

2015

Carbon Neutral Action Report



**School District No.38
(Richmond)**

2015 Carbon Neutral Action Report

School District #38 (Richmond)

This Carbon Neutral Action Report (CNAR) for the period January 1st, 2015 to December 31st, 2015 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2015 to reduce our greenhouse gas (GHG) emissions and our plans to continue reducing emissions in 2016 and beyond.

By June 30, 2016, 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 2015. Now in our sixth year of being carbon neutral, energy savings and greenhouse gas emission reductions remain 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 2015 we maintained the focus of our greenhouse gas (GHG) reduction initiatives on reducing our footprint 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 2015 we set a target to reduce our natural gas consumption by 5% and our electricity consumption by 3% against 2014 values. After taking the 2014 job action into account, which resulted in a significant reduction in electricity consumption and to a lesser extent gas consumption, both of these targets were exceeded.

As part of our 2015 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 purchase three new electric vehicles adding to the existing fleet of seven purchased in 2013 and 2014, and bringing the total electric fleet to ten.

We also completed three boiler replacements at Blundell, McRoberts and MacNeill schools. An efficient domestic hot water heating system was installed at Palmer Secondary (replacing an old system). Heating equipment was replaced to high efficiency roof top units at Kingswood Elementary and two Building Automation System updates were conducted, these being at Blundell and Cook Elementary schools. Interior and exterior lighting upgrades were performed at two elementary schools (Currie and DeBeck).

We continued to realize significant electricity and natural gas savings through the next phase of the Continuous Optimization (COP) program. All 10 of our secondary schools have now completed this program and one elementary school, Ferris, is undergoing COP in 2016.



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 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 Advisory 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 maintain 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.

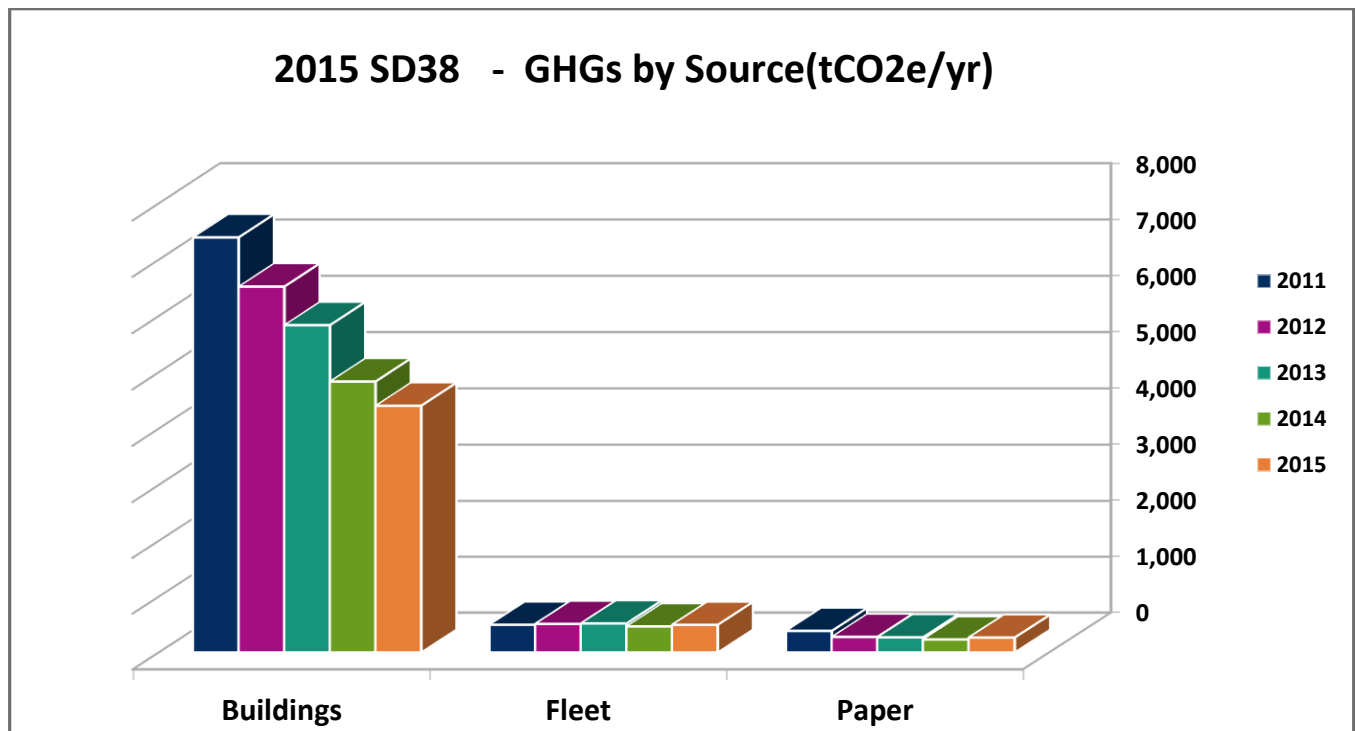
Sherry Elwood
Superintendent of Schools

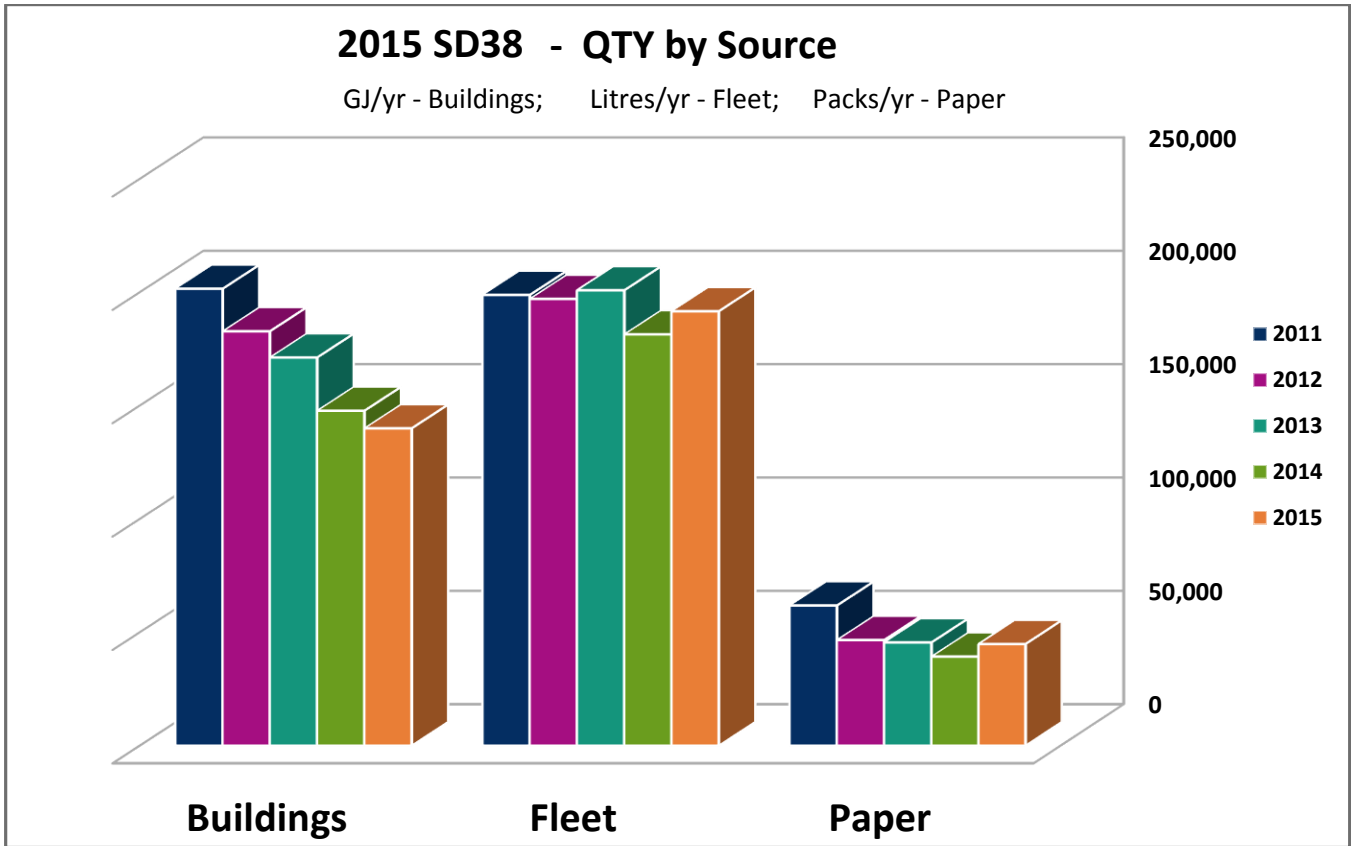
2015 Greenhouse Gas Emissions

The Richmond School District has calculated our 2015 carbon footprint, in accordance with the Greenhouse Gas Reduction Targets Act, to be 5,158 tonnes of CO₂ equivalent.

Emission Source	GHG Emissions (tonnes of CO ₂ equivalent)	2015 Results Compared with 2014
Buildings	4,403	8.9% Decrease
Fleet	491	6% Increase
Paper	264	14.8% Increase
Total	5,158	6.7% Decrease

In 2015 we achieved an overall reduction of 369 tonnes of CO₂ equivalent over our 2014 emissions (6.7%). This is despite the fact that 2014 emissions were lower than would have been expected due to the teacher job action (a total of 26 direct action days in 2014). The job action is considered to account for the increases in CO₂ emissions observed from fleet and paper in 2015 compared with 2014. Fleet, paper and buildings all show an overall reduction in CO₂ emissions when compared with 2013. The graphs below show the district's emissions and quantities by source over the past five years – the effects of the job action in 2014 can be clearly seen.





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 85.35% (similar to but lower than the 2014 value of 87.47%). The proportion of building emissions has gradually been decreasing over time, from 92% in 2011 to 85.35% seen in 2015.

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 9.54% of the district's overall emissions (compared with 8.39% in 2014). The proportion of fleet emissions has gradually been increasing over time, from 6.15% in 2011 to 9.54% seen in 2015, as building emissions have decreased.

Supplies

Emissions categorized as supplies are indirect emissions originating from the district's use of office paper and account for 5.12 % of the district's overall GHG emissions (similar to the 2014 value of 4.14%). The proportion of paper emissions has fluctuated between 3.78% in 2012 and 5.12% in 2015. Some of the actions that were taken to inform about and reduce paper consumption included communicating benchmarked data to schools and defaulting printers to double sided printing.

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 these sources have been deemed out-of-scope and have not been included in our total greenhouse gas emissions profile.

Emissions Reduction Activities

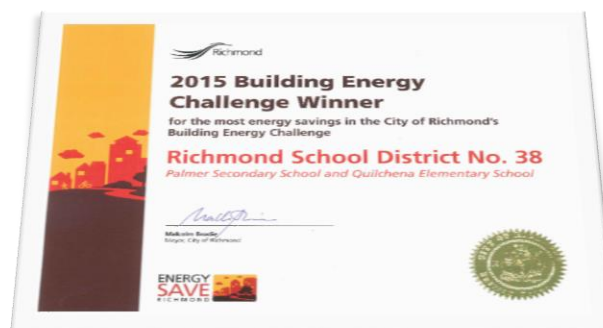


Through our 'Eco-Wise' program we continue to work towards embedding environmental stewardship in the day-to-day operations of the district, and to incorporate Environmental Stewardship into the school curriculum and into the delivery of each employee's core mandates. Our sustainability plan covers eight 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 Advisory Committee (RSAC), comprised of representatives from all stakeholder groups, we continued to work towards our long-term sustainability vision by developing and implementing our short-term goals for each of the eight focus areas. We have implemented a number of short term goals in 2015 resulting in some considerable achievements:

- Purchased an additional 3 electric vehicles in 2015, bringing our electric fleet to a total of 10 vehicles

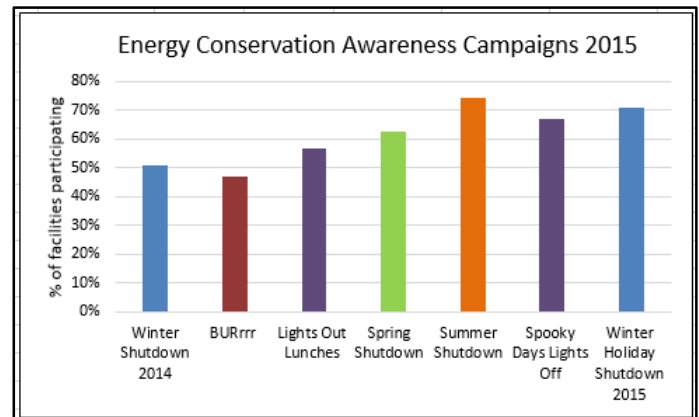
- Delivered over 1000 recycling containers to all our facilities to provide dedicated 'waste & recycling' station at each location. Continued to implement a full waste management program comprising district-wide organics and recyclables collection in our schools and administrative buildings. Organic waste is being separated and diverted from the landfill to become 'class A' compost in all of our facilities, and recyclable materials are forming an increasing proportion of our waste stream.
- Completed 19 new raised garden beds at schools. 75% of our schools (36 schools) now have raised garden beds.
- Installed 5 new water bottle filling stations in 4 schools to reduce the amount of waste generated by single-use disposable water bottles – filling stations are now installed at 73% of our schools (35 schools).
- Shared internal benchmarked energy, paper, and water consumption data, engaging staff to reduce their carbon and water footprint.
- Supported students participating in the Richmond Earth Day Youth-led (REaDY) summit in April 2014, the Green Gala (May 2014) and monthly Eco-Cafes.
- Continued with the district-wide energy conservation awareness program that supports both staff and students in implementing behavior change campaigns to target energy conservation. In 2015 we organized 6 individual energy-awareness events, with participation rates of up to 71%.
- Initiated and supported a sustainable transport pilot scheme at 3 elementary schools (Lee, Garden City, Dixon) in 2015-16, with support from the City of Richmond and the TravelSmart Active School Travel program.
- Continued to develop our relationship with a wide range of external stakeholders, including City of Richmond, Fortis BC, BC Hydro, BC Green Games, and Translink.
- Facilitated the upload of utility and building data from all of our buildings to Energy Star Portfolio Manager in order that our schools and offices can be benchmarked against similar facilities across Canada.
- Recognized by the City of Richmond as winner of year one Energy Challenge Competition for Palmer Secondary and Quilchena Elementary schools.



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 are focussed on energy conservation within our schools and administrative facilities. In 2015 we reduced our electricity consumption by 3.9%, compared with the 2014 value, 'adjusted' to take into account the significantly reduced consumption due to the 2014 strike action. Our natural gas consumption fell by 7.2% (weather normalized), when compared with an 'adjusted' 2014 value (4.9% absolute reduction). It is estimated that the strike action resulted in GHG emissions reductions equivalent to 360 tonnes of CO₂ in 2014 (buildings, fleet and paper). Despite this, an absolute overall reduction of 6.7% in the greenhouse gas emissions from our buildings was observed in 2015 when compared with 2014. 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. In addition, 2015 was a warmer year compared to 2014, thus there was less demand for heating resulting in lower absolute volume of natural gas consumption and a higher demand for cooling. Natural gas is used as a primary space heating fuel in our district and is the largest contributor of GHG emissions in buildings. GHG emissions from electricity are minimal in BC thus the increase in electricity consumption for cooling did not have a substantial effect on emissions.



On sunny days photocells help us save electricity



Participation in energy awareness campaigns in 2015

We are continuing with the District's comprehensive energy conservation program and have a number of energy efficiency projects slated for 2016/17 including:

- Boiler replacements to high efficiency condensing boilers at four schools
- Energy and lighting studies for up to 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 one elementary school site (Ferris)
- Upgrade parking lot lighting to energy efficient lighting at up to 10 schools
- Interior LED lighting upgrade in at least one secondary school (MacNeill)
- Continue to tie in corridor lighting with alarm panels so that all interior lighting can be automatically turned off when building security system is armed
- Launch a new Energy-Wise Cup competition between schools

Achieving Carbon Neutrality

In 2015 we were carbon neutral with respect to our operations for the sixth 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 2015, the Board of Education of School District 38 (Richmond) purchased carbon offsets from the Pacific Carbon Trust for 4,922 tonnes of CO₂e.

As required by section 5 of the Carbon Neutral Government Regulation, 237 tonnes CO₂e of emissions resulting from the operation of school buses were reported as part of our greenhouse gas emissions profile in 2015. 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:

School District #38 (Richmond) GHG Emissions and Offsets for 2015 (TCO2E)	
GHG Emissions created in calendar year 2015 (from SMARTTool Homepage)	
Total Emissions (tCO2e)	5158
Total Emissions for Offsets (tCO2e)	4922
Adjustments to GHG Emissions Reported in Previous Years (from SMARTTool Homepage)	
Total Emissions (tCO2e)	
Total Emissions for Offsets (tCO2e)	
Grand Total Offsets for the 2015 Reporting Year (from SMARTTool Homepage): (This is the total of emissions that must be offset for Reporting Year 2015)	
Grand Total Offsets (tCO2e)	4922
Total Emissions for Offsets for the 2015 Reporting Year (from Offset Invoice):	\$123,050

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, School District #38 (Richmond), is responsible for arranging for the retirement of the offsets obligation reported above for the 2015 calendar year, together with any adjustments reported for past calendar years. The Organization hereby agrees that, in exchange for the Ministry of Environment ensuring that these offsets are retired on the Organization's behalf, the Organization will pay the associated invoice to be issued by the Ministry in an amount equal to \$25 per tonne of offsets retired on its behalf plus GST.



May 18, 2016

Signature

Date

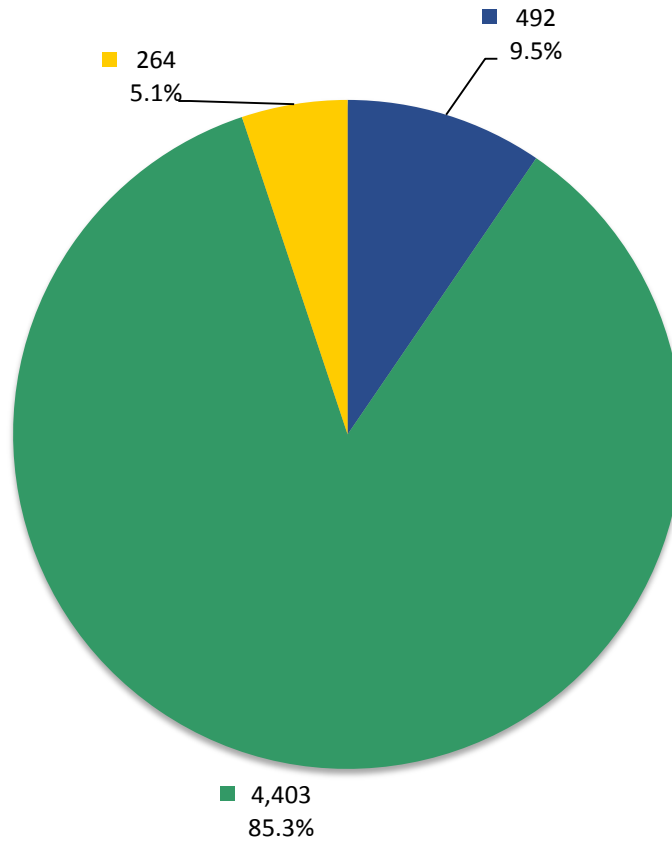
Sherry Elwood

Superintendent of Schools

Name

Title

**School District 38 - Richmond
Greenhouse Gas Emissions by Source
for the 2015 Calendar Year (tCO₂e*)**



Total Emissions: 5,158

- 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 2015 (Generated May 26, 2016 9:06 AM)

Total offsets required: **4,922**. Total offset investment: **\$123,050**. Emissions which do not require offsets: **236** **

*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.

2015 Carbon Neutral Action Report Survey

Organization Name:

School District #38 (Richmond)

Please select your sector:

- School District

1) Stationary Sources (Buildings, Power Generators, Ext. Lighting) Fuel Combustion, Electricity use, Fugitive Emissions:

Please indicate which actions your PSO took in 2015:

Have developed an overall strategy/plan to reduce energy use in your organization's buildings inventory:

Yes

If Yes, please describe:

We have developed a Strategic Energy Management Plan (SEMP), which details our current situation with respect to energy consumption in our buildings, and outlines plans to reduce consumption in the buildings with the highest energy intensity.

Undertook evaluations of building energy use:

Yes

Performed energy retrofits on existing buildings:

Yes

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

Yes

Please list any other actions, programs or initiatives that your organization has introduced that support emissions reductions from buildings:

We have reviewed operational measures to reduce equipment usage during times of low/ no building occupancy. We have continued to implement behavioural measures via energy awareness campaigns including holiday shutdowns, sweater days and lights out lunches. Presentations to teachers, staff, students and management to share information and raise awareness of energy conservation.

2) Mobile Sources (Fleet, Off-road/Portable Equipment) Fuel Combustion:

Indicate which actions your PSO took in 2015:

Have put in place an operations policy/program to support systematic reductions in fleet related emissions:

(e.g., program to convert fleet to renewable fuels)

Yes

If Yes, please describe:

The School District has an anti-idling policy. Our Sustainability Action Plan has a long-term goal for a fully electric fleet.

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

Yes

Replaced existing vehicles with hybrid or electric vehicles:

Yes

Took steps to drive less than previous years:

No

Please list any other actions, programs or initiatives that your organization has introduced that support emissions reductions from fleet combustion:

Encouraged car pooling.

3) Supplies (Paper):

Indicate which actions your PSO took in 2015:

Have put in place an operations policy/program to facilitate a systematic reduction in paper-related emissions:

(e.g., policy to purchase 100% Recycled Content; default to double-sided printing)

Yes

If yes, please describe:

All our MFDs are set to default to double-sided printing.

Have put in place an operations policy/program to facilitate behavioural changes from paper use:

(e.g. awareness campaign to reduce paper use):

No

If yes, please describe:

(No response)

Used only 100% recycled paper:

No

Used some recycled paper:

Yes

Used alternate source paper:

(e.g., bamboo, hemp, wheat etc.)

No

Please list any other actions, programs or initiatives that your organization has introduced that support emissions reductions from paper supplies:

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.

Purchasing department is pursuing the procurement of a new Document Management System which would reduce overall paper consumption.

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4) Other Sustainability Actions:

Please note that this section is optional

Business Travel

Created a low-carbon travel policy or travel reduction goal:

(low-carbon = lowest emission of greenhouse gas per kilometer per passenger)

No

Encouraged alternative travel for business:

(e.g. bicycles, public transit, walking)

Yes

Encouraged or allow telework/working from home:

No

Other:

Supported a sustainable transportation pilot program at 3 Elementary Schools with support from the City of Richmond and the TravelSmart Active School Travel program.

*We are investigating the purchase of an electric bicycle for District staff to use on business travel between schools.
Students are encouraged to take transit to monthly Eco-Cafes and meetings.*

Education Awareness

Have a Green/Sustainability/Climate Action Team:

Yes

Supported green professional development:

(e.g. workshops, conferences, training)

Yes

Supported or provided education to staff about the science of climate change, conservation of water, energy and/or raw materials:

Yes

Other:

Facilitated monthly Eco-Cafes for students and staff.

Facilitated the Richmond Earth Day Youth-led summit (REaDY) in April in partnership with the City of Richmond and the David Suzuki Foundation.

Facilitated a Green Gala in May 2015 for students to showcase their green initiatives from the past year.

Facilitated an 'Operations Day' to provide education and awareness of energy and waste issues to custodial staff.

Adaptation Planning for Climate Risks

Have assessed whether increased frequency of extreme weather events and/or long term changes in climate will affect your organization's infrastructure, its employees and/or its clients:

No

Have incorporated these anticipated changes in climate into your organization's planning and decision making:

No

Other:

The potential for increased cooling load (and associated electricity costs) in our buildings has been discussed.

Other Sustainability Actions

Established a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models:

Yes

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

(e.g., composting, collection of plastics, batteries)

Yes

Established green standards for goods that are replaced infrequently and/or may require capital funds to purchase:

(e.g., office furniture, carpeting, etc.)

Yes

Incorporated lifecycle costing into new construction or renovations:

No

Please list any other sustainability actions your organization has taken not listed above:

Constructed a further 19 raised garden beds at school sites to encourage growth and consumption of fruit and vegetables.

Facilitated the upload of utility and building data from all of our schools to Energy Star Portfolio Manager in order that our schools

can be benchmarked against similar facilities across Canada.