



Langley  
Schools

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School District No.35  
(Langley)

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2018 Carbon Neutral Action Report

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## Declaration Statement

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This Carbon Neutral Action Report (CNAR) for the period from January 1 to December 31, 2018 summarizes our emissions profile, the amount of offsets purchased to achieve net zero emissions, the action we have taken in 2018 to reduce our greenhouse gas (GHG) emissions and our plans to continue reducing emissions in 2019 and into the future.

## Overview

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On behalf of School District No. 35 (Langley), we are pleased to submit our CNAR for 2018. The purpose of the CNAR is to demonstrate our District's ongoing commitment to the reduction of our greenhouse gas emissions. Our Board continues to work diligently to improve the learning environment for students and staff while reducing our carbon footprint.

In addition, ongoing upgrades of both our mechanical and electrical systems reduce our carbon footprint by providing increased efficiency and greater operational control. With the support of BC Hydro we have completed seventeen lighting upgrades and two continuous optimization projects in 2018 resulting in over 376,000 kWh savings. In addition, with the support of Fortis BC we have completed two mechanical upgrades at Langley Meadows Community Elementary and Fort Langley Elementary which will improve thermal comfort in the building in addition to reducing emissions due to more efficient boilers.

In 2019, we are planning to upgrade interior lighting at three high schools, complete a continuous optimization program at another high school and perform a mechanical study for an elementary school. In addition, a new high school is opening for 2019 that is expected to have a low operational carbon footprint because of the use of heat pumps, efficient furnaces and LED lighting.

Our District is committed to GHG emission reduction and carbon neutrality through energy efficiencies and reduction of waste. This is reflected in our Sustainable Energy Management Plan which shows a 3-year rolling investment in these efficiencies. We invest what we can to create a positive legacy for the future.

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, School District No. 35 (Langley) (**the Organization**) is responsible for arranging for the retirement of the offsets obligation reported above for the 2018 calendar year, together with any adjustments reported for past calendar years. The Organization hereby agrees that, in exchange for the Ministry of Environment and Climate Change Strategy ensuring that these offsets are retired on the Organization's behalf, the Organization will pay within 30 days, 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.



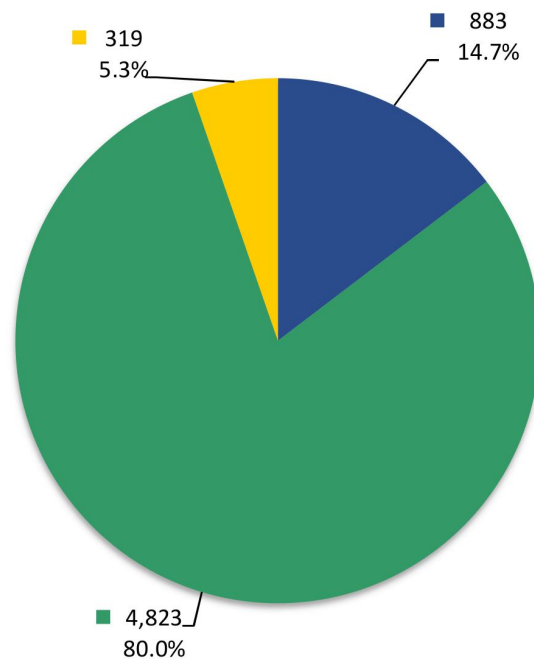
Gordon Stewart

Superintendent of Schools

## Greenhouse Gas Emissions

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### School District 35 - Langley Greenhouse Gas Emissions by Source for the 2018 Calendar Year (tCO<sub>2</sub>e\*)



**Total Emissions: 6,026**

- 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 2018 (Generated May 22, 2019 10:51 AM)

Total offsets required: **5,525**.  
Total offset investment: **\$138,125**.

\*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.

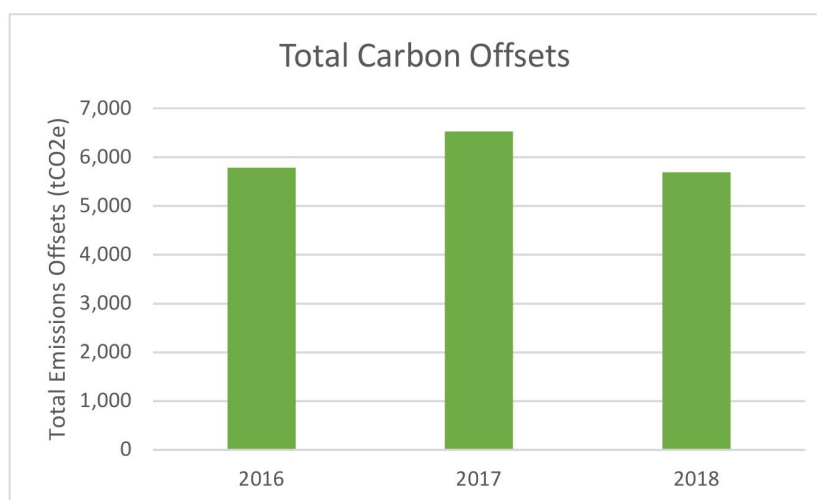
\*\* Under the *Carbon Neutral Government Regulation of the Greenhouse Gas Reduction Targets Act*, all emissions from the sources listed above must be reported. As outlined in the regulation, some emissions do not require offsets.

## Emissions and Offsets Summary Table

School District #35 (Langley) GHG Emissions and Offsets for 2018 (tCO <sub>2</sub> e)	
GHG Emissions created in Calendar Year 2018	
Total Emissions ( tCO <sub>2</sub> e)	6,026
Total Offsets (tCO <sub>2</sub> e)	5,525
Adjustments to GHG Emissions Reported in Prior Years	
Total Emissions ( tCO <sub>2</sub> e)	164
Total Offsets ( tCO <sub>2</sub> e)	164
Total Emissions for Offset for the 2018 Reporting	
Total Offsets ( tCO <sub>2</sub> e)	5,689

## Greenhouse Gas Emissions and Offsets for Previous 3 Years

Year	Total GHG Emissions (tCO <sub>2</sub> e)	Exempt GHG Emissions (tCO <sub>2</sub> e)	Total Emissions for Offsets (tCO <sub>2</sub> e)
2016	6,331	547	5,784
2017	7,072	550	6,522
2018	6,026	501	5,689



The 2018 carbon emissions were 12% lower than 2017 due to a milder winter - 8% less heating degree days. In addition there was a campaign to reduce natural gas consumption due to the Enbridge pipeline explosion.

## Actions Taken to Reduce Greenhouse Gas Emissions

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- Seventeen lighting upgrades completed
    - Glenwood Elementary (Exterior)
    - Shortreed Community Elementary (Exterior)
    - Vanguard Secondary (Exterior)
    - Blacklock Fine Arts Elementary (Exterior)
    - North Otter Elementary (Exterior)
    - Gordon Greenwood Elementary (Exterior)
    - Topham Elementary (Exterior)
    - RC Garnett Demonstration Elementary School(Exterior)
    - Nicomekl Elementary (Exterior and Gym)
    - Willoughby Elementary (Exterior and Gym)
    - R.E. Mountain Secondary (Gym)
    - Aldergrove Community Secondary (Gym)
    - HD Stafford Middle School (Gym)
    - Brookwood Secondary (Gym)
    - Langley Secondary School (Gym)
    - Walnut Grove Secondary (Shops and Cafeteria)
    - Anderson (Whole Interior)
  - Two continuous optimization programs completed
    - Brookwood Secondary
    - DW Poppy Secondary
  - Two mechanical upgrades
    - Langley Meadows Community Elementary
    - Fort Langley Elementary
  - New schools are designed to be energy efficient
  - Heat pumps have priority in portables
  - Behavioral programs to reduce energy consumption across the district
  - Paperless work order system planned that will reduce our carbon footprint
  - Feasibility study for retrofitting external lighting to LEDs
  - Organic waste redirection
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## Link to Other Publicly Available Sustainability Information from Your Organization

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BC Hydro has worked with the Langley School District for many years now with partial funding of our Energy Manager position and along with FortisBC have been incenting many of our energy initiatives. Together these two organizations have assisted us in the creation of our Sustainable Energy Management Plan and work closely with us in achievement of our goals. To find out more about Sustainability at the Langley School District visit our [website](#).

# Part 1: CNAR Survey

## 1. General Information

**Name:** Ronald Lam

**Contact Email:** rlam@sd35.bc.ca

**Organization Name:** School District No.35 (Langley)

**Sector:** School District

**Role** - Please select your role(s) below.

*If more than one individual completed the survey, multiple categories may be selected:*

Energy Manager: No

Sustainability Coordinator: No

Administrative Assistant: No

Facilities/Operations Manager/Coordinator: No

CEO/President/Exec Director: No

Treasurer/Accounting: No

Superintendent: No

Other - Please Specify: Energy Specialist

## A. Stationary Sources (e.g. Buildings, Power Generators): Fuel Combustion, Electricity use, Fugitive Emissions.

### 1. Actions taken by your organization in 2018 to support emissions reductions from buildings.

#### a) Do you have a strategy to reduce emissions from stationary sources?

Yes

If yes above, what are the main goals?: Reduce 2007 emissions levels by 10% by 2020 and 40% by 2030.

#### b) Whether you have a strategy or not (1.a), briefly describe your organization's plans to continue reducing emissions from stationary sources:

##### I. Over the medium-term term (1-5 years)

Energy use intensity of the facilities is taken into account when prioritizing mechanical and boiler upgrades.

Boilers and mechanical systems will be upgraded to high efficiency units whenever possible.

Portable classrooms with heat pumps is the standard and retrofits are performed as feasible.

##### II. Over the long term (6-10 years)

New schools are being designed and built to higher energy efficiency requirements than the building code to ensure long term emission reductions can be achieved. Heat pumps and heat recovery ventilation are incorporated into the HVAC design whenever feasible.

#### c) Please describe your strategy's goals (if any) related to [energy audits](#).

Facility audits are prioritized by the worst performing facilities from analyzing energy intensity and absolute energy consumption. This is performed for both electricity and natural gas. Walk through and detailed audits are performed at these facilities that result in energy conservation measures.



I. What % on average of your building portfolio has an energy audit completed each year (if any)? : 20

**d) Please describe your strategy's goals (if any) related to building retrofits.**

Building retrofits are prioritized based on energy performance, equipment end of life and maintenance costs.

I. What % on average of your building portfolio is retrofitted each year in the following categories (if any) - click [here](#) for further information:

Minor retrofits (e.g., low cost, easy to implement measures including caulking, lighting, adding roof insulation, etc.) (%): 5

Major retrofits (e.g., replacing windows and doors, equipment replacement such as boilers, etc.) (%): 2

Deep retrofits (e.g., replacing roof, replacing the heating, ventilation and air-conditioning system with a renewable technology like a ground-source heat pump, etc.) (%): 2

**e) Please describe your strategy's [re/retro-commissioning](#) goals (if any)?**

As part of the energy intensity analysis a facility's energy conservation measure may include recommissioning efforts to further identify opportunities for increase efficiency by ensuring HVAC equipment is operating as intended or more efficiently.

I. What % on average of your building portfolio do you recommission each year? : 1

**f) Do you keep records of Refrigerant gases category and refilling volumes?**

Yes

I. If yes, have you included the associated emissions in your reporting?

Yes

II. What, if any, mitigation approaches have been considered? Please describe.

Preventative maintenance.

**g) How many newly constructed buildings received at least LEED Gold certification in 2018 : 0**

I. How many newly constructed buildings did not receive LEED Gold certification? : 0

II. Please explain why LEED Gold certification was not obtained.

No newly constructed buildings in 2018

## **B. Mobile Sources (Vehicles, Off-road/portable Equipment): Fuel Combustion:**

### **3. Actions taken by your organization in 2018 to support emissions reductions from mobile sources.**

**a) Do you have a strategy to reduce emissions from mobile sources?**

No

I. If yes, what are its goals?

Reduce 2007 carbon emission levels by 40% by 2030.

**b) Whether you have a strategy or not (3.a), briefly describe your organization's plans to continue reducing emissions from mobile sources:**

**I. Over the medium-term term (1-5 years)**

Explore options and monitor developments in zero emission vehicles and charging tariffs for fleet replacement. Vehicles that are replaced will be more fuel efficient as this is the market trend.

**II. Over the long term (6-10 years)**

Transition into electric vehicles as technology and price points become more feasible.

**c) How many fleet vehicles did you purchase from the following categories:**

Electric Vehicle – EV - (e.g., Nissan Leaf, Chevy Bolt): 0

"Plug In" Electric Vehicle – PHEV (e.g., plug-in Prius, Chevy Volt): 0

Hybrid vehicle – HEV – non "Plug In"- (e.g., Toyota Highlander Hybrid): 0

Hydrogen fuel cell vehicle : 0

Natural gas/propane: 0

Gas/diesel vehicle: 12

**I. If you purchased new gas/diesel vehicles, can you briefly explain why vehicles from the other categories were not chosen?**

There are currently no feasible replacement options for the types of vehicles required.

**d) How many existing EV charging stations does your organization have in each category:**

level 2: 0

level 3: 0

How many level 2 stations (if any) are specifically for your fleet vehicles: 0

How many level 3 stations (if any) are specifically for your fleet vehicles: 0

**e) How many EV charging station(s) did you install in 2018 in each category:**

level 2: 0

level 3: 0

How many level 2 stations (if any) were installed specifically for your fleet vehicles: 0

How many level 3 stations (if any) were installed specifically for your fleet vehicles: 0

**4. Please indicate the number of the vehicles in the following vehicle classes that are in your current fleet (including any purchased in 2018):**

**Definitions:**

- Light duty vehicles (LDVs) are designated primarily for transport of passengers <13 and GVWR<3900kg
- Light duty trucks (LDTs) are designated primarily for transport of light-weight cargo or that are equipped with special features such as four-wheel drive for off-road operation (include SUVs, vans, trucks with a GVWR<3,900kg )
- Heavy duty vehicles (HDV) includes vehicles with a GVWR>3,900 kg (e.g. ¾ tonne pick-up truck, transport trucks)

**a) Light duty vehicles (LDVs)**

Electric Vehicles – EV - (e.g., Nissan Leaf, Chevy Bolt): 0

"Plug In" Electric Vehicle – PHEV -- (e.g., plug-in Prius, Chevy Volt) : 0

Hybrid vehicles – HEV – (e.g., non “Plug In”- older Toyota Prius, Toyota Camry hybrid): 0

Hydrogen fuel cell vehicles: 0

Natural gas/propane: 0

Gas/diesel: 8

## **b) Light duty trucks (LDTs)**

Electric Vehicles – EV : 0

“Plug In” Electric Vehicle – PHEV: 0

Hybrid vehicles – HEV – (e.g., non “Plug In”- older Ford Escape Hybrid, older Chevrolet Silverado pickup hybrid etc): 0

Hydrogen fuel cell vehicles: 0

Natural Gas/propane: 1

Gas/diesel: 46

## **c) Heavy duty vehicles (HDV)**

Electric Vehicles – EV : 0

“Plug In” Electric Vehicle – PHEV : 0

Hybrid vehicles – HEV – (e.g., non “Plug In”): 0

Hydrogen fuel cell vehicles: 0

Natural Gas/propane: 0

Gas/diesel: 11

## **5. Please indicate the number of the vehicles you plan to replace in your fleet:**

How much do you budget per LDV?: 30000

How many LDVs do you plan to procure annually over the next 5 years?: 2

How much do you budget per LDT?: 40000

How many LDTs do you plan to replace annually over the next 5 years?: 3

How much do you plan to spend per HDV?: 60000

How many HDVs do you plan to replace annually over the next 5 years?: 1

## **C. Office Paper: Indicate which actions your PSO took in 2018:**

### **6. Actions taken by your organization in 2018 to support emissions reductions from paper supplies.**

#### **a) Do you have an Office Paper strategy?**

Yes

#### **I. If yes, what are its goals?**

To reduce print by 35% in 5 years.

**b) Whether you have a strategy or not (6.a), briefly describe your organization's plans to continue reducing emissions from paper use:**

**I. Over the medium-term (1-5 years)**

Defaulted printers to double sided, and black and white printing. Printing jobs are only released when employees are logged into the printer.

**II. Over the long term (6-10 years)**

Digital learning is promoted throughout the District and as this trickles through the grades there is an expectation that less printing will occur as digital learning becomes the norm.

**c) Have an awareness campaign focused on reducing office paper use**

Yes

**d) Purchased alternate source paper (bamboo, hemp, wheat, etc.)**

No