



# 2020 PUBLIC SECTOR ORGANIZATION CLIMATE CHANGE ACCOUNTABILITY REPORT

MAPLE RIDGE - PITT MEADOWS SCHOOL DISTRICT NO.42

# EXECUTIVE SUMMARY



This Climate Change Accountability Report for the period January 1, 2020 to December 31, 2020 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2020 to reduce our greenhouse gas emissions, and our plans to continue reducing emissions in 2021 and beyond. By June 30, 2021, the final 2020 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).

On March 25, 2015, the Maple Ridge - Pitt Meadows Board of Education approved the *Energy Management Plan*. This plan includes the implementation of lighting as well as heating, ventilation, and air-conditioning (HVAC) upgrade opportunities in all 34 school district facilities. The plan will reduce greenhouse gas emissions by 758 tonnes of CO<sub>2</sub>.

This plan serves as a framework for achieving improvements in energy performance. The document outlines projects, supportive administrative regulations, and behavioural-change initiatives through outreach and education that will guide the district in its long-term effort to reduce costs and save energy.

Harry Dhillon, Superintendent of Schools  
May 14, 2021



## 2020 GREENHOUSE GAS EMISSIONS

Using data from utilities and district systems, the total emissions for the district are reported here for the 2020 calendar year. These emissions are a summary of all emissions related to building use, maintenance fleet, and paper usage.

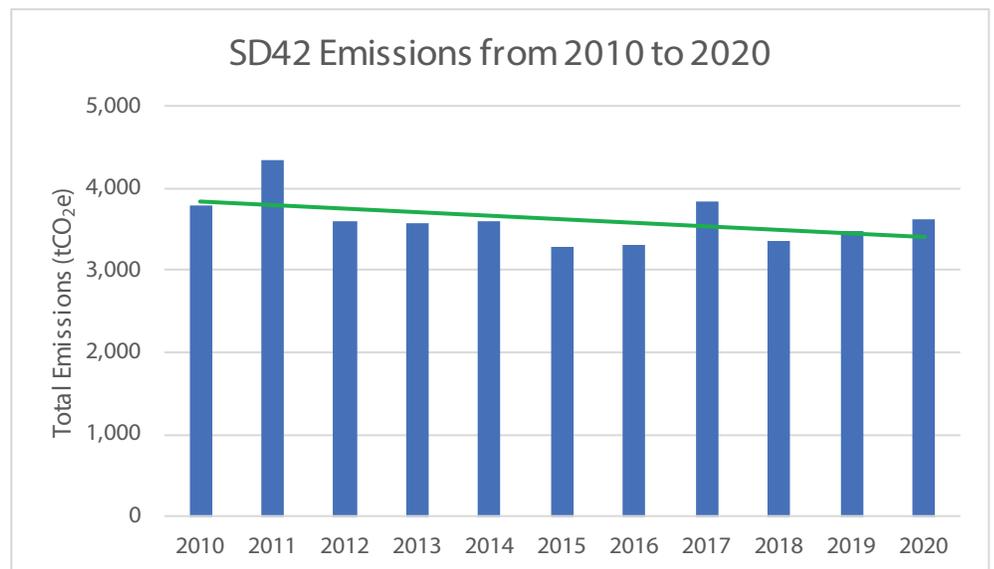
SCHOOL DISTRICT NO. 42 GHG EMISSIONS AND OFFSETS FOR 2020 (tCO <sub>2</sub> e)	
TOTAL EMISSIONS	3,612
TOTAL BIOCO <sub>2</sub>	5.02
TOTAL OFFSETS	3,617
Offset Investment (\$25 per tCO <sub>2</sub> e)	
TOTAL	\$90,425

## 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 No. 42 ("the Organization") is responsible for arranging for the retirement of the offsets obligation reported above for the 2020 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

Since 2010, the Maple Ridge - Pitt Meadows School District has seen a 4% reduction in overall emissions.





## PROJECT HIGHLIGHTS

### BOILER UPGRADES

Four elementary schools received major boiler upgrades this year, replacing older boilers running at 70-75% efficiency with high-efficiency condensing boilers that operate at 95% efficiency. These projects saved an estimated 722 GJ of natural gas and translated to a total of 36 tons of CO<sub>2</sub>e per year of avoided emissions. In the spirit of continual optimization, a pilot program was also tested at Pitt Meadows Elementary to analyze and improve the surrounding boiler equipment and control systems and maximize the potential system savings. Measurement and verification is on-going so that the district can understand the value of this kind of optimization for future implementations.



### HEATING SYSTEM ADDITIVE TRIALS

The school district took the initiative to implement a new type of boiler system additive in three separate elementary schools. This additive is designed to improve building heating efficiency by 15%. The trials are on-going but are expected to save 515 GJ of natural gas per year - a reduction of 25 tons CO<sub>2</sub>e per year. If the trials are successful, the school district will have the opportunity to explore how small changes can help move us closer to its 2030 emission targets.



### SAMUEL ROBERTSON ELECTRIFICATION

On the Samuel Robertson Technical Secondary school site there are 12 portables heated entirely by propane. This leads to nearly 25 tons of CO<sub>2</sub>e emissions per year, and requires the storage and refilling of large on-site propane tanks. With help from the federal government, the district embarked on an improvement project to remove the propane furnaces and replace them with high efficiency heat pumps. These heat pumps, which run on electricity, will ultimately reduce district emissions by 24 tons of CO<sub>2</sub>e per year and remove the need for the storage of large propane tanks. The upgrade will not only eliminate the need to store large propane tanks on the school site, but will improve the efficiency of heating and cooling operations during warmer summer months, resulting in more comfortable learning environments for students and staff.

## SUSTAINABILITY HIGHLIGHTS

*APRIL 2021*

### ENERGY CUP CONTINUES

The sixth annual Energy Cup went ahead this year in a slightly modified manner. The challenges were split into four weeks, each with their own theme, including energy, emissions, waste, and sharing sustainability stories. Seven schools signed up to take on the challenge this year, each trying their hand at winning the weekly cash prize, and ultimately the Energy Cup. The challenge saw a 10% reduction in electricity consumption in week one, 40 tCo2e emissions avoided in week two, 7,000 fewer pieces of garbage brought to school in week three, and more than 100 stories were shared on social media in week four.

*APRIL 8, 2021*

### SECONDARY SUSTAINABILITY FORUM

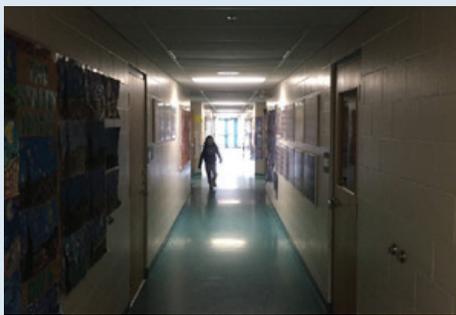
The first year of the secondary sustainability forum was launched in April to better engage with our youth leaders. The forum is designed to create a district wide network of sustainability champions by connecting eco teams from across the district to discuss what they're doing in their own schools. The forum was also an opportunity to have speakers present and discuss with youth leaders about how to make sustainable changes in the community, connect them to other organizations that might help their efforts, and get inspired by some of the work happening in the British Columbia sustainability network.

*NOVEMBER 4, 2020*

### SD42 INSTALLS ELECTRIC VEHICLE (EV) CHARGING STATIONS

The first electric vehicle chargers in the Maple Ridge - Pitt Meadows School District were installed at c̓asq̓onele Elementary, and were open to the public in November 2020. These chargers support the transition to an emission free transportation system.

In the last year, British Columbia has been home to the highest adoption rate of electric vehicles per capita in Canada and the district is proud to be part of this transition.





## DISTRICT OPENS INNOVATIVE NEW ELEMENTARY SCHOOL

The Maple Ridge Pitt-Meadows School District and the Ministry of Education are committed to a more sustainable future. When a new school was built for the 2019 school year, the reduction of emissions was at the forefront of the mechanical system design. The design incorporated not only high efficiency condensing boilers, but also a state of the art heat pump system that allows for the simultaneous heating and cooling of the building and optimizes energy usage. In certain operating conditions, this equipment can achieve a Coefficient of Performance of 14, which means that for every 1 input of electricity, the building receives 14 inputs of heating and/or cooling energy.

This innovative design, along with improved envelope performance and airtight construction methods, makes c̓əs̓q̓ənel̓ Elementary the most efficient building in the district. The building emits just 0.01 tCO<sub>2</sub>e/m<sup>2</sup>, which is half the district average.

Other innovative technologies installed include a 10kW solar array, cooling beams in classrooms, and electric vehicle charging stations in the parking lot.



## PLANS TO CONTINUE REDUCING GREENHOUSE GAS EMISSIONS IN 2021



- Implement a Long-Term Sustainability Plan that sets strategic and achievable emission-reduction targets aligned with CleanBC targets for the public sector.
- Continuously improve and review our operational policies in an effort to reduce utility consumption.
- Focus on end of life equipment replacement with full system boiler upgrades to maximize the reduction of natural gas usage in our facilities.
- Heating, ventilation and air-conditioning (HVAC) upgrade opportunities in school district facilities: direct digital control (DDC) upgrades, scheduling and security integration, occupancy sensor controls, heating plant optimization, and supply air pressure (SAP) reset.
- 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 energy awareness.
- Continue meeting with and expanding the staff at the Environmental Sustainability Committee.



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ACCOUNTABILITY REPORT**

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