

2011 Environmental Management Plan



® VICTORIA INTERNATIONAL AIRPORT

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President's Message



President and CEO
Geoff Dickson

The Victoria Airport Authority has a strong history as a leader in environmental management. We have continually implemented actions that improve water quality, reduce pollution and conserve natural resources. We will continue to focus on the most responsible ways to manage our environmental footprint, and work hard to maintain the balance between the environment and economic growth of the airport.

The Environmental Management Plan sets the framework and direction of the Victoria Airport Authority's environmental commitments to ensure we remain accountable for our environmental performance. The program has been designed to allow for transparency and ease of use, as well as modification should it become necessary. While Federal regulations and standards provide the basis for our environmental performance, our goal is to do more than simply achieve the environmental status quo.

The Airport Authority is committed to manage our facilities and lands in a manner that reduces pollution, and is respectful of the local ecosystem. We will continue to work closely with local partners in our community, by sharing information pro-actively and encouraging collaboration on environmental initiatives. Working together we can achieve a sustainable environmental future.







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. The Airport Authority is governed by a Board of Directors appointed by local municipalities, the Capital Regional District (CRD), the Victoria Chamber of Commerce, the Federal and Provincial Government and Airport Authority Board appointments. The Board's direction is to "lead the way in environmental management."

The intent of this document is to share information around the many environmental initiatives the Airport Authority and its partners have engaged in. The Environmental Management Plan (EMP) was developed to ensure that Airport operations and development are managed to minimize environmental impacts and encourage conservation. The EMP targets all of VAA's environmental objectives and matches each with sound

practices, operating procedures and/or monitoring programs.

The framework of our environmental program is based on applicable federal, provincial and municipal regulation and by-laws, including:

- The Canadian Environmental Protection Act (CEPA),
- Canadian Council of Ministers of the Environment (CCME),
- Storage Tank Systems for Petroleum Products Regulations,
- Federal Halocarbon Regulations,
- The Fisheries Act,
- The British Columbia Environmental Protection Act,
- The Capital Regional District Sanitary Source Control By-Law.



Airport Setting

Victoria International Airport lands are spread over 485 hectares near the north end of the Saanich Peninsula on Vancouver Island. The lands are a lush mixture of forested areas, grassy fields and waterways.

Airfield operational areas

The land immediately surrounding runways, taxiways and aprons are maintained to discourage wildlife habitat and feeding birds. The presence of wildlife around aviation is an inherent safety risk and the airport's staff works diligently to ensure a safe operating environment.

Agricultural areas

These lands are considered airport reserve for future expansion and use. Currently the airport leases this land to local farmers for uses that include hay production, cattle grazing and other agricultural activities.

Natural wooded areas

The Victoria International Airport is fortunate to have two natural forested areas on its property. The land adjacent to the main entrance road on the south side of the property is known as Dickson Woods. The other forested area is located on the south west, and surrounds a portion of Ten Ten Creek. There are countless other areas on our property where trees and vegetation are left in a natural state. The airport is required to monitor the height of trees to ensure they pose no safety issues for aircraft.

Airport Streams

Two main water courses drain stormwater from airport lands. The largest incorporates Reay Creek, flowing southeast from the airport into Bazan Bay. Another drainage area incorporates Ten Ten Creek, which flows north from Mount Newton, before diverting west into Patricia Bay.



Wildlife at the Airport

The Saanich Peninsula is home to an interesting variety of wildlife, which must be encouraged to stay clear of airport runways. Birds of all kinds are a concern at every airport. Waterfowl are attracted to standing water in the low lying areas around the airport, while eagles, hawks and owls are drawn to the mice and voles scurrying through the grass. Even small flocking birds can be a safety concern to aircraft. To deal with these risks, the airport has developed a set of wildlife management objectives:

- Monitor wildlife to determine the species, what attracts them to the area, their numbers and activity, seasonal and weather fluctuations and their impact on aircraft safety;
- Modify local habitat to control species that may be dangerous to the safe operation of aircraft;
- Discourage land uses that may attract the presence of hazardous wildlife;
- Assess all wildlife control methods to ensure they are effective.

Local species considered hazardous to the safe operation of aircraft include:

- The Herring Gull and the Glaucous-winged Gull are of concern, because they are relatively large birds for their species;
- Mallard Ducks and Canada Geese are two major waterfowl species visiting airport



lands year round. They are found in the greatest numbers during the rainy season, between October and April;

- The Violet-Green Swallow, the Barn Swallow and the Cliff Swallow tend to nest in the eaves of buildings on and around the airport. Although not a high risk to aircraft due to their small size, these birds make up the largest percentage of bird strikes during summer months;
- Starlings are the most abundant and active species on airport lands. They are found feeding on grasses around the airport throughout the day. Their large numbers are particularly noticeable during haying season. When in a flock, these birds can pose a hazard to aircraft.

Water Quality Program

Storm Water

The airport recognizes that water quality is an effective environmental indicator of commercial and agricultural activities on, or near airport lands. The Source Control Program is designed to monitor storm water run-off entering Reay Creek and Ten Ten Creek.

Samples are taken from each creek once a week at a fixed position near the airport boundary. These samples are tested for the presence of suspended solids, metals, nutrients, glycol, oil and grease, pH and water hardness. Portable testing stations supplement the fixed stations to help pinpoint contamination sources and are used extensively to test for glycol concentration during winter months.

A monthly water sample is taken at two points of entry onto the airport's property. These samples are compared with the results of downstream testing stations, allowing us to correlate what contaminants are being added to the streams as they pass through airport lands.

Sanitary

The airport is continuously working to improve the quality of releases into the sanitary system. All tenants must comply with discharge regulations, and participate with the CRD in regular and random inspections of their facilities.

The airport has an annual waste discharge permit with the Capital Regional District

(CRD) to discharge spent glycol from airline operations into the sanitary sewers. This permit is reviewed quarterly by the CRD for performance. The CRD and Victoria Airport work in partnership to implement sound practices and share information around discharges into the sanitary system.

Drinking Water

The Airport Authority routinely maintains and flushes the water system to ensure high quality drinking water. Potable water is tested at 13 different locations on the airport with four locations tested each month. The drinking water monitoring program meets federal, provincial and regional water quality guidelines.





Rain Water

The airport continues to invest in drainage improvements designed to minimize the possibility of flash flooding and minimize untreated pollutants entering the system. The airport ensures that all airfield ditches maintain a substantial amount of vegetation to encourage a natural reduction to any contaminants that may enter the system.

In our parking lots, instead of conventional catch basin and culvert designs, the airport

constructed rain gardens and swale ditches to collect run-off. This installation helps to filter many pollutants from parked vehicles before they are released into the storm water system.

The recently constructed Airport Operations Centre was commissioned and the design work on this project included bio-swale ditches to mitigate run-off from airside vehicles and equipment.

Restoration Projects

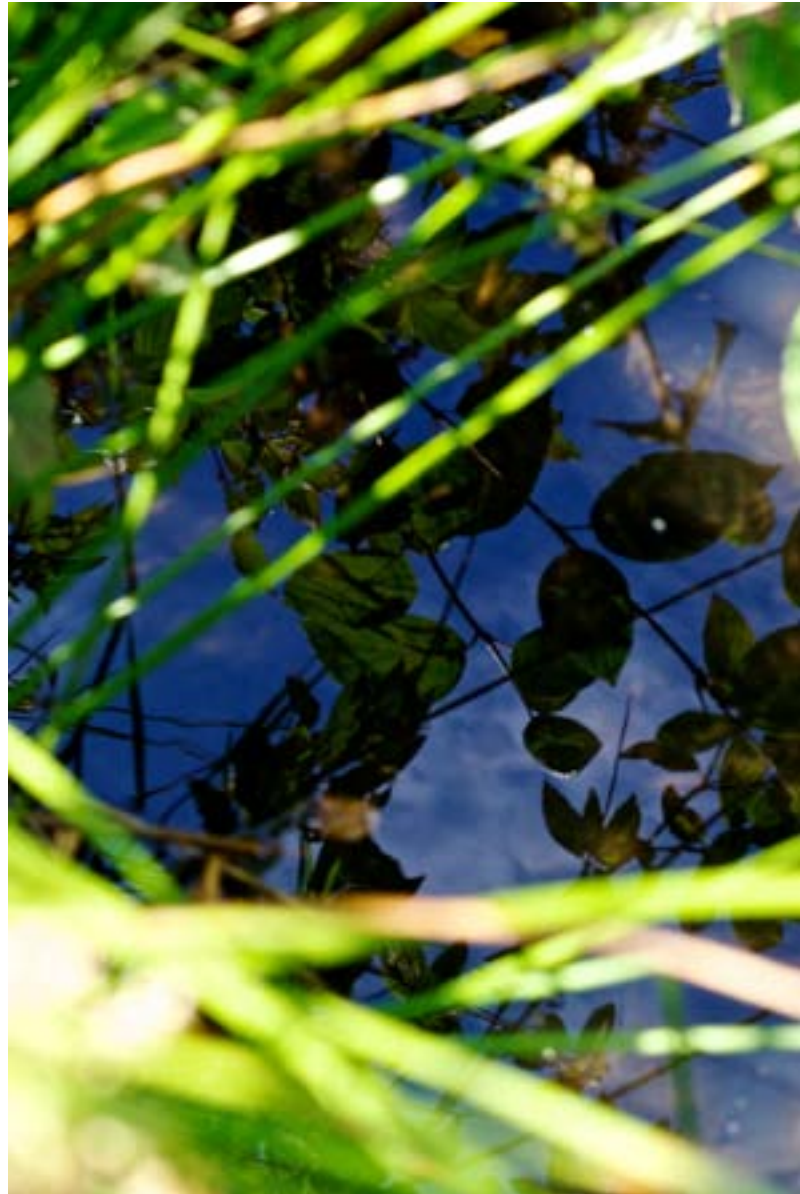
Poor industrial practices of the past 50 years contaminated the two airport streams with heavy metals and other pollutants, which have discouraged aquatic life. Since the Airport Authority has taken over operations, habitat restoration programs, partnership programs and pollution reduction measures have been part of a continuous effort to rehabilitate the two natural water courses.

Reay Creek

The Reay Creek Restoration Project has been the Sidney Anglers primary enhancement program since 1982. This small stream has been restored from a barren state to a functioning system with self-sustaining populations of coho salmon and sea run cutthroat trout.

Volunteers have rebuilt nearly one kilometer of stream by installing logs, spawning beds, creating pool and riffle structures and adding protective habitats such as large woody debris and riparian planting.

Today, the stream supports coho and cutthroat trout. Fisheries and Oceans Canada uses this project as an excellent example of the success that can occur with local stream and watershed restoration. The project has the support of local governments and residents, the Victoria Airport Authority as well as the Federal and Provincial governments. At present it is the only stream in Sidney and North Saanich with re-established runs of salmon and trout.



Coho Spawning Bed Construction

In 2004 the Sidney Anglers were out in full force-creating spawning habitat for the Reay Creek coho population. Coho runs were larger than most expected and so there has been a need to create gravel beds for the fish to spawn. With the help of the Victoria Airport



Authority and the Institute of Ocean Sciences (IOS), Sidney Anglers and Peninsula Streams were able together able to restore precious habitat. The Sidney Anglers have been restoring habitat in Reay Creek for nearly 30 years.

In 2005, the VAA commissioned a contamination study focused on the upper portion of Reay Creek. The study found that soils along the creek lines were contaminated with heavy metals. A second study delineated the contaminated areas originally identified. Over a few summers the VAA, working alongside our team of consultants and the Department of Fisheries and Oceans, undertook a creek restoration project in order to reduce levels of heavy metal contamination.

Ongoing work includes extensive testing, engaging partners and developing strategies for the next phase of habit improvements. We are working to identify any remaining contamination and ensure that the potential of new contamination is mitigated. Through local partnerships and community engagement, the airport will continue to protect this important ecological resource.

Ten Ten Creek

Coho have not spawned in Ten Ten Creek in several decades. Habitat loss and poor water quality are the primary reasons. As part of



the Ten Ten Channel Renewal Project, Peninsula Streams Society constructed pools, spawning beds and riffles. The results of this project and the wetland construction project have enhanced water quality and stream habitat significantly. In its restored state Ten Ten Creek has attracted a population of Red-legged Frogs, an endangered species.

Improving water quality in Ten Ten Creek and Pat Bay has been the focus of efforts in the Ten Ten watershed. With the support of the Victoria Airport Authority and Pendray Farms, two wetlands were constructed to improve stormwater quality. Fecal coliform and nutrient levels have been lowered significantly as a result of this innovative work. Channel reconstruction and complexing has also taken place on the mainstem.



Future plans include the reintroduction of salmonids into the creek and the formation of a stewardship group. This work will build on the significant restoration efforts that have taken place on Ten Ten Creek, including the construction of wetlands and channel reconstruction.

The Airport Authority, the Department of

National Defence and Transport Canada have undertaken the clean-up of 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 they impinged on the creek. The Airport Authority continues to work in partnership with Transport Canada to encourage additional cleanup of old sites.



Hazardous Materials Management

Waste Management & Recycling

The Victoria Airport Authority practices recycling and composting as part of its regular waste management practices. Staff recycle plastics, cardboard, paper, scrap metals, tires, batteries, antifreeze, used oil and other maintenance related waste. The airport composts organic materials such as leaves, grass clippings, branches and sawdust.

Airport food service outlets participate by recycling pre-consumer food waste and coffee grounds. A pilot project is currently underway to compost used paper towels from some of the airport's public washrooms.

Community Living Victoria provides paper recycling and bottle recycling services. This group's Satellite Day Program picks up paper waste from the Airport Administration area, Airport Operations Centre, Air Canada and FedEx. Their Career Access Program members collect bottles from designated recycling bins in the terminal building. These services are provided on a weekly basis.

Storage Tanks

Hazardous materials are a fact of life at any airport. In Victoria, airport staff maintain an inventory of all hazardous material used by its own operations. This ensures that the parameters tested are accurate and relevant to all activities occurring on airport property.

Fuel tanks owned and operated by the Airport comply with the federal storage tank regulation. These regulations have



added emergency response plans and have improved inventory, maintenance and product transfer operations. These tanks are inspected annually to ensure good condition and compliance with all applicable environmental regulations.

All regulated storage tanks have a spill response plan on the exterior of the tank in highly visible red containers. The Airport recognizes that the person initially noticing the spill may not have the training or knowledge of what immediate action to take. The plan, itself, is a simple step-by-step set of directions on the actions required in the event of an emergency.

Oil-Water Separators

Oil and oil based products are a big part of the airport's operation. Protecting the environment from unforeseen releases of these



A simulated spill exercise.

pollutants is enhanced by the use of oil-water separators. The airport maintains six oil-water separators in key areas, and follows regular inspection and maintenance schedules.

The program consists of:

- Monthly inspections of oil-water separators
- Yearly cleaning of oil-water separators
- Identifying any current or new areas of risk that may require oil/water separators.

Spill Response

The Spill Response Program encompasses spill management procedures and processes for dealing with potential contamination of ground and surface water, soils and

sediments. Airport staff are trained and prepared for a rapid response in the event of an incident. The Airport Fire Service receives the first call to assess the scene and contain the spill. Other maintenance and security staff may be called on to act in a support role. The airport has an environmental service response company on retainer to provide 24 hour spill response, in the event of a larger spill.

All spills are documented, reviewed for cause, and reported to the appropriate agencies. Spill responses are evaluated for performance and impacts, with a view to improving procedures. Each area of the airport is equipped with spill sheds stocked with containment and clean-up materials.

In 2010, Victoria International Airport

increased spill response ability by doubling the spill response clean-up supplies and enhancing training for Fire Service staff. All airport firefighters now have a minimum Hazardous Materials Operations Level certification with some trained to a Technician Level.

Contaminated Sites

The Contaminated Site Program is designed to assess and remediate historically contaminated sites on airport lands. The program objectives are to identify these sites and their potential to contaminate ground and surface waters and assess the impact on local fresh water ecosystems. Significant clean-ups to date include lead contaminated soil at the old Rifle Range (remediated by Transport Canada), fuel contaminated soil at the Fuel Depot (remediated by the Department of National Defence), and contaminated soil at the Fire Training Area (remediated by the Airport Authority).

There are two dumpsites on the airport which were inherited from Transport Canada on the west side of the property. These sites are managed by Transport Canada and have been placed on the Federal/National Dumpsite Remediation priority list and will be remediated when their priority comes up. The VAA monitors surface storm water results to ensure that these sites are not leaching contaminants into the water.

Snow and Ice Management

Ensuring passenger and aircraft crew safety is one of the primary responsibilities of the airlines. During the winter season, snow and ice accumulation must be removed from aircraft to ensure safety. The standard method of removing ice and frost from airplanes is the application of liquid glycol. While glycol is critical to aircraft safety, its potential impact on local waterways must be controlled.

Glycol is being applied to an aircraft.



The airport operates a glycol retention system during periods of snow or prolonged cold. When applying glycol, aircraft reposition to a designated area on the west side of the main apron where the spent product drains through into a 27,000 litre holding tank under the apron. The airport engages its airline partners through regular operational meetings to ensure control of glycol levels.

The airport keeps detailed records of glycol volumes dispensed by the airlines. Reports are provided to Transport Canada to ensure regulatory compliance. In addition, the airport monitors Reay Creek to ensure the retention system is working as designed.

Keeping our paved surfaces clear of snow and ice during the winter months is the airport's highest priority. The operations team uses a combination of plow trucks, runway

Heavy machinery is used to spread the de-icing agents.

sweepers and de-icing agents to keep the paved surfaces safe. Road salt is used on roadways to and from the airport.

In the past, urea has been the primary compound used to control ice on runways and taxiways. The airport's storm water monitoring program has shown that sustained use of urea was increasing the levels of nitrates in the surrounding creeks. In 2011, the airport replaced the urea with sodium formate. This purpose-built de-icer is a more environmentally friendly method of keeping our airside paved surfaces safe. The airport also uses potassium acetate to control ice on paved airside surfaces, such as runways, taxiways and aprons. This combination of sodium formate and potassium acetate is very effective in controlling ice, and has a reduced impact on the environment.







Resource Conservation

Solar Heating

In 2010, a solar hot water pre-heating system was installed on the roof of the airport terminal building. This installation allows us to pre-heat domestic water, which directly reduces the need for natural gas and electricity to fulfill this function. We estimate that 20 percent of our hot water will be pre-heated by sunlight during winter months, and nearly 100 percent during the summer.

Irrigation

This year, the airport will be upgrading its terminal building frontage irrigation system to include satellite driven controllers. These new controllers will effectively tap into local weather data for our region to more precisely water the grounds when it's needed — not just when it's timed to do so. It's expected that this new technology will significantly reduce the airport's water demand for irrigation. The airport will closely measure the impacts of this system on water usage and determine if additional controllers will be installed in the future.



Energy

One of the best ways to reduce a company's environmental impact is to reduce its overall energy consumption. The airport worked in partnership with BC Hydro to identify opportunities for electricity savings. Through this partnership, the airport and BC Hydro undertook a lighting audit and retrofit of our main terminal building lights. Using newer technology has allowed us to maintain current lighting levels while decreasing wattage used.

Daylight sensors were added to our existing lighting control system. This technology allows the system to harvest daylight hours in

conjunction with timed program hours, reducing overall consumption. The airport now programs the lighting system to turn off unnecessary interior lights, outside of passenger operating hours.

These initiatives have resulted in a total electricity reduction for the terminal building of three-quarters of a Gigawatt, which is equivalent to powering 68 homes for a full year. BC Hydro provided 60 percent incentive funding towards this project, and the Airport Authority continues to work with BC Hydro on innovative programs to further conserve power.

Environmental Assessment Program

Environmental Screening

Sustainable development challenges businesses to meet the needs of the present while reducing the impact to future generations. The Airport Authority screens all new developments and capital projects for potential environmental impacts. If potential impacts are identified for a project, the airport prepares appropriate mitigation strategies, relevant research and testing along with prompt communication with stakeholders. Our process is designed to ensure due diligence and sound environmental practices in all of our projects.

Smaller projects, with limited or no potentially adverse impacts are screened by airport staff. Larger projects, including tenant developments involve the services of outside consultants to thoroughly review site plans, sample soil and groundwater and provide guidance and follow up services throughout the project. All projects that require substantial earthworks involve site monitoring by local First Nations. This is to ensure that any previously undiscovered cultural deposits are carefully recovered.

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. To confirm this compliance, an independent consultant is retained to inspect a tenant's facility and ensure they are meeting the obligations of their lease. One of the added benefits

of tenant inspections is for the Airport Authority to promote opportunities for resource conservation, share information on new regulations and provide ideas for enhanced pollution prevention measures.

Construction Surveillance

The Construction Surveillance Program is designed to avoid potential threats, such as spills at construction sites or degradation of the environment due to airport activities. The Construction Surveillance Program ensures that all mitigation measures are adhered to during construction and that follow-up reporting is completed.

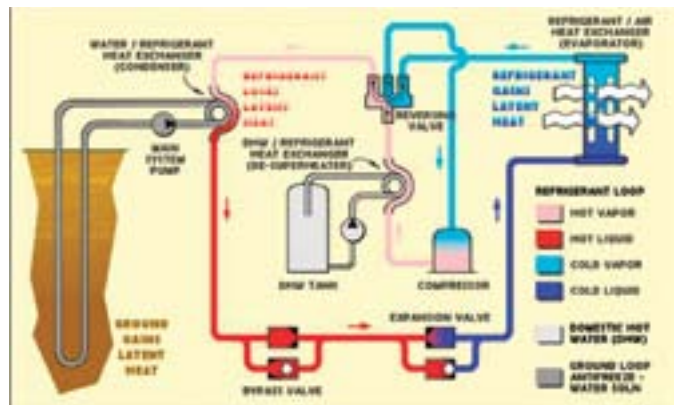
The Construction Surveillance Program provides for assessments and inspections of the following:

- Airport zoning, surface water flows and pertinent geographical information;
- Soil stripping, excavations, ditching, concrete work and structural construction;
- Seasonal impacts, such as flooding, dust control, air quality;
- Airport operational impacts, such as safety, and security;
- On site fuel and hazardous materials storage;
- Construction site clean-up.

Looking Ahead to a Sustainable Future

All land lease arrangements and development at Victoria International Airport undergo a comprehensive environmental review, with the goal of encouraging optimal sustainability. Consultation with community stakeholders is part of the review process for major developments. The type of development achievable through this process is exemplified by the new distribution centre under construction by Sobeys/Thrifty Foods. This project is targeting Leadership in Energy and Environmental Design (LEED) level certification, showing Sobeys and the airport's commitment to environmental responsibility.

The airport has also taken a lead in sustainability and environmentally conscious development in its own projects. The new Airside



The Airside Operations Centre is equipped with a geothermal heating system that improves efficiency.

Operations Centre is an example. The \$9.7 million facility boasts a cutting edge geothermal system along with occupancy sensors and energy efficient lights. Combining the maintenance and fire service in one building allows us to share resources that would have previously been duplicated in two different areas.

The new Airside Operations Centre is a state of the art building.



Alternative Transportation

Electric Vehicle Program

Working closely with our partners at Air Canada Jazz, the Victoria Airport Authority has sponsored a program to provide electricity at no additional cost to airlines who utilize electrical vehicles. In 2009, Air Canada Jazz incorporated five electric ground handling vehicles into its fleet. It is anticipated that as the older diesel vehicles are replaced, strong consideration will be given to electric vehicles. The Airport Authority is currently reviewing plans to include electric vehicles into its own fleet and will closely monitor the demand for adding power outlets in our public parking lots.

Public Transportation Improvements

Working in partnership with BC Transit, the Victoria Airport Authority is pleased to welcome significant public transit service improvements to the airport terminal building, commencing in the summer of 2011. Passengers will now enjoy triple the previous frequency of service between the air terminal building and the new BC Transit Exchange Station at the McTavish road interchange on Highway 17.

Bicycle Path and Assembly Station

In 2009, the Victoria Airport Authority completed a 2.5 km stretch of a paved bicycle/walking path on Mills Road. It is anticipated that in future years, the path will be expanded to circle the entire airport. To encourage ridership, the airport has invested in a bicycle assembly station located just outside of the main terminal building. The station includes a bench, air pump, bicycle parking, and a storage shed with air transportation packing boxes for bicycles. Riders are also able to rent a bike locker for a nominal fee through airport security.

Air Canada Jazz utilizes electric ground handling vehicles.



Community Engagement

Noise Management

The Victoria Airport Authority believes the single most effective way to reduce negative effects of aircraft noise is by setting appropriate land uses adjacent to the airport. However, some residential areas are already established near the airport. In these cases, the airport works closely with NAV Canada and local stakeholders to minimize aircraft noise, without compromising safe operations.

The airport's Noise Management Committee is mandated to review and assess take-off and landing procedures, helicopter training, aircraft engine run-ups and float plane operations. Committee membership includes the Airport Authority, NAV Canada, airlines, VIH Aviation Group, 443 Squadron, float plane operators, flight training schools, the airport Tenant's Association, Local Municipalities and community representatives. The goal of the committee is to review noise complaints, with a view to reducing noise impacts through consultation with aviation and community stakeholders.

New aircraft technology is moving us toward a quieter airport. The Victoria Airport Authority is working with the Canadian Airports Council to understand noise issues and keep a close watch on industry changes, ensuring that they are brought forward at the noise management committee meetings.

Complaints help us to more effectively manage noise. The airport tracks every complaint, including the location, time and type of

aircraft. All complaints are recorded, saved, and responded to by an airport staff member. Complaint summaries are created so the information is readily available for committee meetings.

Public Feedback

The airport hosts an Environmental Advisory Committee meeting that meets annually to review and advise on various environmental programs. This group is comprised of local stakeholders and regulators. We also encourage questions and comments from the public at large about any part of our Environmental Program.

A copy of the Environmental Management Plan is available at www.victoriaairport.com.

Methods of Feedback

E-mail: environment@victoriaairport.com

Phone: 250-953-7500

Mail: ATTN Environmental Department
Victoria Airport Authority
#201 – 1640 Electra Blvd
Sidney, BC
V8L 5V4



Victoria Airport Authority
201-1640 Electra Blvd.
Sidney BC V8L 5V4
250-953-7500
www.victoriaairport.com