



Chilliwack School District 33 - Partners in learning!

Located in the Fraser Valley of British Columbia, we are a learning community of over 14,000 students, served by 1,800 teachers and support staff. There are 20 Elementary schools, 8 Middle/Secondary schools and 3 Alternate sites.



Pictures top to bottom:
Rosdale Middle School, Sardis
Secondary Garden, SD33 Fleet bus



**Chilliwack
School District**

2018 Carbon Neutral Action Report

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EXECUTIVE SUMMARY

Due to the continued pressures of student population growth our efforts for the 2018-19 school year have been focused on creating classroom space. This included relocating 16 portables, adding an additional 5 portables, and repurposing 20 non-instructional spaces within our schools to create additional classroom spaces.

Nonetheless through partnerships with B.C. Hydro, Fortis, and the Ministry, we have also been able to implement a number of projects and initiatives to help further reduce our carbon footprint. One highlight included a large boiler upgrade and retrofit at Unsworth Elementary. With this upgrade we were able to replace an end of serviceable life boiler with a high efficiency condensing boiler that not only improved reliability and occupant comfort but also reduced emissions. Through Ministry funding and the Carbon Neutral Capital Program (CNCP) we were able to reduce 25 Tonnes of harmful Green House gasses being released into the atmosphere.

Other Mechanical upgrades included a boiler upgrade at G.W. Graham Secondary and several mechanical upgrades throughout the district. Further steps have also been taken to improve building performance through review and recommissioning of the BMS software through continuous optimization.

Our staff, students, parents and community partners continue to develop a culture of sustainable thinkers by practicing conservation activities in our buildings daily; turning off the lights and recycling and composting at each site. This also supports our City's mandate. "Green Teams" of students throughout the district continue to share their enthusiasm and knowledge with other students and staff on a variety of green projects including our most recent district wide recycling and composting program. We are also encouraged by our district's initiative to print less paper and shift towards electronic document storage in an effort to reduce paper consumption.

While the Chilliwack School District is continually working on reducing its carbon footprint, it still generates GHG emissions. Through careful planning and strategizing, we hope to further reduce our GHG emissions and meet our reduction goals for future generations.

Declaration statement: This Carbon Neutral Action Report for the period January 1st, 2018 to December 31st, 2018 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2018 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2019 and beyond.

By June 30, 2019 Chilliwack School Districts final *Carbon Neutral Action Report* will be posted to our website at www.s33.bc.ca.

OVERVIEWS

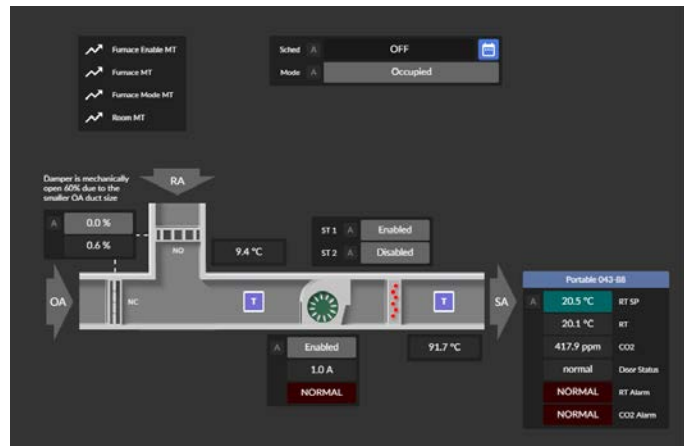
ACTIONS TAKEN TO REDUCE GREENHOUSE GAS EMISSIONS IN 2018

MECHANICAL UPGRADES

HVAC Control Upgrades (V3 DDC)

- A.D. Rundle Middle
- Evans Elementary
- Cultus Lake Elementary
- Majority of Portables

(Picture: DDC system - Typical Portable)



Mechanical Site Upgrades

- 12 Roof Top Units replaced with High Efficiency hybrid gas fired heat pumps at Evans Elementary.
- 5 Tempspec unit ventilators and 2 AHU replaced with High Efficiency Unit Ventilators along with occupancy sensors and CO2 detection at Cultus Lake Elementary.

(Picture: Evans Elementary Roof top unit replacement)



Boiler replacements to high efficiency condensing boilers



- Unsworth Elementary (CNCP funded)
- G.W. Graham Secondary
- Promontory Heights Elementary

(Picture: Unsworth Elementary)

Hot water tank replacement to on demand high efficiency tank less water heaters

- Evans Elementary
- GW Graham Secondary
- Promontory Heights Elementary

(Picture: GW Graham Secondary)



ELECTRICAL UPGRADES

- LED lighting installed for the Promontory Elementary expansion and in targeted upgrades and renovations throughout the district.
- Dark campus exterior lighting practice along with astronomic time clocks and DDC scheduling to capitalize on energy savings.

TECHNOLOGY UPGRADES

- Power management settings have been utilized in all computers, copiers, and printers.
- Continual updating of the districts computer inventory.
- Reduced Paper consumption with the use of *PaperCut* software and low use presets like standard double-sided printing and print release functions.
- Laserfiche software used for electronic document storage to digitize student files.

BUILDING ENVELOPE UPGRADES



- All new portables ordered to high district standard: high efficiency windows, LED Lighting, high efficiency furnaces, and HVAC controls.
- Design stage for building envelope upgrades at Sardis Elementary.

(Picture: Sardis Secondary Portable lift)

CUSTODIAL UPGRADES

- Implementation of recycling and organic management system, “Bin Be Gone”.
- Replacement old floor scrubbers with new scrubbers using ionized water instead of chemicals.
- Water conservation with water bottle filling stations.

(Picture: “Bin Be Gone” system at Board the School District office)



TRANSPORTATION



- Encourage carpooling to all district events.
- 10-year Capital plan for fleet vehicle replacement based on vehicle age, fuel consumption, and maintenance costs.

(Picture: SD33 Transportation Service Shop)

CONTINUE REDUCING GREENHOUSE GAS EMISSIONS 2018-2019

- New future 900 occupancy K to 8 School will to be designed to meet current LEED Gold standards.
- All upcoming Expansions to include latest in Energy saving technologies.
- Recently Purchased University of the Fraser Valley site to receive Mechanical and Electrical Upgrades pending Ministry funding.
- Continue with lighting and distribution upgrades throughout the district.
- Fine-tune and review of current control systems and scheduling to better optimize building performance.
- Continual upgrades to our Building Management Software (BMS) and Direct Digital Controls (DDC).
- HVAC mechanical systems and boiler plants to will be continually upgraded to reduce GHG emissions.
- Further Energy Studies will be performed for future Energy related projects in mechanical and lighting.
- In-depth assessment of current inventory of buildings and assets to establish project list and a timetable using consumption data along with operational costs.
- Building envelope upgrades to aging building infrastructure to improve insulation in regards to heat loss and cooling.
- Create green, sustainability, energy conservation or climate action teams with the support of senior school district staff.
- Continue to encourage carpooling.
- Encourage staff to consider virtual attendance/presentations at events where possible.
- Continue to provide education to staff, student and Green Team initiative's about the conservation of water, energy and raw materials.
- Investigate opportunities into increased recycled paper content as a district standard.

EMISSIONS AND OFFSET SUMMARY TABLE

Chilliwack School District GHG Emissions and Offset for 2018 (tCO ₂ e)	
GHG Emissions created in Calendar Year 2018	
Total Emissions (tCO ₂ e)	3,717
Total BioCO ₂	42.02
Total Offsets (tCO ₂ e)	2,802
Adjustments to GHG Emissions Reported in Prior Years	
Total Emissions (tCO ₂ e)	0
Total Offsets (tCO ₂ e)	0
Grand Total Offsets for the 2018 Reporting Year	
Grand Total Offsets Required (tCO ₂ e)	2,802
Total Offset Investment	\$70,050

Retirement of Offsets:

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

Executive sign-off: *[To be signed by a senior official, such as **CEO, COO or Superintendent**]*



May 28, 2019

Signature	Date
Rohan Arul-pragasam	Superintendent
Name (please print)	Title

Part 1: CNAR Survey

1. General Information

Name: Tom Nichols

Contact Email: Tom_Nichols@sd33.bc.ca

Organization Name: Chilliwack School District

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: Yes

CEO/President/Exec Director: No

Treasurer/Accounting: No

Superintendent: No

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?: Main goals are to reduce Green House Gas emissions by identifying opportunities for reduction and improving building performance through targeted retrofits, upgrades and cultural change.

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)

- Continue to upgrade building infrastructure with more efficient mechanical and electrical equipment to reduce overall energy usage.
- Continue to Improve building management software and automation to optimize building performance.
- Continue building envelope upgrades to improve building insulation.
- Educate staff and students and Provide awareness of energy usage and how it effects GHG emissions.
- Identify areas and opportunities for reduction.
- Target end of serviceable life requirements and replacements with Life upgrades needed with targeted building upgrades

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

- All new building to incorporate the latest in energy saving technology and Lead Gold Standards.
- Look at energy alternatives like that of solar.

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

- Energy audits based on individual building performance and higher than normal energy use.
- Energy audits performed when replacing or upgrading building infrastructure.

I. What % on average of your building portfolio has an energy audit completed each year (if any)? : 9

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

- Targeting all upcoming end of serviceable life building requirements and replacements with High efficiency energy upgrades.

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.) (%): 5

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.) (%): 8

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

- Continuous optimization of the Building Management System done as Mechanical and Control Upgrades are performed.
- re/retro-commissioning done on individual building performance and higher than normal energy use.

I. What % on average of your building portfolio do you recommission each year?: 3

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

No

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

N/A

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.

N/A

h) Other actions? Please describe briefly.

All new sites and building designs will incorporate the latest in energy saving technology and LEED Gold Standards.

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?**

Yes

I. If yes, what are its goals?

- Increased vehicle maintenance interval to keep district fleet running at optimum efficiency.
- Vehicle replacement done annually to replace aging and higher emission vehicles.
- New purchase vehicle size based on operational needs

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)**

- 1-5 year capital plan for fleet replacement based on fuel consumption analysis (cost per km) as well as taking into account maintenance costs and manufacture dates.
- Increased maintenance schedule of fleet to better optimize overall vehicle effectiveness and efficiency.

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

6-10 year capital plan to explore alternate energy sources like that of E.V. and Natural gas technology towards fleet replacement.

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: 5

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

- Gas/Diesel vehicles were purchased due to operational needs, serviceability and large infrastructure costs associated with the alternative fuel types.

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

f) Other actions, please describe briefly (e.g. charging station feasibility studies, electrical panel upgrades, etc.)

Vehicle charging stations included in future new building infrastructure.

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: 0

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: 0

Gas/diesel: 11

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: 39

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

How much do you budget per LDV?: 0

How many LDVs do you plan to procure annually over the next 5 years?: 0

How much do you budget per LDT?: 60000

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

How much do you plan to spend per HDV?: 420000

How many HDVs do you plan to replace annually over the next 5 years?: 7

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?**

No

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)**

- Continued use of PaperCut software that uses presets like standard double-sided printing and print release functions.
- Laserfiche software used for electronic document storage to digitize student files.
- Looking into policy regarding mandatory recycle content in paper usage.

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

- Look into further Paper less software offered in the future for district wide use.

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

Yes

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

No