

Burrard Inlet
Environmental
Action
Program



Fraser River
Estuary
Management
Program

Consolidated Environmental Management Plan For Burrard Inlet

Plan Implementation

Tracking Report

September 16, 2005

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1. INTRODUCTION

The Consolidated Environmental Management Plan (CEMP) for Burrard Inlet was approved by the BIEAP partners in 2002, and contains 21 action items to achieve four shared goals:

- Goal #1** Improve water quality in Burrard Inlet
- Goal #2** Minimize the effects of contaminated soils and sediments on human and ecological health
- Goal #3** Maintain and enhance productive fish and wildlife habitat and the natural biodiversity of Burrard Inlet
- Goal #4** Encourage human and economic development activities that enhance the environmental quality of Burrard Inlet

These four goals are also grouped under three themes:

- Water Quality/Waste Management & Air Quality;
- Historically Contaminated Lands and Sediments; and
- Healthy Ecosystems and Biodiversity.

In support of the goals, 21 action items are identified as follows:

Improve water quality in Burrard Inlet (Goal #1)

- 1.1 Continue to coordinate the management of liquid waste in Burrard Inlet
- 1.2 Develop and implement a coordinated ambient water quality monitoring program in Burrard Inlet
- 1.3 Review and make recommendations on the provincial permit discharge standards for industrial wastes
- 1.4 Share information and contribute to the effort to eliminate non-point source pollution in Burrard Inlet
- 1.5 Develop and enhance Industrial Best Management Practices (BMPs) and strengthen partnerships with the industrial sector
- 1.6 Share information and explore ways how BIEAP could contribute to air quality initiatives in the region

Minimize the effects of contaminated soils and sediments on human and ecological health (Goal #2)

- 2.1 Develop and implement a risk-based sediment management plan for False Creek
- 2.2 Develop a database to monitor historically contaminated lands and sediments in Burrard Inlet
- 2.3 Develop risk-based sediment management plans for historically contaminated areas of Burrard Inlet as required
- 2.4 Make use of global research efforts to provide management options for contaminated lands and sediments

Maintain and enhance productive fish and wildlife habitat and the natural biodiversity of Burrard Inlet (Goal #3)

- 3.1 Confirm and acknowledge existing “protected” areas in Burrard Inlet
- 3.2 Assist the Greater Vancouver Biodiversity Conservation Strategy by identifying areas of ecological significance in Burrard Inlet for future protection and enhancement
- 3.3 Use legislative tools such as Marine Protected Areas, Wildlife Management Areas and ecological corridors to protect and enhance valuable areas in the Burrard Inlet ecosystem

Encourage human activities and economic development activities that enhance the environmental quality of Burrard Inlet. (Goal #4)

- 4.1 Provide information and resources to all municipal, regional and port planning initiatives along the shoreline and in adjoining watersheds
- 4.2 Coordinate and provide support and technical expertise to stewardship and community stakeholder groups in their efforts to improve the environment
- 4.3 Identify areas for habitat compensation banking
- 4.4 Develop environmental guidelines for recreation access, and park development and maintenance
- 4.5 Update and promote the BIEAP Shoreline Development Guidelines
- 4.6 Develop pilot projects in cooperation with the public and private sectors to showcase innovative environmentally sensitive designs
- 4.7 Develop an inventory of archeologically significant sites
- 4.8 Explore and develop models to deal with the cumulative effects of development within Burrard Inlet.

In addition to the above, the CEMP identifies:

- Six sub-basins within Burrard Inlet and describes partnership actions for each sub-basin. The 6 sub-basins are the Outer Harbour, False Creek, Inner Harbour, Central Harbour, Port Moody Arm and Indian Arm. For a map of the BIEAP area of interest, go to <http://www.bieapfrempp.org/maps.html>.
- Stakeholders including community groups, First Nations, municipal governments, and agencies within regional government, provincial government and federal government.

The CEMP is documented in a second print issued in November 2002 (BIEAP, 2002).

2. REPORT OUTLINE

The CEMP contains a commitment towards an annual reporting system, namely, that BIEAP will institute an annual public reporting system on the work achieved through the partnership. The *CEMP Tracking Report* is part of annual progress-reporting; which is also achieved via BIEAP-FREMP Annual Reports.

The BIEAP Plan Implementation Committee (PIC) guides Plan implementation and consists of representatives from the BIEAP partner agencies, First Nations and surrounding municipalities: Environment Canada, Fisheries and Oceans Canada (DFO), Vancouver Port Authority (VPA), BC Ministry of Environment (MOE), Greater Vancouver Regional District (GVRD), City of Burnaby, City of North Vancouver, City of Port Moody, City of Vancouver, District of North Vancouver, District of West Vancouver, Squamish First Nation (SFN), Musqueam First Nation, Tsleil-Waututh First Nation (TWFN), Village of Anmore, and Village of Belcarra.

The goal of the 2005 *CEMP Tracking Report* is to acquire information for eight CEMP actions as identified by the PIC. Information was gathered from a number of the stakeholders in the period April-July 2005, and focused on ongoing and future projects related to progress on the selected Actions. Where information was gathered in 2004 for the same action, an update was obtained. Some information from the 2004 Tracking Report has been archived on the BIEAP website. Table 1 below outlines the eight CEMP actions whose implementation was tracked for this report, and those who provided information.

CEMP Action Item	Stakeholders Involved
CEMP action 1.2 Develop and implement a coordinated ambient water quality monitoring program in Burrard Inlet.	GVRD, MOE, BIEAP
CEMP action 1.4 Share information and contribute to the effort to eliminate non-point source pollution in Burrard Inlet.	Environment Canada, DFO, MOE, District of North Vancouver, City of Burnaby, City of North Vancouver, District of West Vancouver, GVRD, VPA, Village of Belcarra, City of Port Moody, BIEAP, City of Vancouver
CEMP action 1.5 Develop and enhance industrial Best Management Practices (BMPs) and strengthen partnerships with the industrial sector.	Environment Canada, City of Burnaby, GVRD, VPA, MOE, City of Port Moody
CEMP action 1.6 Share information and explore ways how BIEAP could contribute to air quality initiatives in the region.	GVRD, VPA, City of Port Moody, City of Burnaby
CEMP action 2.2 Develop a database to monitor historically contaminated lands and sediments in Burrard Inlet.	Environment Canada, BIEAP, GVRD, VPA, MOE
CEMP action 4.1 Provide information and resources to all municipal, regional and port planning initiatives along the shoreline and in adjoining watersheds.	District of North Vancouver, City of Burnaby, City of North Vancouver, Village of Belcarra, District of West Vancouver, City of Port Moody, City of Vancouver, VPA, SFN, TWFN, GVRD
CEMP action 4.5 Update and promote the BIEAP Shoreline Development Guidelines.	BIEAP/BERC
CEMP action 4.6 Develop pilot projects in cooperation with the public and private sectors to showcase innovative environmentally sensitive designs.	Environment Canada, District of North Vancouver, City of North Vancouver, GVRD, VPA, District of West Vancouver, City of Port Moody, City of Vancouver

3. PROGRESS REPORTED

The information gathered for this report is summarized below.

CEMP action 1.2: Develop and implement a coordinated ambient water quality monitoring program in Burrard Inlet.

BIEAP

BIEAP held a workshop in December 2004 with PIC members and other experts to explore ongoing water quality monitoring in the Inlet. Presentations were provided by GVRD, MWLAP, SFU and DFO (Institute of Ocean Sciences) and covered such topics as surface microlayer monitoring and a bioaccumulation model looking at PCB magnification. Information on the workshop is available at www.bieapfrempp.org.

Greater Vancouver Regional District (GVRD)

The final draft of the Burrard Inlet Inner Harbour Data Inventory (and an accompanying project website) is currently under review. This inventory is a summary and evaluation of existing studies and data on the water and sediment quality of the inner harbour area of Vancouver Harbour and Burrard Inlet.

Monitoring programs relevant to Burrard Inlet continued including the monitoring of effluent, receiving waters and sediment for the Lions Gate Waste Water Treatment Plant (LGWWTP), and the monitoring of 32 recreational beaches in the lower mainland. Measured indicators appeared relatively uniform across Burrard Inlet, so additional tools are being studied that may delineate any effects on the receiving environment from the LGWWTP. This continuing development of the monitoring program for LGWWTP includes improvements to the caged bivalve monitoring program which are expected to improve data quantity and quality.

Ministry of Environment (MOE)

MOE monitors ambient water quality at sites in each basin to determine if the Burrard Inlet Water Quality Objectives (1990) are being met. Much of the Burrard Inlet data is available online at <http://wlapwww.gov.bc.ca/wat/wq/wqhome.html>, including the most recent report showing 2002 sampling program results. The Ministry is also undertaking a collaborative sampling project with SFU to study bio-accumulative impacts to the marine trophic food web.

Since June 2004, there has been no Water Quality Objectives (WQO) Attainment monitoring. MOE conducted sediment PCB and PBDE monitoring in 2004 in Burrard Inlet with SFU for the joint project determining whether the current sediment PBC objective level is protective of higher trophic level organisms. In 2005-2006, biological tissue PCB levels will be sampled under the joint SFU-WLAP investigation on appropriate sediment PCB levels. MOE will also be applying for funding for WQO attainment monitoring in 2006; funding was deferred to 2006 due to budgetary reasons.

Because CSOs, vessel sewage and stormwater can all contribute to the elevated bacteriological levels, MOE is working with other agencies to explore amendments to the WQ objectives for False Creek. The Province also undertakes surface microlayer monitoring in Burrard Inlet, monitoring the top layer of the water column to explore potential toxic impacts to some egg and larval stages.

Water quality monitoring data and guidelines are available on the web at www.waterquality.ec.gc.ca including for the provincial-federal monitoring stations.

CEMP action 1.4: Share information and contribute to the effort to eliminate non-point source (NPS) pollution in Burrard Inlet.

BIEAP

One initiative through BIEAP in 2005 is a technical review of upland and watershed issues impacting on Burrard Inlet. The review is part of a risk management approach to monitoring environmental conditions in the Inlet, and will help identify the key ecosystem threats from a watershed perspective. With these risks identified, environmental indicators will be selected that are tied to decision-making, for use in reporting and monitoring through BIEAP. This will help meet the CEMP goal (in Part D of the Plan) to develop a State of the Environment Report for Burrard Inlet. The risk management approach is being further developed in 2005-2006.

City of Burnaby

The City of Burnaby has adopted a citywide Total Stormwater Policy. A report on the Total Stormwater Management Approach is available through the City of Burnaby website at <http://www.city.burnaby.bc.ca/cityhall/boards/index.html> (click on “Committee Reports” and search for “total stormwater”).

Burnaby continues its combined sewer overflow (CSO) separation program, focusing on the Carleton and Gault areas. An Integrated Stormwater Management Plan (ISMP) has also been drafted for Still Creek watershed in Burnaby and Vancouver. While Still Creek is outside the CEMP area, the ISMP includes NPS initiatives that may have city-wide implications. The Draft Plan is being finalized for public review in spring/summer 2005 and includes strategies for environmental management, rainwater management, and recreation.

Burnaby city policy dictates that chemical herbicides and pesticides are not used on municipal properties. The City also has an expanded education program on reduction of cosmetic herbicides entitled “Let it Grow Naturally”. More information is available at http://www.burnaby.ca/cityhall/departments/engnrn/engnrn_whtshp/engnrn_whtshp_wrkshp.html. In addition, multi-family residential developments now require car wash stalls and new parking lots require oil-grease interceptors.

City of North Vancouver (CNV)

CNV has completed a background report for the ISMP for the Mission/Wagg Creek watershed, and it hopes to complete the plan by early 2006. A permanent rainfall gauge is being installed at City Hall. A permanent gauge has also been installed at the lower end of Wagg Creek as part of the City's Environmental Monitoring Program - this provides monitoring data for an adaptive management approach to the watershed as it develops. Water quality sampling has been done in several waterways and extensively in Mission/Wagg Creek.

The City is developing a “Stream & Drainage System Protection Bylaw” which will provide new mechanisms for compliance and increase penalties and enforcement. Developers will be required to incorporate stormwater BMPs into subdivisions and developments and adopt the 3-tier approach to stormwater management.

There are several site-specific initiatives to reduce NPS pollution. CNV is implementing the use of BMPs in development guidelines, in training of operations staff and for high-risk businesses. These BMPs relate to stormwater management, sediment and erosion control, industry-specific practices and pesticide control. There is an ongoing public education program about NPS.

City of Port Moody

The City is currently involved in site-specific stormwater management plans for master communities and moving into watershed-wide ISMPs.

City bylaw prohibits the use of cosmetic pesticides on city property; this comes into force for private property in January 2006. Port Moody also has a public education program in its third year including demonstration projects and speakers on pesticide-free gardening. Multi-family dwellings have car washes connected to the sanitary sewers, and the City requires oil separators for first flush runoff on parking lots.

City of Vancouver

Vancouver's CityPlan guides the separation of storm and sanitary sewers to reduce overflows into the harbour. Sewer separation projects continue: downtown and Fairview Slopes CSOs are almost all separated, and work on the Clark Drive CSO will lead to 40% reduction over next few years. The City is exploring swales, bio-filtration and other similar stormwater management initiatives. Bio-filtration projects are ongoing at Hastings Park and Lost Lagoon/Devonian Pond in Stanley Park.

The City expects to have limited jurisdiction over False Creek east of Burrard Bridge by August 2005, which will facilitate management of NPS pollution. Other initiatives include not using pesticides on municipal properties, and BMPs for construction sites and car washes (for the latter, a bylaw requires recycling of water). Residential bylaws are also in place against car washing on streets.

District of North Vancouver (DNV)

An Integrated Stormwater Management Plan (ISMP) is being developed for watersheds in the DNV. This includes flow monitoring and water quality (benthic) sampling through the streams and watercourses at risk of NPS pollution in the DNV. Hastings Creek ISMP may be the first to be developed. The District is also considering changes to its development bylaw, with more emphasis on drainage.

Specific projects dealing with NPS pollution include the installation and maintenance of 17 large oil/water and grit separators on storm lines prior to discharge into the local streams or Burrard Inlet. In conjunction with the City of North Vancouver and the District of West Vancouver, the DNV has sponsored a pesticide reduction education campaign through the North Shore Recycling Program and has a draft Pesticide Use Control Bylaw for public review in the Fall, with Council approval and implementation anticipated for 2006.

The DNV is in the process of identifying areas of important NPS sources that are not being addressed. One of these sources is storm drainage pollution from industrial and commercial operations. Examples of such pollution include routine spillage from product handling and drainage of wastewater from washing of vehicles, equipment and containers to the storm drainage system. Following an extensive investigation of significant hydrocarbon contamination that was appearing in the storm drainage system and discharging to the Inlet, the source was discovered to be from a contaminated site leaching into the DNV storm system from private property. It was very expensive for DNV to clean and remove the contamination on a regular basis. This discovery and mitigation by the property owner has saved the DNV tens of thousands of dollars in regular clean-up costs and has eliminated a regular contaminated discharge to the Inlet. In general, the DNV suggests that NPS is most relevant to the daily activities in the light industrial multi-tenant complexes. In order to better collaborate on NPS issues with the other stakeholders in Burrard Inlet, the DNV suggests much greater emphasis on education about NPS issues.

District of West Vancouver

Under its Environmental Strategy, the District is proposing a Watercourse Protection bylaw that would prohibit the deposition of pollution into drainage systems and watercourses. As well, cosmetic pesticides are to be banned as of January 1, 2006; restrictions include common herbicides and broad-spectrum lawn care pesticides. For more information, relevant websites include <http://www.westvancouver.net/> and <http://www.westvancouver.net/article.asp?c=835>.

Environment Canada

Environment Canada currently works under the Georgia Basin Action Plan with other levels of government and other partners, on the issue of NPS pollution. Urban and agricultural sources are studied. Most tools developed to investigate and manage NPS pollution are relevant Basin-wide, and so also apply to Burrard Inlet. Examples of such tools include stormwater planning guidebook for British Columbia, the water balance model for British Columbia (www.waterbalance.ca) and model stormwater bylaw and codes of practice.

Several Best Management Practices (BMPs) are in place that deal directly or indirectly with NPS pollution, and were referenced in the 2004 CEMP Tracking Report and are available in the BIEAP-FREMP Project Review Toolbox at <http://www.bieapfremf.org/toolbox/index.cfm>. For the BMPs for boatyard/shipyard operations and the fish processing sector, a major compliance promotion initiative is ongoing to prevent releases of waste from these facilities. While there are no plans for the creation of BMPs with regards to parking lot operations, construction and development activities, recreation facilities, roads and streets, mobile power washing, and exterior painting operations, EC provided support to the Capital Regional District on Vancouver Island to develop codes of practice for some of these sectors (for more information, visit http://www.crd.bc.ca/es/environmental_programs/stormwater/codes_of_practice.htm). As well, a BMP, P2 and Code of Practice Guide was developed for automotive recycling, a modified version of which has been adapted by many in the auto recycling industry. A similar guide was developed for commercial car and truck washes.

Environment Canada is also working on toxics identification and reduction program through GBAP and an international working group with Puget Sound scientists. Two projects of relevance to Burrard Inlet are a review of Georgia Basin toxics-related data, and a status report on the implementation of toxics-related recommendations from the major environmental plans (including the CEMP). These reports will be available to BIEAP to help develop the risk management approach noted above.

Fisheries and Oceans Canada (DFO)

Other than resources already available at <http://www.bieapfremf.org/toolbox/index.cfm> or at www.pac.dfo-mpo.gc.ca (including Land Development Guidelines for the Protection of Aquatic Habitat) DFO is not currently developing any other BMPs for NPS pollution in Burrard Inlet.

Greater Vancouver Regional District (GVRD)

The GVRD identified that stormwater management is the responsibility of the member municipalities. There are several municipal Integrated Stormwater Management Plans underway in the GVRD that will likely result in reduced NPS pollution into streams and Burrard Inlet.

In 2003, the GVRD began a 4 year program to evaluate the Benthic Index of Biological Integrity (B-IBI) as a tool to assess effects of urbanization and stormwater discharges. The B-IBI incorporates various measures of key groups of benthic invertebrates and is an indicator of stream or watershed health. In 2004, sampling, testing and statistical analysis was done at a total of sixteen stream sites. The results from

the first two years of this four year study support the use of B-IBI as an effective and consistent assessment and monitoring tool in small urban watersheds in the GVRD.

Municipalities of the GVRD have access to a *Best Management Practices Guide for Stormwater*, available on the GVRD website. This Guide summarizes the costs and benefits of various Best Management Practices to allow the municipalities to choose appropriate combinations of BMPs. Non-structural BMPs (i.e. riparian corridors, wetlands or vegetation), Structural BMPs (i.e. flood control, erosion control or water quality improvement), and Operational and Maintenance BMPs (i.e. removal of captured trash or vegetation control to ensure the maintenance of the structural BMPs) are outlined in the document. GVRD Source Control Design Guidelines for Stormwater are now available at www.gvrd.bc.ca/sewerage/stormwater_reports.htm and posters are also available for presentations.

Ministry of Environment (MOE)

In terms of NPS pollution, the MWLAP conducts ambient quality monitoring in Burrard Inlet at sites in each sub-basin (see update above).

Vancouver Port Authority

The Vancouver Port Authority attempts to mitigate effects of NPS through project review by the Burrard Environmental Review Committee (BERC). Any project with potential to impact the BIEAP mandate area is referred to BERC for review. BERC gives advice for the mitigation of impacts, which include any NPS discharges that would result from the project. Referrals and projects are ongoing, and the intent is to continue in this manner indefinitely. Information on projects under BERC review is available at http://www.bieapfrempp.org/referral_logs.html.

Village of Belcarra

The Village has applied to have Bedwell Bay designated a “No Discharge Zone” by Transport Canada.

CEMP action 1.5: Develop and enhance industrial Best Management Practices (BMPs) and strengthen partnerships with the industrial sector.

City of Burnaby

The City of Burnaby continues partnerships it has developed with Chevron, Terasen (former Trans Mountain Pipeline) and other industrial landowners to adopt and upgrade industrial BMPs.

City of Port Moody

City of Port Moody will be looking at integrated stormwater planning and may include some recommendations for light industrial areas.

Environment Canada

Environment Canada has completed several BMPs with respect to the industrial sector, many of which are available at <http://www.bieapfremf.org/toolbox/index.cfm> and http://www.rem.sfu.ca/FRAP/PDF_list. The list of available BMPs and Technical Pollution Prevention Guides was referenced in 2004 CEMP Tracking Report available at <http://www.bieapfremf.org/bieap/publications/current.html> or through the Toolbox on the BIEAP-FREMP website.

Greater Vancouver Regional District

In 2004, GVRD continued working with municipalities and the business community to explore the adoption of Eco-Industrial Networking (EIN) because of its potential to advance economic, environmental and social sustainability within the region. This included co-hosting an inaugural EIN Roundtable attended by 83 people from around the world, and launching its EIN Guide for Greater Vancouver Municipalities to assist municipal staff.

Recent EIN initiatives include initial approvals for a joint/utility greenway project in partnership with the District of North Vancouver to connect the Lower Seymour Conservation Reserve with the waterfront and provide a waterfront access site on Burrard Inlet. As well, the Tilbury Eco-Industrial Partnership group in Delta is working to establish a permanent Tilbury-based Resource Centre aimed to help local businesses improve their economic and environmental performance.

Ministry of Environment

No new BMPs have been produced by MOE, but currently industry-specific Codes of Practice are being drafted (due to be completed March 2006) for non-permitted discharges under the new *Environmental Management Act* (formerly the Waste Management Act). For more information visit http://wlapwww.gov.bc.ca/epdiv/env_mgt_act/index.html.

Vancouver Port Authority

The Vancouver Port Authority has a Harbour Operations Manual and has recently revised Ballast Water procedures effective April 30, 2004. There is a collaborative process for the Administrative Oversight of Effluent Discharge into Burrard Inlet. The cruise industry guidelines for waste and wastewater management were completed by Transport Canada and are being used by the Cruise Industry.

In November 2004 the VPA started a voluntary third party compliance audit program for emergency preparedness and emergency response, to help our industrial and commercial tenants ensure regulatory compliance, and to improve the level of preparedness for emergencies around the Port. Regulatory audit protocols were developed by VPA and are provided free of charge to all the VPA industrial and commercial tenants. In 2005 the VPA will revise emergency preparedness procedures and request

updated emergency response plans from all our industrial and commercial tenants as part of our environmental management system review.

As noted above, VPA is sponsoring a BIEAP study of land use impacts to the environmental quality of Burrard Inlet and Indian Arm, the study together with information being generated by other BIEAP members on separate studies will be used to identify areas where BMPs need to be developed.

CEMP Action 1.6: Share information and explore ways how BIEAP could contribute to air quality initiatives in the region.

City of Burnaby

The City continues to work with the Chevron refinery on lower-sulphide fuels; progress is on target for 2007 requirements for ultra-low sulphur fuel. Chevron has also agreed to study Volatile Organic Chemicals (VOCs) as an emerging issue.

City of Port Moody

The City of Port Moody is working with PetroCanada who are planning infrastructure improvements to handle lower sulphide fuels.

Greater Vancouver Regional District

The GVRD has completed an inventory of air emissions, including common air contaminants and greenhouse gases, from all sources at the municipal and regional levels for the year 2000. An inventory of marine vessel emissions includes detailed spatial and geographic data for all areas, including Burrard Inlet. The GVRD has also completed a forecast of the regional emissions from 2000 to 2025, in five-year increments. The emission inventories and forecasts are carried out for the following compounds: CO, NO_x, VOC, PM, PM10, PM2.5, SO_x, NH₃, CO₂, CH₄, N₂O. The GVRD will update the emission inventories and forecasts in 2006. An inventory and forecast of toxic air contaminants has also been completed. Continuous to intermittent ambient air monitoring is performed for SO₂, NO₂, CO, ozone, PM10, VOCs, metals, and meteorology. The samples vary by location and contaminant. Links to online reports and general estimated annual emissions are available at http://www.gvrd.bc.ca/air/emission_inventories.htm and <http://www.gvrd.bc.ca/air/monitoring.htm>.

Currently, the GVRD is preparing an update to its Air Quality Management Plan (AQMP) in order to:

- Incorporate sustainability principles
- Take into account new science on air quality and health impacts
- Modernize some ambient air quality objectives
- Consider updated emissions forecasts
- Take into account changing values, such as increased concern about climate change
- Revise priority actions

The updated AQMP has evolved from a process that included assessments of the health and socioeconomic impacts of air quality changes, assessments of actions to reduce emissions from heavy-duty diesel vehicles, permitted sources, area sources, non-road diesel engines and marine vessels, together with an extensive consultation process for the public and interested parties. Public consultation occurred on the Plan in the spring of 2005 and the Plan will be forwarded to the Board for approval in the fall of 2005. In addition, the GVRD is conducting an inventory and forecast of emissions of toxic air contaminants, including more detailed spatial and geographic reporting. The GVRD is also assessing air quality related health impacts (e.g. from particulate matter, ozone, air toxics) and performing emission

reduction assessments for heavy-duty diesel vehicles, permitted sources, area sources, non-road diesel sources, and marine vessels. An anti-idling municipal bylaw is currently being modelled.

Vancouver Port Authority

In 2004- 2005, the marine emissions working group developed new methodology to compile a marine emissions inventory. The approach consists of distributing questionnaires to all the ocean-going vessels entering Canadian Waters calling on West Coast Ports, and tracking vessel movements electronically using Coast Guard information. Emissions can then be accurately calculated using the length of time the vessels were underway, at dock or at anchorage together with the data obtained from the vessels regarding motor size and type and fuel quality information. Using this new methodology, an accurate inventory of emissions will be calculated. Data collection started in April 2005 and will continue for 12 months.

VPA completed a survey of tenants' air emissions and air emissions' reductions measures in 2004-2005. The survey will be used to identify potential candidates for implementation of various emissions reduction technologies, and to develop further pilot programs.

VPA, Catalyst Energy, P&O Ports and TSI completed a pilot program to use Combustall, a fuel-borne catalyst to improve combustion efficiency and reduce air emissions on land-based terminal equipment at two container terminals in the inner harbour and at the maintenance facility at VPA. The test results demonstrated significant reduction in CO, NOx, VOC and diesel particulate, coupled with a modest increase in fuel efficiency that represents a small reduction in green house gases.

Vanterm, a TSI container terminal, and VPA, at its maintenance facility have adopted the on-going use of Combustall on their fuel supply for all their diesel-fuelled equipment, thus reducing emissions associated to Port activities. These emissions reductions are the first results of the implementation of the VPA Air Emissions Reduction Plan. The Plan seeks to identify cost effective and efficient measures to reduce air emissions, as an essential part of achieving sustainable growth for our terminals, and to help maintain Vancouver's excellent air quality into the future.

Work has continued on SECA, with the environmental agencies of the U.S. and Canada working together to gather enough scientific information about sulfur dioxide emissions and its impact on the West Coast of North America. This information will be used in the application to IMO for the designation of a SECA zone. VPA has continued to work with the Port and Maritime industry to generate and maintain support for this initiative. In addition, work has continued with the Fuels industry to develop an understanding of the impact of the establishment of SECA on the demand for low sulfur fuels. VPA is one of the sponsors of an international conference of fuel suppliers to discuss bunker supply issues. The conference organized by Bunkerworld, a U.K. fuel marketing company, will take place in San Francisco in the fall of 2005.

VPA has continued participating with all the west coast ports on the Diesel Collaborative and sharing information about new technologies and methodologies to reduce air emissions. From this collaboration the Port is evaluating measures to reduce air emissions during terminal construction for use at the Deltaport expansion projects.

VPA is developing a pilot program to use Combustall in marine applications in 2005.

CEMP Action 2.2: Develop a database to monitor historically contaminated lands and sediments in Burrard Inlet.

BIEAP

Through BIEAP, the partners developed a False Creek Sediment database in 2002. Work on remediating portions of False Creek upland continues through the City of Vancouver, GVRD, the Province (Ministry of Sustainable Resource Management) and the federal government (Fisheries & Oceans Canada and Environment Canada). No other areas of sediment contamination have been identified in the BIEAP area that require immediate attention.

Environment Canada

A list of federally-owned contaminated sites is available through Environment Canada.

Ministry of Environment

The Province has a website that provides information on contaminated sites:

<https://www.bconline.gov.bc.ca> and https://www.bconline.gov.bc.ca/pdf/site_reg.pdf. BC Online can be consulted to find out if there is a Site Registry file for the subject properties and the file may have information on what, if any, investigations under the Contaminated Site Regulations that have occurred. A fee is charged for each address search.

Vancouver Port Authority

The VPA is developing and/or compiling information on contamination issues primarily in the context of specific development proposals; this information is generally available through the BERF files at http://www.bieapfrempp.org/referral_logs.html. VPA intends to develop a GIS database, but information gathered to date is not in a condition to be made available for general use. The Port has not identified areas of sediment contamination beyond those generally identified in earlier BIEAP work.

CEMP Action 4.1: Provide information and resources to all municipal, regional and port planning initiatives along the shoreline and in adjoining watersheds.

The BIEAP partners are regularly consulted on development of land use plans around Burrard Inlet. Information about the various initiatives is also shared at the quarterly meetings of the BIEAP Plan Implementation Committee; below is a list of some of the planning initiatives ongoing around the Inlet and its watersheds.

City of Burnaby

The City of Burnaby is looking at alternative transportation routes (e.g. Central Valley Greenway, bikeways, etc). While primarily draining away from Burrard Inlet, the UniverCity development at SFU also includes several stormwater management innovations. For more information visit <http://www.northwestwatch.org/publications/pricetags65.pdf>. An update on the Still Creek Integrated Stormwater Management Plan (ISMP) developed in conjunction with the City of Vancouver is provided earlier in this report. Studies are ongoing for Barnett Marine Park (proposal for shoreline enhancement) and the Burnaby Mountain conservation area.

City of North Vancouver

The OCP developed in 2002 includes a number of sustainability initiatives and smart growth concepts, and CNV is incorporating multi-family units into its development. The City is also proceeding with the Versatile Shipyards redevelopment on the waterfront. Major redevelopment and densification is taking place within the Lower Lonsdale town centre with excellent alternative transportation options.

Implementation continues on a Local Action Plan for the Management of Energy and Greenhouse Gas Emissions, and the City has created a District Energy System to provide efficient heating to Lower Lonsdale town centre.

City of Port Moody

The City is currently working on the Rocky Point Park redevelopment and have included the BERC review where required. City development is mainly taking place in the Inlet Centre (downtown) and includes multi-housing development at Klahanie.

City of Vancouver

The City of Vancouver is proceeding with planning the South East False Creek flats development.

District of North Vancouver

The District of North Vancouver is working on a Lynn Valley Local Area Plan (LAP) that includes increased development in the form of higher density and retirement housing, and is coordinating with the Tlseil Waututh First Nation on development of a Cates Park management plan.

District of West Vancouver

The Environmental Management Plan for Lighthouse Park was approved in June 2004 and is now being implemented. The Plan is available at <http://www.westvancouver.ca/upload/documents/Lighthouse%20Park/Jul%202004%20Final%20LHP%20Plan.pdf>. An Environmental Strategy is also being implemented that includes foreshore protection; see http://www.westvancouver.ca/upload/documents/Environmental_Strategy_May_2005.pdf

for details. A Development Permit Application is under review for areas above the Upper Levels Highway (Marr Creek), owned by British Properties.

GVRD

Work on the review of the Livable Region Strategic Plan continued in 2005. Several workshops were held with the GVRD Board and the Technical Advisory Committee on key areas of the Plan. Technical work including the draft Growth Management Scenario 5.0 (GMS 5.0), which identifies population estimates for the region to 2031, and GIS mapping of the Green Zone occurred. The review of the LRSP will continue in 2006.

Squamish First Nation

Squamish First Nation is working on the Capilano Reserve Master Plan.

Tsleil Waututh First Nation

Tsleil Waututh First Nation is proceeding with development plans for the mouth of the Indian River (approximately 800 acres of lands), which may include some residential and eco-tourism components. A community woodlot is nearby.

Vancouver Port Authority

In 2005, VPA has approved the updated Port Plan to guide Port activities over the coming years. For more information visit <http://www.portvancouver.com/>.

Village of Belcarra

The Village is exploring residential development plans for the Camp Howdy property. Fifty additional lots are to be developed in the Village.

<i>CEMP Action 4.5: Update and promote the BIEAP Shoreline Development Guidelines.</i>

The Shoreline Development Guidelines are currently being reviewed and revised by the Burrard Environmental Review Committee (BERC). Any updates are expected by fall 2005, and will be made available on the BIEAP website and Toolbox at www.bieapfrempp.org.

CEMP Action 4.6: Develop pilot projects in cooperation with the public and private sectors to showcase innovative environmentally sensitive designs.

City of North Vancouver (CNV)

Several projects exist throughout the City, including stream habitat rehabilitation, trail improvements, resource-efficient landscaping, a “bio-swale” to collect run-off at a new stake park, an artificial wetland alternative street design incorporating stormwater BMPs, and a vortech separator on a significant outfall into Wagg Creek.

City of Port Moody

The City is working with developers to implement LEED or LEED-equivalent green building measures. Several other projects are underway including bioswales and geothermal initiatives (see section 1.4). Pilot projects linked to capital projects underway for 2005 are:

1. A green roof is proposed for the Recreation Centre Expansion.
2. Vegetated infiltration strips in parking lot at Public Safety Building renovation.
3. Stormwater management plans at Rocky Point Park redevelopment that includes a biofiltration pond with wetland plantings.

City of Vancouver

Any new City building in Vancouver has to be certified LEED Gold. The new municipal works yard is certified LEED Gold.

District of North Vancouver (DNV)

In a unique planning project involving residents, industry and commercial sectors, the District of North Vancouver developed a plan for the Maplewood area, applying sustainable community and eco-industrial principles. The Maplewood Project was presented to Council in January 2004, albeit, before the final report was completed and they were supportive of the outcomes as presented. At that time Council asked for an implementation report which is in its initial stages. Although the implementation report has not been completed, they have just starting working on one initiative with Great West Life (GWL) Realty Advisors on the development of a Master Plan for the Maplewood Village Centre. GWL is also in the process of developing its other lands on the south side of Dollarton Highway for Business Park uses and have incorporated some LEED-based stormwater management measures.

The District hopes to initiate discussions with the Vancouver Port Authority this year on the review of options for the development of the Port's 'Maplewood North' lands surrounding Canadian International College on the north side of Dollarton Highway. The Maplewood Local Plan which is the prevailing planning policy document for the area, designates these lands as 'Business Park' but the project charrette teams all considered adding residential uses into the area which will need a policy review by staff and approval by Council if the change is warranted. A copy of the final report is available from the project web-site www.maplewoodproject.org.

DNV is also in the process of preparing design guidelines for the development of other private and District-owned lands in Maplewood that places a greater emphasis on the provision of LEED green building measures and stormwater management strategies.

District of West Vancouver

The District has implemented geo-thermal systems at the two municipal pools, and is considering LEED certification for municipal buildings.

Environment Canada

Environment Canada has sponsored the construction of a green roof research facility with BCIT, at which the impact on stormwater runoff and energy efficiency is being monitored. Other such demonstration projects related to “sustainable development” are ongoing.

Greater Vancouver Regional District

Pacific Coast Terminals and the GVRD developed a pilot project on industrial stormwater management to minimize sanitary sewer overflows. GVRD is developing a web-based case study tool to showcase stormwater management pilot projects.

Vancouver Port Authority

The new VPA office interior renovation was completed using the LEED standard, the final rating is still pending. The new office opened in November 2004.

Work continues on brownfields development with site assessments and remedial works at various locations around the Harbour.

To ensure responsible environmental management by Port tenants a baseline and closure audits protocol was developed by VPA. Tenants are required to conduct environmental assessments at the start and end of their lease terms. Tenants are encouraged to monitor their site conditions to ensure that their operations are not impacting the soil, water or groundwater quality of their sites. Upon termination of any lease, the tenant is required to conduct an assessment to ensure the site is left in the same condition as it was at the start of their lease.

As part of the Port expansion at Deltaport a comprehensive environmental impact assessment was completed as part of a joint CEAA-BCEAA process. The assessment included proposed measures for impact mitigation including design, operational and equipment selection measures.