



# Carbon Neutral Action Report

2016

# 2016 Carbon Neutral Action Report

## School District #38 (Richmond)

This Carbon Neutral Action Report for the period January 1<sup>st</sup>, 2016 to December 31<sup>st</sup>, 2016 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2016 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2017 and beyond.

By June 30, 2017, School District #38's final *Carbon Neutral Action Report* will be posted to our website at [www.sd38.bc.ca](http://www.sd38.bc.ca).

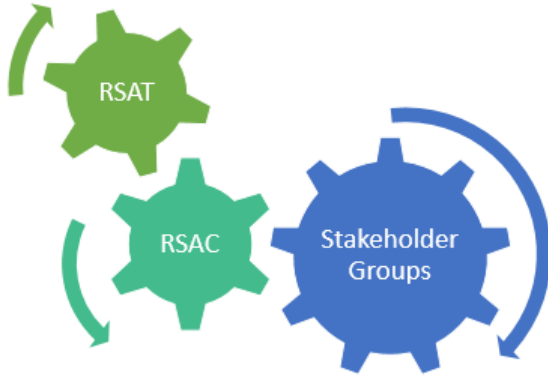
### Executive Summary

On behalf of the Board of Education, School District 38 (Richmond), I am pleased to submit our Carbon Neutral Action Report for 2016. Now in our seventh year of being carbon neutral, energy savings and greenhouse gas emissions reductions remain a priority in our ongoing commitment towards carbon neutrality. We continue to work diligently, as we have many years now, to reduce our greenhouse gas emissions while improving the learning environment for students and staff.

In 2016, 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. Similar to 2015, we set a target in 2016 to reduce our natural gas consumption by 5% and our electricity consumption by 3% compared to the previous year. We have exceeded the target for electricity, with a 3.5% reduction in consumption. We also came close to meeting our target for natural gas, with a 4.1% reduction in actual consumption. We continue to work diligently in identifying opportunities for natural gas savings into 2017.

As part of our 2016 energy conservation program, we undertook several projects that have large energy and carbon reduction benefits. We completed three boiler replacements at Dixon Elementary, Currie Elementary and McMath Secondary, and an efficient domestic hot water heating system at Steveston-London Secondary. Along with several parking lot lighting upgrades to energy efficient LED technology, we also successfully completed a major LED lighting upgrade at MacNeill Secondary.

With the support of BC Hydro, we continued to realize significant electricity and natural gas savings through participation in the Continuous Optimization (C-Op) program. C-Op is a program that aims to optimize the Building Automation System of facilities. All 10 of our secondary schools and one elementary school (Ferris) have completed the program or are close to completion by the end of 2016. As BC Hydro introduces a second round of its C-Op program, the District will seek to continue its participation in this program after a successful first round.



Our Board-approved Environmental Stewardship Policy guides the integration of environmentally sustainable considerations in all of our business decisions. 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.

---

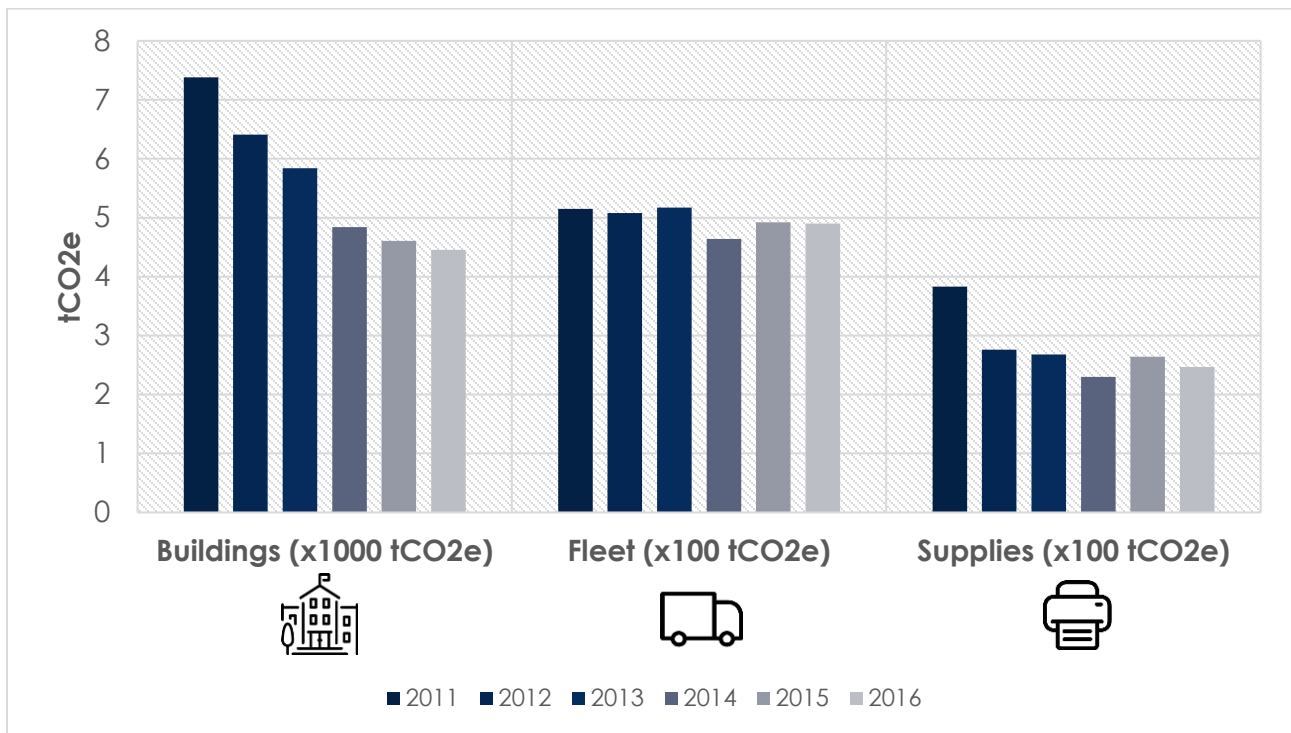
Sherry Elwood  
Superintendent of Schools

# 2015 Greenhouse Gas Emissions

The Richmond School District (herein, “the District”) has calculated its 2015 carbon footprint, in accordance with the Greenhouse Gas Reduction Targets Act, to be 4,952 tonnes of CO<sub>2</sub> equivalent.

Emission Source	GHG Emissions (tonnes of CO <sub>2</sub> equivalent)	2016 vs. 2015
<b>Buildings</b>	4,457	<b>3.3% Decrease</b>
<b>Fleet</b>	490	<b>0.4% Decrease</b>
<b>Paper</b>	247	<b>6.4% Decrease</b>
<b>Total</b>	5,194	<b>3.2% Decrease</b>

In 2016, we achieved an overall reduction of 169 tonnes of CO<sub>2</sub> equivalent over our 2015 emissions (3.2%). During 2014, twenty-six days of teacher job action resulted in lower than expected emissions during that year. As a result, we observed an increase in emissions from supplies and fleet in 2015 versus 2014, though this was in fact due to the job action of 2014. The figure below shows the District’s emissions over the past six years. In 2016, the trajectory of decreasing emissions is once again observed to be on track.



## 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 85.8%. In addition to decreasing quantities, the proportion of building emissions has gradually been decreasing over time, from 92% in 2011.

## Fleet



The use of fossil fuels used to power the District's fleet vehicles, including maintenance vehicles and school busses, results directly in emissions. The fleet accounted for 9.4% of the District's overall emissions in 2016. The proportion of fleet emissions has gradually been increasing over time, from 6.2% in 2011, as building emissions have decreased.



## Supplies



Supplies emissions are indirect, originating from the District's use of office paper. In 2016, supplies accounted for 4.8% of the District's overall GHG emissions. The proportion of paper emissions has fluctuated from a low of 3.8% in 2012 to a high of 5.1% in 2015. Some of the actions taken to reduce paper consumption have 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, certain types of 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

We estimate that in-scope fugitive emissions (HFCs released to the environment from leaks in cooling equipment) do not comprise more than 0.1% of the District's total emissions and an ongoing effort to collect or estimate emissions from this source would be disproportionately onerous. For this reason, we deem emissions from these sources to be out-of-scope and have not included it in the District's 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. As defined by its Environmental Stewardship Policy, the District’s 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, the District continued to work towards its long-term sustainability vision by developing and implementing the 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:

- Continued the delivery of over 1000 recycling containers to all our facilities to provide dedicated ‘waste & recycling’ stations 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 16 new raised garden beds at schools. 85% of our schools (41 schools) now have raised garden beds.
- Installed 11 new water bottle filling stations in eight schools to reduce the amount of waste generated by single-use disposable water bottles. The current total is 60 stations spread across most of our sites.
- 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 2016 and monthly Eco-Cafes on a variety of sustainability topics.
- Continued with district-wide awareness programs that support both staff and students in implementing behavior change campaigns to target energy conservation.
- 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 transfer of utility 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.



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 GHG emissions is from energy use in buildings. Thus, the largest proportion of our GHG reduction initiatives focus on energy conservation within our schools and administrative facilities. In 2016, we reduced our electricity consumption by 3.9% from 2015. Our natural gas consumption fell by 4.1% from 2015. These reductions were achieved through a combination of retrofits and equipment upgrades, operational changes to ensure energy is being used only when and where it is needed, and through behavioural changes made by our building occupants. With several successful years of energy savings under its belt, the District is now in a mature stage of energy management. Though “low-hanging fruit” of energy savings become scarcer, we continue to work diligently in identifying opportunities for reducing consumption.

## 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 2017/18 including:

- Boiler replacements to high efficiency condensing boilers at two schools
- LED lighting upgrade at McNair Secondary, following the success of the similar upgrade at MacNeill Secondary
- Building Automation System upgrades at three schools, including major upgrade at Richmond Secondary
- Implementation of identified energy conservation measures through BC Hydro's Continuous Optimization program
- Upgrade parking lot lighting to energy efficient lighting at a minimum of two schools
- 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

## Achieving Carbon Neutrality

In 2016, 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 2016, the Board of Education of School District 38 (Richmond) purchased carbon offsets from the Pacific Carbon Trust for 4,952 tonnes of CO<sub>2</sub>e.

As required by Section 5 of the Carbon Neutral Government Regulation, 248 tonnes CO<sub>2</sub>e 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

<i>Richmond School District #38 GHG Emissions and Offset for 2016 (tCO<sub>2</sub>e)</i>	
<b>GHG Emissions created in Calendar Year 2016:</b>	
Total Emissions (tCO <sub>2</sub> e)	5,194
Total Offsets (tCO <sub>2</sub> e)	4,952
<b>Adjustments to GHG Emissions Reported in Prior Years:</b>	
Total Emissions (tCO <sub>2</sub> e)	204
Total Offsets (tCO <sub>2</sub> e)	204
<b>Grand Total Offsets for the 2016 Reporting Year:</b>	
Grand Total Offsets (tCO <sub>2</sub> e)	5,156

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 2016 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

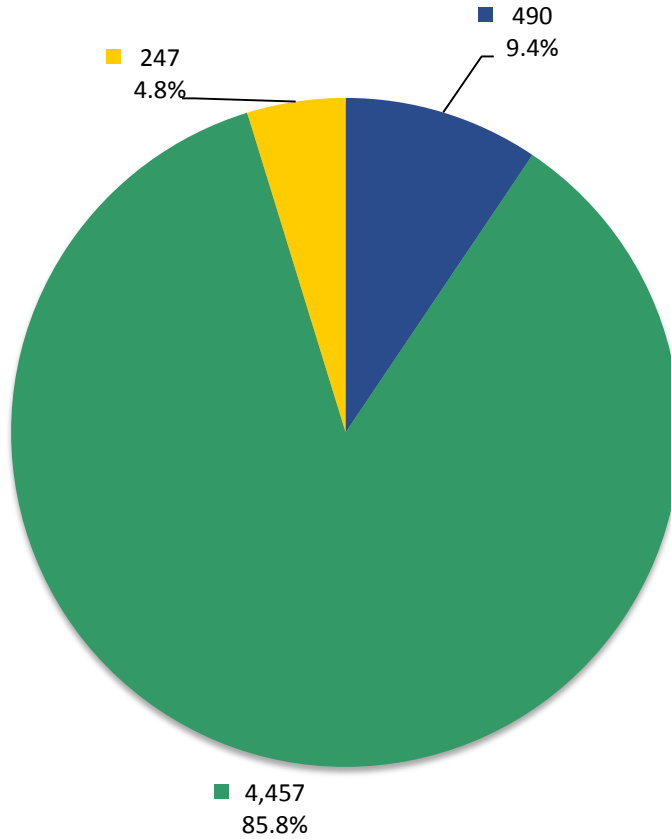
Superintendent of Schools

---

Name

Title

**School District 38 - Richmond  
Greenhouse Gas Emissions by Source  
for the 2016 Calendar Year (tCO<sub>2</sub>e\*)**



**Total Emissions: 5,194**

- 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 2016 (Generated May 15, 2017 4:09 PM)**

Total offsets required: **4,952**. Total offset investment: **\$123,800**. Emissions which do not require offsets: **242** \*\*

\*Tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) 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.

# 2016 Carbon Neutral Action Report Survey

---

Page 2

Part One (external)

Contact Name(s):

*Bassam Javed*

Contact Email(s):

*bjaved@sd38.bc.ca*

Organization Name:

*School District 38 (Richmond)*

Please select your sector:

- School District

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

During 2016, did your organization take any of the following actions to support emissions reductions from buildings?

Select all that apply

- Conducted an energy audit/study of building(s) in the organization's portfolio
- Performed energy retrofits of the organization's buildings.: 10

Briefly describe your organization's plans to continue reducing emissions from its stationary sources in future years.

*Continue boiler and DDC upgrades for natural gas savings, continue lighting upgrades and scheduling for electricity savings, implement building envelope renovations, begin exploring novel solutions for reducing energy consumption on the whole*

During 2016, did your organization participate in utility-sponsored energy demand management program(s) (e.g. BC Hydro's Energy Management (Manager))?

*Yes*

If yes, please describe briefly:

*SD38 has participated in BC Hydro's EM program for over 7 years now. The organization also participates in FortisBC's Energy Specialist program.*

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

During 2016, did your organization take any of the following actions to support emission reductions from its mobile sources?

Select all that apply

---

- Took steps to drive less than previous years.
- 

Briefly describe your organization's plans to continue reducing emissions from its mobile sources in future years.

*We continue to explore opportunities for expanding our electric fleet, which is currently at 10 light duty vehicles.*

3) Supplies (Paper):

During 2016, did your organization take any of the following actions to support emissions reductions from paper supplies?

Select all that apply

---

- Awareness campaign focused on reducing office paper use.
- 

Briefly describe your organization's plans to continue reducing emissions associated with its office paper use in future years.

*SD38 will create campaigns around office paper use and study the feasibility of introducing alternate-source paper into the supply.*

4) Other Sustainability Actions:

Business Travel:

During 2016, did your organization take any of the following actions to support emissions reductions from business travel?

Select all that apply

*(No response)*

Education Awareness:

During 2016, did your organization have any of the following programs or initiatives to support sustainability education and awareness?

Select all that apply

- 
- Green, Sustainability or Climate Action Team
  - Support for professional development on sustainability (e.g. workshops, conferences, training)
  - Supported or provided education to staff about the science of climate change, conservation of water, energy and/or raw materials

Other Sustainability Actions:

During 2016, did your organization have any of the following programs or initiatives to support sustainability?

Select all that apply

- 
- An operations policy or program to facilitate the reduction and diversion of building occupant waste (e.g., composting, collection of plastics, batteries) from landfills or incineration facilities
-