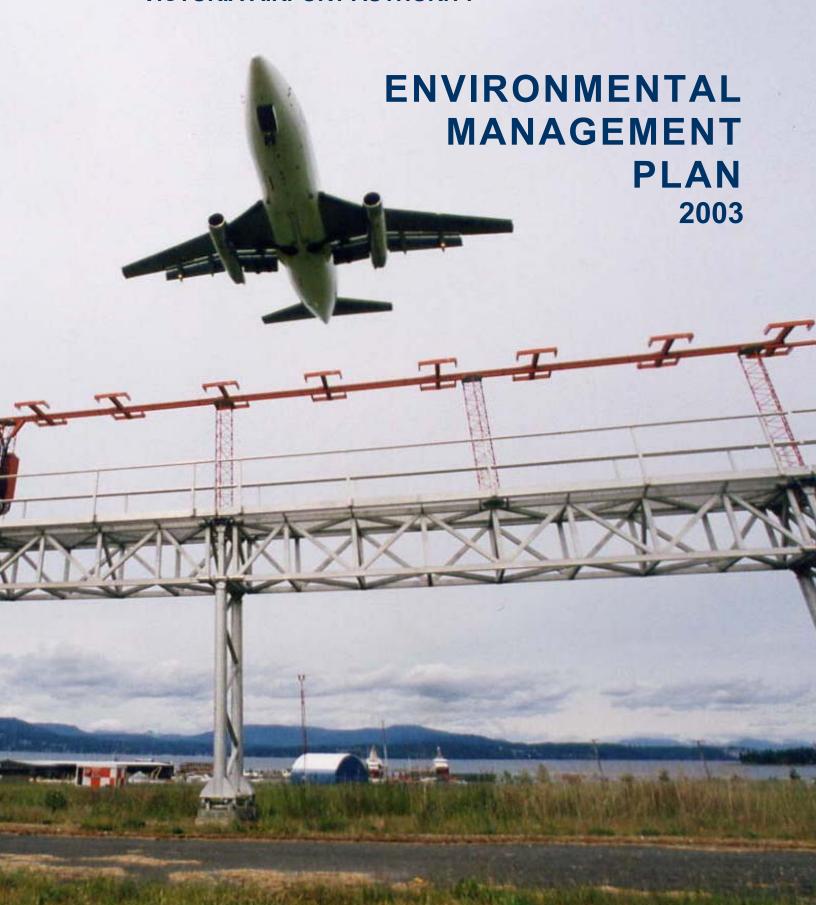


**VICTORIA AIRPORT AUTHORITY** 





## TABLE OF CONTENTS

| ENVIRONMENTAL OBJECTIVES   |      |
|--|------|
| ENVIRONMENTAL POLICY   |      |
| REGULATORY COMPLIANCE  |      |
| ECOLOGICAL SETTING   |      |
| Airfield Operational Areas                                       |      |
| Agricultural Areas   | 5    |
| Wooded Areas   |      |
| Wetlands   | 6    |
| Coastal Areas  | 6    |
| PROTECTING AND ENHANCING NATURAL ECOSYSTEMS                      | 7    |
| Water Quality Monitoring Program                                 |      |
| Stormwater Management  |      |
| Sanitary Source Control Program                                  | 9    |
| ICE CONTROL CHEMICAL MANAGEMENT                                  |      |
| Glycol   |      |
| Urea and Salt  |      |
| HABITAT RESTORATION PROGRAMS                                     |      |
| Reay Creek   |      |
| Ten Ten Creek  |      |
| English Ivy Inundation   |      |
| CONTAMINATED SITES   |      |
| WASTE DISPOSAL AND RECYCLING                                     |      |
| Recycling  |      |
|  |      |
| Composting  Sustainable Development And Environmental Assessment | . 10 |
| TENANT FACILITY INSPECTIONS                                      |      |
| CONSTRUCTION SURVEILLANCE  |      |
| NOISE MANAGEMENT PLAN  |      |
|  |      |
| New Technology – Quieter Jets                                    |      |
| Noise Exposure Forecast (NEF)                                    |      |
| VAA Noise Complaint Management                                   |      |
| Baseline Airport Community Noise Survey                          | . 22 |
| Noise Management Committee                                       |      |
| WILDLIFE CONTROL PLAN  |      |
| Management Objectives  |      |
| VAA Wildlife Management Program                                  |      |
| Hazardous Wildlife   |      |
| SPILL RESPONSE PROGRAM   |      |
| FUEL STORAGE TANK MANAGEMENT                                     |      |
| VAA Inspection Program   |      |
| New Regulations  |      |
| REGULATED SUBSTANCES   |      |
| PCBs (Polychlorinated Biphenyls)                                 |      |
| Herbicides and Pesticides  |      |
| Asbestos   | _    |
| AIR QUALITY / OZONE DEPLETION                                    |      |
| Air Quality Monitoring Study                                     |      |
| Results  |      |
| HAZARDOUS MATERIAL MANAGEMENT                                    |      |
| VAA Hazardous Materials Guideline                                | . 32 |
| Hazardous Waste Regulations                                      | . 32 |

#### ENVIRONMENTAL OBJECTIVES

Victoria International Airport has been operated by the Victoria Airport Authority (VAA) since April 1997 under a 60-year lease from Transport Canada. VAA is headed by a Board of Directors appointed by local municipalities, the Capital Regional District, the Victoria Chamber of Commerce, the Federal and Provincial Government and Airport Authority Board appointments. One of the cornerstones of Board policy is the conservation and protection of our natural environment.

Environmental excellence is a primary goal for the Airport Authority. The intent of this document is to provide a 'State of the Environment' progress report on VAA's many environmental management initiatives. To that end, this document will provide an update to VAA's Environmental Management Plan and provide comment on VAA's current and future environmental management programs.

The Airport Authority implemented an Environmental Management Plan (EMP)



in March 1999. The EMP was developed to ensure that Airport policies and operations are managed with the utmost attention aimed toward the minimization of environmental impacts. The EMP targets all of VAA's environmental issues and matches each with best management practices, standard operating procedures and/or monitoring programs. Above all, the EMP is designed to ensure that the Authority is in full compliance with all applicable environmental laws and regulations.

Working with our tenants and the community, VAA is involved in pollution prevention initiatives, habitat restoration projects, contaminated sites clean-up, recycling programs and noise management.

VAA has an active Environmental Advisory Committee that meets bi-annually to review and provide advice on VAA's environmental programs.

## Membership of the Environmental Advisory Committee includes:

- ♦ Town of Sidney
- ♦ District of North Saanich
- ◆ Tsevcum First Nations
- Department of Fisheries and Oceans
- Environment Canada
- ♦ Transport Canada
- Natural History Society
- ♦ Airlines
- ♦ Airport Tenants Association
- Nav Canada (Control Tower)
- Department of National Defense
- ♦ Arbutus Ridge Ratepayers



#### **ENVIRONMENTAL POLICY**



The Victoria Airport Authority is committed to operate Victoria International Airport in an environmentally sound and responsible manner.

To successfully implement this policy VAA will develop and maintain management systems that will:

- Ensure full compliance with all applicable environmental laws and regulations;
- Implement pollution prevention measures and improved operating procedures that minimize airport impacts in the community;
- Integrate environmental considerations into all airport planning, operations and development;
- Establish environmental objectives and best management practices and monitor performance; and,
- Cooperate with government agencies, the community and stakeholders to enhance protection of the environment.

#### REGULATORY COMPLIANCE



Horizon Air DeHavilland Dash - 8

As a Federal undertaking, VAA must comply with all applicable Federal, Provincial and Municipal environmental regulations and by-laws. On this foundation, the following Acts are the primary guides to VAA's environmental management programs:

- ◆ The Canadian Environmental Protection Act (CEPA);
- ◆ The Canadian Environmental Assessment Act (CEAA);
- ♦ The Canadian Fisheries Act;
- ◆ The British Columbia Environmental Protection Act; and,
- ◆ The Capital Regional District Sanitary Source Control By-Law.

VAA's Ground Lease with Transport Canada institutes significant environmental management obligations on the Authority. In addition to granting the Federal Government broad powers of inspection and audit, VAA is required to file environmental management plans detailing the manner in which the Airport Authority

will conduct its activities in an environmentally responsible manner.

VAA's Environmental Management Plan fulfills the Ground Lease requirement and ensures environmental compliance with Airport operations and developments. Strict environmental lease clauses ensure that the Airlines serving Victoria and our land tenants conduct their businesses under the confines of environmental due diligence. Regular facility inspections and audits by VAA guarantee commitment to regulatory compliance.



Ten Ten Creek



#### **ECOLOGICAL SETTING**

The Victoria International Airport is situated on approximately 456 hectares of land at the north end of the Saanich Peninsula on Vancouver Island. There are six main uses of land at the Airport, these include:

- 1.) Airfield Operational Areas
- 2.) Agricultural Areas
- 3.) Wooded Areas
- 4.) Wetlands/Intermittent Creeks/Ponds
- 5.) Coastal Areas
- 6.) Buildings

#### **Airfield Operational Areas**

immediately Areas surrounding runways, taxiways and aprons contain very little natural habitat. This is an operational requirement for all airports as it limits the presence of wildlife near aircraft manoeuvring areas, therefore reducing wildlife and aircraft collisions. Grassed areas in the Airfield are mowed regularly to reduce habitat use by birds and bird attractants



**Agricultural Areas** 

Agricultural fields are located on Airport reserve lands on the outer perimeter of our Airfield. Airport wildlife control measures restrict the agricultural use of



these fields exclusively to the cultivation of hay. The hay production is managed under lease arrangements with local farmers. Hayed areas are a source of food and nesting for a variety of birds. The Eurasian Skylark is of particular interest as the Saanich Peninsula is the only remaining area in North America where these birds can be found. They are a rare treat for bird watchers. Mammal species such as voles, cottontail rabbits and deer are also commonly found on hayed areas.

#### **Wooded Areas**

Victoria Airport falls within the Coastal Grand Fir - Western Red Cedar Forest Zone. The most notable wooded areas are the second growth Douglas fir and mixed coniferous/deciduous stands adjacent to the Airport entrance road, and Ten Ten Creek. There is also a remnant of a Garry Oak meadow southwest of the Terminal These wooded areas provide Building. habitat for a variety of wildlife species such as squirrels, deer, mice and rabbits. They are also abundant with nesting, resting, roosting and feeding areas for a large number of bird species including predatory birds such as bald eagles, red tailed hawks and a variety of owls.

An Airport Watercourse

#### Wetlands

There are four drainage basins on Airport lands. Two of these basins have a direct impact on the District of North Saanich and the Town of Sidney's storm drainage systems. The first basin is situated in the northeast corner of the Airport and drains into Tsehum Harbour along MacDonald Park Road. The second basin is

situated at the far eastern end of Runway 27 and drains to the Town of Sidney.



The largest drainage area on VAA lands incorporates Reay Creek, which flows southeast from the Airport to Bazan Bay. Over the past 20 years in-stream habitat has been greatly improved by diverting ground water during the summer months into the Creek. VAA's second largest drainage watercourse incorporates Ten Ten Creek, which flows from Mount Newton, north and then west into Patricia Bay.

In total, the Airport's drainage areas create wetland, riparian, and aquatic habitat that support a variety of wildlife. It is the Authority's policy to provide environmental programs and best management practices that protect and enhance this valuable habitat, while maintaining an awareness of the dangers of wildlife impacts to aviation safety.

#### **Coastal Areas**

Coastal areas surrounding the Airport include Patricia Bay, Bazan Bay and the Tsehum Harbour. Patricia Bay is used by VAA for seaplane operations but it also provides an array of bird and marine life. The many marine resources in Patricia Bay include herring, lingcod, prawns, dogfish, and salmon species as well as clam beds. In Bazan Bay crabs and oysters can be found. The tidal flats of Patricia Bay are primarily mud and sand with very little sub tidal marine vegetation, although some green algae does exist there.





#### PROTECTING AND ENHANCING NATURAL ECOSYSTEMS

VAA has developed a comprehensive management program for pollution protection and enhancement of natural ecosystems on Airport lands. These initiatives include:

- Water Quality Monitoring
- Stormwater Management
- Habitat Restoration Projects

- Contaminated Sites Remediation
- Sanitary Source Control
- Ice Control Chemical Management

#### **Water Quality Monitoring Program**

Prior to the transfer of the Airport, Transport Canada's Regional Office in Vancouver operated a comprehensive Water Quality Monitoring Program for the Airport. Since the transfer of operations, VAA has enhanced this program by way of direct local management.

The Airport has automatic water quality monitoring samplers downstream of Reay Creek and Ten Ten Creek set for a 24-hour sampling period, once a week. Ninety-six samples of equal volume are gathered over this time period. VAA also gathers grab samples at two additional locations upstream of Airport property once per month in coordination with the 24-hour samples creating a comprehensive monitoring of the water quality.

VAA is committed to the improvement of surface water quality to ensure that Airport activities are not adversely affecting the environment. The data collected from VAA's water quality monitoring stations is reviewed and assessed weekly in an effort to prevent airport pollution. Correlations are made using the data collected at the monitoring stations and the upstream grab samples to target point source releases. VAA contacts Airport



Airport Creek Monitoring Station

tenants monthly to discuss the monitoring results. One of the benefits of this program has been improved tenant awareness of the Airport's sensitive habitat and the direct consequences that pollution has on the ecosystem.

Results from the Water Quality Monitoring Program reflect that over the past 15 years, water quality in both Reay and Ten Ten Creeks has vastly improved. These improvements are due, in large part, to the pollution prevention measures instituted by the Authority, the Airlines and the Airport's industrial tenants.

#### **Stormwater Management**

VAA recognizes that stormwater quality and quantity play a key role in the protection of the natural physical environment. Over the past five years, VAA has implemented a number of improvements designed to alleviate flash flooding and ensure the highest quality of stormwater exiting Airport lands.



#### **VAA's Stormwater Improvements**

- Regular storm monitoring and drainage system inspections to improve efficiency and moderate downstream impacts;
- The construction of two dry ponds to collect flash flood waters and meter flows into the storm system to protect the downstream aquatic system and private property;
- The construction of a Glycol Collection System at the Terminal Building connected to the sanitary system, which removes de-icing fluids from the storm system;
- Establishing best management practices that support the preservation of cattails and other vegetation in drainage ditches to filter sediments from the stormwater;
- The installation of oil separators at the Terminal Building and each industrial site that remove oils from entering the storm system; and,
- The establishment of a Construction Surveillance Program to monitor environmental mitigation compliance during construction activities.



#### **Sanitary Source Control Program**

VAA has a close working relationship with the Capital Regional District's (CRD) Sanitary Source Control Enforcement Department. The CRD's By-Law 2231 regulates the discharge of waste into sewers connected to CRD sewage facilities. The Authority and Airport tenants are responsible for making certain their waste discharges are compliant with the By-Law specifications. To ensure compliance, VAA participates with the CRD in regular and random tenant facility inspections. As part of this program, all tenant Permit Performance Reports are shared with the Authority.

VAA has an annual Waste Discharge Permit with the CRD to discharge spent glycol from airline operations into the sanitary sewer. This Permit is reviewed quarterly by the CRD for performance. To date, all inspections have met CRD compliance criteria.

VAA is dedicated to improving contaminant releases to the sanitary system. To that end, the Authority works diligently with all Airport staff on pollution prevention training and emergency spill response.



Viking Air's Production Plant

#### ICE CONTROL CHEMICAL MANAGEMENT

De-icing and anti-icing activities at Victoria International Airport are usually required between November 1 and March 30 of each year. The airlines serving Victoria utilize Type 1 ethylene glycol for ice control on aircraft. VAA utilizes urea and salt for ice control on paved surfaces. Due to the mild winters in Victoria, relatively small amounts of these chemicals are used compared to other Canadian airports.

#### **Glycol**

VAA manages Airline de-icing operations through an annual Glycol Management Plan that is submitted to Transport Canada. The Glycol Management Plan provides guidelines for the storage, handling and dispensing of glycol at the Terminal Building. Under this Plan, VAA compiles detailed records of all glycol volumes that are dispensed by the Airlines. These records are cross-referenced with VAA's weekly Water Quality Monitoring data to ensure compliance with Federal regulatory criteria. Throughout the winter season monthly reports are registered with Transport Canada and subsequently Environment Canada



Glycol is used to de-ice aircraft before takeoff

Various studies made on Type 1 ethylene glycol have shown it to be low in toxicity. Environmental impacts related to the use of glycol centre on increased biochemical oxygen demand (BOD), which robs oxygen from streams and negatively impacts aquatic life. VAA's Water Quality Monitoring Program assesses BOD weekly and has remained within Federal compliance criteria over the past five years.

Type glycol contains approximately 54% ethylene glycol, 45% water and 1% processing additives. Glycol is heated and sprayed on aircraft to remove ice and snow. VAA monitors aircraft de-icing operations to ensure compliance with federal stormwater quality environmental standards. Glycol discharge to the stormwater system have been alleviated by the construction of a Glycol Collection System at the Terminal Building which releases spent glycol into the sanitary In addition to these measures. VAA's maintenance staff utilizes a vacuum truck to remove spent glycol from the Terminal Building apron and our tenants operating areas.



#### **Urea and Salt**

VAA's Maintenance staff provides ice control on all paved surfaces during the winter months. A salt and sand mixture is applied to roads and parking areas while urea is used for runways, taxiways and aprons. Urea, a high nitrogen fertilizer, is necessary for airside de-icing because it does not destroy concrete and is less corrosive to aircraft than salt. On average, the Airport applies 20 tons of urea and 10 tons of salt each year.

The prime environmental impact of urea and salt use is the potential for elevated levels of ammonia in stormwater discharges. Given the considerable stormwater volumes that flow through the Airport, and the relatively small amounts of ice control chemicals dispensed, ammonia levels have remained within Federal compliance criteria for the past 10 years.



Salt and Sand are used on roads and parking areas



Snowploughs on Runway 09



VAA Urea Spreader



#### HABITAT RESTORATION PROGRAMS



VAA is an active partner in the restoration and stewardship of Ten Ten and Reay Creeks. Both creeks provide the majority of stormwater runoff capacity for VAA lands. Prior to the mid 1950's both Ten Ten and Reay Creeks supported populations of Coho Salmon and Cut-throat Trout. Over time these creeks were severely degraded by residential, industrial and agricultural conversion.

As a symbol of the superior environmental programs at the Airport, VAA is committed to having two fully restored creeks running through Airport lands. "Salmon Under the Flight Path" is the Authority's catch phrase with respect to habitat restoration – a worthy goal to strive for.

#### Reay Creek

For the past 20 years restoration initiatives managed by the Sidney Anglers Society have been extremely successful in the re-establishment of a Coho Salmon run in Reay Creek. VAA is a full partner in the Stewardship of Reay Creek. Over this period the Airport has implemented a number of pollution prevention measures to improve the quality of storm water discharge into Reay Creek. These pollution control measures have transformed storm drainage quality in Reay Creek from an open sewer to a successful fish-bearing stream. Overall, Reay Creek has become a showcase for urban creek restoration. During the migration run of 2001, fourteenpound Coho were netted on Airport property just a few meters from our runway system.



#### **Ten Ten Creek**

The Ten Ten Creek Stewardship Program was developed to mirror the success of the Reay Creek Project. The primary goal for Ten Ten Creek is to reestablish a fresh-water ecosystem and a self-sustaining Coho Salmon run. Project partners include: VAA, Tseycum First Nations, Fisheries and Oceans Canada, Pendray Farms and Transport Canada.

Numerous in-stream habitat improvements have been undertaken to reestablish the natural meander and health of the creek. To date, project activities have included; velocity-reduction riffles to decrease erosion, cattle exclusion fencing, riparian plantings for shade and insect food sources, a constructed wetland pond complex to treat farm stormwater, channel reconstruction to provide pool habitat, debris removal and reservoir spillway modifications to decrease erosion.

In addition to these initiatives, the Airport Authority, the Department of National Defense and Transport Canada

have undertaken the clean up of

Planting of native vegetation

contaminated soil at the Airport Fuel Depot and Fire Training Area. There has also been significant debris removal from the East and West Dumpsites where the Dumpsites impinged on the creek.

A considerable amount of progress has been achieved for Ten Ten Creek in a short period of time. However there is still more work required to successfully restore the diversity and abundance of aquatic habitat. Project objectives over the coming years will include the day lighting of culverted areas, the annual release of Coho fry and continued community awareness training to support pollution protection for the creek.

#### **English Ivy Inundation**

A large section of the forested area south of the Airport entrance road has become inundated with English Ivy. The ivy has grown so dense that it is literally strangling hundreds of trees. Over the past five years VAA has employed summer students to remove the ivy from the effected trees and clear the forest floor. program has had marginal success and has been supplemented recently formation of a Community Stewardship Program. Sponsored by VAA, the Airport Wood Stewardship Program is designed to solicit community support to help manage the ivy problem. A major part of this program involves bi-annual Ivy Pull events attracting local residents to spend a day in the forest pulling ivy. This program has been very successful at saving hundreds of trees as well as educating the general public about the seriousness of this issue.

#### **CONTAMINATED SITES**

At the time of transfer the Federal Government left five abandoned contaminated sites at Victoria International Airport.

#### **These sites included:**

- 1. East Airport Dumpsite located on the east side of Ten Ten Creek;
- 2. West Airport Dumpsite located on the west side of Ten Ten Creek;
- 3. Fuel contaminated soil at Transport Canada's de-commissioned Fire Training Area;
- 4. Fuel contaminated soil at the Department of National Defence's de-commissioned Fuel Depot; and,
- 5. Lead contaminated soil at Transport Canada's de-commissioned Rifle Range.



Remediation of former Fuel Depot

To date, the lead contaminated soil at the Rifle Range has been remediated by Transport Canada; the fuel-contaminated soil at the Fuel Depot has been remediated by Department of National Defense and the fuel-contaminated soil at the Fire Training Area has been remediated by VAA. As well, both the East and West Dumpsites have been registered on the Federal



Contaminated material cleaned up in Ten Ten Creek

Treasury Board Secretariat Contaminated Sites and Solid Waste Landfill Inventory for remediation.

Environmental testing reflects that neither Dumpsite is leaching contamination into Ten Ten Creek. Given the limited threat of contamination to the Creek, both Dumpsites have been placed low on the Federal Inventory. In the interim, surficial debris from the Dumpsites that was negatively impacting Ten Ten Creek has been removed by Transport Canada.

In 2000, engineering assessments undertaken by VAA confirmed the presence of significant amounts of asbestos in asphalt pavement on a 120-foot by 100-foot section of Runway 20. This section of runway requires substantial rehabilitation and VAA is currently negotiating with Transport Canada for remediation of the area.

The Authority's position with respect to the Dumpsites and the Runway contamination is that the ownership and remediation of these sites remains a Federal Government responsibility.



#### WASTE DISPOSAL AND RECYCLING

Waste disposal is an important environmental consideration for VAA. Over the past five years, the Authority, in partnership with our tenants, has initiated innovative recycling and composting programs that have successfully reduced the quantity of waste disposal.

#### Recycling



Recycled construction material used to stabilize drainage system

The Airport's Recycling Program includes plastics, cardboard, paper, aluminium cans, scrap metals, automobile tires and batteries, antifreeze, used oil, oil filters and other maintenance related waste. Active inspections of all tenant facilities are made to ensure that items are not stock piled and that each tenant is participating in the recycling program.

In addition to these program elements, the Authority has an active construction material waste program that recycles construction generated waste such as: concrete, asphalt, wood, metals and excavated soil. Concrete and soils are used to stabilize our storm drainage system and

as fill for low ponding areas that attract birds. Wood debris is burned at the Fire Training Area for hot fire drills that assists in the training of local fire departments. Metal debris is segregated and transported off site to commercial recycling facilities.

The Authority utilizes hot-in-place asphalt recycling methods during pavement rehabilitation projects, which significantly reduces the disposal requirement of asphalt millings. Asphalt millings that are generated from our project work are re-used as gravel on the shoulders of our roads.



VAA Compost Box

#### **Composting**

All organic material (leaves, grass clippings, branches and sawdust) collected by VAA's Maintenance Staff are chipped and composted. The composted material is re-used for gardening and landscaping purposes in place of imported topsoil and mulch.

# Victo

## SUSTAINABLE DEVELOPMENT AND ENVIRONMENTAL ASSESSMENT

Sustainable development challenges businesses to meet the needs of the present without compromising the needs of future generations. Achieving this goal requires integration of environmental, social and economic considerations into project decision making. VAA actively supports sustainable development. To that end, VAA's Environmental Assessment Program ensures that all Authority projects and tenant developments are examined for environmental acceptability.



VAA's Environmental Assessment Program establishes a number of environmental assessment types or tracks depending on the nature of the project and the likely significance of possible effects. Most projects are assessed by means of a Project Screening. Larger projects that have potential for greater environmental effects or that could generate public concern may require a Comprehensive Study. Reviews by an independent panel appointed by the Minister of Environment may also be required in exceptional circumstances involving major public concerns or where significant environmental effects are likely.

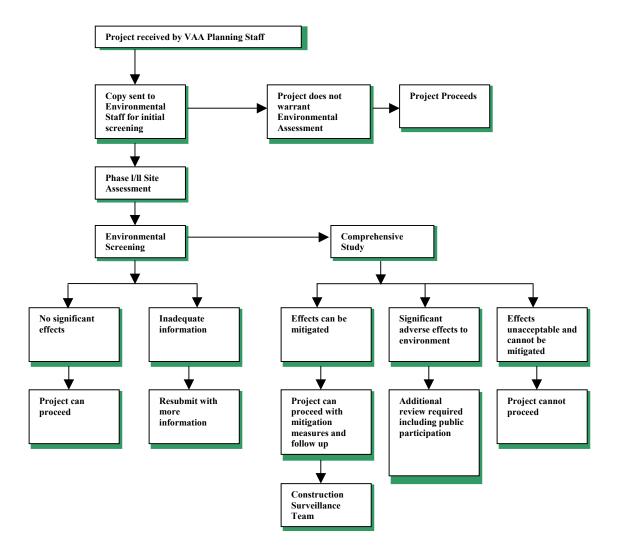
At VAA, the majority of the projects and Authority's tenant's developments undergo Project Screenings. To date only one project, the Terminal Building Expansion Project, required a Comprehensive Study to determine project impacts and the design of appropriate environmental mitigation measures. No Ministerial Panels are foreseen requirements for future developments at VAA

In addition to Project Screenings and Comprehensive Studies, all VAA projects and tenant developments are subject to Phase 1 / Phase 11 Environmental Site Assessments. Under this program, all planned land altering projects undergo soil sampling and archaeological assessments to ensure that the area is contaminate free and that there are no First Nations artifacts or cultural impacts.





## **VAA Project Screening Chart**



#### TENANT FACILITY INSPECTIONS

All Airport tenants have standardized environmental lease clauses written into each land lease that requires environmental due diligence in the conduct of their business. VAA undertakes its own diligence by conducting annual environmental inspections of our major tenant's facilities. Senior staff from the Environment, Operations and Fire Departments comprise the basis for the VAA's Environment Inspection Team. This Team is supplemented by consulting environmental experts as required. Each facility is inspected for compliance with

Federal, Provincial and Municipal regulations, guidelines and bylaws.

Environmental inspections not only help to ensure environmental compliance but also provides operational consistency in pollution prevention. Over the past five years, our tenants have established improved workplace practices, introduced a multitude of new environmentally acceptable products and made significant inroads in the reduction of point source contaminate releases.

#### CONSTRUCTION SURVEILLANCE

VAA's Construction Surveillance Program ensures that all mitigation measures are adhered to during construction and that follow up reporting is undertaken. The Construction Surveillance Program also monitors all VAA projects and tenant developments for

best management practices throughout the

construction period.

VAA's Construction Surveillance Program provides assessments and inspections of the following:

- Airport zoning, municipal zoning, surface water flows and other pertinent geographical information;
- Soil stripping, excavations, ditching, concrete work and structural construction;
- Seasonal impacts flooding, dust control, air quality;
- Airport operational impacts safety and security;



New Terminal Building Excavation

- On site storage of fuel or hazardous materials; and,
- Clean up of the construction site.



#### NOISE MANAGEMENT PLAN

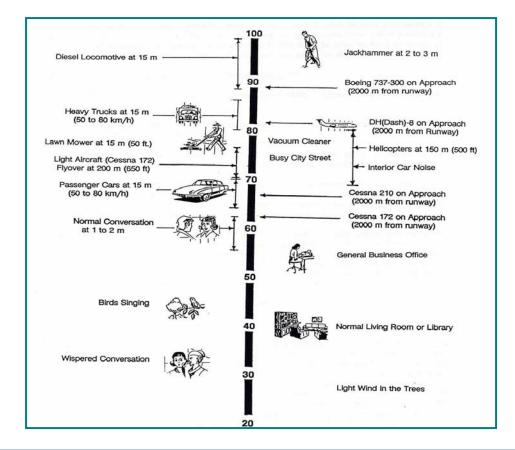
Aircraft Noise Management is a difficult and complex subject involving many variables and stakeholders. VAA believes that the single most important means of reducing the adverse effects of aircraft noise is setting appropriate land uses adjacent to the Airport. Future development of areas near VAA lands should be undertaken with a view to the impacts of aircraft noise.

VAA is involved in a number of noise management initiatives to help reduce noise impacts in the community and to educate our stakeholders about the complexity of this subject.

#### VAA's Noise Management Program encompasses the following elements:

- → New Technology Quieter Jets
- → Noise Exposure Forecasts (NEF)
- → Noise Complaint Management
- → Baseline Airport Community Noise Surveys
- → Noise Management Committee

Levels of Common Noise in the Community (dBA)



### **NEW TECHNOLOGY - QUIETER JETS**

In August 1995, the Government of Canada passed legislation requiring the phase out of noisier Chapter 2 aircraft by April 2002. This phase out rule was applied to commercial subsonic jet aircraft 34,000 kg and over. Smaller business jets and military aircraft were exempted. VAA strongly supported the phase out of the old Chapter 2 jets in favour of the Chapter 3 quieter jets. The introduction of new technology in Victoria has helped reduce aircraft noise in the surrounding community.

Victoria International Airport enjoys full Chapter 3 compliance. VAA is working with the Canadian Airports Council and the International Council of Aviation Organizations to bring about further aircraft engine and airframe noise reductions.



Westjet's Boeing 737-700 – New Quieter Technology

#### **Noise Exposure Forecast (NEF)**

Noise Exposure Forecast (NEF) is the officially recognized means of measurement in Canada used for airport noise assessment. The NEF was designed to predict human annoyance levels from airport operations within noise zones and to encourage compatible land uses in the vicinity of airports. The Noise Exposure Forecast incorporates two contours. The NEF Planning Contour, which is based on actual operational data for historical years, and the NEF Forecast Contour, which is based on five-year forecasts.

VAA's 1998 NEF Planning Contour represents the pre-Chapter 3 baseline noise impacts at Victoria. VAA's 2005 NEF Forecast Contour reflects forecasted increases in aircraft activity levels with the full introduction of quieter technology. The shape of the 2005 NEF compares favourably to that of the 1998 NEF. Overall, there is a decrease in the physical areas within the NEF 30 and 25 contours, which signifies a sizable reduction in noise impact over time.





1998 NEF Planning Contour



**2005 NEF Forecast Contour** 

#### **VAA Noise Complaint Management**

Noise complaints give the Authority an understanding of public perception that allows airport staff to focus their efforts in Noise Management. VAA researches every complaint, including location, times and type of aircraft (if identified). All complaints are recorded, stored and responded to by VAA. Complaint summaries are tabulated and the information is used to correlate noise abatement initiatives.

#### Baseline Airport Community Noise Survey

During 1999, VAA undertook the development of a Baseline Community Noise Survey to assess the impacts of aircraft on the surrounding community. Monitoring equipment was strategically located in Sidney, North Saanich, and Cobble Hill. During 2002, VAA undertook noise surveys of the Ardmore area to better define the impacts of nighttime pilot training circuits on the community.

VAA's Noise Surveys are an excellent tool to correlate Airport noise complaints, improve aircraft operating procedures and assist in off Airport community planning initiatives.

#### **Noise Management Committee**

A Noise Management Committee was recently formed by VAA to review and assess aircraft operational procedures with the objective of reducing aviation noise impacts on the surrounding community. VAA's goal is to achieve reduced noise impacts through modified and improved operating procedures. In this regard, takeoff and landing procedures, helicopter training, aircraft engine run-ups and float plane operations will be reviewed and assessed for improvement.

The committee's membership includes VAA, Nav Canada (Control Tower), the Airlines serving Victoria, Vancouver Island Helicopters Ltd., 443 Squadron, float plane operators, the flight training schools, the Airport Tenant's Association and community representatives.





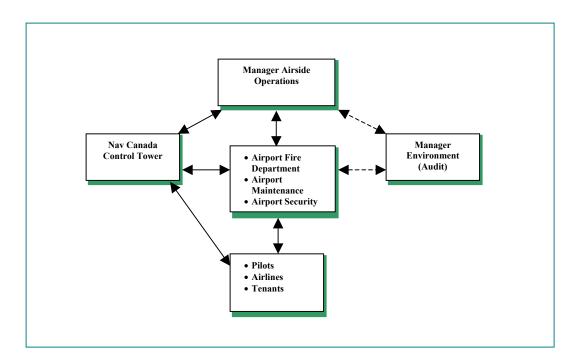
#### WILDLIFE CONTROL PLAN

The Victoria Airport Authority regards all airside wildlife as potential hazards to aircraft safety and human life. As such, potential hazardous wildlife, notably birds, must be strictly controlled to meet our public safety mandate. In this regard, VAA has implemented a number of bird control measures to ensure aviation safety.

#### **Management Objectives**

- To reduce hazardous wildlife presence on airside lands.
- To actively monitor wildlife in order to determine species, attractants, time, numbers, activity, seasonal and weather fluctuations and their impact on aircraft safety.
- To modify habitat as required controlling harmful species and aircraft safety.
- To discourage land uses in the vicinity of the Airport that attract the presence of hazardous wildlife.
- To assess wildlife control methods used and to continue to strive for better, more effective methods of control.

#### **VAA Wildlife Control and Coordination**



#### **VAA Wildlife Management Program**

Over the past five years the number of bird strikes have been greatly reduced by the implementation of VAA's Wildlife Management Program. The Wildlife Program is directly managed by the Airport Fire Department and under their professional management has shown significant improvements in airside safety.

VAA's Wildlife Management Program is comprised of the following elements:

Pyrotechnics and Harassment: VAA Firefighters manage the wildlife dispersal program through constant harassment and the use of pyrotechnics. The use of shotguns and scare cartridges to disperse flocks of birds are employed where birds have been identified on the airfield. Cracker or banger shells are used to disperse flocks of gulls, starlings, blackbirds, crows, shorebirds and waterfowl. Recently, VAA installed two propane powered noise canons designed to scare birds away from the thresholds of our main runways.

**Building Modifications/Removal of Structures:** Building overhangs and rooftops on all Airport buildings are regularly cleared of birds nests.

**Reduction of Flooded Fields:** In the fall and early winter, the presence of water on the airfield is considered an attractant for waterfowl. In order to control wildlife habituation the Authority modifies low and ponding areas.

**Grass Height Management:** All grassed fields within 200 meters of runways are cut short regularly by Airport Maintenance staff. This has been a very effective way of

reducing bird attractants, such as seeds, while also reducing the insect feeding frenzy during haying season.

**Documentation:** VAA's Fire Department is responsible for recording all bird strikes and bird scares. Date, time, location, type of aircraft hit and type of bird (where feasible) are recorded to determine which birds pose the greatest threat. VAA's objectives are tailored annually to specific species and seasonal problems.

#### **Hazardous Wildlife**

VAA categorizes the following four bird species as hazardous wildlife and utilizes its management techniques to target the removal of these species from airport lands.



Mew Gull

Gulls: The two major species of gulls found at the Victoria Airport are the Mew Gull, and the Glaucous-winged Gull. Of particular concern is the Glaucous-winged Gull because of its permanent residence in the area



Over the past decade, Gulls accounted for more than 50% of identified bird strikes at the Airport. Due to their large size and their flocking tendency, these birds are considered by the VAA to be the greatest bird threat.



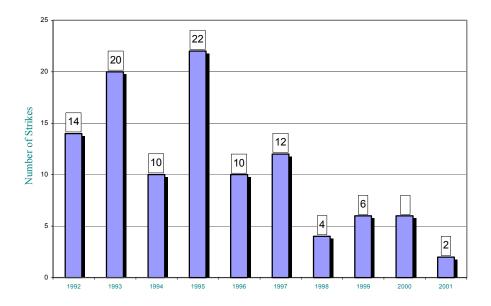
Waterfowl: Two species of waterfowl, Mallard and Canada Goose, are year round residents of the area. These species do not frequent the Airport lands in significant numbers during the breeding or summer season but they do use flooded and grass

fields on VAA lands in the fall. Over the past decade, waterfowl accounted for 15% of identified bird strikes. Due to their large size, waterfowl are extremely dangerous to air traffic.

**Swallow:** Three species of swallows, Violet-Green Swallow, Barn Swallow and Cliff Swallow nest on VAA lands. Of these three species, the Barn and the Violet-Green Swallows are the most abundant. Most swallows tend to nest in cracks or eaves of buildings. Swallows account for roughly 12% of identified bird strikes.

**Starling:** The starling is the most abundant and active species found on VAA lands. These birds are found throughout the day feeding on the short grass areas around the Airport and are in particularly large numbers during the haying season. Starlings account for 8% of identified bird strikes.





#### SPILL RESPONSE PROGRAM

VAA recognizes that the greatest point source threat of contamination to Airport lands is that of accidental fuel spills. VAA's Spill Response Program is hinged on rapid response by the Airport Fire Department. In the event of a fuel spill, all Airport tenants have been trained to notify the Airport Firehall. The Fire Department has an excellent response and clean-up record that has brought about significant credibility to our Spill Program.



#### **VAA Spill Response Program**

**Safety:** Above all else, VAA recognizes human safety as the most important factor in spill response. Only after the area is considered safe, will containment and cleanup procedures commence.

Rapid Response: In the event of a spill, the Fire Department is given the first call to assess the scene and contain the spill. Depending on the size of the spill, additional VAA staff may be required in a support role. Speed is essential to limit the spread of the spill and prevent damage to environment and property. All spill events are evaluated for performance and impacts



Airport Fire Department at mock spill clean-up exercise

with a view to improving VAA response procedures.

**Education:** It is the responsibility of every tenant and employer to ensure that Airport personnel engaged in refuelling activities is trained in spill prevention and containment. Over the past decade, VAA's tenants have implemented stringent environmental standards in their operations that have led to a significant reduction in fuel spills.

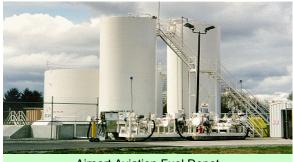
**Spill Kits:** All fuel stored on Airport property must be kept with an adequate spill kit on hand. In addition to tenant facilities, VAA has equipped each area of the Airport with an emergency spill shed that is supplied with spill containment and cleanup materials.

Tabletop Exercises and Training: VAA places great value in the ability of its employees to be prepared and contend with any emergency situation. VAA conducts regular Spill Response Tabletop Exercises with our Airlines and fuelling companies. All Tabletop Exercises are reviewed and recommendations are made to ensure constant improvement of the program.



#### FUEL STORAGE TANK MANAGEMENT

The environmental threat from leaking fuel storage tanks or spills during dispensing of fuels such as heating oil, jet fuel or gasoline, is of paramount importance to VAA. Recognizing this risk, the Authority has implemented a Tank Registry and Inspection Program that manages all Airport fuel storage tanks.



Airport Aviation Fuel Depot

#### **VAA Inspection Program**

Each tenant is responsible to undertake proper due diligence in the 'daily operation' of their facilities. VAA maintains an active inventory of all Airport fuel storage tanks and each tank is inspected annually for condition assessment. In addition to the tank inspections monthly fuel truck inspections are undertaken by the Airport Fire Department. These inspections include vehicle and tank condition, staff training, maintenance records, operating procedures, fire safety equipment and spill response material.

All Airport fuel storage tanks were inventoried, inspected and leak tested prior to the transfer of the Airport. Over the past five years all of the Airport's underground storage tanks have been removed and replaced with "state of the art" above

ground storage tanks. All of the new tanks have secondary containment and are compliant with Environment Canada standards

Since 1997, VAA has voluntarily complied with Environment Canada's "Registration of Storage Tank Systems for Petroleum Products and Allied Petroleum Products on Federal Lands" guidelines. In Environment addition to Canada's guidelines, VAA has worked with the Airports two fuelling operators implement the CSA International Standard-Storage, Handling and Dispensing of Aviation Fuels at Aerodromes

The CSA Standard sets out provisions for the following:

- ♦ Leak Detection
- Operations and Maintenance Standards
- ♦ Inspection Checks
- ♦ Emergency Preparedness and Response
- ♦ Quality Control and Test Procedures

#### **New Regulations**

Environment Canada has announced its intention to replace its current voluntary compliance guideline with mandatory regulations. The new regulations will provide a more comprehensive framework to effectively prevent pollution from storage tank systems. VAA along with other Canadian Airports have been working with Environment Canada on the design of the new regulations and how they will effect Airport operations. VAA will continue to comply with Environment Canada's Fuel Storage Tank regulations.

#### REGULATED SUBSTANCES

#### **PCBs** (Polychlorinated Biphenyls)

PCBs were first discovered as an environmental pollutant in 1966, and have been found throughout the world in water, sediments, bird and fish tissue. PCBs have very high chemical, thermal and biological stability. These properties have made them useful for industrial applications, but have also led to their widespread accumulation in the environment.

**PCBs** potential are environmental contaminants, and their stability makes them virtually impossible to eliminate. prohibits policy VAA importation of PCBs to Airport property. PCBs found on site are stored in accordance with the Guidelines for the Management of Wastes Containing Polychlorinated Biphenyls until they can be properly disposed of. All Airport staff are required to contact VAA's Manager of Environment when PCB material

is suspected. To date, since the establishment of the Airport Authority, no PCB materials have been found on Airport lands. The Airport remains vigilant and maintains facilities capable of storing PCB's compliant with Federal regulations.



#### **Herbicides and Pesticides**

VAA is the only operation on Airport property engaged in the industrial use of herbicides and pesticides. Herbicides are used around airfield lighting, fence lines and operational buildings for maintenance purposes. Small applications of herbicides and pesticides are required for gardening purposes at the Air Terminal Building.



Garden at the Air Terminal Building

To improve environmental protection standards VAA limits the operational use of chemical pest and vegetation controls. An Integrated Pest Management Program been has implemented by VAA aimed at reducing the amount of chemicals required. VAA adheres Provincial and Federal Regulations for the storage, recording, handling and disposal of herbicides and pesticides. All Authority personnel that handle herbicides and pesticides possess a Provincial Government Certified Pesticide Application Permit.



#### **Asbestos**

All handling and removal of asbestos material is undertaken in accordance with the requirements of the WCB Occupational Health and Safety Regulations. To the best of the Authority knowledge, the only asbestos present on Airport property is the embossed asbestos in the asphalt mix on Runway 20. VAA is working with Transport Canada on the remediation of the contaminated material and will follow WCB guidelines during its removal.

#### **Management Procedure for Discovery and Removal of Asbestos**

- 1) If material resembling asbestos is discovered Airport staff assume the material contains asbestos. VAA's Environmental Manager is contacted to assess the issue.
- 2) Warning signs are to be posted, and the area sealed.
- 3) An appropriate qualified consultant will make an initial assessment to decide if the material is asbestos.
- 4) If asbestos is discovered an active monitoring program is undertaken by a chosen consultant. This monitoring program continues throughout the entire process of cleanup and removal. The Authority and its staff comply with the recommendations of the consultant throughout the abatement project.
- 5) Asbestos is removed by a qualified contractor and verified by the consultant.
- 6) Disposal of asbestos is to be undertaken in accordance with the requirements of the special waste regulation and is carried out by the contractor.
- 7) Records of the incident are kept on file.

### **AIR QUALITY / OZONE DEPLETION**





Using the **Transport** Canada Air Quality Monitoring System ambient air quality monitoring was carried out at Victoria International Airport during two separate 3-month periods; December 2001 through February 2002 and August through October 2002. The project was undertaken determine if Federal Air Quality Objectives as defined in the Clean Air Act were being met at the Airport, and to evaluate the impact of aircraft/airport activities ambient on local air quality. In addition, a comparison was made of the Airport air quality data collected during the present study with that gathered in the Victoria area bv federal and provincial monitoring stations.

The pollutants measured during this project were carbon monoxide (CO), nitric oxide (NO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), hydrocarbons (HC) and suspended particulates including both total suspended particulates (TSP) and particulates less than 10 microns (PM10). These pollutants were selected because of their potential presence in significant concentrations in the airport environs.

#### Results

Carbon monoxide and hydrocarbons are generated during the incomplete combustion of fuels, which occurs during the start-up, idling and taxiing of aircraft. Aircraft jet engines at high power settings as encountered during takeoff and landing manoeuvres produce nitrogen oxides. Ozone is not normally emitted as a primary

pollutant by combustion sources but plays an important role in secondary photochemical reactions of other air pollutants. Suspended particulates can arise directly from aircraft operations (as smoke) or indirectly from associated activities such as runway sweeping and construction project (as dust and eroded soil).



An analysis of all recorded data indicated that the present activities at Victoria International Airport do have a measurable impact on the local ambient air quality. Most of the recorded concentrations were well below the applicable National Air Ouality (Acceptable) Objectives. Many of the higher concentrations detected are caused by a combination of Airport activity combined with vehicular traffic on the Pat Bay Highway that runs adjacent to the Airport.

Carbon monoxide and nitrogen dioxide concentrations were quite low throughout the six-month project, normally less than one-quarter and never exceeding one-half of the applicable National Air Quality Objectives [NAQO]. All Total Suspended Particulate samples except one were also well below the applicable NAQO.

Ozone concentrations never exceeded the one-hour objective of 160 mg/m³ however they did exceed the 24-hour level on a number of days.

A minor seasonal variation was observed for most pollutants monitored. In general, the concentrations of the gaseous pollutants CO, NO, and NO2 measured during winter were somewhat higher than those measured during the late summer and early fall. O3 concentrations follow a reverse trend, tending to



be higher in the summer period and decreasing in the fall and winter.

An analysis of the air quality levels with respect to wind direction showed that Airport activity did have an effect on air quality, particularly in the immediate vicinity of the Main Terminal apron area. All pollutant levels measured at the Airport were, however, equal to, or less than, corresponding levels measured by the National Air Pollution Surveillance stations in Victoria. The impact of the activities at Victoria International Airport on the ambient air quality appears to be limited to the airport grounds.

The results of the Air Quality Monitoring Study provide an excellent baseline to measure future activity. VAA is committed to working with the Airlines serving Victoria and our tenants to target facility, equipment and operational improvements that will reduce emissions at the Airport.



#### HAZARDOUS MATERIALS MANAGEMENT

VAA has developed a Hazardous Materials Guideline for the control of potentially harmful substances on Airport lands. The Guideline is based on the WCB Occupational Health and Safety Regulation.

#### **VAA Hazardous Materials Guideline**

 All hazardous or controlled materials may not be used, stored or handled unless WHIMS (Workplace Hazardous Materials Information System) requirements are met. These requirements include product labels,



**Fuelling Operation** 

- Materials Safety Data Sheets (MSDS), proper containment and personnel training.
- Training must include all the elements of the WHIMS program, including roles and responsibilities, storage, handling and disposal of hazardous materials.
- Health, safety and spill response measures must be outlined by the employer in accordance with procedures outlined by WCB and VAA's Spill Response Program.
- Hazardous materials must be stored in appropriate containers, which are routinely inspected and maintained. The container must be sealed, secured and labelled.
- Incompatible substances are not to be stored together.
- A designated area should be used for storage of hazardous materials. This area must be constructed with materials conducive to the substance stored. It must include proper signage, fire protection, adequate lighting and ventilation. These areas are to be set apart from areas frequented by workers, and far removed from ecologically sensitive areas.
- Hazardous materials are to be transported to and from the Airport in accordance with the Transportation of Dangerous Goods Act.
- Hazardous wastes must be properly contained and are to be disposed of at an Environment Canada approved facility.
- Records of all hazardous materials present on VAA lands must be maintained, up to date and available for inspection.

#### **Hazardous Waste Regulations**

VAA's Hazardous Waste Management Program is compliant with the Canadian Environmental Protection Act – Hazardous Waste Regulations. Under these regulations emergency plans have been developed, Airport Authority inventories are monitored, conditions of release are clearly regulated and storage parameters are strictly managed.

## **VICTORIA AIRPORT AUTHORITY**

**Mailing Address:** 

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