



# 2021 CLIMATE CHANGE ACCOUNTABILITY REPORT

MAPLE RIDGE - PITT MEADOWS SCHOOL DISTRICT NO.42

# EXECUTIVE SUMMARY



This Climate Change Accountability Report for the period January 1, 2021 to December 31, 2021 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2021 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2022 and beyond. By June 30, 2022, the final 2021 Climate Change Accountability Report for Maple Ridge - Pitt Meadows School District No. 42 will be posted to the district website at [www.sd42.ca/sustainability](http://www.sd42.ca/sustainability).

Maple Ridge – Pitt Meadows School District has been undertaking energy management projects since 2014 that resulted in energy savings of 5.6-million-kilowatt hour (kWh) and 9,823 gigajoules (GJ). The School District will continue to pursue capital investments that will result in reducing school district’s greenhouse gas emissions and support environmental sustainability education initiatives. As part of that carbon neutral commitment, the school district developed an Environmental Sustainability Plan that was included in the Strategic Facilities Plan that outlines environmental sustainability measures to further reduce emissions from facilities, school district operations, and vehicle fleet. The goals of the Environmental Sustainability Plan are to reduce greenhouse gas emissions by 22% by 2026 and to improve building efficiency by 20% by 2026.

Harry Dhillon, Superintendent of Schools  
May 18, 2022





## 2021 GREENHOUSE GAS (GHG) EMISSIONS

Using data from utilities, and district systems the total emissions for the district are reported here for the 2021 calendar year. These emissions are a summary of all emissions related to building use, maintenance fleet, and paper usage.

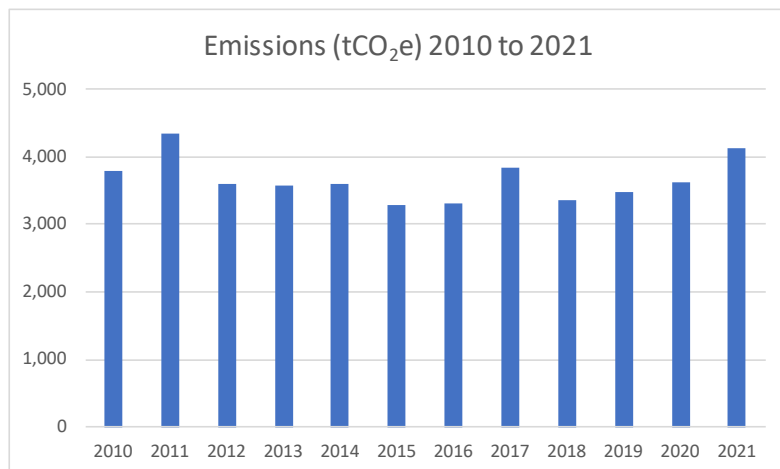
SCHOOL DISTRICT NO. 42 GHG EMISSIONS AND OFFSETS FOR 2021 (tCO <sub>2</sub> e)	
GHG Emissions Created in Calendar Year 2021	
TOTAL EMISSIONS	4,100
TOTAL BIOCO <sub>2</sub>	5.16
TOTAL OFFSETS	4,093
Offset Investment (\$25 per tCO <sub>2</sub> e)	
TOTAL	\$102,325

### RETIREMENT OF OFFSETS:

In accordance with the requirements of the Climate Change Accountability Act and Carbon Neutral Government Regulation, Maple Ridge - Pitt Meadows School District (SD42) (the Organization) is responsible for arranging for the retirement of the offsets obligation reported above for the 2021 calendar year, together with any adjustments reported for past calendar years (if applicable). The Organization hereby agrees that, in exchange for the Ministry of Environment and Climate Change Strategy (the Ministry) 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.

### EMISSIONS TRENDS

In 2021, the school district's COVID-19 response plan continued to require the implementation of operational changes to the HVAC systems to increase fresh air supply and prolong occupied ventilation schedules to curb the spread of COVID-19 indoors. These changes resulted in increased energy consumption in the school district.



## PROJECT HIGHLIGHTS

### RIVERSIDE LIGHTING

The lighting at Riverside Centre has had a dramatic upgrade. Lighting throughout the facility used to be predominantly T12 (80%) and T8 (20%) fluorescent technology. Lighting was manually turned on/off by school staff. The new lighting includes LED energy efficient lighting, occupancy sensors in all classrooms and the gymnasium, as well as dimmers. The lighting upgrade provides energy savings of 73,000 kWh or approximately \$7,300 annual utility cost savings. Additional benefits include improved lighting levels and more consistent lighting.

### GARIBALDI SECONDARY BOILER UPGRADE

Garibaldi Secondary had several mechanical rooms with equipment at end of life requiring upgrades. The upgrades included: removing the old heater and storage tank and replaced with two new high efficiency water heaters, six new IBC 300 high efficiency condensing boiler modules, new secondary pumps with variable speed drives, new DDC system and new sequences of operation for the new boiler system and pumps, as well as a number of additional upgrades aimed to maximize energy efficiency. The upgrade will see a 20-30% reduction in the building's natural gas consumption and greenhouse gas emissions. This would account for approximately a reduction of 768 GJ, 80,000 kWh and 40 tCO<sub>2</sub>e and \$15,000 annual utility cost savings.

### HVAC CONTINUOUS OPTIMIZATION

The Continuous Optimization Program is a joint offer from BC Hydro and FortisBC which provides SD42 assistance to save energy and improve operations in large commercial buildings without having to undertake a major capital investment. The primary focus on the continuous optimization projects at Thomas Haney Centre, Samuel Robertson Technical and Garibaldi Secondary are to improve the efficiency of the most energy-intensive systems, such as the heating, ventilation and air-conditioning (HVAC) with simple, low-cost solutions. These projects are estimated to generate savings of 130,000 kWh or \$13,000 annually.





## PROJECTS SPOTLIGHT: SAMUEL ROBERTSON ELECTRIFICATION

Samuel Robertson Technical school is home to 12 portables that are heated entirely by propane. This leads to nearly 25 tons of CO<sub>2</sub> emissions per year and the need to store and refill large on-site propane tanks. The school district removed the propane furnaces and replaced them with high efficiency heat pumps. These heat pumps run on electricity and will ultimately reduce district emissions by 24 tons of CO<sub>2</sub>e per year and improve the resiliency for these spaces by removing the need for large propane storage tanks. This upgrade will not only improve the sustainability of these spaces, but will also improve the thermal comfort of students and staff through heating and cooling operations for warmer summer months.



## SUSTAINABILITY SPOTLIGHT: ALEXANDER ROBINSON ELEMENTARY WINS THE ENERGY CUP

Students at Alexander Robinson Elementary (ARE) took home the coveted Energy Cup after winning a contest that saw schools compete to reduce their environmental footprint. ARE had the most green initiatives of all the contestants and even tried to start producing power from the wind.

Students learned about sustainability as they competed to reduce waste, cut down electricity consumption, and limit greenhouse gas emissions during the Energy Cup Challenge. The contest was neck and neck for most of the month.

Webster's Corner Elementary won the first week, which focused on electricity consumption, when students managed to reduce their lighting by an average of 342 hours per division.

The second week's theme was emissions, which Eric Langton Elementary (ELE) won by avoiding nearly 22 tons of CO2 emissions. ELE won again in week three, when students reduced their garbage consumption by an average of 240 pieces per division.

ARE led the final week, where students and teachers shared what they learned during the challenge through social media and virtual presentations. When all the points over the four-week contest were tallied, ARE led all the other schools.



## PLANS TO CONTINUE REDUCING GREENHOUSE GAS EMISSIONS IN 2022



- Complete boiler upgrades aimed at replacing end of life equipment and increasing energy efficiency.
- Heating, ventilation and air-conditioning (HVAC) optimization opportunities in school district facilities.
- Proactively deliver regular energy intensity reports to departmental personnel for use in raising general awareness and examining variances from established targets.
- Prepare energy conservation initiatives to ensure students and staff have an active role in reducing our energy consumption.
- Improve communication of the energy conservation initiative to the broader organization to raise awareness.
- Encourage participation in the Go Green Together initiative, previously Energy Cup Challenge.
- Continue meeting with and expanding the staff Environmental Sustainability Committee.



2021 CARBON NEUTRAL ACTION REPORT

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