

VANCOUVER AIRPORT AUTHORITY
2012 ENVIRONMENT REPORT



Vancouver International Airport's [Environmental Management Plan](#) describes environmental policies and programs around key sustainability issues overseen by the Airport Authority's Environment Department.

Our Environmental Management Plan (2009-2013) outlines six strategic priorities:

- Manage aircraft noise
- Reduce emissions
- Reduce energy
- Reduce waste
- Implement a Communication, Awareness, Recognition and Education (CARE) program
- Continually improve environmental programs

Manage Aircraft Noise

The Airport Authority aims to minimize noise disturbance to the community caused by aircraft operations. The published Noise Abatement Procedures and five-year Noise Management Plan outlines specific initiatives aimed at improving the noise environment around the airport.

The Airport Authority received 903 noise complaints from 224 individuals in 2012; this represents a 15 per cent increase in complaints but a 30 per cent decrease in the number of individual complainants in 2011. An annual survey which asked Metro Vancouver residents if they were bothered by aircraft noise in their homes showed that 85 per cent of residents were not annoyed by aircraft noise. This is consistent with our survey results from previous years. For more information, please visit the [Noise Management](#) and [2012 results](#) sections of our website.

In 2012, the Airport Authority opened Canada's first Ground Run-Up Enclosure (GRE). Located at YVR's Airport South, the GRE reduces noise from run-ups performed by propeller and jet aircraft heard in neighbouring communities by up to 50 per cent. The \$12-million facility uses aerodynamic design combined with special sound absorbing panels to reduce and direct noise away from residential areas. The GRE has been well-received by operators, which together conducted more than 1,400 run-ups in the facility since it opened January 25, 2012.

Reduce Emissions

The Airport Authority aims to reduce greenhouse gas and air-pollutant emissions by working with our business partners to reduce vehicle and aircraft emissions, promoting alternative forms of transportation to and from Sea Island, improving airport systems and infrastructure and raising awareness of low-emission and clean air practices.

CANADA LINE

As part of its commitment to sustainable transportation and connectivity, the Airport Authority invested \$300 million in the Sea Island portion of the Canada Line rapid transit system, which began operations in August 2009. Approximately 17 per cent of passengers used the Canada Line to access YVR in 2012.

CYCLING INFRASTRUCTURE IMPROVEMENTS

Several new bike paths on Sea Island were built in 2012, including on-road and off-road connections. Paved shoulders were added to Grant McConachie Way and Inglis Drive. Off-road connections were added between North Service Road and the terminal, and around the No. 2 Rd Bridge. A detailed map of Sea Island's bike routes is available on our [website](#).

The Airport Authority's cycling improvement efforts were acknowledged in 2012 by HUB, Metro Vancouver's largest cycling coalition with Runner Up status in the *Most Bike Friendly Workplace* category. HUB recognized the Airport Authority's promotion of year-round cycling transportation, highlighting our green commuter and wellness incentive programs, on-site cycling facilities and the dedicated cycling infrastructure on Sea Island.

GREEN COMMUTER PROGRAM

The Airport Authority offers its employees a \$50 per month financial incentive to take public transit, cycle, walk or carpool to work. The Green Commuter Program had 157 participants - 37 per cent of employees - in 2012, reducing the amount of single-occupant vehicle trips by more than 750,000 kilometres.

IMPROVING FLEET EFFICIENCY

The Airport Authority continues to improve our fleet by replacing older, larger vehicles with appropriately-sized fuel-efficient models. In 2012, eight new light-duty vehicles were introduced to the fleet including: one electric utility vehicle, one hybrid-electric vehicle and two compact fuel-efficient vehicles. In addition to introducing these vehicles, 11 older light-duty vehicles and two buses were retired from service, decreasing overall fuel consumption.

TAXI INCENTIVES

The Airport Authority offers a significant annual discount on licensing fees to taxi operators with low-emission vehicles. In 2012, 373 of the 525 taxis (71 per cent) in the fleet serving YVR were hybrid-electric vehicles - a seven per cent increase over 2011.

Reduce Energy

The Airport Authority promotes resource-efficient operations and identifies ways to reduce consumption of natural gas, diesel, gasoline, water and electricity at the airport. We have a long-term goal to improve electricity efficiency, which has resulted in cumulative savings of more than \$11 million dollars in electricity costs since 1999. In 2012, the Airport Authority reduced electrical energy consumption per square metre by 3.9 per cent over 2011 results, exceeding our target to decrease energy consumption.

SMART HEATING AND COOLING

The Airport Authority continues to reduce its natural gas consumption through the use of solar hot water, lowered night room temperatures, CO₂ sensors, improved scheduling and system tune-ups. The careful management of our heating system enables the boilers to be turned off throughout the summer, using outside air for space heating. Along with ongoing monitoring of our temperatures, these tactics help significantly reduce energy consumption in the terminal.

SMART LIGHTING

Changing technologies, new concepts and operating procedures and terminal renovations result in energy conservation opportunities in 2012. Using flight schedules, motion detectors and other tools, the Airport Authority takes an area-by-area approach to identify areas in which lighting can be reduced or turned off altogether. In 2012, two major lighting retrofit, projects converted inefficient lighting into more efficient bulbs. This effort saved two Gigawatt hours of energy, which is equivalent to removing approximately 200 B.C. homes from the electricity grid.

POWER SMART PROGRAMS

The Airport Authority was once again the proud recipient of a BC Hydro Power Smart Leadership Excellence award in 2012. This award is presented to Power Smart Leaders who achieve greater levels of energy savings year-over-year, demonstrating a commitment to continuous improvement.

The Airport Authority renewed participation in BC Hydro's Energy Manager Program in 2012, a program that dedicates an existing staff member to establish, identify and enhance energy efficiency opportunities, manage the implementation of energy-saving projects and improve on existing operational and maintenance procedures at our facility.

Reduce Waste

The Airport Authority oversees a range of programs aimed to reduce garbage and increase recycling and waste diversion by Airport Authority employees, airport tenants and passengers.

In 2012, our overall diversion rate of materials away from landfill was 38 per cent. Diverted materials include:

- Paper and cardboard;
- Glass, metal and plastic mixed containers;
- Organic waste;
- Pallets;
- Construction waste and metals;
- Used lighting products;
- Batteries;
- Hazardous materials;
- Landscape materials; and
- Sweeper debris.

ORGANIC WASTE DIVERSION PROGRAM

In 2012, the Airport Authority began an organic waste diversion program in our offices and with select terminal tenants. A waste composition study performed in 2012 revealed that up to 59 per cent of terminal waste is compostable material, representing a huge opportunity to divert waste from landfill. The organic waste diversion program will allow us to work with Metro Vancouver to comply with its 2015 landfill ban on organic materials.

CONSTRUCTION MATERIAL REUSE AND RECYCLING

For several years the Airport Authority and its construction contractors have been successful in finding alternate uses and recycling options for construction waste materials. In 2012, there were 24,789,000 kilograms of construction waste materials generated, and 99 per cent was reused or recycled. Most of this material came from three airfield paving projects, where old apron concrete and asphalt pavement was removed, crushed and reused on airport as sub-base material for new pavement structures.

MATERIALS RECYCLING

An additional 131,365 kilograms of used wood, metals, landscaping materials and other miscellaneous debris associated with YVR maintenance activities were recycled or diverted in 2012. These items were processed by a sorting facility in Richmond, rather than sent to the landfill.

Communication, Awareness, Recognition and Education

The Environmental CARE program is designed to improve communication, awareness, recognition and education of sustainability across the airport community, including employees, business partners and passengers.

CLEAR SKIES AWARDS

The Airport Authority's third annual Clear Skies Awards were held during Environment Week in June. Harbour Air earned the 2012 Clear Skies award with its commitment to improving environmental performance. The airline's initiatives include becoming the first airline in North America to achieve carbon neutrality for in-flight services and corporate operations; operating a paperless ticket system; participating in educational events such as Bike to Work Week and Earth Day; and for continual improvements to reduce its carbon footprint across all aspects of the business.

EMPLOYEE TRAINING

Many employees within the Airport Authority require training on topics such as spill response and noise management to effectively do their jobs. In 2012, new training modules were prepared and delivered to our Airfield and Emergency Services department, Airport Operations Centre staff and Terminal Duty officers.

WASTE REDUCTION WEEK

The Airport Authority held its first Waste Reduction Week event in October 2012, to coincide with national Waste Reduction Week. The week generated interest from Airport Authority employees, who learned about recycling programs through several interactive displays, including composting demonstrations and an electronic waste round-up.

Continuous Improvement of Environmental Management

While the Airport Authority's key environmental priorities are reductions in energy, emissions and waste, minimizing the environmental impact of an airport includes many more elements. The Airport Authority strives for continual improvement in the following program areas:

ENVIRONMENTAL IMPACT ASSESSMENT AND SUSTAINABLE BUILDING DESIGN

The Airport Authority's sustainable design guidelines are used to ensure all major facilities incorporate energy efficiency, water efficiency and environmental management into building design. All airport facility permits are subject to an environmental review under the Airport Authority's environmental impact assessment program. In 2012, all 152 facility permit applications received were reviewed by the Environment Department for environmental issues. Additional studies are conducted to determine the potential impact of new facilities on any archeological and historical resources in the vicinity. Large and environmentally-sensitive projects undergo more detailed reviews and are monitored regularly by the Environment Department.

HAZARDOUS MATERIALS

The Airport Authority maintains a Hazardous Materials Management Program that aims to reduce and control the use of dangerous goods at YVR. In late 2012, the Airport Authority completed a three-year project to upgrade petroleum storage tank systems, replacing old infrastructure and adding new safeguards against accidental releases. With more than 1 billion litres of jet fuel passing through YVR each year, effectively preventing and responding to fuel spills is vital. Two fuel spills of amounts greater

than 100 litres occurred in 2012; in both cases, spills were contained and cleaned up before reaching drains, ditches, waterways or sensitive habitat.

WATER QUALITY

As part of our ongoing water quality assessment, the Airport Authority samples airport water to monitor for total suspended solids and turbidity in runoff from construction sites, groundwater cooling system outfall and to ensure the successful containment of de-icing fluid. In 2012, Airport Authority technicians collected 450 water samples, of which 220 were checked specifically for de-icing fluid containment. Only one sample exceeded the Canadian Glycol Guideline limit of 100 parts per million. While our target for glycol exceedances is zero, the 2012 results still represent effective minimization of airport-related pollutants.

WILDLIFE MANAGEMENT & NATURAL HABITAT

Operating a safe and secure airport is the Airport Authority's primary focus, and bird strikes pose a significant safety risk to aircraft and passengers. To manage that risk, our wildlife program consists of four components: monitoring, habitat management, movement of birds through harassment techniques and, where there is a perceived safety risk to aviation, killing of birds. In order to prevent bird strikes, approximately 704,000 birds were moved away from aircraft operating areas using pyrotechnics, sirens, lights, propane cannons and specially trained border collies, falcons and hawks. In 2012, 377 birds were killed in 238 bird strikes with aircraft. While habitat management and harassment techniques are our primary tools, killing occurs when wildlife behavior is perceived to be a safety risk. This may consist of an immediate risk to an approaching aircraft, or a potential or chronic risk that has reached unacceptable levels. In 2012, 564 birds were killed by control officers.

2012 Environmental Performance Indicators

The Airport Authority is committed to operating YVR in a manner that minimizes its impact on the environment, both natural and urban. The following table summarizes environmental performance indicators and results for 2012.

Objective	Measure	2012 Target	2012 Results
REGULATORY COMPLIANCE <i>Comply with environmental legislation and regulations</i>	Number of violations of environmental regulations	0	0
GLYCOL EXCEEDANCES <i>Minimize pollution that results from airport-related activities</i>	Number of water samples exceeding Canadian Glycol Guideline of 100 parts per million of glycol	0	1
WASTE DIVERSION RATES: TERMINAL AND SATELLITE FACILITIES <i>Decrease the amount of solid waste sent for disposal</i>	Percentage of waste diverted from landfill from Airport Authority facilities and satellite locations	Greater than 32%	38%
WASTE DIVERSION RATES: CONSTRUCTION WASTE <i>Decrease the amount of solid waste sent for disposal</i>	Percentage of waste diverted from landfill from Airport Authority construction projects	Greater than 75%	99%
ENERGY: ELECTRICITY <i>Reduce energy consumption</i>	Percentage of year over year reduction of energy consumption/m ²	2% reduction	3.9% reduction
NOISE ANNOYANCE <i>Minimize aircraft noise disturbance on the community</i>	Percentage of community indicating they have not been annoyed by aircraft noise (as per Community Survey)	80%	85%