



CARBON NEUTRAL ACTION REPORT 2011



RICHMOND
SCHOOL DISTRICT NO. 38



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executive summary



Monica Pamer, EdD
Superintendent of Schools

On behalf of the Richmond School District, I am pleased to submit the 2011 Carbon Neutral Action Report. This report provides an overview of the steps that the Richmond School District has taken to reduce our greenhouse gas emissions as well as other environmentally sustainable actions that have been undertaken in the 2011 calendar year.

Environmental Sustainability is deeply important to the Richmond School District as evidenced by the fact that we have both an Environmental Stewardship Policy and Environmental Stewardship as a Developmental Objective for the district. 2011 was a transformational year – a revised district Environmental Stewardship policy was approved by the Board of Trustees in June 2011. The updated policy includes regulations of action and guidelines of effective practice in eight Environmental Sustainability focus areas: Curriculum, Energy Conservation, Gardening and Greening, Leadership, Sustainable Purchasing, Sustainable Transportation, Water Conservation and Waste Management. The revised policy also lays the groundwork for system-wide structures and processes which will inspire and enable us all to become better environmental stewards.

Green House Gas reduction initiatives in 2011 were focussed primarily on reducing emissions from buildings, which is our largest source. Our new flagship environmentally sustainable school, Brighthouse Elementary was completed in 2011. The facility is one of the greenest and lowest carbon schools in Canada, and at times operates entirely without the use of fossil fuels. Other GHG reductions initiatives in 2011 were improving energy efficiency with initiatives such as upgrades to high efficiency condensing boilers, energy efficient hot water on demand systems, and higher efficiency lighting fixtures.



executive summary

One of the things that makes Richmond School District a leader in sustainability in the K-12 education sector is that we attempt, wherever possible, to reflect what we're teaching our students about sustainability in our practices and how we operate our organization. In 2011, thanks in large part to a grant from SolarBC, we were fortunate to be able to install a photovoltaic system on the roof of one of our secondary schools. The solar array provides learning opportunities for students and reduces our reliance on energy supplied by the grid, thereby also reducing our greenhouse gas emissions.

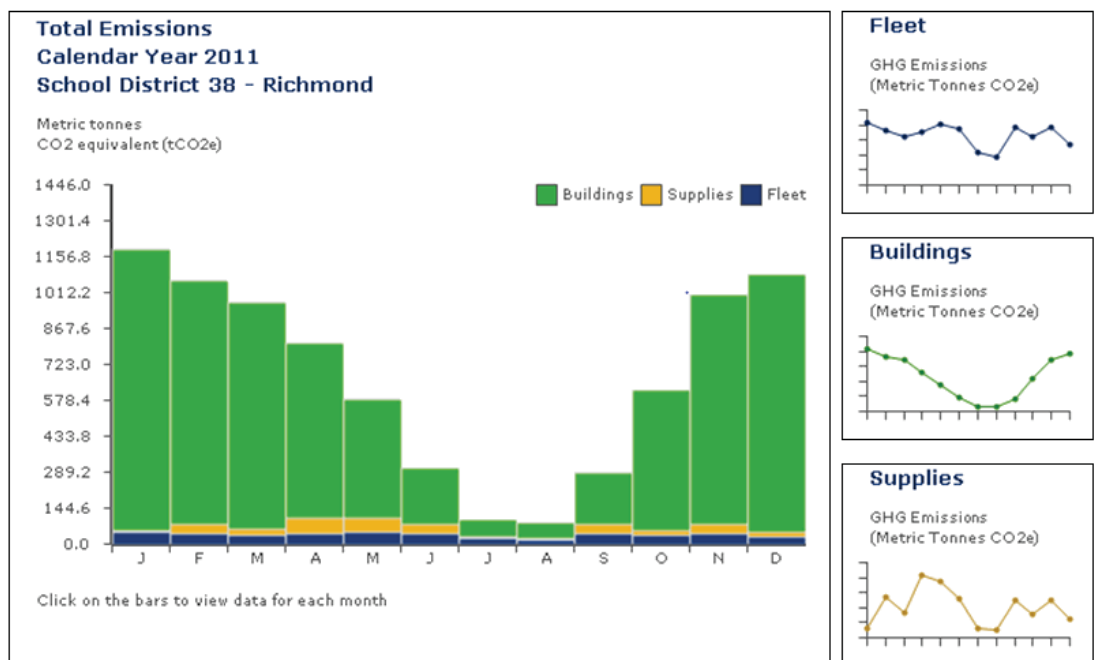
We continue to engage both our students and our employees, leveraging their knowledge and enthusiasm as we strive for lower GHG emissions. Doing so has benefits beyond the environment as it generates both financial savings and social benefits. Our employees are more engaged in working towards sustainability, and the students who will create our future are more passionate about caring for their communities and the world that surrounds them.



Monica Pamer, EdD
Superintendent of Schools

greenhouse gas emissions

Total Greenhouse Gas Emissions for the Richmond School District for the 2011 calendar year were 8280 tonnes CO₂e. The picture below shows the district's emissions by source.



greenhouse gas emissions

buildings

GHG emissions from buildings result from the fossil fuels consumed to provide heating and cooling, ventilation, and electricity to schools and other district facilities. These emissions account for a large majority of the district's overall emissions at 89.2%

supplies

Emissions categorized as supplies are indirect emissions originating from the district's use of office paper and account for 4.6% of the district's overall GHG emissions.

fleet

Emissions categorized as fleet are direct emissions resulting from the fossil fuels used to power the district's fleet vehicles, including maintenance vehicles and school busses. These emissions make up 6.2% of the district's overall emissions.





greenhouse gas emissions

fugitive emissions

The following fugitive emissions are deemed by the British Columbia Provincial Government Carbon Neutral Government Regulation (CNGR) as out of scope for reporting:

- Gases used for research purposes (e.g. science labs)
- Type R-22 coolant from stationary air conditioning and refrigeration units in schools
- Any emission sources that comprise less than 1% of the district's total GHGs

In-scope fugitive emissions (HFCs released to the environment from leaks in cooling equipment) for the Richmond School District are well below the 1% threshold for reporting and therefore not included.

travel related emissions

Under the Carbon Neutral Public Sector commitment, only core government organizations that report through the Consolidated Revenue Fund (e.g., ministries, special offices, tribunals) are required to track and report the emissions from the business travel of public officials. The Richmond School District does not fall within 'core government' and therefore does not track travel-related emissions.

2010 emissions update

In order to meet reporting deadlines, some emissions for energy consumption (electricity and natural gas) for the final month of 2010 had to be estimated. With complete consumption figures available, previously reported emissions have been updated with accurate information replacing estimates. Revised 2010 emissions are shown below:

	Emissions Reported in 2010 CNAR	Revised 2010 Emissions
Total Emissions	7,554	7,599
Emissions for Offsets	7,295	7,340



carbon neutral 2011

offsets
applied to
become
carbon
neutral

In 2010 the Richmond School District purchased carbon offsets for 7335 tonnes of CO₂e towards our commitment to being carbon neutral. In order to meet deadlines, some energy consumption figures had to be entered as estimates for the last month of the 2010 calendar year. As a result, we currently show our 2010 final emissions to be 7340 tonnes of CO₂e and have therefore added the outstanding 5 tonnes to our 2011 offset purchases.

In order to become carbon neutral for 2011, the Board of Education of School District 38 (Richmond) purchased carbon offsets for 7991 tonnes of CO₂e from the Pacific Carbon Trust on March 31, 2012 and an additional 31 tonnes on May 3, 2012. Total purchased offsets of 8022 tonnes of CO₂e achieve carbon neutrality for the district's outstanding emissions from 2010 (5 tonnes) as well as 8017 tonnes of CO₂e required for offsets in 2011. The table below depicts the purchases made by the Richmond School District in order to achieve carbon neutrality for both 2010 and 2011.

School District #38 (Richmond) Offset Reconciliation	
Description	Emissions (in tonnes)
Offset investment made to PCT for 2010 Emissions (March 31, 2011)	7,335
2010 Emissions for Offsets in SMARTTool as of April 30, 2012	7,340
Tonnes owing for 2010 Offsets	5
Initial Offset investment made to PCT for 2011 Emissions (March 30, 2012)	7,991
2011 Emissions for Offsets in SMARTTool as of April 16, 2012	8,017
Additional Offset investment made to PCT to reconcile Emissions (May 3, 2012)	31

carbon neutral 2011

As required by section 5 of the Carbon Neutral Government Regulation, 263 tonnes CO₂e of emissions resulting from the operation of school buses were reported as part of our greenhouse gas emissions profile in 2011. These emissions from school busses were not offset as they are out- of-scope under section 4(2)(c) of the Carbon Neutral Government Regulation.





reducing emissions

overview

School District No. 38 (Richmond) is an exciting, multicultural, educational organization that provides public education for approximately 22,000 students K-12 and boasts one of the highest graduation rates in BC. Staff and students are spread across fifty-two locations in the District: 38 elementary schools, 10 secondary schools, one alternative school, the Administration building, Technology Services Centre and the Works Yard. With over 3,500 staff, we ensure that we are able to properly support our 22,000+ students in the District. During 2011, the Richmond School District was engaged in a diverse range of environmental sustainability initiatives. Specific measures undertaken to reduce carbon emissions in 2011 and planned future actions form the basis of the Carbon Neutral Action Report (CNAR) Actions Template (attached). An overview of the actions taken to reduce emissions as well our actions to promote a culture of conservation and environmental stewardship are provided in the following pages.



reducing emissions

actions taken to reduce greenhouse gas emissions in 2011

In 2011 much of our focus was on building the necessary structures to enable consistent sustainability practices across the district. In the spring of 2010 the Board of Trustees passed a motion to update the district's Environmental Stewardship Policy. A policy revision team, comprised of staff from Maintenance & Operations, Facilities and Curriculum & Education and a member of the Board of Trustees, worked together to draft a revised Environmental Stewardship Policy. In 2011 the draft policy was presented to stakeholder and partner groups through a series of face-to-face meetings in order to solicit stakeholder feedback on the revised policy and the development of a set of key guidelines of effective practice. In June 2011 the revised Environmental Stewardship Policy was approved by the Board of Trustees.

With the revised Environmental Stewardship Policy in place, The Richmond Sustainability Action Team (RSAT) is developing a system-wide plan to inspire staff and students to become even better environmental stewards. The program, branded 'Eco-Wise', is being launched in order to create the structures that will embed environmental stewardship in the day-to-day operations of the district, incorporating Environmental Stewardship into the school curriculum and into the delivery of each employee's core mandates. The Sustainability Action Plan will coordinate and support the system-wide implementation of effective Environmental Stewardship practices through site-based Green Teams with the goal of having educational, financial and environmental impacts be considered in everyday decisions about operations, teaching and learning.



reducing emissions



The Richmond School District is coordinating and planning for sustainability initiatives in eight focus areas: curriculum development, energy conservation, gardening and greening, leadership, sustainable transportation, sustainable purchasing, waste reduction and water conservation. Guidelines of effective practice have been developed in each of these areas and the next step will be to define long-term goals and metrics to assess how we're progressing towards achieving those goals.

Our carbon neutral objectives and GHG reduction endeavours are inextricably linked to our environmental stewardship initiatives. Of the eight Environmental Stewardship focus areas, Energy Conservation is the most mature in terms of plan development and presents the greatest opportunity for both GHG reductions and financial savings. The largest proportion of the district's greenhouse gas emissions continues to come from buildings, and therefore the largest proportion of our GHG reduction initiatives are focussed on energy conservation within our schools and administrative facilities. We are continuing with the District's comprehensive energy conservation program and in 2011 undertook a number of energy conservation initiatives:

- Construction was completed in 2011 on a replacement school for Brighthouse Elementary. The facility was built to LEED Gold standards and is one of the most environmentally sustainable, energy efficient and low carbon elementary schools in Canada. At times the school operates entirely without the use of fossil fuels.



reducing emissions

- We installed a 3.3 kW solar photovoltaic array at McNair Secondary School with the assistance of a grant from Solar BC. While this solar array will reduce our reliance on electricity supplied by the grid, it will also provide excellent opportunities for students to study solar energy up close and provide a launch pad for learning about renewable energy.
- We continued working with conservation partners BC Hydro and FortisBC. We renewed our commitment as a Power Smart Partner with BC Hydro to reduce energy consumption using a Strategic Energy Management Plan (SEMP). We renewed our Energy Manager Contract with BC Hydro our Energy Specialist contract with FortisBC, both of which provide funding for dedicated resources to oversee implementation of the SEMP and to identify and implement energy conservation measures.
- We completed several energy conservation projects, often with the assistance of incentives from conservation partners BC Hydro and FortisBC, including the following:
 - o Completed five boiler upgrades installing new high-efficiency condensing boilers
 - o Installed five high efficiency hot-water on demand systems
 - o Completed a coil cleaning project at three secondary schools, cleaning heating and cooling coils in order to increase their efficiency
 - o Completed T-12 to T-8 fluorescent lighting upgrades in a number of classrooms
 - o Installed an LED parking lot light as a pilot to test this newer energy efficient lighting technology
 - o Installed faucet aerators to reduce water consumption (thereby also reducing energy required to heat the hot water)



reducing emissions

- We have established our Green Fund whereby savings realized through energy conservation will be utilized to fund further energy conservation and sustainability programs.
- We undertook a number of investigations to identify opportunities future energy conservation measures in many of our facilities in order to meet energy conservation targets in upcoming years.
 - o Three of our secondary schools entered the investigation phase of the BC Hydro Continuous Optimization whereby consultants are identifying opportunities for energy savings that have a short payback and an Energy Management Information System (EMIS) is also collecting baseline data on our sites so that unexpected energy consumption can quickly be identified and corrected
 - o Installation of real-time metering was initiated in four additional secondary schools as Phase 2 of the BC Hydro Continuous Optimization Program and in 5 elementary schools as a pilot program with Honeywell
 - o Energy Investigations were conducted at the Works Yard, Technology Services Centre and four elementary schools
 - o FortisBC-funded natural gas assessments were completed at the Administration Building, Works Yard, two elementary schools and two secondary schools
 - o An Integrated Building Performance pilot was initiated at four sites in order to establish energy targets for the sites and ascertain measures that will be required in order to achieve the targets

reducing emissions

While our energy conservation efforts resulted in a reduction in electricity consumption of over 519,000 kWh, our natural gas consumption increased in 2011 (as compared to 2010) due to a much colder winter. When we weather normalize the natural gas consumption we did achieve a reduction of 2.95% in natural gas energy intensity. Nonetheless the result was an increase in greenhouse gas emissions from buildings of 11.4% over 2010 emissions due to weather-related energy consumption.





reducing emissions

Emissions reduction efforts have also taken place in our fleet operations. The district purchased four new fleet vehicles in 2011, providing us with an opportunity to downsize vehicles and select more fuel efficient models. Ongoing conservation efforts in our fleet have also relied on minimizing emissions through vehicle maintenance and behaviour change such as anti-idling campaigns. Unfortunately due to an increase in temporary staffing levels in maintenance we haven't been able to retire the vehicles that the new downsized vehicles were intended to replace and as a result we have seen an increase of 11% in fleet emissions over 2010 levels.

In addition to the emissions from buildings and fleet vehicles, the other major category of emissions that the district tracks and reports is supplies, which is the emissions generated from the use of paper in the district. While this category accounts for less than 5% of the districts overall emissions, we do make an effort to reduce our paper use in order to limit the impact on the environment. In 2011 we made an important purchasing decision to utilize paper with a minimum of 30% recycled content for all of our standard paper purchases. In 2011 92% of the paper purchased by the district had recycled content of 30% or more. Despite reduced emissions due to higher recycled content of our paper and an increase in the number of devices with default double-sided printing, we still saw an increase in emissions from paper of 16.8% based on paper purchases. In 2011 the district began a revision of our print strategy which involved the installation of energy-conserving multi-function print devices across the district as a first phase. In 2012 we plan to continue efforts by implementing a strategy to reduce both the number of stand-alone print devices in the district and the number of pages used for printing.



reducing emissions

While upgrades to mechanical equipment and appropriate management of the scheduling of that equipment are important in order to reduce greenhouse gas emissions and energy consumption, achieving deep and lasting reductions also requires engaging the end users of these systems: occupants of buildings, drivers of fleet vehicles, consumers of paper and supplies. In this regard, the Richmond School District has been working to engage and support students, teachers, support staff and administrators in becoming better environmental stewards. School-based green teams continue to expand their scope of sustainability initiatives, working on a variety of projects including school gardens, walk to school programs, anti-idling campaigns, energy conservation campaigns, composting, recycling, litter-free lunches and more. Green Teams were supported through three Green Team Training workshops where sixteen different green teams were provided with opportunities to enhance their environmental leadership skills. Our Richmond Sustainability Action Team and Eco-Wise Cafés continued to meet regularly to enhance the implementation of our environmental stewardship policy.



reducing emissions

In 2011 the district expanded the Eco-Wise Assessment tool to include all eight of the districts environmental stewardship focus areas. The tool allows schools to explore a variety of ways to promote awareness and behavioural change for environmental sustainability. School green teams can log-in to the tool to record progress in multiple areas and will receive an Eco-Wise Star rating based on their actions. The revised Eco-Wise assessment tool incorporates applicable actions from the Carbon Neutral Action Report into Eco-Wise in order to allow us to better collect and measure our actions at the individual school/site level that contribute to greenhouse gas reduction.

plans to continue reducing greenhouse gas emissions 2012-2014



In the next year we plan to continue the roll-out of the revised Environmental Stewardship policy, including the guidelines in the areas of Curriculum, Energy Conservation, Gardening and Greening, Leadership, Sustainable Purchasing, Sustainable Transportation, Waste Management and Water Conservation. In 2012 we also plan to re-launch the expanded Eco-Wise web tool.

We plan to continue to focus on reducing GHG emissions primarily through energy conservation. Following our strategic plan, we hope to lower the energy intensity of our facilities by 25% over five years therefore reducing our energy cost, decreasing our reliance on fossil fuels and electricity, and lowering our carbon offset costs. We are in the process of developing an energy conservation project list which will result in achieving our conservation goals. We anticipate that these projects will initially focus more on low-cost and no-cost measures which include optimizing our building controls (conserving energy by ensuring that systems are turned off or set back when facilities are unoccupied) and on engaging building occupants in order to encourage energy conservation behaviours. As we decrease energy consumption, we will continue to build our Green Fund which will enable us to fund more capital-intensive energy conservation projects such as lighting and mechanical retrofits as well as fund other sustainability initiatives in the district.

We will also continue encouraging schools to support behavioural changes related to sustainability by linking curriculum to school district practice, ensuring that what we teach our students regarding mitigating climate change and minimizing our impact on the environment is reflected in our operational practices in the district.

School District No. 38 (Richmond) - 2011 Carbon Neutral Action Report

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 <i>Greenhouse Gas Reduction Targets Act</i> .							
Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	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	15	% of vehicles are fuel- efficient models	Four new small cargo vans were purchased in 2011 for use by tradespeople. All were more fuel efficient models.	Additional fuel efficient small cargo vans will be purchased to replace aging full-size cargo fans in fleet.	2009	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress	5	% of vehicles down-sized since start year indicated	Four new small cargo vans were purchased in 2011 for use by tradespeople. All were smaller models that previous full-size vans.	Additional fuel efficient small cargo vans will be purchased to replace aging full-size cargo fans in fleet.	2009	No End Date (Continuous)
Perform regular fleet maintenance specifically to improve fuel-efficiency	Ongoing/In Progress	100	% of vehicles are subject to regular maintenance for fuel efficiency	All fleet vehicles are subject to routine maintenance every 3 months or 5000km.	Continue to service vehicles on the 3month/5000km schedule.	Started before 1995	No End Date (Continuous)
Behaviour change program							
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	Ongoing/In Progress			Anti-idling policy in place. Anti-idling awareness regularly discussed at transportation staff departmental meetings.	Implement a program refresh. Ensure all schools have anti-idling signage.	2005	No End Date (Continuous)
Encourage carpooling in fleet vehicles	Ongoing/In Progress			Managers routinely carpool to meetings. Tradespersons carpool when possible (dependent on need for access to tools in vans).	Continue to encourage carpooling when ever possible.	Started before 1995	No End Date (Continuous)
Other Mobile Fuel Combustion Actions							
Group assign work orders to tradespersons to minimize travel	Ongoing/In Progress			Managers group work orders based on location and assign multiple work orders where possible to minimize the amount of travel required to/from the Works Yard.	The District will continue to explore ways of minimizing travel by tradespersons	Started before 1995	No End Date (Continuous)
Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)							
Planning/management							
Enrol in a building energy benchmarking program (e.g., GREEN UP)	Completed in 2011	100%	Buildings enrolled in GREEN UP program	All schools as well as Administration Building and Works Yard were enrolled in the CaGBC GREEN UP program in 2011. School energy intensity was measured and benchmarked against schools across Canada.		2009	2011
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	10	% of buildings have a real time metering system installed	Real-time metering for both electricity and natural gas and installed in 3 secondary schools through the BC Hydro Continuous Optimization program. Real-time metering installed in the newly constructed Brighthouse Elementary. Installed Pulse Energy EMIS (Energy Management Information System) for analysis and reporting of energy data.	Real-time metering & EMIS to be installed in the remaining 7 secondary schools through Phases 2 & 3 of the BC Hydro Continuous Optimization Program. Anticipate being able to leverage real-time metering capabilities of BC Hydro Smart Meters to gain more timely insight into energy consumption.	2010	2013
Owned buildings							
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress	0	% of owned buildings are certified LEED NC Gold or LEED NC Platinum	Two sites (Steveston-London Secondary addition and Brighthouse Elementary) have been build to LEED Gold standards and are in process of becoming LEED certified.	Per Ministry of Education requirements, new construction of schools will be designed and built to LEED Gold specifications	2008	No End Date (Continuous)

School District No. 38 (Richmond) - 2011 Carbon Neutral Action Report

Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
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	Integrated design process incorporated into planning for upcoming renovation of Administration Building	The District plans to continue to use an integrated design process with all new construction and major renovations.	2005	No End Date (Continuous)
Incorporate a refrigerant management strategy into regular building management/maintenance to reduce fugitive emissions	Ongoing/In Progress			Quarterly preventative maintenance performed on all chillers and rooftop AC units. If 10% or more of refrigerant is found to be lost, the contractor must perform a leak test.	Inventory all equipment using R22 refrigerant. Implement tracking of all refrigerant top-up usage.	2008	No End Date (Continuous)
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress	55	% of owned buildings have undergone energy retrofits since start year indicated	In 2011 energy retrofits were completed at 17 different sites. These retrofits included boiler upgrades, hot water on demand systems, lighting upgrades in portables, VFD placed on cooling tower.	Upgrade rooftop units at Quilchena & Maple Lane, upgrade lighting @McRoberts, eliminate fans for methane detection system @ Hamilton, Continuous Optimization program at 7 of 10 secondary schools	2009	No End Date (Continuous)
Retrofitting owned buildings							
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	18	% of retrofits since start year indicated had heating, cooling, and ventilation systems upgrades	Boilers were upgraded to high-efficiency condensing boilers at Ferris, Grauer & McKay. Installed heat recovery ventilation (HRV) in 4 classrooms to improve indoor air quality (IAQ) at Steves Elementary.	RTU upgrades planned for Quilchena & Maple Lane. IAQ improvements planned for Boyd Secondary & Ferris Elementary. Boiler upgrades planned for Garden City, Woodward, Gilmore, VFDs to be installed on geothermal pumps at Steveston-London Secondary.	2009	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	85	% of retrofits since start year indicated had lighting systems upgrades	Lighting upgrades from T12 to T8 fluorescent completed in portables at eleven sites. Ongoing conversion of exterior wall pack fixtures to CFL and conversion of CFL exit signs to LED. Exterior parking lot LED fixture being tested at Rideau Park.	Review feasibility of: re-lamping T8 32W to 25W; tie in night lights to alarm system to eliminate night lights in unoccupied facilities; LED for parking lot lighting; greater use of photo cells and occupancy sensors to control lighting.	2009	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	90	% of retrofits since start year indicated had control system upgrades or adjustments	Splukwuks, Lee, Blair, Ferris, Mitchell elementary schools had upgrades to DDC interface, operational control upgrades implemented at Burnett Secondary. VFD on cooling tower at Administration Building tied into DDC system.	Obsolete DDC to be upgraded at Hamilton, Anderson & Richmond Secondary, Burnett Secondary. DDC systems to be enhanced with greater control at DeBeck, Homma, Maple Lane, Quilchena	2009	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	In Development	10	% of retrofits since start year indicated had insulation improvements	Insulation was added when substantial portions of roofs were re-roofed at: Westwind, Bridge, Maple Lane & Mitchell elementary schools. Exterior cladding upgrades were completed to part of the buildings at Garden City and Kingswood elementary schools.	Boyd secondary will have atrium insulation upgraded in 2012. Insulation to be added to room D148 at Cambie Secondary. Roofing upgrades planned for McRoberts Secondary, Steveston-London Secondary, and Ferris, McKay & Bridge elementary schools. Window upgrades being considered at Dixon elementary.	2009	No End Date (Continuous)
Install an on-site renewable energy demonstration project	Completed in 2011	0	% of retrofits since start year indicated had on-site renewable energy components	3.3 kW Photovoltaic (PV) Solar array installed at McNair Secondary School Solar Thermal (hot water) installed at the new Brighthouse Elementary		2011	2011
IT power management							
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress	85	% of computers shut down automatically outside of regular business hours	Maintained in-house software power management solution enabled at the device level.	Review feasibility (including a pilot) of district-wide power management software which would enable power management to be deployed on 100% of computers	2009	2012
Implement server virtualization	Ongoing/In Progress	80	% of servers have been virtualized since start year indicated	Virtualized security (key scan) server.	Review virtualization of EBI server. Assess feasibility of virtualization of school servers.	2009	2013

School District No. 38 (Richmond) - 2011 Carbon Neutral Action Report

Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	In Development	0	% reduction in printers, copiers, and/or fax machines since start year indicated	Installed approximately 60 upgraded, more energy efficient multi-function devices. Completed Ricoh's "Docutivity" print asset inventory and identified stand-alone printers that could be eliminated	Review Docutivity recommendations and determine implementation plan.	2011	2014
Appliances and electronic devices							
Replace refrigerators with ENERGY STAR models or source ENERGY STAR models for future purchases	Ongoing/In Progress	55	% of fridges are ENERGY STAR rated	All new refrigerators purchased in 2011 (as well as for the preceding 6 years) were ENERGY STAR rated. Received energy incentives from BC Hydro for replacement of two commercial refrigerators with energy efficient models.	Continue practice of purchasing only ENERGY STAR rated refrigerators.	2005	No End Date (Continuous)
Replace other appliances or electronic devices with ENERGY STAR models or source ENERGY STAR models for future purchases	Ongoing/In Progress			Developed Sustainable Purchasing Guidelines which stipulate that energy efficiency should be considered when making new purchases including identifying whether an item is ENERGY STAR® certified and/or whether it will help decrease energy costs. Appliances and electronic devices purchased centrally through the Purchasing department are reviewed for energy consumption and ENERGY STAR® rating.	Continue practice of purchasing ENERGY STAR rated appliances and electronic devices.	2010	No End Date (Continuous)
Behaviour change program							
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress	100%	Staff informed	Included in Energy Conservation Guidelines that were developed and published in 2011. Included as a measure in Eco-Wise Assessment Tool. Routinely emphasized when energy conservation is discussed. Included as part of winter break procedures.	Continue to emphasis this as an energy conservation measure. Have sites self-assess whether they are undertaking this measure using the Eco-Wise Assessment Tool	2008	No End Date (Continuous)
Ask staff to close blinds at end of work day to reduce heating/cooling demands	Ongoing/In Progress	100%	Staff informed	Included in Energy Conservation Guidelines that were developed and published in 2011. Included as a measure in Eco-Wise Assessment Tool. Routinely emphasized when energy conservation is discussed. Included as part of winter break procedures and custodial procedures.	Continue to emphasis this as an energy conservation measure. Have sites self-assess whether they are undertaking this measure using the Eco-Wise Assessment Tool	2008	No End Date (Continuous)
Encourage staff to use air dry setting on dishwashers	Completed in 2011			Included in Energy Conservation Guidelines that were developed and published in 2011. Included as a measure in Eco-Wise Assessment Tool.		2008	2011
Encourage use of stairs instead of elevators	Ongoing/In Progress			Only the administration building has regularly used elevators. Staff have been encouraged to take the stairs for health and energy conservation reasons. Signs are posted at elevator doors and inside elevators encouraging use of the stairs.	Continue to encourage use of elevator.	2008	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress			"Lights Out" reminders provided via internal communications as part of Power Smart month. Several schools hold 'lights out' campaigns, often including student-made signs/posters. Included in Energy Conservation Guidelines that were developed and published in 2011. Included as a measure in Eco-Wise Assessment Tool. Routinely emphasized when energy conservation is discussed. Included as part of winter break procedures.	Sourced a district standard for 'lights out' reminder stickers.	Started before 1995	No End Date (Continuous)
Other Stationary Fuel Combustion, Electricity, and Fugitive Emissions Actions							
Coil Cleaning	Ongoing/In Progress			Cleaned heating/cooling coils at three Secondary Schools (McMath, Richmond, Steveston-London)	Continue to clean coils as required	2008	No End Date (Continuous)

School District No. 38 (Richmond) - 2011 Carbon Neutral Action Report

Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Faucet Aerators	Ongoing/In Progress			Faucet aerators added to all faucets at Quilchena, Maple Lane, McNair in order to conserve hot water.	Continue to add faucet aerators where they aren't yet installed. Considering implementation of low-flow spray valve for commercial kitchens.	2011	2013
Winter shut-down program	Completed in 2011			Reminder sent to all staff before Winter Break suggesting energy conservation measures that should be taken prior to the two-week winter break. DDC technicians modified building schedules to implement energy savings set-backs during closure periods.		2011	2011
Energy Conservation training for Building Service Workers	Completed in 2011			Delivered energy conservation workshop for Building Service Workers (BSWs). During the workshop, solicited input from BSWs as to how they could impact energy conservation in schools.		2011	2011
Energy Audits & Investigations	Completed in 2011			Conducted energy audits or energy walkthroughs in six facilities to identify potential energy conservation measures.		2011	2011
Supplies (Paper)							
Paper Type							
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	89	% of total paper purchased contains 30% recycled content	Put procedure in place that all 8 1/2 x 11 standard copy paper must contain at least 30% recycled content. Increased from 17% of paper purchased in 2010 containing 30% post-consumer recycled paper content to 89% of purchases in 2011.	Continue to purchase standard paper with 30% recycled content	2000	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Ongoing/In Progress	2	% of total paper purchased contains 100% recycled content	Purchased some 8.5 x 11 paper with 100% recycled content. Evaluating paper from supplier that has 100% recycled content.	Continue to evaluate paper with 100% recycled content and purchase where possible.	2011	No End Date (Continuous)
Printer/document settings							
Switch networked printers and photocopiers to automatic double-sided	Completed in 2011	80	% of network printers or photocopiers are set to automatic double-sided	When new MFDs were installed in the district, updated default driver settings to double-sided on 80% of units. This is a significant increase in double-sided printing given that only 10% of devices were set to default double-sided in 2010.	Prepare and distributed communication highlighting benefits of double-sided printing with instructions on how to print an individual document as single-sided if required.	2010	2011
Electronic media in place of paper							
Use electronic document library for filing common documents	Ongoing/In Progress			First Class is used to house common/shared documents such as policies.	Establish common filing structure and document naming convention. Review document management software.	2008	No End Date (Continuous)
Post materials online that were previously printed	Ongoing/In Progress			Completed a redesign of District website in 2011 and made more documents available to the public online. Continue to use First Class conferences for electronic posting of minutes of meetings. Each school has a school website and schools are increasingly using electronic distribution for School Newsletters. Catalogues and information sheets moving to more electronic.	Continue to move to paperless options where possible.	2008	No End Date (Continuous)
Behaviour change program							
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Ongoing/In Progress			Several departments have implemented paperless meetings. All schools have projectors and use of Smart Boards is increasing. The newly constructed Brighthouse Elementary has Smart Boards in every classroom. Paper conservation included in Waste Reduction Guidelines.	Continue to enable paperless meetings through increased access to technology (Smart Boards, projectors, iPads). Set paper reduction targets. Measure and share paper consumption/student metrics. Utilize Eco-Wise Assessment Tool to encourage paper conservation activities and track progress on paper conservation actions.	2008	No End Date (Continuous)

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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Encourage re-use of scrap paper	Ongoing/In Progress			Included as a recommendation in Waste Reduction Guidelines and in Eco-Wise assessment tool. Many classrooms, particularly in elementary schools, have 'good one side' paper bins to encourage re-use of scrap paper.	Continue to encourage re-use of scrap paper. Communicate additional sources of 'good one side' paper materials (e.g. Poster board and scrap art paper from art rooms).	2008	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 <i>Greenhouse Gas Reduction Targets Act</i> . 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 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Business Travel							
Behaviour change program							
Train staff in web-conferencing	Ongoing/In Progress	10	% of staff are trained web-conferencing	Majority of web conferencing training has been delivered to teaching staff.	Continue to offer training on an ongoing basis.	2005	No End Date (Continuous)
Encourage carpooling to meetings	Ongoing/In Progress			Staff regularly carpool to offsite meetings. School buses are often arranged when there are a large number of attendees at an event/meeting.	Continue to encourage carpooling.	Started before 1995	No End Date (Continuous)
Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)	Ongoing/In Progress			Use of skytrain is encouraged for meetings in Vancouver. When planning large staff or student conferences information on alternate transportation (e.g. bus routes) is provided.	Continue to encourage alternate transportation.	2005	No End Date (Continuous)
Education, Awareness, and Engagement							
Team-building							
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	Ongoing/In Progress	60%	% of sites have Green Teams	Established long-term goal of having Green Teams at every site. Developed Leadership Guidelines which document effective practices for establishing and maintaining a Green Team. Updated Leadership actions in Eco-Wise Assessment tool for sites to self-assess Leadership action. Green Teams are endorsed by executive. Green Teams were actively engaged in sustainability actions throughout 2011 including school gardens, composting, energy conservation, anti-idling campaigns etc.	Continue to support Green Team development, including district support sites (Administration building, Works Yard, Technology Services Centre)	1998	No End Date (Continuous)
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress	4	Employees with direct responsibility for Sustainability included in their portfolio	Sustainability (Environmental Stewardship) included in portfolio of member of the Executive. Teacher Consultant for Science and Sustainability provides dedicated support to teaching staff to assist in incorporating sustainability into curriculum and also supports sustainability-related extra-curricular activities (Green Teams, sustainability networks, school gardens etc.). \$7000 budget (teacher release time) was allocated toward further development of Environmental Stewardship curriculum	Assess staffing requirements to meet targets in 5-year Sustainability Action Plan and advocate for additional staffing resources to support achievement of sustainability goals where applicable.	1998	No End Date (Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	Ongoing/In Progress			Delivered three Green Team Training 1/2 day workshops to school-based Green Teams (comprised of teachers, administrators, students and support staff). Developed workshop content for subsequent workshops	Deliver additional Green Team Training workshops. Expand workshop selection to include Green Teams 101 (for new green teams) and Green Teams 201 (for Green Teams who have attended 101 training).	2004	No End Date (Continuous)
Awards/Recognition							
Establish a sustainability/green awards or recognition program	Ongoing/In Progress			Green Gala recognizes schools/students who have completed Environmental Stewardship projects during the year. Some schools have Environmental Stewardship service awards for students. "Eco-Wise Energy Star" schools recognized via written communication.	Re-vitalize Eco-Wise Star rewards program. Continue to encourage schools to include an Environmental Stewardship award in their school's service awards by developing criteria by which such an award might be assessed.	2009	No End Date (Continuous)

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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Staff Professional Development							
Support green professional development (e.g., workshops, conferences, training)	Ongoing/In Progress			Several staff attended 'green' conferences (BC Hydro Power Smart Forum, Metro Vancouver Zero Waste Challenge, Honeywell Users Group etc.). Environmental stewardship professional development was provided through monthly Eco-Wise (Sustainability) Cafés and multiple specialized Pro D offerings (e.g. BC Hydro School Programs, Metro Vancouver's Get Outdoors workshop etc.). The District-Wide Pro-D Conference in February 2011 offered eighteen sustainability-related workshops. The CUPE Pro-D in October 2011 had Sustainability as the core theme, with a keynote focussed on waste reduction and multiple sustainability-related workshops.	Continue to offer Environmental Stewardship professional development opportunities. Develop a gardening study group, offer 'Think and Eat Green' workshops via UBC, attend workshop/tour of UBC's Centre for Interactive Research on Sustainability, offer BC Hydro school programs such as Energy Ambassadors and Energy Detectives.	1998	No End Date (Continuous)
Staff awareness/education							
Provide education to staff about the science of climate change	Ongoing/In Progress			Green Team Training included component on climate science. Other climate change related information is primarily provided via the Environmental Stewardship website.	Develop additional channels for sharing climate change science information to staff	2008	No End Date (Continuous)
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress			Guidelines of Effective Practice developed and published include the focus areas of Energy Conservation, Water Conservation, Waste Reduction, Sustainable Transportation and Sustainable Purchasing	Develop and deliver monthly campaigns to share conservation information and reinforce conservation behaviours	1998	No End Date (Continuous)
Provide green tips on staff website or in newsletters	Ongoing/In Progress			Green tips are provided through the District's Environmental Stewardship website, communications via internal conferences and through school newsletters.	Update Environmental Stewardship website more frequently and develop plan to market the website as a go-to source for information. Develop a dedicated spot on the website for green tips.	2008	No End Date (Continuous)
Client/public awareness/education							
Provide education to clients/public about the science of climate change	Ongoing/In Progress			Primarily provided through the Environmental Stewardship website	Offer climate-related sessions at the student-led Richmond Earth Day Youth (REaDY) Summit. Include climate-related information on public energy displays at McNair Secondary and Brighthouse Elementary. Continue to foster relationships with climate action organizations such as the David Suzuki Foundation.	2008	No End Date (Continuous)
Provide education to clients/public about the conservation of water, energy, and raw materials	Ongoing/In Progress			In partnership with the City of Richmond, the District has 150 Green Ambassadors who are Secondary students who attend public and school events sharing sustainability information. 'Green Living' workshops are co-presented with the City of Richmond. Parents and the public are encouraged to attend ongoing Eco-Wise Cafes. Each monthly Café has a different environmental stewardship theme. Conservation information is also provided to the public via the website.	Continue partnership with the City of Richmond to develop Green Ambassadors and other programs that present opportunities to reach out to the public. Provide learning opportunities for the public through the Richmond Earth Day Youth (REaDY) Summit.	2008	No End Date (Continuous)
Provide green tips on client/public website or in newsletters	Ongoing/In Progress			Green tips are provided through the District's Environmental Stewardship website, and occasionally through school newsletters.	Update Environmental Stewardship website more frequently and develop plan to market the website as a go-to source for information. Develop a dedicated spot on the website for green tips.	2008	No End Date (Continuous)
Other Education, Awareness, and Engagement Actions							

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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Eco-Wise Cafés	Completed in 2011			Ongoing monthly Cafés open to students, teachers, administrators, support staff, parents and the public. Each Café has a different focus, providing for opportunities to learn about different 'green' topics and to network with others who share similar interests.	Continue to hold monthly Eco-Wise Cafés	2010	2011
Eco-Wise Assessment Tool	Ongoing/In Progress			Re-develop tool for schools/sites to self-assess progress in the eight environmental stewardship areas of focus.	Re-launch Eco-Wise assessment tool. Set targets for usage of the tool.	2009	No End Date (Continuous)
Eco-Wise brand and logo	Ongoing/In Progress			Crafted 'Eco-Wise SD38 Richmond' as the brand to be associated with everything related to environmental stewardship in the district. Developed Eco-Wise logo.	Officially launch Eco-Wise brand within the District	2011	2012
Eco-Wise Networks	Ongoing/In Progress			Developed networks for Energy Conservation, Gardening & Greening and Waste Reduction. Network meetings are held quarterly and connect individuals across the district in order to share challenges and successes and learn more about potential actions	Continue to publicize Eco-Wise networks. Track and increase participation rates.	2011	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	Ongoing/In Progress			Installed faucet aerators on faucets to reduce domestic water use at three schools. Began process of installing water meters at a number of elementary schools. Developed Water Conservation Guidelines which include recommendations for water conservation at the school/site and district level.	Continue with installation of water meters. Begin to monitor and track water use at metered sites. Continue to install low-flow faucet aerators where not currently in place.	2000	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	Ongoing/In Progress			Water Conservation Guidelines developed. Some schools use rain barrels to reduce need to use potable water for watering of school gardens.	Plans to replace once-through water-cooled air conditioning unit at Administration Building with a split ductless AC system.	2010	2013
Introduce a storm water management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales)	Ongoing/In Progress			At our newest school, Brighthouse Elementary, storm water management was achieved through the use of site grading that directs run off into series of constructed wetlands, which helps to keep the playing fields dry in the winter and creates a natural habitat that attract native wildlife, such as blackbirds.	Continue to pursue environmentally friendly storm water management for future construction projects	2009	No End Date (Continuous)
Waste reduction/diversion							
Put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities	Ongoing/In Progress	50	% of sites that have some form of composting/diversion of food waste	Waste Management Guidelines of effective practice developed. Composting Action Team formed to develop district-wide guidelines for composting in schools and a district-wide process for diverting food waste from the garbage stream at all district sites. A number of schools perform garbage audits to assess what items are placed in garbage that could be recycled/composted.	Complete and publish Guidelines for Composting in Schools. Pilot process for food waste collection in schools. Set targets for diversion rates and establish processes to measure and monitor.	2009	No End Date (Continuous)
Procurement (non-paper supplies)							
Incorporate minimum recycled content standards into procurement policy for consumable, non-paper supplies (e.g., writing instruments, binders, toner cartridges, etc.)	Ongoing/In Progress			Sustainable Purchasing Guidelines developed as part of revised Environmental Stewardship Policy. Procedure for recycling of toner cartridges rolled out district-wide.	Continue to review consumable purchases for opportunities to incorporate recycled content	2000	No End Date (Continuous)

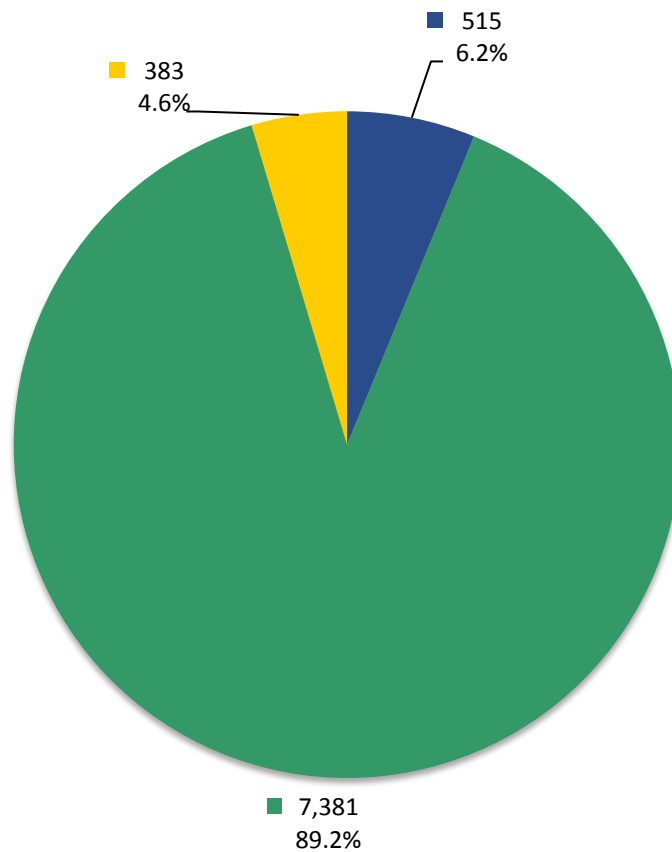
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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Establish green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.)	Ongoing/In Progress			Sustainable Purchasing Guidelines developed as part of revised Environmental Stewardship Policy.	Continue to evaluate purchases based on triple bottom line assessment criteria	2010	No End Date (Continuous)
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Ongoing/In Progress			Garbage bags are 100% biodegradable. Paper towels and toilet paper are 100% with up to 83% PCW content. Two secondary schools and one elementary school use "ecologo" certified line of cleaning chemicals which are manufactured in the Lower Mainland. Floor wax is used sparingly and when gym floors are replaced a material that does not require future waxing is used for the new floor.	When current contract for cleaning supplies expires review feasibility of moving to greater use of 'ecologo' cleaning products.	2008	No End Date (Continuous)
Building construction, renovation, and leasing							
Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities	Completed in 2011			Waste Management Guidelines of effective practice developed as part of revised Environmental Stewardship Policy. Brighthouse Elementary new construction project had target of minimum 70% of diversion of demolition waste and construction debris from landfill. Material from the demolished school was salvaged and reused where possible. The concrete floors from the old school, for example, was broken into slabs and used as pedestrian paths throughout the school yard.	Establish targets for diversion of construction waste and demolition debris.	2008	2011
Incorporate lifecycle costing into new construction or renovations	Ongoing/In Progress	50	% of business cases incorporating lifecycle costing since start year indicated	A Long Range Facilities Plan is underway which incorporates lifecycle costing. Life-cycle costing is a requirement of achieving LEED for new construction.	Continue to incorporate life-cycle costing into building construction and renovation projects.	2009	No End Date (Continuous)
Indoor air quality							
Incorporate low volatile organic compounds (VOCs) standards into procurement policy for products such as paints, carpets, and furniture	Completed in 2011			Sourcing low VOC products incorporated into Sustainable Purchasing Guidelines developed as part of revised Environmental Stewardship Policy. All new construction projects are built to LEED Gold standards and will utilize low VOC compounds.	Incorporate into Purchasing Policy	2005	2011
Commuting to and from home							
Encourage commuting by foot, bicycle, carpool or public transit	Ongoing/In Progress			Sustainable Transportation Guidelines developed as part of revised Environmental Stewardship Policy. Many schools have Walk to School programs (e.g. Walking Wednesdays). Some schools have a 'Walking School Bus' where parents monitor intersections to allow children to walk to school safely in a group. For staff a carpool conference is maintained so that staff can post ride share requests. Staff are encouraged to use the Canada Line to commute to meetings/conferences in Vancouver.	Promote use of Rideshare Conference. Encourage alternative transportation for commuting through targeted campaign.	2008	No End Date (Continuous)
Provide secure bicycle storage	Ongoing/In Progress			Included in Sustainable Transportation Guidelines. Secure bicycle storage available at some district facilities. Bike racks provided at schools.	Assess sites where further bicycle storage may be necessary.	2000	No End Date (Continuous)
Other Sustainability Actions							

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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Revised Environmental Stewardship Policy	Ongoing/In Progress			Board approved revision of Policy 602.14.1 Environmental Stewardship, including Regulations and Guidelines in eight focus areas (Curriculum, Energy Conservation, Gardening and Greening, Leadership, Sustainable Purchasing, Sustainable Transportation, Water Conservation and Waste Management)	Complete roll-out of revised policy district-wide. Establish measureable targets in each of the eight focus areas. Develop strategic five year plan to achieve targets.	2010	2012

**School District 38 - Richmond
Greenhouse Gas Emissions by Source
for the 2011 Calendar Year (tCO₂e*)**



Total Emissions: 8,280

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion (Building Heating and Generators) and Electricity
- Supplies (Paper)

Offsets Applied to Become Carbon Neutral in 2011 (Generated May 18, 2012 12:07 PM)

Total offsets required: **8,017**. Total offset investment: **\$200,425**. Emissions which do not require offsets: **263** **

*Tonnes of carbon dioxide equivalent (tCO₂e) is a standard unit of measure in which all types of greenhouse gases are expressed based on their global warming potential relative to carbon dioxide.

** Under the *Carbon Neutral Government Regulation of the Greenhouse Gas Reduction Targets Act*, all emissions from the sources listed above must be reported. As outlined in the regulation, some emissions do not require offsets.