consultation with Surrey's Environment Committee to discuss cross-boundary issues	City Ops/Capital	1 2008	\$\$
			b. Work in partnership with business community to comply with Metro Vancouver's Sewer Use By-Law to eliminate discharge of harmful substances into the City's stormwater and sanitary sewer system	Partnership	1	\$\$
			c. Develop an education program for single family homes, strata councils and businesses about harm done through common activities, encourage residents to participate in Fisheries and Oceans Canada's storm drain marking program	Awareness	1	\$
2-2	Increase infiltration of rainwater and decrease rainwater runoff rates	% Permeable land cover % Impervious cover in land leased or purchased	a. Create policy that supports natural infiltration of rainwater (zoning and development guidelines for new construction, Low Impact Development, by-law regulating amount of impervious and pervious surfaces, tree retention and planting) as part of the Integrated Rainwater Management Plan	Bylaw/Policy	2	\$
			b. Increase natural infiltration and employ Low Impact Development strategies on City-owned land (reduce % impervious, plant more trees, maintain soil depths)	City Ops/Capital	2	\$\$\$
			c. Develop education program on how residents and business can help manage stormwater more naturally and economically (disconnect downspouts, maintain large trees, reduce the amount of paving, replace with permeable paving), develop a pilot project offering rain barrels for garden watering)	Awareness	2	\$
2-3	Eliminate sanitary sewer stormwater system cross-connections	Targets identified in Metro Vancouver Liquid Waste Management Plan Pre- and post-project monitoring	a. Upgrade the sanitary system to reduce the possibility/frequency of emergency sanitary overflows, redirect sanitary system flows by building pump stations on the west side and at the town center, continue the City's Inflow and Infiltration (I&I) Reduction Program	City Ops/Capital	1 ongoing	\$\$\$
OBJECTIVE 3 PRESERVE THE DRINKING WATER SOURCE						
3-1	Preserve the amount of water and quality of the community's aquifer resource	Aquifer levels during summer and recharge periods Water quality compared to standards	a. Liaise With Epcor to obtain information on quantity and quality of water in aquifers, potential sources of contaminants to the groundwater, and support Epcor's development of a strategy to avoid degradation of the water supply	Partnership	2 ongoing	\$
3-2	Reduce per capita and overall water consumption	Water use per capita and by City Amount of water recycling	a. Continue to partner with Epcor and Metro Vancouver on water conservation strategies, education programs and advertising, enforcement of lawn watering restrictions during summer	Partnership	1 ongoing	\$
			b. Liaise with Epcor to review City infrastructure to reduce water use through leak protection and repair	Partnership	2	\$
			c. Amend the building regulation to require that new buildings use water-efficient appliances, provide incentives for and information on City website about installation of water-efficient appliances and fixtures	Bylaw/Policy	3	\$
			d. Support landscape designs that require less water use, ensure City-owned land is planted for low maintenance and watering	Bylaw/Policy	2	\$

LEGEND: Timeline: 1 = short term (within 1 to 5 years); 2 = medium term (within 1 to 10 years); 3 = longer term (within 1 to 15 years)

RELATIVE COST: \$ = minimal (up to ~\$25,000); \$\$ = moderate (up to ~\$100,000); \$\$\$ = high (over \$100,000)

LAND					
Goal	Measurable Parameter	Action Item	Category	Timeline	Relative Cost
OBJECTIVE 4 PROTECT WILDLIFE HABITAT					
4-1 Provide healthy habitat for wildlife on public and private land	Amount of habitat Connectivity to riparian areas	a. Monitor currently inventoried habitat sites and their quality over time (e.g., using aerial photos), update the 2007 terrestrial and aquatic habitat study, map areas with existing habitat and potential for restoration, develop restoration plans, identify links with Parks management and other operational issues to maintain habitat quality and biodiversity	City Ops/Capital	2	\$\$
	Abundance of birds, endangered species	b. Collaborate with environmental organizations on the presence of habitat for species at risk	Partnership	1	\$
	Diversity of plant and bird species	c. Support wildlife biodiversity in the City by promoting "Naturescape" and other programs that encourage backyard biodiversity and creation of micro-habitats that contribute to wildlife and migratory bird habitat	Awareness	2	\$
OBJECTIVE 5 PROTECT AND ENHANCE THE TREE CANOPY					
5-1 Conserve healthy trees on public and private land, and increase the amount of tree canopy	Number of permit violations of Tree Management By-Law	a. Adopt the Tree Management By-law and ensure adequate resources and staffing to enforce it (permits, penalties, development issues, criteria for trees to be protected, replacement trees)	Bylaw/Policy	1	\$\$
	% tree cover in City over time	b. Analyze urban tree canopy using existing aerial photos with GIS technology	City Ops/Capital	2	\$\$
		c. Work with Communities in Bloom committee to create a guide and map to beautiful trees of White Rock	Partnership	3	\$
	Status of tree inventory Number of new trees planted Number of trees topped in City	d. Develop supporting information for the Tree Management By-law by: creating an inventory of valued and heritage trees in the city (encourage residents to register their trees); investigating ways to list trees on private land and ensure they are retained when owners change (e.g., register on property title); providing a list of suitable trees for residential lots, steep slopes, and view maintenance, including native British Columbia trees, and those discouraged because of their invasive nature; providing alternative pruning methods to avoid tree topping; promoting awareness of and pride in trees (e.g., tree-planting program, Arbor Day, Earth Day, recognition for residents with valued trees).	Awareness	1	\$\$\$
OBJECTIVE 6 ELIMINATE COSMETIC PESTICIDE USE					
6-1 Eliminate use of all cosmetic pesticides on private land	Number of complaints registered	a. Draft a by-law to eliminate the use of cosmetic pesticides	Bylaw/Policy	1	\$
	Amount of public interest in education programs	b. Develop supporting information for a Pesticide Use By-law: education program on alternatives to rodenticides and herbicides, including workshops, links to gardening websites that promote organic gardening, lists of undesirable plants (weeds, invasive species) and how to manage them Naturescape principles in private, public and commercial areas work with Communities in Bloom committee and other groups to encourage natural gardening practices, natural gardens tour	Awareness	1	\$
	Proportion of attractive gardens that also contain weeds	c. Promote the existing demonstration garden at the Museum and expand the project to other City properties, to encourage the use of native plants, organic gardening methods and tolerance of some weeds	City Ops/Capital	2 ongoing	\$
6-2 Reduce the use of rodenticides to control rodent populations	Number of complaints registered	a. Review City rodent control practices to ensure continuity with the City of Surrey	Bylaw/Policy	3	\$
	Amount of rodent habitat Amount of litter on beach and in alleys	b. Develop educational materials for the public and businesses to address rodent control and encourage good waste management practices, e.g., signage on the foreshore, information about not feeding wildlife, reducing amount of foreign (human) food sources for wildlife). Encourage use of tight-fitting lids on garbage bins for residents and commercial users.	Awareness	1	\$

LAND					
Goal	Measurable Parameter	Action Item	Category	Timeline	Relative Cost
OBJECTIVE 7 REDUCE SOLID WASTE AND PROMOTE RECYCLING					
7-1 Reduce the amount of solid waste entering landfills	Amount of solid waste and recycling produced by the various sectors and per capita	a. Expand the recycling program to include receptacles for public areas, monitor their use	City Ops/Capital	1 ongoing	\$\$
		b. Evaluate options for reducing waste disposal to landfills (complete a solid waste inventory for all sectors of the city, investigate alternative disposal methods, research waste reduction programs and targets used in other municipalities)	City Ops/Capital	1 ongoing	\$\$
	Use of existing and new programs	c. Provide information about product stewardship programs and recycling options in the City and Metro Vancouver on the City website - to remove valuable or toxic items from the waste stream (batteries, electronic goods, fluorescent lights, pharmaceuticals)	Awareness	1 ongoing	\$
7-2 Encourage organic waste recycling, eliminate green waste disposal to landfill	Units of organic waste collected	a. Provide residents and businesses with a kitchen waste collection program and move from pilot project to permanent collection of yard waste	City Ops/Capital	1 2008 pilot	\$\$
7-3 Improve public cooperation about litter in public areas	Visual survey of litter on beaches Amount of litter collected	a. Remove litter from beach, improve signage on beach	Awareness	1 ongoing	\$
	Participation in annual "Great Canadian Beach Cleanup"	b. Develop awareness program about impacts of litter in public areas, develop adopt-a-street and adopt-a-park programs, participate in the annual "Great Canadian Beach Cleanup"	Awareness	2	\$

LEGEND: Timeline: 1 = short term (within 1 to 5 years); 2 = medium term (within 1 to 10 years); 3 = longer term (within 1 to 15 years)

RELATIVE COST: \$ = minimal (up to ~\$25,000); \$\$ = moderate (up to ~\$100,000); \$\$\$ = high (over \$100,000)

AIR					
Goal	Measurable Parameter	Action Item	Category	Timeline	Relative Cost
OBJECTIVE 8 PROMOTE ENERGY EFFICIENCY AND GHG REDUCTION IN CITY FACILITIES AND OPERATIONS					
8-1 Reduce emissions of greenhouse gases by the City and become carbon neutral by 2012	GHG emissions for City Number of alternative energy vehicles in City fleet	a. Develop the Climate Charter for the City and ensure there are links with all City plans. Components of the Climate Charter include: calculating a carbon footprint for the City (municipal operations), looking at energy use in buildings, fuel consumption, GHG emissions profile; a plan for improved fuel usage in the City fleet (alternate fuels, hybrid vehicles, car-sharing by staff); changing City infrastructure to more energy efficient lighting indoors and outdoors; promoting local purchasing and procurement; using Leadership in Energy and Environmental Design (LEED) standards in City construction; implementing an anti-idling by-law; using "Smart Planning" principles to design more compact, energy-efficient developments less dependent on cars identifying and applying for funding opportunities to support the Climate Charter program	Bylaw/Policy	1	\$\$\$
		b. Develop education and awareness plan, with links to existing initiatives	Awareness	1	\$
OBJECTIVE 9 PROMOTE ENERGY EFFICIENCY AND GHG REDUCTION IN THE COMMUNITY					
9-1 Create more compact, less car-dependent neighbourhoods	Diversity of services in a 5 minute walk Population density in urban core area	a. Use "Smart Planning" principles to design more compact, energy-efficient developments less dependent on cars. b. Identify links between OCP, Neighbourhood Plans and Transportation Plan	Bylaw/Policy	2	\$\$
9-2 Support green building initiatives in new public, residential and commercial buildings	Number of LEED buildings approved and built Area (m ²) built under green guidelines	a. Develop City support system to encourage energy-efficient developments (e.g., LEED certification for new private construction, LEED project tracking system for City staff, fast-tracking of energy-efficient projects, LEED or Sustainability checklist for developers, incentives for projects that incorporate energy-efficient technology)	Bylaw/Policy	2	\$\$
9-2 Promote reduced use of vehicles and encourage creation of infrastructure to facilitate a variety of transportation modes	Transit use, traffic volume km of bikeways and greenways built	a. Support car-sharing, cooperative approaches, links between Official Community Plan, land usage and Transportation Plan b. Ensure GHG reduction actions are linked with Transportation Plan, support the Transportation Plan strategies (e.g., shuttle buses, improved transport from uptown and beach, greenways, cycling and pedestrian routes, bike stands)	Bylaw/Policy	2	\$\$

LEGEND: Timeline: 1 = short term (within 1 to 5 years); 2 = medium term (within 1 to 10 years); 3 = longer term (within 1 to 15 years)

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APPENDIX B
Questionnaire Used in the Public Survey
for the White Rock Environmental
Strategic Plan

Environmental Strategic Plan Survey

Introduction

White Rock's City Council has asked the Environment Committee to develop the community's first Environmental Strategic Plan for those who live here now and for the future of our children. A key part of developing this plan is to listen and work closely with residents and community groups, to seek your input and help us identify community values and ways to protect them. The plan will include:

- environmental objectives for the protection of land, air, water;
- actions to achieve the objectives;
- targets and measures to assess progress.

Your input will be an essential part of developing our plan by incorporating your concerns and priorities. Together we can make a difference for today, tomorrow and years to come. For City Council to develop our community's Environmental Strategic Plan, it depends on you and your input. Thank you for caring, your time and your opinion.

Importance of Issues

The table (next page) lists issues already identified by the Environment Committee. How important are these issues to you? Please review the list and rank the items in terms of their relevance (scale of 1 = not important to 5 = very important).

Additional Issues

Please identify any additional values or issues that you feel are relevant to White Rock. How important are these (rank from 1 to 5)?

Suggestions

Do you have suggestions measuring current conditions for White Rock or for making improvements? (Use an additional page if needed.)

Contact Information

Please leave contact information if you would like updates on development of the plan.

Name: _____ Telephone _____

E-mail: _____

Address: _____

Organization: _____

Issue to be addressed		Rank (1=not important 5=very important)	Comments (please feel free to expand on an another page)
Land	Solid Waste		
	general garbage		
	green waste		
	recycling		
	Trees		
	proposed tree bylaw		
	heritage trees		
	tree retention and urban tree canopy		
	Litter		
	Parks (community, neighbourhood)		
	Pesticides (cosmetic use, rodent control)		
Air	vehicle emissions (greenhouse gases, climate change)		
	traffic volume and noise		
	other sources (e.g., open burning, wood stoves, Cherry Point Refinery)		
	solutions (e.g. trees as air cleaners)		
Water	Semiahmoo Bay		
	recreational use (swimming, boats)		
	habitat (eelgrass, birds)		
	foreshore management, pier		
	Drinking Water		
	quality		
	water conservation		
	quantity (long term sustainability)		
Storm Water (currently discharged untreated into Little Campbell River, Semiahmoo Bay)			
Other	Energy (alternative sources for City buildings, vehicles, street lights)		
	“Green” developments		
	Limiting the amount of paved surfaces		
	Availability of environmental information		
	Wildlife Management (wildlife corridors, migratory birds)		