



CARBON NEUTRAL ACTION REPORT

2009

Executive Summary

BC Transit is committed to becoming a leader of integrated transportation solutions connecting people and communities to a more sustainable future. Our sustainability value in support of this vision is to measure, improve and be accountable for our environmental, financial and social results.

To achieve this vision and meet our sustainability value, actions to achieve carbon neutrality are based on the following principles:

1. Alignment with the BC Transit Strategic Plan, which states that BC Transit will increase its economic, environmental and social accountability by implementing programs and procedures that aligns with its behaviour and its values, ensures comprehensive decision making, and reduces its negative impact and risk in these areas.
2. Integration of Carbon Neutral Actions with the BC Transit Service Plan in order to meet our obligations under the Provincial Transit Plan.
3. Implementation of Greenhouse Gas (GHG) emission reduction measures and offsetting those remaining GHG emissions.

Most of the GHGs produced from BC Transit's operations are carbon dioxide (CO₂) which comes primarily from the burning of fossil fuels in our vehicle fleet and to heat and cool the 14 buildings we own or lease.

Carbon Footprint

Table 1: BC Transit's Carbon Footprint, 2008 and 2009 (GHG emissions - CO₂ equivalent tonnes)

SOURCE	2008	2009
Vehicle Fleet	57,122.97	59,447.26
Facilities	1,336.50	1,369.90
Paper	14.17	14.17
TOTAL	58,473.64	60,831.33

Carbon Intensity per Service Hour

Table 2: BC Transit's Carbon Intensity: GHG emissions (kgs) per service hour

	2008	2009
GHG Emissions (thousands)	58,473.64	60,831.33
Service Hours (thousands)	1,978.78	2,070.31
GHG Intensity per Service Hour (kgs)	29.55	29.38

Carbon Neutral Action Report Overview

Actions Taken to Reduce Greenhouse Gas Emissions in 2009

BC Transit is implementing an Action Plan with 4 goals to support emission reduction targets in all our operational areas:

- Goal 1 Inventory and Reporting**
- Goal 2 Reduce emissions from the vehicle Fleet**
- Goal 3 Reduce emissions from facilities**
- Goal 4 Support the Provincial Transit Plan**

Goal 1: Inventory and Reporting

Ensuring BC Transit monitors and reports corporate energy and emission inventories accurately and in a timely manner to meet its reporting requirements.

INITIATIVE	ACTION	ACCOUNTABILITY	TIMELINE	MEASURE
Reporting	<ul style="list-style-type: none"> ▪ Carbon Neutral Action Report 	<ul style="list-style-type: none"> ▪ Environmental Support Team 	<ul style="list-style-type: none"> ▪ Annually to Government (Ministry of Transportation) 	<ul style="list-style-type: none"> ▪ Calendar year 2008 report published 2009. Calendar year 2009 report due April 30th 2010
GHG Inventory	<ul style="list-style-type: none"> ▪ Quarterly and Annual GHG Emissions Inventory 	<ul style="list-style-type: none"> ▪ Environmental Support Team 	<ul style="list-style-type: none"> ▪ Quarterly 	<ul style="list-style-type: none"> ▪ Quarterly Reporting to the Senior Leadership Team and Board of Directors. First inventory report to be available April 2010.
SMARTTool Reporting	<ul style="list-style-type: none"> ▪ Deployment SMARTTool to BC Transit 	<ul style="list-style-type: none"> ▪ Environmental Support Team 	<ul style="list-style-type: none"> ▪ Reporting to Government to begin 2010 	<ul style="list-style-type: none"> ▪ SMARTTool Service Level Agreement signed with Ministry of Citizens' Services June 26, 2009. SMARTTool in place and users trained by December 2009.
Crown Working Group on Carbon Neutrality	<ul style="list-style-type: none"> ▪ BC Transit participated in the Crown Working Group on Carbon Neutrality. ▪ Intent is to better align Crown operational experience with strategic and policy planning interests of government for carbon neutrality. 	<ul style="list-style-type: none"> ▪ Environment Support Team 	<ul style="list-style-type: none"> ▪ First Crown Working Group meeting, November 20, 2009. 	<ul style="list-style-type: none"> ▪ A PSO Carbon Neutrality Governance Committee to be established in 2010

Goal 2: Reduce Emissions from the Vehicle Fleet

Identifying and implementing emission reduction initiatives in our revenue and non-revenue vehicle fleets.

INITIATIVE	ACTION	ACCOUNTABILITY / RESPONSIBILITY	TIMELINE	MEASURE
BC Hydrogen Highway	<ul style="list-style-type: none"> ▪ Hydrogen Fuel Cell Demonstration Fleet 	<ul style="list-style-type: none"> ▪ Vehicle Asset Management 	<ul style="list-style-type: none"> ▪ Demonstration fleet of 20 fuel cell buses to be deployed to Whistler by January 2010 	<ul style="list-style-type: none"> ▪ Zero emission buses at the point of use. ▪ 62% reduction in life-cycle GHG emissions compared with incumbent technology combustion engine buses.
Environmental Fuel Strategy	<ul style="list-style-type: none"> ▪ Migration to renewable biodiesel blended with new ultra low sulphur diesel. 	<ul style="list-style-type: none"> ▪ Environmental Support Team /Supply Services 	<ul style="list-style-type: none"> ▪ Launched in 2008 	<ul style="list-style-type: none"> ▪ Significantly lower life-cycle GHG emissions from fuel combustion compared with petrodiesel fuels. Fleet use of biodiesel resulted in a life-cycle reduction of 2,831.6 t/CO₂e in 2009
Diesel Engine Emissions Reduction Retrofit Program	<ul style="list-style-type: none"> ▪ BC Transit secured \$1.25M in funding support from Ministry of Environment to reduce emissions from diesel buses for cleaner air 	<ul style="list-style-type: none"> ▪ Environmental Support Team 	<ul style="list-style-type: none"> ▪ Launched in June 2009 	<ul style="list-style-type: none"> ▪ Air emission reduction when fully implemented: ▪ Particulate Matter (lifetime) 9,106 kgs ▪ Hydrocarbons 16 t/yr. ▪ Carbon Monoxide 222 t/yr.
Hybridization of the Victoria Regional Transit System Transit Supervisor Vehicle Fleet	<ul style="list-style-type: none"> ▪ Purchase 5 hybrid vehicles 	<ul style="list-style-type: none"> ▪ Environmental Support Team 	<ul style="list-style-type: none"> ▪ Launched in 2009 	<ul style="list-style-type: none"> ▪ Hybridization will result in a reduction of 48.7 t/CO₂e emissions compared with incumbent technology combustion engine vehicles.

Goal 2: Reduce Emissions from the Vehicle Fleet *continued*

<p>Fleet Replacement</p>	<ul style="list-style-type: none"> ○ Retired and replaced 93 1989-1991 model year conventional buses. In addition the conventional bus fleet was expanded by 32 new buses 	<ul style="list-style-type: none"> ▪ Vehicle Asset Management 	<ul style="list-style-type: none"> ▪ Calendar 2009 	<ul style="list-style-type: none"> ▪ Buses were replaced with 2009 models that have modern emissions controls ▪ Large reduction in Particulate Matter (PM) emissions ▪ For example, a 2009 model bus operating 75,000km per year emits 15 tonnes less CO₂, 1.9 tonnes less NO_x, 250 kg less Hydrocarbons, and 125 kg less PM per year than a 1989 model bus operating 75,000km per year
<p>Vehicle Pilot Programs</p>	<ul style="list-style-type: none"> ▪ Demonstrating the first double deck hybrid bus in transit service in North America ▪ Demonstrating one fuel cell non-revenue fleet vehicle 	<ul style="list-style-type: none"> ▪ Vehicle Asset Management ▪ Environmental Support Team / Vehicle Asset Management 	<ul style="list-style-type: none"> ▪ Launched in 2009 ▪ Launched in 2007; planned to end March 2010. 	<ul style="list-style-type: none"> ▪ Target reduction of 13.7 t/CO₂e emissions annually. ▪ Reduction of 1.79 t/CO₂e emissions annually.

Goal 3: Reduce Emissions from Facilities

Identifying and implementing emissions reduction initiatives which reduce GHG emissions in our leased and owned facilities.

INITIATIVE	ACTION	ACCOUNTABILITY / RESPONSIBILITY	TIMELINE	MEASURE
New Transit Facility in Whistler	<ul style="list-style-type: none"> The new facility designed and constructed by LEED accredited professionals includes covered storage for 50 buses (36 initially built) 5 new maintenance bays, wash bay, fueling station (including hydrogen fueling) 	<ul style="list-style-type: none"> Fixed Asset Management 	<ul style="list-style-type: none"> 4Q 2009 	<ul style="list-style-type: none"> Carbon intensity / square meter for new facility to be compared with old facility - December 2010.
Lighting Retrofits	<ul style="list-style-type: none"> Lighting upgrades at LTC and VTC facilities and works yards 	<ul style="list-style-type: none"> Fixed Asset Management 	<ul style="list-style-type: none"> 2009 	<ul style="list-style-type: none"> Replaced lights with higher efficiency bulbs to reduce energy consumption. Impact included under Energy Monitoring results.
GHG & Energy Management Plan for facilities	<ul style="list-style-type: none"> Energy Audits and Carbon Neutral Planning at Victoria and Langford Transit Centres Lessons learned to be transferred to BC Transit Regional Transit Systems. 	<ul style="list-style-type: none"> Fixed Asset Management & Environmental Support Team 	<ul style="list-style-type: none"> Launched in 2009 	<ul style="list-style-type: none"> Consultants hired to provide energy audit and carbon neutral planning services October 2009. Report 2Q 2010 will identify: <ul style="list-style-type: none"> Strategic Opportunities and Actions GHG Management Plan and Implementation Framework Lessons learned may be transferred to Regional Transit Systems from 2011 onwards
Energy Monitoring	<ul style="list-style-type: none"> Establish on line monitoring of electricity consumption and charges at all BC Transit owned and leased facilities to drive efficiencies. 	<ul style="list-style-type: none"> Environmental Support Team / Fixed Asset Management 	<ul style="list-style-type: none"> Completed March 2009 	<ul style="list-style-type: none"> Carbon emissions from electricity use at Victoria Transit Centre and Langford Transit Centre facilities reduced from 85 t/CO₂e (2008) to 76 t/CO₂e (2009)

Goal 4: Support the Provincial Transit Plan

Meet BC Transit's obligations under the Provincial Transit Plan to reduce GHG emissions and other air contaminants from cars by 4.7 million tonnes cumulatively by 2020.

INITIATIVE	ACTION	ACCOUNTABILITY/ RESPONSIBILITY	TIMELINE	MEASURE
<ul style="list-style-type: none"> ▪ Lead provincial initiatives for environmental and sustainable public transportation. 	<ul style="list-style-type: none"> ▪ Implement rapid transit in Kelowna & Victoria. ▪ Invest in new infrastructure to support expansion. ▪ Retire & replace older fleet with clean diesel and hybrid diesel technology. ▪ Work with business, local governments, major employers, health authorities and others to encourage greater use of public transit. ▪ Transit master plans to guide investment. 	<ul style="list-style-type: none"> ▪ Enterprise-wide 	<ul style="list-style-type: none"> ▪ Launched in 2009 to run through 2020 	<ul style="list-style-type: none"> ▪ Specific GHG reduction measurement methodologies and sustainability indicators to meet Transit Plan targets to be agreed with Ministry of Transportation in 2010. ▪ Increase transit mode share to 9.5% (Victoria) and 4% (regional centres) by 2020. ▪ Include environmental assessments as part of all vehicle purchase decisions. ▪ Ensure that new construction at BC Transit facilities is designed and constructed by LEED accredited professionals utilizing best practices and sustainable and energy efficient materials where practical and feasible. ▪ Implement UPASS at provincial universities and colleges. Increase number of persons on ProPass programs by targeting major employers in larger communities.

Operational Changes in 2009

In line with the objectives of the Provincial Transit Plan (PTP), BC Transit expanded its transit bus fleet from 988 buses in 2008 to 1015 buses in 2009 and increased service hours by 91,530 hours

The enlarged vehicle fleet and increased service hours resulted in an increase in gross greenhouse gas emissions from buses at the point of use, from 58,471 tonnes in 2008 to 60,831 tonnes in 2009. The point of use increase does not take into account improvements on the life cycle GHG impact from the adoption of biodiesel fuel. Fleet use of biodiesel resulted in a life-cycle reduction of 2,831.6 tonnes of GHG in 2009.

Plans to Continue Reducing Greenhouse Gas Emissions 2010 – 2012

BC Transit's service plan is designed in support of the PTP's goals to improve the environmental, social and economic sustainability of the province and its communities. The PTP plays an important role in helping the province achieve the GHG reduction targets it has laid out in the Climate Action Plan.

There are specific targets for BC Transit identified in the PTP to increase the transit mode share of transportation in British Columbia. Cumulatively mode shift to transit will contribute to 4.7 million tonnes of GHG avoided through the implementation of the PTP to 2030.

BC Transit's service plan for 2010/11 - 2012/13 is available at:

http://www.transitbc.com/corporate/general_info/pdf/20100201_BCT_Serviceplan_web.pdf

Shaping Our Future

In April 2010 BC Transit released "**Shaping our Future**", the final version of our long term strategic plan. This plan was developed through substantial collaboration with our customers, employees, and transit partners from around the province. The strategic plan establishes BC Transit's vision to lead the development of sustainable transportation networks that will shift the balance to greener travel and a healthier province. It determines our long term direction and priorities. Most of all, the plan declares our organization's ongoing commitment to develop transportation options that help connect people and communities to a more sustainable future. The strategic plan is available at: <http://www.transitbc.com/2030/>

The plan affirms BC transit's focus on encouraging sustainable types of travel by better linking land use and transportation decisions. Building sustainable transportation networks that integrate and promote walking, cycling, and transit will be key in realizing that vision.

Built Environment

BC Transit has engaged professional carbon planning consulting services to facilitate the planning and implementation of enterprise wide greenhouse gas management strategies at our facilities. The plan's initial focus will support BC Transit's efforts to further reduce energy consumption and GHG emissions at two of its Victoria Regional Transit System facilities: the Victoria Transit Centre (VTC) at 520 Gorge Road East, and the Langford Transit Centre (LTC) at 1000 Henry Eng Place. Victoria Regional Transit facilities account for more than 60 percent of BC Transit's total owned or leased building space and account for approximately 50 percent of BC Transit's total facility based emissions. Though the plan is specific to GHG management opportunities at the VTC and LTC, it is intended to serve as a foundation for effective emissions management across the organization.

Whistler Transit Centre

A new Transit facility was constructed at Whistler Transit in 2009 and was officially opened in January 2010. The new construction was designed and constructed by LEED

accredited professionals utilizing best practices and sustainable and energy efficient materials where practical and feasible. The Whistler facility provides a template for BC Transit to bring more sustainable practices into our business model leveraging benefits for future facilities construction from a standardized efficient design process. Plans for three additional transit facilities will be in the development stage through 2012.

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Actions Towards Carbon Neutrality

The actions listed below contribute to a reduction in greenhouse gas emissions from sources for which public sector organizations are responsible under the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*.

Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)		Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Mobile Fuel Combustion (Fleet and other mobile equipment)							
Vehicle fuel efficiency							
Replace vehicles with more fuel-efficient models	Ongoing/In Progress			Approximately 10% of the 2008 revenue vehicle fleet - 93 older, more polluting and less energy efficient buses - were retired from service in 2009. These were replaced by buses with the latest emission regulations which drastically reduce particulate matter and other emissions. In addition the fleet was expanded by 32 new buses.	Vehicle replacement and expansion plans are under development. New vehicles will meet more stringent emissions standards and will be more energy efficient than buses retired from service. For example, a 2010 model bus operating 75,000km per year will emit 15t less CO ₂ , 1.9t less NO _x , 250kg less Hydrocarbons, and 125kg less PM per year than a 1989 model bus operating 75000km per year	1990	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress			A program to right-size vehicles for Community Shuttle applications was launched in 2009. The aim is to enhance and accelerate the development of a low floor community transit bus which will meet the needs of the North American public transit industry and provide opportunities for new and emerging energy efficient and clean vehicle technologies using lower carbon transportation fuels. .	Prototype vehicles will be demonstrated in 2010 / 2011	2009	2011
Perform regular fleet maintenance to improve fuel-efficiency	Ongoing/In Progress	100	% of vehicles are subject to regular maintenance for fuel efficiency	100% of vehicles are subject to regular maintenance for fuel efficiency. Preventative maintenance and scheduled maintenance on buses are as required, e.g. daily or at refueling checks for lubricant, cooling levels etc; oil & filter change 500 hours / 6 months / 12,000 kms; system check 250 hours / 6,000 kms / 3 months; spark plug change 1500 hrs, 36,000 kms etc.	100% of vehicles are subject to regular maintenance for fuel efficiency	1990	2012
Replace small maintenance vehicles with more fuel-efficient models	Ongoing/In Progress			In September 2009 BC Transit committed to convert 100% of its Victoria Regional Transit System Transit Supervisor vehicle fleet to hybrid vehicles. BC Transit's pool car fleet also consists of hybrid only vehicles.	Fleet conversion will be implemented in 2010	2009	2010
Behaviour change program							
Provide fleet driver training to reduce fuel use	Ongoing/In Progress	100	% of current drivers are trained	BC Transit has renewed its Smart Driver training program. The course is designed to refresh drivers on the reasons to drive in a fuel efficient and environmentally sound manner.	BC Transit will include a renewed Smart Driver training program as part of a full conventional bus training package to be implemented in 2010 .	2001	No End Date (Continuous)
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	Ongoing/In Progress			BC Transit trained 92 new bus operators in the Victoria Regional Transit System on the anti-idling policy. In addition BC Transit worked with 66 trainers at a Train the Trainer Retreat in Kamloops in November 2009 on this issue. The 66 trainers represented over 80% of BC Transit's operator training staff.	BC Transit will continue to implement its anti-idling program. We are developing a full conventional bus training package in 2010 and will include the anti-idling program.	2007	No End Date (Continuous)
Encourage carpooling in fleet vehicles	Ongoing/In Progress	100	% hybrid pool car fleet available for use	All BC Transit employees have bus passes. Pool cars (hybrids) are available when meeting logistics prevent transit use.	Continued use of hybrid pool cars when meeting logistics prevent transit use.	2006	No End Date (Continuous)

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Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)		Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Promote alternatives to fleet vehicle travel where possible (e.g., bicycles, public transit, walking)	Ongoing/In Progress			BC Transit works with partners in the development of strategic transportation initiatives that support local and regional sustainability strategies; including transit oriented development plans, alternative transportation solutions promoting mobility choice, and pedestrian and transit friendly community design. Consultation with customers, local and provincial government partners, suppliers and employees through workshops, open houses, on-line discussions and one on one discussions took place throughout 2009.	BC Transit will work with partners to implement our vision to be a leader of integrated transportation solutions connecting people and communities to a more sustainable future. A Strategic Plan "Shaping Our Future" will be released in 2010 detailing our actions to 2030 to encourage sustainable travel by better linking land use and transportation decisions.	2009	No End Date (Continuous)
Other Mobile Fuel Combustion Actions							
BC Transit continued to implement its environmental fuel strategy.	Ongoing/In Progress	2831	tonnes of CO2e reduction (lifecycle basis) in 2009	The strategy involves renewable biodiesel blended with ultra low sulphur diesel. In combination this results in significantly lower lifecycle emissions from fuel combustion in transit vehicles. Fleet use of biodiesel resulted in a life-cycle reduction of 2,831.6 tonnes of CO2e in 2009. The BC Transit biodiesel blending procedure was made publicly available at biofleet.net in 2009 as a guidance document for other fleets to consider, see: http://biofleet.net/documents/BC%20Transit%20Biodiesel%20GUIDE%20-%20Final.pdf	Continued implementation of BC Transit's environmental fuel strategy in line with the Renewable and Low Carbon Fuel Regulation requirements for diesel fuel established January 1, 2010	2008	No End Date (Continuous)
Increased fuel efficiency of non-revenue service vehicles	Ongoing/In Progress	5	5.5% reduction in non revenue fleet emissions. Emissions declined from 4.43 tonnes of CO2e in 2008 to 4.19 tonnes of CO2e in 2009	Replacement of older non-revenue service vehicles with more fuel efficient and less polluting models	Continued implementation of BC Transit's fleet renewal program for non-revenue fleet vehicles. The program incorporates full life cycle accounting of energy efficiency and air emissions in the business case process.	2008	No End Date (Continuous)
Low Emission Vehicle Pilot Programs	Ongoing/In Progress	14	tonnes of CO2e emissions reduction annually (target).	Demonstrated the first double deck diesel electric hybrid bus in transit service in North America. Demonstrated one fuel cell hybrid electric vehicle in the non-revenue fleet	The fuel cell hybrid electric vehicle lease ends March 2010. The double deck diesel electric hybrid will be demonstrated through 2010. Additional low emission vehicle pilot programs will be launched in 2010.	2007	No End Date (Continuous)
Diesel Engine Emissions Reduction Retrofit Program	Ongoing/In Progress	44	buses underwent retrofits in 2009	BC Transit worked with Ministry of Environment under the BC Air Action Plan to reduce emissions from diesel buses for cleaner air. BC Transit is retrofitting diesel particulate filters or diesel oxidation catalysts to engine emissions exhaust systems. Implementation began in July 2009 with 44 buses completed in the calendar year. Air emission reductions from full implementation will be: Hydrocarbons 16 tonnes per year; Carbon Monoxide 222 tonnes per year and 9,106 kgs of Particulate Matter on a lifetime basis.	187 buses will be upgraded in total by March 2011 (18% of current fleet)	2009	2011
Hydrogen Fuel Cell Demonstration Fleet	In Development			Demonstration fleet of 20 fuel cell buses to be deployed to Whistler by January 2010. First buses were delivered and hydrogen fueling station established during 2009. Zero emission buses at the point of use. 62% reduction in life-cycle GHG emissions compared with incumbent technology combustion engine buses.	Hydrogen fuel cell buses will be showcased in the Resort Municipality of Whistler before, during and after the 2010 Olympic and Paralympic Winter Games. The demonstration hydrogen bus fleet will be tested for operational service effectiveness with Whistler Transit to 2014.	2010	No End Date (Continuous)

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Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)		Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
BC Scrap It Program	Ongoing/In Progress	2000	tonnes of CO2e displaced	BC Transit is a program partner in the BC Scrap It Program. This is a voluntary early retirement vehicle program that provides incentives to help British Columbians replace higher polluting vehicles with cleaner forms of transportation. The program is designed to reduce greenhouse gas emissions and to lower exhaust pollutants across the province. All scrapped vehicles and their components are permanently and properly recycled. BC Transit offers a monthly pass incentive for vehicle owners to scrap their older vehicles and adopt transit. As of February 2009 residents of Victoria could trade in their 1995 or older vehicle in exchange for up to two years of free rides on the bus. BC Transit estimates that transit pass adoption through the Scrap It Program in its service area displaced up to 2,000 tonnes of CO2e in 2009	BC Transit intends to continue as a program partner in the BC Scrap It program	2009	No End Date (Continuous)
Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)							
Planning/management							
Reduce office space (square meters) per employee	Ongoing/In Progress	12	is the current average rentable square meters per employee	Victoria Administration Building and Langford facility space planning - increased employee density by 28%	Adoption in 2010 of a greenhouse gas management plan will include actions to further advance organizational GHG objectives.	2009	2012
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	16	% of buildings have a real time metering system installed	Added Direct Digital Controls for heating, ventilation and air conditioning at the Victoria Administration Building. Installed economizers on all existing heat pumps to make better use of outside air cooling. Replaced nonfunctional air diffusers and rebalanced air handling system to optimize air distribution.	Adoption in 2010 of a greenhouse gas management plan will include actions to further advance organizational GHG objectives. Implementation of mechanical and electrical utility savings measures to improve overall efficiency at baselined buildings is anticipated.	2009	2012
Owned buildings							
Establish energy performance baseline for owned buildings	Ongoing/In Progress	65	% of owned buildings have an established energy performance baseline	65% of owned building square footage underwent energy performance baseline assessment in 2009	Adoption in 2010 of a greenhouse gas management plan will include actions to further advance organizational GHG objectives. Implementation of mechanical and electrical utility savings measures to improve overall efficiency at baselined buildings is anticipated.	2009	No End Date (Continuous)
Incorporate integrated design process into new construction or during renovations of owned buildings	Ongoing/In Progress	100	% of buildings built or renovated since start year indicated used the integrated design process	100% of new construction was designed and constructed by LEED accredited professionals utilizing best practices and sustainable and energy efficient materials where practical and feasible. The new transit operations and maintenance facility in Whistler contained a number of environmental enhancements, such as oil and water separators and a bio-filtration pond.	New transit facilities are planned for Vernon, Kamloops and Kelowna.	2009	No End Date (Continuous)
Complete energy retrofits on existing, owned buildings	Ongoing/In Progress	16	% of owned buildings have undergone energy retrofits since start year indicated	Victoria Administration Building - which is 16% of total owned building square footage - underwent retrofit program	During 2009 BC Transit commissioned detailed energy audits of its Victoria and Langford facilities to identify energy conservation opportunities. Based on audit findings further electrical and mechanical utilities measures to improve overall efficiency of the buildings will be considered for implementation between 2010 and 2012.	2009	No End Date (Continuous)
Retrofitting owned buildings							

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Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)		Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	100	% of retrofits (captured above) had heating, cooling, and ventilation systems upgrades	Victoria Administration Building, Langford facility	During 2009 BC Transit commissioned detailed energy audits of its Victoria and Langford facilities to identify energy conservation opportunities. Based on audit findings further electrical and mechanical utilities measures to improve overall efficiency of the buildings will be considered for implementation between 2010 and 2012.	2009	2012
Upgrade lighting systems during retrofits	Ongoing/In Progress	100	% of retrofits (captured above) had lighting systems upgrades	Victoria Administration Building, Langford facility	During 2009 BC Transit commissioned detailed energy audits of its Victoria and Langford facilities to identify energy conservation opportunities. Based on audit findings further electrical and mechanical utilities measures to improve overall efficiency of the buildings will be considered for implementation between 2010 and 2012.	2009	2012
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	100	% of retrofits (captured above) had control system upgrades or adjustments	Victoria Administration Building, Langford facility	During 2009 BC Transit commissioned detailed energy audits of its Victoria and Langford facilities to identify energy conservation opportunities. Based on audit findings, electrical and mechanical utilities measures to improve overall efficiency of the buildings will be considered for implementation between 2010 and 2012.	2009	2012
Improve building insulation (including windows) during retrofits	Ongoing/In Progress			Victoria Administration Building, Langford facility	During 2009 BC Transit commissioned detailed energy audits of its Victoria and Langford facilities to identify energy conservation opportunities. Based on audit findings further measures to improve overall efficiency of the buildings will be considered for implementation between 2010 and 2012.	2009	2012
IT power management							
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress	45	% of computers shut down automatically outside of regular business hours	Took significant action in this area and established performance indicator baselines	Enterprise vision and concept of operations for Information, Communication and Technology services at BC Transit under development. Further improvements expected from implementation of plan in 2011	2009	No End Date (Continuous)
Implement server virtualization	Ongoing/In Progress	65	% of servers have been virtualized since start year indicated	Took significant action in this area and established performance indicator baselines	Enterprise vision and concept of operations for Information, Communication and Technology services at BC Transit under development. Further improvements expected from implementation of plan in 2011	2009	No End Date (Continuous)
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress	75	% of computers have auto-sleep settings applied	Took significant action in this area and established performance indicator baselines	Enterprise vision and concept of operations for Information, Communication and Technology services at BC Transit under development. Further improvements expected from implementation of plan in 2011	2009	No End Date (Continuous)
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	Ongoing/In Progress	75	% reduction in printers, copiers, and/or fax machines since start year indicated	Took significant action in this area and established performance indicator baselines	Enterprise vision and concept of operations for Information, Communication and Technology services at BC Transit under development for 2011	2009	No End Date (Continuous)
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	Ongoing/In Progress	100	% of devices have auto-sleep settings applied	Took significant action in this area and established performance indicator baselines	Enterprise vision and concept of operations for Information, Communication and Technology services at BC Transit under development. Further improvements expected from implementation of plan in 2011	2009	No End Date (Continuous)
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	50	% of computers are ENERGY STAR rated	Took significant action in this area and established performance indicator baselines	Enterprise vision and concept of operations for Information, Communication and Technology services at BC Transit under development. Further improvements expected from implementation of plan in 2011	2009	No End Date (Continuous)

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Behaviour change program							
Encourage staff to use air dry setting on dishwashers	In Development			Regular updates through administrative and facilities maintenance bulletins	Adoption in 2010 of a greenhouse gas management plan will include actions to leverage employee experience, expertise, and commitment to advance organizational GHG objectives	2010	No End Date (Continuous)
Provide tips to staff on saving energy in the office while working outside of regular business hours	In Development			Regular updates through administrative and facilities maintenance bulletins	Adoption in 2010 of a greenhouse gas management plan will include actions to leverage employee experience, expertise, and commitment to advance organizational GHG objectives	2010	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	In Development			Regular updates through administrative and facilities maintenance bulletins	Adoption in 2010 of a greenhouse gas management plan will include actions to leverage employee experience, expertise, and commitment to advance organizational GHG objectives	2010	No End Date (Continuous)
Promote hot water conservation	In Development			Regular updates through administrative and facilities maintenance bulletins	Adoption in 2010 of a greenhouse gas management plan will include actions to leverage employee experience, expertise, and commitment to advance organizational GHG objectives	2010	No End Date (Continuous)
Other Stationary Fuel Combustion and Electricity Actions							
New Transit Facility constructed in Whistler during 2009 and was officially opened in January 2010.	Ongoing/In Progress			The new facility was designed and constructed by LEED accredited professionals utilizing best practices and sustainable and energy efficient materials where practical and feasible. It includes covered storage for 50 buses (36 initially built) 5 new maintenance bays, wash bay, and fueling station (including hydrogen fueling) The facility includes a number of environmental enhancements, such as oil and water separators and a bio-filtration pond.	The Whistler facility provides a template for BC Transit to bring more sustainable practices into our business model leveraging benefits for future facilities construction from a standardized efficient design process. Plans for three additional transit facilities will be in the development stage through 2012	2009	2012
Energy retrofits / upgrades	Ongoing/In Progress	9	tonnes reduction in CO2e emissions in 2009	See building actions described above. Carbon emissions from electricity use at Victoria Transit Centre and Langford Transit Centre facilities were reduced from 85 tonnes CO2e in 2008 to 76 tonnes CO2e in 2009	Adoption in 2010 of a greenhouse gas management plan will include energy retrofit / upgrade actions to further advance organizational GHG objectives	2009	2012
Supplies (Paper)							
Paper Type							
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	90	% of total paper purchased contains 30% recycled content	90% of total paper purchased contained 40% post-consumer content	Review opportunities to further increase post-consumer content in purchased paper	2010	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Ongoing/In Progress	1	% of total paper purchased contains 100% recycled content	1% of total paper purchased contained 100% post-consumer recycled paper	Review opportunities to further increase post-consumer content in purchased paper	2010	No End Date (Continuous)
Printer/document settings							
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress	90	% of network printers or photocopiers are set to automatic double-sided	More than 90% of printers are now set to automatic double-sided printing	Review opportunities to further increase percentage of network printers and photocopiers set to automatic double-sided printing.	2010	No End Date (Continuous)
Electronic media in place of paper							

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Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)	Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	In Development		Enterprise vision and concept of operations for Information, Communication and Technology (ICT) services at BC Transit under development	Vision for ICT adopted by Senior Leadership Team March 2010. Work is underway to prepare a master plan for achieving the vision over the next years. The master plan is scheduled for completion in 2010. It will include measures to advance electronic media in place of paper.	2010	No End Date (Continuous)
Use electronic document library for filing common documents	In Development		Enterprise vision and concept of operations for Information, Communication and Technology services at BC Transit under development	Vision for ICT adopted by Senior Leadership Team March 2010. Work is underway to prepare a master plan for achieving the vision over the next years. The master plan is scheduled for completion in 2010. It will include measures to advance electronic media in place of paper.	2010	No End Date (Continuous)
Post materials online that were previously printed	In Development		Enterprise vision and concept of operations for Information, Communication and Technology services at BC Transit under development	Vision for ICT adopted by Senior Leadership Team March 2010. Work is underway to prepare a master plan for achieving the vision over the next years. The master plan is scheduled for completion in 2010. It will include measures to advance electronic media.	2010	No End Date (Continuous)
Behaviour change program						
Train staff to use collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	In Development		An enterprise vision and concept of operations for Information, Communication and Technology services and a greenhouse gas management plan are under development at BC Transit. Both plans address employee behaviour and engagement strategies.	Vision for ICT adopted by Senior Leadership Team March 2010. Work is underway to prepare a master plan for achieving the vision over the next years. The master plan is scheduled for completion in 2010. It will include measures to advance the use of electronic media.	2010	No End Date (Continuous)

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Actions to Reduce Provincial Emissions and Improve Sustainability

The actions listed below contribute to a reduction in greenhouse gas emissions from sources that fall outside of the reporting requirements defined in the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*. Public sector organizations can optionally use this section to report on actions that will help British Columbia meet its provincial greenhouse gas reduction targets, engage the public, and improve environmental sustainability across all aspects of their organization.

Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)	Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Business Travel						
Virtual meeting technology						
Install web-conferencing software (e.g., Live Meeting, Elluminate, etc.)	In Development		An enterprise vision and concept of operations for Information, Communication and Technology services at BC Transit is under development	Vision for ICT adopted by Senior Leadership Team March 2010. Work is underway to prepare a master plan for achieving the vision over the next years. The master plan is scheduled for completion in 2010. It will include measures to advance web conferencing.	2010	No End Date (Continuous)
Make desktop web-cameras available to staff	In Development		An enterprise vision and concept of operations for Information, Communication and Technology services at BC Transit is under development	Vision for ICT adopted by Senior Leadership Team March 2010. Work is underway to prepare a master plan for achieving the vision over the next years. The master plan is scheduled for completion in 2010. It will address virtual meeting technologies.	2010	No End Date (Continuous)
Install video-conferencing units in meeting rooms or provide mobile video-conferencing units	In Development		An enterprise vision and concept of operations for Information, Communication and Technology services at BC Transit is under development	Vision for ICT adopted by Senior Leadership Team March 2010. Work is underway to prepare a master plan for achieving the vision over the next years. The master plan is scheduled for completion in 2010. It will address virtual meeting technologies.	2010	No End Date (Continuous)
Behaviour change program						
Train staff in web-conferencing	In Development		An enterprise vision and concept of operations for Information, Communication and Technology services at BC Transit is under development	Vision for ICT adopted by Senior Leadership Team March 2010. Work is underway to prepare a master plan for achieving the vision over the next years. The master plan is scheduled for completion in 2010. It will include measures to advance web-conferencing.	2010	No End Date (Continuous)
Train staff in video-conferencing or provide technical support for video-conferencing set-up	In Development		An enterprise vision and concept of operations for Information, Communication and Technology services at BC Transit is under development	Vision for ICT adopted by Senior Leadership Team March 2010. Work is underway to prepare a master plan for achieving the vision over the next years. The master plan is scheduled for completion in 2010. It will include measures to advance video conferencing.	2010	No End Date (Continuous)
Encourage staff to consider virtual attendance/presentation at events where possible	In Development		An enterprise vision and concept of operations for Information, Communication and Technology services at BC Transit is under development	Vision for ICT adopted by Senior Leadership Team March 2010. Work is underway to prepare a master plan for achieving the vision over the next years. The master plan is scheduled for completion in 2010. It will include measures to advance video conferencing. In addition, adoption in 2010 of a greenhouse gas management plan will include actions to leverage employee experience, expertise, and commitment to advance organizational GHG objectives	2010	No End Date (Continuous)
Encourage carpooling to meetings	Ongoing/In Progress		All BC Transit employees have bus passes. Pool cars (hybrids) are available when meeting logistics prevent transit use.	BC Transit intends to implement a transportation demand management plan that will further encourage the use of green travel choices at its head office location.	2009	2010
Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)	Ongoing/In Progress		All BC Transit employees have bus passes.	BC Transit intends to implement a transportation demand management plan that will further encourage the use of green travel choices at its head office location.	2009	2010

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Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)	Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Education, Awareness, and Engagement						
Team-building						
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	Ongoing/In Progress		BC Transit Senior Leadership Team endorsed the employee-led Green Team launched in July 2009. The BC Transit Green Team is committed to developing strategies that will reduce our impact on the environment both collectively and individually, while moving toward a more sustainable and healthy working environment.	BC Transit's Green Team work plan for 2010 includes enhanced employee communication and engagement through a Green Machine Newsletter, the Green Team Waste Challenge, a Green Cup Campaign, a Commuter Challenge/Bike to work week initiative, and a focus on food security / education through the Sow Green campaign.	2009	No End Date (Continuous)
Provide resources and/or dedicated staff to support teams	In Development		BC Transit's Green Team was established as an employee - led initiative in 2009. Efforts to date have been resourced by staff donated resources and time.	BC Transit intends to provide resource support for Green Team actions in 2010	2010	No End Date (Continuous)
Staff Professional Development						
Support green professional development (e.g., workshops, conferences, training)	Ongoing/In Progress		BC Transit staff participated in a number of workshops, conferences and training programs in support of green professional development. For example development of sustainable transportation modeling through attendance at the Office of Energy Efficiency of Natural Resources Canada GHGenius life cycle emissions Advanced Workshop, November 2009; professional development of staff with the BC Institute of Agrologists.	Staff to participate in sustainable transportation and environmental management development programs, for example LEED Canada professional accreditation programs.	2009	No End Date (Continuous)
Staff awareness/education						
Provide education to staff about the science of climate change	Ongoing/In Progress		The BC Transit Green Team is committed to developing strategies that will reduce our impact on the environment both collectively and individually, while moving toward a more sustainable and healthy working environment.	BC Transit's Green Team work plan for 2010 includes enhanced employee communication and engagement on climate change through a Green Machine Newsletter,	2009	No End Date (Continuous)
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress		The BC Transit Green Team is committed to developing strategies that will reduce our impact on the environment both collectively and individually, while moving toward a more sustainable and healthy working environment.	BC Transit's Green Team work plan for 2010 includes enhanced employee communication and engagement on conservation matters through the Green Team Waste Challenge,	2009	No End Date (Continuous)
Provide green tips on staff website or in newsletters	Ongoing/In Progress		The BC Transit Green Team is committed to developing strategies that will reduce our impact on the environment both collectively and individually, while moving toward a more sustainable and healthy working environment.	BC Transit's Green Team work plan for 2010 includes enhanced employee communication and engagement through a Green Machine Newsletter,	2009	No End Date (Continuous)
Provide sustainability education during new staff orientation	Ongoing/In Progress		BC Transit has revised its policy manuals and employee orientation manuals to update information on climate action and sustainability	Implementation of renewed policy manuals and employee orientation manuals containing enhanced information on climate action and sustainability measures at BC Transit	2009	No End Date (Continuous)
Client/public awareness/education						

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Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)	Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Provide education to clients/public about the science of climate change	Ongoing/In Progress		BC Transit includes advice and information on the science of climate change when communicating about transit services and technologies. The linkage between transit service and environmental and climate change objectives informs BC Transit's Service Plans.	In April 2010 BC Transit released Shaping our Future, our long term strategic plan. The plan establishes BC Transit's vision to lead the development of sustainable transportation networks that will shift the balance to greener travel and a healthier province. It determines our long term direction and priorities. The plan declares our organization's ongoing commitment to develop transportation options that help connect people and communities to a more sustainable future.	2009	No End Date (Continuous)
Provide education to clients/public about the conservation of water, energy, and raw materials	Ongoing/In Progress		BC Transit includes advice and information on energy, water and material use when communicating with suppliers for the procurement of transit services and technologies. The linkage between transit service and energy efficiency and broader conservation informs BC Transit's Service Plans.	BC Transit will review and revise all business case templates and procurement evaluations to ensure they include appropriate evaluation of environmental and social impacts.	2009	No End Date (Continuous)
Provide green tips on client/public website or in newsletters	Ongoing/In Progress		BC Transit provided green tips and environmental advice through all of its marketing channels in 2009. BC Transit continually engaged in marketing outreach to demonstrate the advantages of transit, walking and cycling as financially, socially and environmentally wise transportation choices.	BC Transit will implement new marketing strategies to change perceptions and behaviours, attract new customers, and ncrease ridership by promoting transit as a part of a healthy, socially responsible lifestyle.	2009	No End Date (Continuous)
Other Sustainability Actions						
Water conservation						
Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models	In Development		BC Transit engaged professional energy and carbon planning consulting services to facilitate the planning and implementation of enterprise wide energy and greenhouse gas management strategies, including water conservation and management.	During 2009 BC Transit commissioned detailed energy audits of its Victoria and Langford facilities to identify energy conservation opportunities. Based on audit findings to be presented in 2010 water conservation measures to improve overall efficiency of the buildings will be considered for implementation between 2010 and 2012.	2010	No End Date (Continuous)
Put in place a potable water management strategy to reduce potable water demand of building-level uses such as cooling tower equipment, toilet fixtures, etc. and landscape features	In Development		BC Transit engaged professional energy and carbon planning consulting services to facilitate the planning and implementation of enterprise wide energy and greenhouse gas management strategies, including water conservation and management.	During 2009 BC Transit commissioned detailed energy audits of its Victoria and Langford facilities to identify energy conservation opportunities. Based on audit findings to be presented in 2010 water management measures to improve overall efficiency of the buildings will be considered for implementation between 2010 and 2012.	2010	No End Date (Continuous)
Introduce a stormwater management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales)	In Development		BC Transit's new operations and maintenance facility constructed in Whistler during 2009 included a number of environmental enhancements, for example a bio-filtration pond.	BC Transit's new operations and maintenance facility at Whistler provides the template for future facility construction. The use of enhanced environmental strategies, such as bio-filtration ponds will be encouraged.	2010	No End Date (Continuous)
Indoor air quality						
Enforce a scent-free policy (e.g., no strong perfumes, deodorants, etc.)	Ongoing/In Progress		BC Transit has an established scent free policy	continued implementation of the scent free policy at BC Transit	2006	No End Date (Continuous)
Commuting to and from home						
Encourage commuting by foot, bicycle, carpool or public transit	Ongoing/In Progress		BC Transit encourages transit staff to use greener types of travel through employee engagement strategies (including commuting surveys) and education. All BC Transit employees have bus passes.	Where feasible encourage transit staff to use greener types of travel by implementing transportation demand management policies and incentives, and by continuing to include showers, lockers, and bicycle parking areas in plans for new transit operations centres	2009	No End Date (Continuous)

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Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)	Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	Ongoing/In Progress		BC Transit has shower and locker room facilities at its main facilities.	Where feasible encourage transit staff to use greener types of travel by implementing transportation demand management policies and incentives, and by continuing to include showers, lockers, and bicycle parking areas in plans for new transit operations centres	2009	No End Date (Continuous)
Provide secure bicycle storage	Ongoing/In Progress		BC Transit has secure bicycle storage at its main facilities.	Where feasible encourage transit staff to use greener types of travel by implementing transportation demand management policies and incentives, and by continuing to include showers, lockers, and bicycle parking areas in plans for new transit operations centres	2009	No End Date (Continuous)
Modify parking fees or parking availability for staff/students	In Development		BC Transit is currently reviewing parking in general at all of its facilities.	BC Transit intends to implement a transportation demand management plan that will result in a priority based restriction on the number of cars that can be parked at its head office location.	2010	2010