

Carbon Neutral Action Report – *Overview for 2014*

This is the 2014 Carbon Neutral Action Report (CNAR) for School District #38 (Richmond). This report contains our 2014 emissions profile, offsets purchased, the actions we have taken in 2014 to reduce our greenhouse gas (GHG) emissions and our plans to continue reducing emissions in 2015 and beyond.

By June 30, 2015, the Richmond School District's final CNAR will be posted to our website at www.sd38.bc.ca.

EXECUTIVE SUMMARY

On behalf of the Board of Education, School District 38 (Richmond), I am pleased to submit our Carbon Neutral Action Report for 2014. Now in our fifth year of being carbon neutral, energy savings and greenhouse gas emission reductions continue to be a priority in our ongoing commitment towards carbon neutrality. We continue to work diligently, as we have for many years now, to reduce our greenhouse gas emissions while improving the learning environment for students and staff.

In 2014 our greenhouse gas (GHG) reduction initiatives continued to focus primarily on reducing emissions from our largest emissions source: our buildings. The Richmond School District has a robust energy management program with aggressive targets and a forward-looking plan to reduce energy consumed in our buildings. In 2014 we set a target to reduce our natural gas consumption by 5% and our electricity consumption by 3% (despite experiencing electrical load growth) and both of these targets were exceeded.

As part of our 2014 energy conservation program we undertook several projects that have large energy and carbon reduction benefits. We leveraged funding from the Carbon Neutral Capital Program to replace the boilers at Burnett Secondary with high efficiency condensing boilers. We also completed four additional boiler replacements and one furnace replacement at Westwind, Thompson, Blair, Cook, and Dixon schools respectively. An efficient domestic hot water heating system was installed at MacNeill (replacing an old system), and two Building Automation System updates were conducted, these being at Talmey Elementary and the Works Yard building.

We continued to realize significant electricity and natural gas savings through the next phase of the Continuous Operations program. In 2014 we also took measures to reduce our emissions from fleet with the purchase three electric vehicles, adding to the fleet of four purchased in 2013 and bringing the total electric fleet to seven. The three least fuel efficient vans were retired and this resulted in GHG reduction of 2.7% for the maintenance fleet vehicles.

The integration of environmentally sustainable considerations in all of our business decisions is guided by our Board approved Environmental Stewardship Policy. The Richmond School District continues to develop and enhance its focus on sustainability and Environmental Stewardship which is one of our four Developmental Objectives. Our commitment to sustainability is underpinned by five principles: collaboration, continuous

improvement, commitment to the triple bottom line, leadership and learning for all. We continue to create and support the necessary structures for an integrated, system-wide approach to environmental sustainability through the work of the Richmond Sustainability Action Team (RSAT) and the Richmond Sustainability Action Committee (RSAC), comprised of representatives from all stakeholder groups. Through the actions of our site-based Green Teams, we are making great strides. We will continue our efforts in educational programs for sustainability to give our students and staff a better understanding of the necessary practices in our operations and facilities for a better and a more sustainable future.



Dr. Monica Pamer
Superintendent of Schools

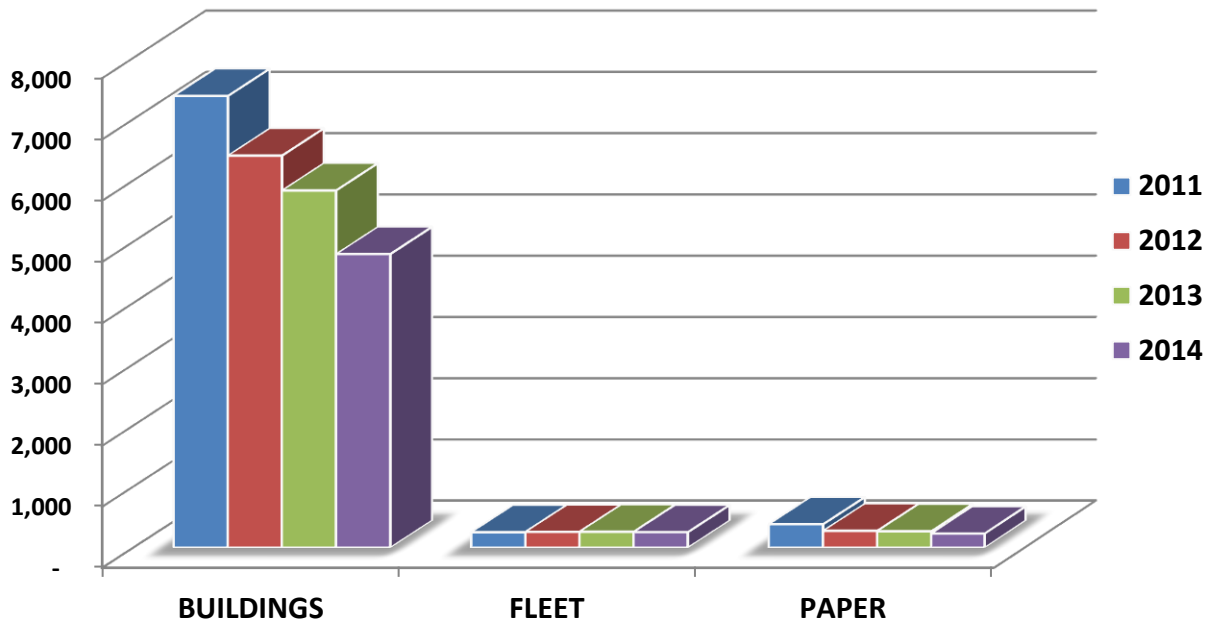
2014 GREENHOUSE GAS EMISSIONS

The Richmond School District has calculated our 2014 carbon footprint, in accordance with the Greenhouse Gas Reduction Targets Act, to be 5530 tonnes of CO₂ equivalent.

Emission Source	GHG Emissions (tonnes of CO ₂ equivalent)	2014 Results Compared with 2013
Buildings	4834	17.2% Decrease
Fleet	464	10.3% Decrease
Paper	230	14.2% Decrease
Total	5530	16.5% Decrease

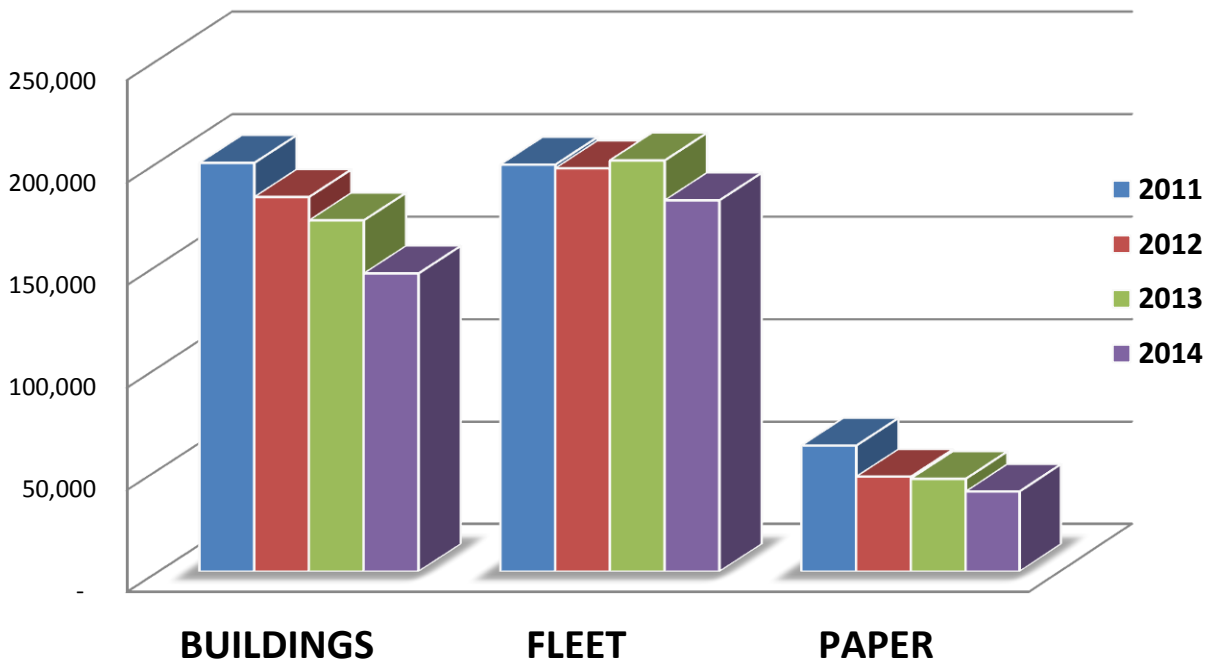
In 2014 we achieved a reduction of 1,094 tonnes of CO₂ equivalent over our 2013 emissions (this compares with 684 tCO₂e reduction from 2012 to 2013). The graphs below show the district's emissions and quantities by source over the past four years.

SD38 - GHGs By Source (tCO2e/yr)



SD38 - QTY by Source

GJ/yr - Buildings; Litres/yr - Fleet; Packs/yr - Paper



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 87.47% (similar to the 2013 value of 88.14%).

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 8.39% of the district's overall emissions (compared with 7.81% in 2013).

Supplies

Emissions categorized as supplies are indirect emissions originating from the district's use of office paper and account for 4.14% of the district's overall GHG emissions (similar to the 2013 value of 4.05%).

Fugitive Emissions

As outlined in the Carbon Neutral Government Regulation of the Greenhouse Gas Reductions Targets Act, some emissions are 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

It was estimated that in-scope fugitive emissions (HFCs released to the environment from leaks in cooling equipment) do not comprise more than 0.1% of the Richmond School District's total emissions and an ongoing effort to collect or estimate emissions from this source would be disproportionately onerous. For this reason, emissions from this source have been deemed out-of-scope and have not been included in our total greenhouse gas emissions profile.

EMISSIONS REDUCTION ACTIVITIES

Through our 'Eco-Wise' program we continue to work towards embedding environmental stewardship in the day-to-day operations of the district and incorporating Environmental Stewardship into the school curriculum and into the delivery of each employee's core mandates. Our sustainability plan covers eight focus areas: Curriculum Development, Energy Conservation, Grounds Greening, Leadership, Sustainable Purchasing, Sustainable Transportation, Waste Management, and Water Conservation. With the assistance of the Richmond Sustainability Action Committee, comprised of representatives from all stakeholder groups, in 2014 we continued to work towards our long-term sustainability vision by developing and implementing our short-term objectives for each of the eight focus areas. We also began implementing the short term objectives in 2014 resulting in some considerable achievements:

- Purchased a total of three electric vehicles in 2014 and removed the three least fuel efficient trades' vans from the fleet.
- Implemented a district-wide organics collection in our schools and administrative buildings. By the end of 2014 organic waste was being separated and diverted from the landfill to become 'class A' compost in the majority of our facilities.
- Completed 9 new school grounds greening projects creating outdoor learning spaces, including 43 new raised garden beds at schools.
- Installed 22 new water bottle filling stations to reduce the amount of waste generated by single-use disposable water bottles.
- Shared internal benchmarked energy, paper purchase, and water consumption data, engaging staff to reduce their carbon and water footprint.
- Started a district-wide energy conservation awareness program that supported both staff and students in implementing behavior change campaigns to target energy conservation.

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 presents the greatest opportunity for both GHG reductions and financial savings given that the largest proportion of the district's greenhouse gas emissions is from energy use in buildings. Thus, the largest proportion of our GHG reduction initiatives is focussed on energy conservation within our schools and administrative facilities. In 2014 we reduced our electricity consumption by 11.81% and our natural gas consumption by 10.2% (weather normalized). These savings, resulted in an overall reduction of 17.2% in the greenhouse gas emissions from our buildings. These reductions were achieved through a combination of retrofits and equipment renewal, operational changes to ensure energy is being used only when and where it is needed, and through behavioural changes made by our building occupants.

PLANS TO CONTINUE REDUCING GREENHOUSE GAS EMISSIONS

We are continuing with the District's comprehensive energy conservation program and have a number of energy efficiency projects slated for 2015/16 including:

- Boiler replacements to high efficiency condensing boilers at three schools
- The purchase of three electric vehicles for the maintenance fleet
- Energy and lighting studies for three schools
- Replacement of domestic hot water boiler system with on-demand hot water system at one Secondary school
- Implementation of identified energy conservation measures through the Continuous Optimization program at three sites
- Upgrade parking lot lighting to energy efficient lighting at 6 schools
- Interior lighting upgrade at two schools
- Continue to tie in corridor lighting to alarm panel so that all interior lighting can be automatically turned off when building security system is armed

ACHIEVING CARBON NEUTRALITY

In 2014 we were carbon neutral with respect to our operations for the fifth year in a row. We achieved this through our commitment to reducing energy consumption in our buildings, paper consumption, fleet travel emissions, and by purchasing offsets for the remaining emissions.

In order to become carbon neutral for 2014, the Board of Education of School District 38 (Richmond) purchased carbon offsets from the Pacific Carbon Trust for 5323 tonnes of CO₂e.

As required by section 5 of the Carbon Neutral Government Regulation, 211 tonnes CO₂e of emissions resulting from the operation of school buses were reported as part of our greenhouse gas emissions profile in 2014. 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.

Emissions and Offsets Summary:

Please fill in this emissions summary table. The final values for this table will be available on your SMARTTool Home page by May 15, 2015 and on the Offsets Invoice you will receive May 15, 2015.

School District #38 (Richmond) GHG Emissions and Offsets for 2014 (TCO2E)	
GHG Emissions created in calendar year 2014 (from SMARTTool Homepage)	
Total Emissions	5530
Total Emissions for Offsets	5320
Adjustments to GHG Emissions Reported in Previous Years (from SMARTTool Homepage)	
Total Emissions	-3
Total Emissions for Offsets	5323
Credit owing from PCT at end of 2013 reporting year (if applicable – from May 15 Invoice):	
Credit Owing	\$133,075
Total Emissions for Offsets for the 2014 Reporting Year (from Offset Invoice):	



May 27, 2015

Signature

Date

Name (please print)

Title

2014 Carbon Neutral Action Report (CNAR)

- Part 2 ACTIONS

Organization Name

School District #38 (Richmond)

Actions Taken to Reduce Emissions

1) Stationary Fuel Combustion, Electricity (Buildings): Indicate which actions were taken in 2014:

Performed energy retrofits on existing buildings

Yes

Built or are building new LEED Gold or other "Green" buildings.

No

Undertook an evaluation of overall building energy use.

Yes

Please list any other actions taken to reduce emissions from Buildings:

Operational measures to reduce the amount of time that energy-using systems in buildings are running when not occupied.

Behavioural measures to engage building occupants to actively take part in the reduction of energy waste in our buildings such as the BC Hydro Workplace Conservation Awareness program, Holiday Shut-downs, Sweater day, training session for building service workers, presentations to employees and students at the Eco-Wise Sustainability Kick-Off, schools, and management meetings.

2) Mobile Fleet Combustion (Fleet and other vehicles):Indicate which actions were taken in 2014:

Do you have a fleet?

Yes

Replaced existing vehicles with more fuel efficient vehicles (gas/diesel)

Yes

Replaced existing vehicles with hybrid or electric vehicles

Yes

Reduced the overall number of fleet vehicles

No

Took steps to drive less than last year

No

Please list any other actions taken to reduce emission from fleet:

We have a no idling policy that helps reduce emissions from fleet.

3) Supplies (Paper):Indicate which actions were taken in 2014:

Used less paper than previous year

Yes

Used only 100% recycled paper

No

Used some recycled paper

Yes

Used alternate source paper (Bamboo, hemp, etc.)

No

Please list any other actions taken to reduce emissions from paper use:

Shared benchmarking paper data (packages purchased/student/school) with all schools.

Worked with print fleet manager to ensure that MFDs were default to double-sided print.

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Actions Taken to Reduce Emissions - continued

Explain how you plan to continue minimizing emissions in 2015 and future years:

We continue to look for ways to further reduce our greenhouse gas emissions from all three sources: buildings, fleet, and paper. With buildings accounting for the majority of our emissions, we will continue to complete energy retrofit projects such as boiler upgrades, separating the domestic hot water (DHW) system from the space heating system, installing on-demand DHW systems and upgrading lighting systems to more efficient systems (such as HID to LED). We will also continue to refine how we operate our buildings with upgrades to building automation systems, better scheduling during closed and/or largely unoccupied periods and programs such as Continuous Optimization. We will also continue to engage our building occupants in conservation initiatives, educating students and teachers on the importance of conservation. For our fleet, we continue to upgrade our fleet with more fuel efficient vehicles, including electric vehicles. We will continue to share benchmarking data for paper and promote paperless communication between employees.

If you wish to list any other "sustainability actions" outside of buildings, fleet, paper and travel check "yes". This reporting is optional.

Yes

Actions to Promote Sustainability and Conservation - OptionalThe following are actions that fall outside the scope of the Carbon Neutral Government Regulation, but which many organizations still undertake and may wish to report on. This section is optional for reporting.

Business TravelCreated a low-carbon travel policy or travel reduction goal (Low-carbon: Lowest emission of greenhouse gases per kilometre per passenger)

No

Virtual Meeting TechnologyInstalled web-conferencing software (e.g., Live Meeting, Elluminate, etc.)

Yes

Made desktop web-cameras available to staff

Yes

Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)

Yes

Encourage carpooling to meetings

Yes

Education and AwarenessHave created Green, Sustainability, Energy Conservation, or Climate Action Teams.

Yes

Provided resources and/or dedicated staff to support these teams

Yes

Provided behaviour change education/training for these teams (e.g., community-based social marketing)

Yes

Established a sustainability/green awards or recognition program

Yes

Support green professional development (e.g., workshops, conferences, training)

Yes

Planning for Climate Change Have assessed whether extreme weather events and/or long term changes in climate will affect our organization's business areas

No

Long term changes in climate have been incorporated into our organization's decision making.

No

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Actions to Promote Sustainability and Conservation - Optional (continued)

Staff Awareness and Education Provided education to staff about the science of climate change

No

Provided education to staff about the conservation of water, energy, and raw materials

Yes

Provided green tips on staff website or in newsletters

No

Alternate Work/Commuting Options Allow for telework/working from home

No

Staff have the option of a compressed work week

No

Commuting by foot, bicycle, carpool or public transit is encouraged

Yes

Shower or locker facilities are provided for staff/students who commute by foot or by bicycle

Yes

Secure bicycle storage is provided

Yes

Other Sustainability Actions Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models

Yes

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

Yes

Have put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities

Yes

**Have implemented a hazardous waste reduction and disposal strategy
(Hazardous Waste: E.g., electronics including computer parts and monitors,
batteries, paints, fluorescent bulbs)**

Yes

**Have incorporated minimum recycled content standards into procurement
policy for consumable, non-paper supplies (e.g., writing instruments, binders,
toner cartridges, etc.)**

No

**Established green standards for goods that are replaced infrequently and/or
may require capital funds to purchase (e.g., office furniture, carpeting, etc.)**

No

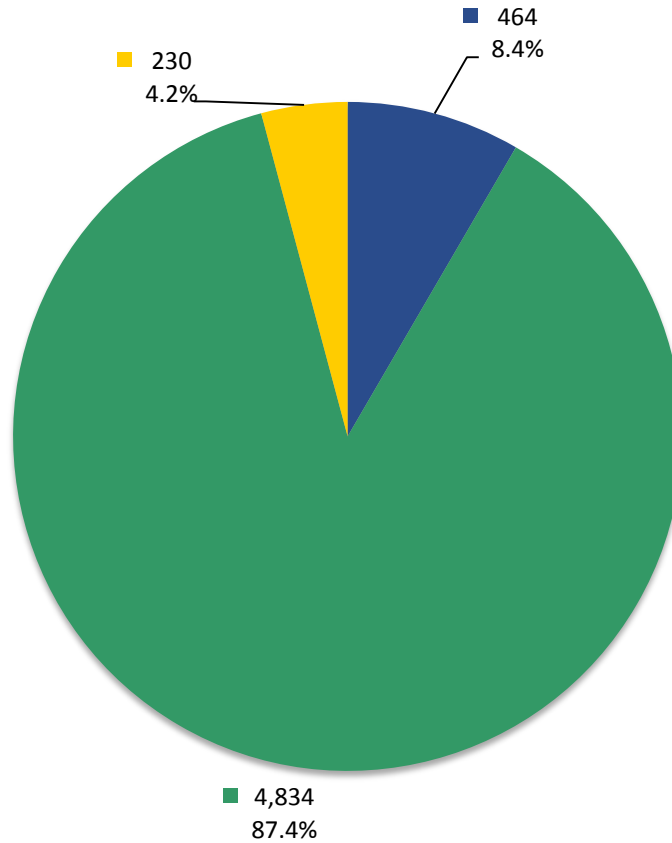
Incorporated lifecycle costing into new construction or renovations

No

**Please list and other sustainability actions you wish to report not included in the
previous list.**

(No response)

**School District 38 - Richmond
Greenhouse Gas Emissions by Source
for the 2014 Calendar Year (tCO₂e*)**



Total Emissions: 5,527

- 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 2014 (Generated June 23, 2015 1:12 PM)

Total offsets required: **5,317**. Total offset investment: **\$132,925**. Emissions which do not require offsets: **211** **

*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.