



ABBOTSFORD  
SCHOOL DISTRICT  
RESPECT OPPORTUNITY INNOVATION

**2015 Carbon Neutral Action Report**

**SD34 (Abbotsford)**

**Declaration statement:** This Carbon Neutral Action Report for the period January 1<sup>st</sup>, 2015 to December 31<sup>st</sup>, 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 emissions and our plans to continue reducing emissions in 2016 and beyond.

By June 30, 2016 The Abbotsford School District's final *Carbon Neutral Action Report* will be posted to our website at <http://facilities.sd34.bc.ca/departments/sustainability-utilities>

# Overview

## Executive Summary

The Abbotsford School District has made a firm commitment to reducing its energy consumption and its greenhouse gas emissions. This is made evident by the fact that it has significantly reduced both its energy consumption and its GHG emissions every year since monitoring began, as well as by the fact that each year it has continued to invest in the personnel and the equipment necessary to make this happen.

In the past few years Abbotsford School District has invested time and money into mechanical systems upgrades, building automation improvements and LEED Gold new buildings. In addition to this, the district has leveraged programs like the Elements Society's "Destination Conservation", BC Hydro's "Firstwave" and FortisBC's "Energy is Awesome" to help establish school based green teams which promote a culture of conservation in schools and buildings throughout the district. The growing culture of conservation and environmental awareness can be seen through the voluntary and ongoing adoption of waste sorting stations throughout the district. These stations have enabled many sites to divert over 50% more of their waste to composting and recycling than they were previously able to accomplish. This in turn has an immediately positive impact on the planet by reducing the amount of GHG's released into the atmosphere while simultaneously providing beneficial byproducts such as compost for agriculture and renewable power.

The district sustainability committee, which has been revitalized this school year, is working on establishing district wide goals around environmental sustainability and is putting plans in place to help better support site based green teams. There has also been a significant investment in technology and software programs that will enable the district to begin reducing paper consumption. In addition to this the district has plans to purchase its first 100% electric vehicle in 2015 as a pilot vehicle to study the feasibility of using this type of vehicle as a part of the local fleet mix.

By continuing its dual focus on behavioral change and equipment upgrades the Abbotsford School District is striving to continuously shrink its carbon foot print while simultaneously teaching our kids the value of conservation and the positive impacts that each and every one of them can have on their home planet.

## **Success Stories**

This year's largest project and that which is expected to yield the greatest reduction in GHG emissions was the replacement of the Yale Secondary School boiler system. At this school there were four separate mechanical rooms each with its own separate set of boilers, heat circulation pumps and building automation controls. These four separate mechanical rooms were the result of various additions that have been complete at Yale over the past decades. In the summer of 2015 these four mechanical rooms were amalgamated into one boiler room which now contains one set of 8 high efficiency boilers and their associated pumps and building automation controls. By amalgamating all of the boilers into one room we are able to manage the heating system more efficiently with better equipment. This is expected to result in a 20% reduction of the building's natural gas consumption yielding savings of approximately 685GJ/year, with corresponding GHG reductions.

## **Actions Taken to Reduce Greenhouse Gas Emissions in 2015**

The Abbotsford School District Maintenance Department has implemented an improved preventative maintenance program for its inventory of Heating, Ventilating, Air Conditioning and Cooling equipment in order to ensure that all equipment is running as efficiently and as "cleanly" as possible. Much like regular tunes ups on your vehicle can help reduce tail pipe emissions, regular maintenance on boilers and rooftop mechanical units can have a similar effect.

In terms of hardware upgrades the district replaced the boiler systems at three different sites with new high efficiency boilers and domestic hot water tanks. The reduction of NG consumption from these three sites is estimated to be approximately 1280GJ which will lead to a corresponding reduction in GHG emissions.

In addition to this the District has revitalized its district wide sustainability committee. The purpose of this committee is to help establish some environmental conservation priorities for the district and to support the school based green teams in their environmental initiatives.

One opportunity that has been identified and implemented, by the district's Manager of Energy and Environmental Conservation, across many schools in the district, is that of increased waste diversion. By implementing a compost collection program and encouraging schools to recycle more, the Abbotsford School District has assisted numerous schools to reduce the amount of waste sent to the landfill by upwards of 50%. The compost collection program diverts organics to a local commercial composting facility thereby reducing the amount of methane emissions that would have been caused by organic decomposition at a traditional landfill. As an added bonus the commercial composting facility to which the majority of the school district's organic waste is diverted is a mixed composting and renewable energy producer. So, at this facility the eventual outputs of the decomposition process are compost, soil amenders, and renewable energy.

## **Plans to Continue Reducing Greenhouse Gas Emissions 2016**

The Abbotsford School District will continue to build on its past successes once more in 2016. It will be expanding its waste diversion program to encompass more schools and encouraging those schools to establish and/or revitalize their school based green team. The district sustainability committee has plans to establish some district wide events and support materials that will help green teams at individual sites to thrive and give students and staff a chance to collaborate on environmental issues.

In addition to this the district will be piloting the feasibility of using EV's for its fleet by purchasing the district's first fully electric vehicle. In order to support this program, as well as encourage staff to consider purchasing and using EV's to commute to work, the district is looking at the possibility of installing EV quick charge stations at strategic locations throughout the district.

Mechanical hardware upgrades will also continue this year. Two more schools have been slated for boiler and domestic hot water system upgrades with a potential combined savings of 496 GJ of Natural Gas per year, and its associated GHG reductions.

In addition to hardware upgrades the district will strive to continue making the most efficient use of its existing equipment by expanding building automation best practices to smaller buildings in the district. By building on the best practices learned through BC Hydro and Fortis BC's continuous optimization program the district can reduce natural gas and electricity consumption through the regular monitoring and optimization of building heating and cooling systems.



## Emissions and Offset Summary Table:

<b>[Organization X] GHG Emissions and Offset for 2015 (TCO<sub>2</sub>E)</b>	
<b>GHG Emissions created in Calendar Year 2015</b>	
Total Emissions (tCO <sub>2</sub> e)	4012
Total Offsets (tCO <sub>2</sub> e)	2983
<b>Adjustments to GHG Emissions Reported in Prior Years</b>	
Total Emissions (tCO <sub>2</sub> e)	69
Total Offsets (tCO <sub>2</sub> e)	69
<b>Grand Total Offsets for the 2015 Reporting Year</b>	
Grand Total Offsets (tCO <sub>2</sub> e)	3052

### Retirement of Offsets:

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, The Abbotsford School District 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.

### Executive sign-off:



Signature

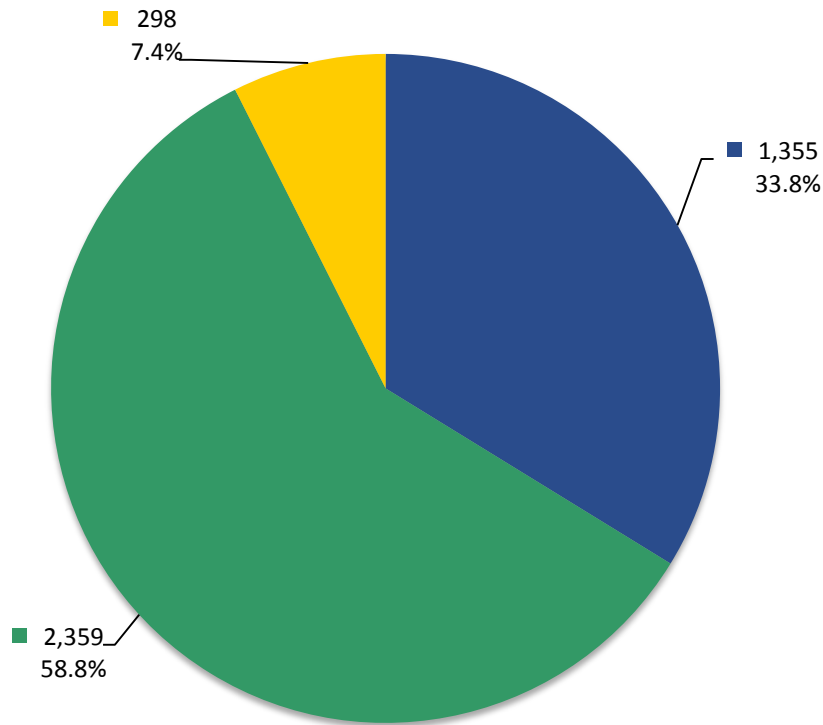
May 17/16

Date

Name: Ray Velestuk

Title: Secretary Treasurer

**School District 34 - Abbotsford  
Greenhouse Gas Emissions by Source  
for the 2015 Calendar Year (tCO<sub>2</sub>e\*)**



**Total Emissions: 4,012**

- 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 25, 2016 9:56 AM)**

Total offsets required: **2,983**. Total offset investment: **\$74,575**. Emissions which do not require offsets: **1,029** \*\*

\*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.

# 2015 Carbon Neutral Action Report Survey

Organization Name:

*Abbotsford School District*

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:

*The Abbotsford School District records, tracks and analyses it's energy usage on an ongoing basis. The analysis of this building data is used to help the district target problem buildings and prioritize the need for energy efficiency upgrades, building automation programs and maintenance improvements. This in turn is used to help determine what electrical, and mechanical capital projects the district will undertake over the next 3 -5 years. Each year this 3-5 year capital plan is reviewed and updated based on completed projects and adjustments in building use. In addition to this the district is building on the BC Hydro Continuous Optimization program by methodically spreading building automation best practices to some of our smaller sites and schools.*

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:

*No*

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

*Abbotsford has implemented an improved preventative maintenance program in order to ensure that all equipment is running as efficiently and as “cleanly” as possible. Much like regular tunes ups on your vehicle can help reduce tail pipe emissions, regular maintenance on boilers and roof top units can have a similar effect.*

*In addition to this the District has revitalized its district wide sustainability committee. The purpose of this committee is to help establish some environmental conservation priorities for the district and to support the school based green teams in their environmental initiatives.*

*In terms of hardware upgrades the district replaced the boiler systems at three different sites with new high efficiency boilers and domestic hot water tanks. The reduction of NG consumption from these three sites is estimated to be approximately 1280GJ which will lead to a corresponding reduction in GHG emissions.*



## 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)

No

If Yes, please describe:

*(No response)*

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

No

Replaced existing vehicles with hybrid or electric vehicles:

No

Took steps to drive less than previous years:

Yes

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

*Our new maintenance management system was selected in order to help streamline the work order process and reduce the number of trips that maintenance technicians need to complete in a day. Technicians can now see all work orders for a given site as well as all work orders for neighboring sites on their district issued iPad. This enables them to better organize their days and complete all work needed at a given site while they are there rather than having to jump back and forth between sites. In addition to this, foreman can assign work orders via this web-based work order system eliminating the need for technicians to come back to the maintenance yard to collect printed work orders as was previously the case.*

## 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:

*In late 2015 the district purchased and installed new photocopier/printer/scanners for many sites. When the photocopiers were installed they were all set to default to double sided printing.*

*At the executive and management level, all meetings are now being conducted with paperless meeting agendas. The IT department has installed projectors or smartboards in all meeting and boardrooms which enables meeting participants to view agendas on the white board and even to collaborate on or make changes to documents in real time.*

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

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

*Yes*

If yes, please describe:

*The maintenance department began transitioning to a paperless work order system in late 2014 and in 2015 establish a policy for all foreman and technicians requiring them to use iPads to access and assign all work orders rather than printing them out. This has led to a significant reduction in paper use at the facilities maintenance yard.*

*At the school level students and staff are being encouraged to adopt GOOS bins (Good On One Side) in their classrooms, especially at the elementary school level. The idea behind the GOOS bins are that students can reuse paper that only has printing on one side for things like rough drafts or art work rather than using a new piece of paper.*

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:

*(No response)*

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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 response)*

Encouraged alternative travel for business:

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

*(No response)*

Encouraged or allow telework/working from home:

*(No response)*

Other:

*(No response)*

#### 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:

*In 2015 the Abbotsford School District joined BC Hydro's work place conservation awareness program which focusses on educating staff about energy conservation opportunities in their workplace. The first campaign which was conducted in December was a holiday*

*shutdown campaign which focused on getting staff to turn off and/or unplug all electrical equipment before they left for the Christmas holidays. The main focus of this campaign was to reduce energy waste by lowering unnecessary plug loads over the holiday season.*

## 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:

*(No response)*

## Other Sustainability Actions

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

No

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:

*The district has recently moved to replacing old carpet with either carpet tile or sheet vinyl which are more durable and therefore will have a longer life span. In addition to this the carpet tiles allow for small sections of carpet to be removed and replaced if needed due to damage thereby extending the life of the whole carpet and reducing the amount of waste produced.*