



2023 PSO Climate Change Accountability Report

School District 38
(Richmond)

Acknowledgement of Territory



The Richmond School District acknowledges and thanks the First Peoples of the hə́ŋqəmíə́m language group on whose traditional and unceded territories we teach, learn and live.

PART 1. Legislative Reporting Requirements

DECLARATION STATEMENT:

This PSO Climate Change Accountability Report for the period January 1, 2023 to December 31, 2023 summarizes our greenhouse gas (GHG) emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2023 to minimize our GHG emissions, and our plans to continue reducing emissions in 2024 and beyond.

By June 30, 2024, School District 38's final 2023 *Climate Change Accountability Report* will be posted to our website at www.sd38.bc.ca.

EMISSION REDUCTIONS: ACTIONS & PLANS

At its Public Meeting on 15 December 2021, the Richmond Board of Education adopted its new [District Sustainability & Climate Action Plan](#) (DSCAP). The DSCAP is the strategy the Richmond School District is following to reach our targets of a 50% reduction in greenhouse gas emissions from building sources, and a 40% reduction from mobile sources, by 2030 and net zero GHG emissions by 2050.

The DSCAP is part of the District's [2020-2025 Strategic Plan](#).

GOAL 2

The district's facilities are well-maintained, equitable, safe and conducive to learning.

OBJECTIVES

- I. Provide equitable learning environments through effective and efficient facilities planning, management and resource allocation.
- II. Provide clean, healthy and safe facilities.
- III. Implement the 2020 Maintenance Review recommendations to optimize service delivery and improve the quality and timeliness of maintenance to our facilities.
- IV. Implement strategic recommendations in the Long-Range Facilities Plan.
- V. Work collaboratively with the Ministry of Education to accelerate seismic upgrading of our schools.
- VI. Create learning environments that are flexible and support inclusive educational practices.

GOAL 3

The district fosters energy efficient and environmentally sustainable facilities and practices.

OBJECTIVES

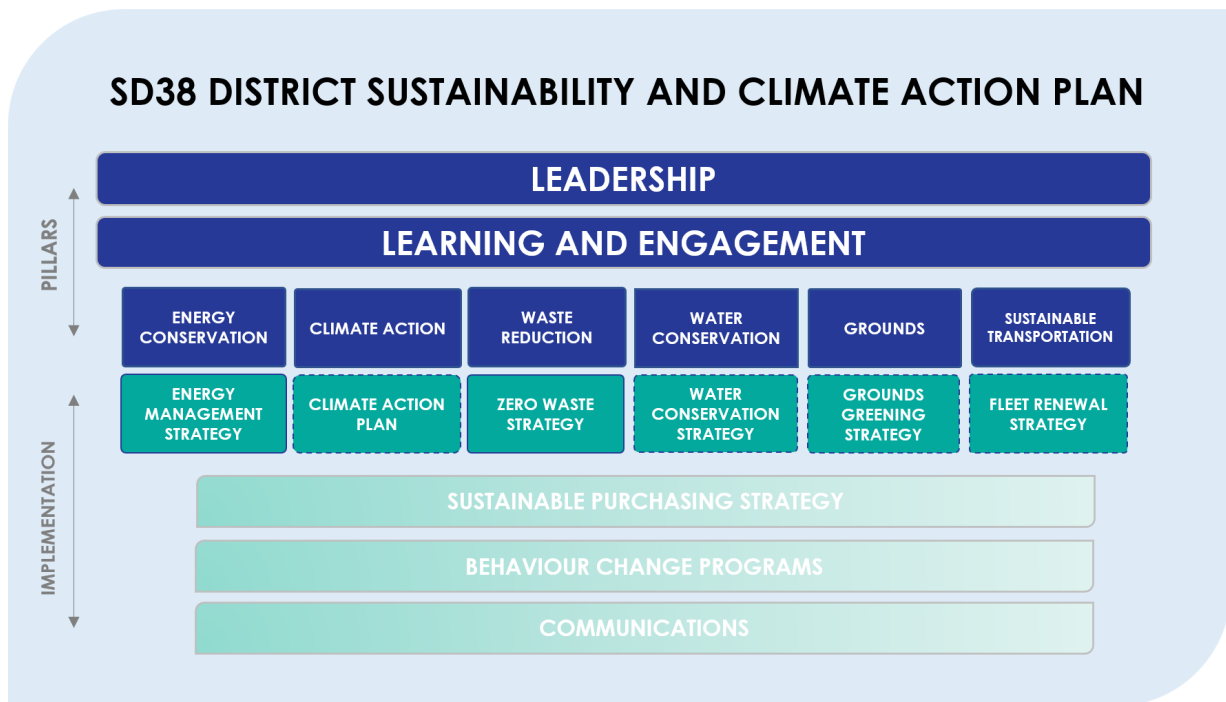
- I. Develop and implement a five-year Sustainability and Climate Action Plan.
- II. Improve the energy efficiency, climate resiliency and sustainability of all facilities through capital improvements.
- III. Implement sustainable practices and programs to improve waste diversion rates, reduce waste generation, reduce greenhouse gas emissions, conserve water and promote climate action.
- IV. Increase sustainability education, awareness training and learning opportunities for staff and students.

The DSCAP itself has nine Pillars that guide how the Richmond School District links our core mandate of education with sustainability and climate action. The genesis of these pillars was from the active leadership in environmental stewardship dating back to 2011, and have a number of associated Board policies, regulations, and guidelines:

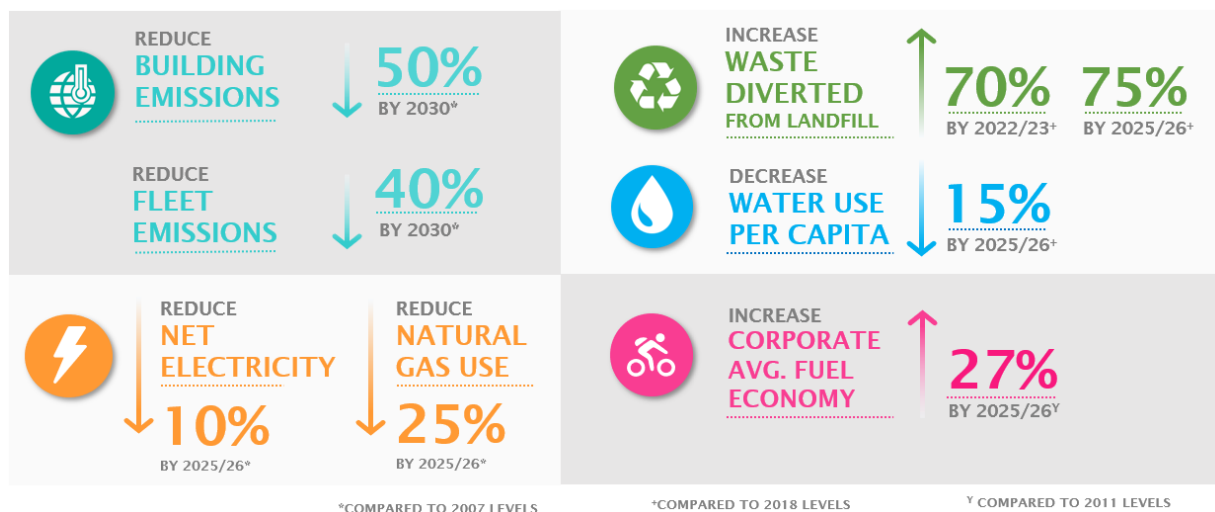
- [Policy 512.14.1 - Environmental Stewardship](#)
- [Regulation 512.14.1-R - Environmental Stewardship](#)
- [Administrative Guideline 512.14.1-G - Environmental Stewardship](#)
- [Administrative Guideline 512.14.1-G - Energy Conservation](#)
- [Administrative Guideline 512.14.1-G - Grounds Greening](#)
- [Administrative Guideline 512.14.1-G - Sustainable Purchasing](#)
- [Administrative Guideline 512.14.1-G - Sustainable Transportation](#)
- [Administrative Guideline 512.14.1-G - Waste Management](#)
- [Administrative Guideline 512.14.1-G - Water Management](#)



How the pillars interact is shown in the following:



For the 2021-26 period covered by the DSCAP, a summary of overall objectives is as follows:



Overview

In 2023, we have achieved a **29% reduction in building** and a **19% reduction in fleet emissions from the baseline in 2007**, making good progress in both metrics against our 2030 targets. The overall GHG emissions in 2023 returned to pre-pandemic levels, with a reduction of 653 tonnes of CO₂ equivalent compared to 2022, and \$15,600 saved in avoided carbon offset costs.

Richmond School District 38 (SD38) GHG Emissions [tonnes CO₂e] Comparison in 2022 & 2023

	2022	2023	% Change from 2022
A. Stationary Sources - Buildings	5,921	5,197	-12.22%
B. Mobile Sources - Fleet	389	425	+9.25%
C. Office Paper	213	247	+16.14%
Total	6,522	5,869	-10.01%

A. Stationary Sources - Buildings

In 2023, we maintained the focus of our greenhouse gas (GHG) reduction initiatives from our largest emissions source: our buildings. Natural gas consumption in 2023 was lower compared to 2022 due to a combination of factors.

GHG emissions from buildings result from the fossil fuels consumed to provide heating to schools and other District facilities. These emissions account for 89% in 2023, compared to 91% in 2022 (Figures in *Appendices A, B, C & D*). The GHG emissions from stationary sources also returned to the pre-pandemic level (Figures in *Appendix G*).

Specific reductions in natural gas consumption were achieved by:

- Continuous Optimization (C-Op) projects implemented at 10 sites:
 - Boyd Elementary,
 - Byng Elementary,
 - Kidd Elementary,
 - Facilities Services Centre,
 - McNair Secondary,
 - McNeely Elementary,
 - Palmer Secondary,
 - Richmond Secondary,
 - Steveston-London Secondary,
 - Talmey Elementary.
- Implemented two (2) boiler replacement projects for high-efficiency condensing boilers at Talmey and Homma Elementary Schools (606 GJ saved).
- Implemented a Rooftop Unit (RTU) replacement project for high-efficiency RTUs at Tomsett Elementary School (72GJ saved).
- Completed Direct Digital Control (DDC) upgrades at McMath, Brighthouse and Hamilton.
- Energy-saving behavioural campaign on plug loads to reduce unnecessary electricity consumption in 9 schools (6 elementary and 3 secondary). The results varied, with some schools showing a decrease in electricity consumption while some schools showing a drastic increase. In 2024, the District intends to run the campaign again improve campaign understanding across our schools.
- LED upgrades implemented at Byng Elementary and McRoberts Secondary.

In 2023, the occupied floor area of the District slightly increased by 0.1% from 275,770 m² in 2022 to 276,038 m² in 2023 (Figures in *Appendix G*). Despite this increase, there were still 622,369 kWh of electricity and 15,143 GJ of natural gas saved in 2023, far beyond the annual target reductions of 275,000 kWh/year of electricity and 2,000 GJ/year of natural gas.

B. Mobile Sources - Fleet

The use of fossil fuels to power the District's fleet vehicles, including maintenance vehicles and school buses, contributes to fleet emissions. The fleet accounted for 7% of the District's overall emissions in 2023.

In order to reduce the fleet emissions, there is a two-pronged approach:

- Behavioural – providing training and planning resources to all employees that drive District vehicles on route planning and economic driving techniques.

- Technical – as existing vehicles reach a point where maintenance cost is greater than the cost of replacement, they will be retired in favour of electric vehicles where feasible, or with a more fuel-efficient version.

In 2023, Richmond School District acquired 3 gasoline GMC Sierra 3500 trucks to replace 3 obsolete grounds trucks with snow equipment (via BC Auction). Further, 1 small bus and 3 GMC Safari vans were also retired from the fleet. Mobile emissions increased from 389 tonnes of CO₂ equivalent in 2022 to 425 of tonnes CO₂ equivalent in 2023 (Figures in *Appendix E*). Due to higher student enrolment from 21,678 in 2022 to 22,772 in 2023 (a 5% increase), there is a corresponding increase in school bus services (Figures in *Appendix G*). Moreover, there is an increase in operational use on school facilities due to the larger student population, which led to an increase repair and maintenance services supported by our ground vehicles (Figures in *Appendix G*).

Although we have seen an increase in GHG emissions, the Richmond School District has achieved an increase in our Corporate Average Fuel Economy of 28% compared to baseline through the retirement of less fuel efficient vehicles, and a corresponding reduction in fuel use of 20%.

C. Paper Consumption

Supplies emissions are indirect and originate from the District's use of office paper. In 2023, supplies accounted for 4% of the District's overall GHG emissions, a slight increase from 213 tonnes of CO₂ equivalent in 2022 to 247 tonnes of CO₂ equivalent in 2023 (Figures in *Appendix F*). Similar to Mobile Sources, the higher number of students has increased the quantity of paper used in the District in 2023 (Figures in *Appendix G*). The actions taken to reduce paper consumption have included communicating benchmarked data to schools, greater use of electronic means to provide information to students and staff, and defaulting printers to double-sided printing.

D. COVID-19 Impacts on Energy and GHG Performance

We phased out the post-occupancy ventilation flushing as a response to Covid-19 while maintaining the pre-occupancy flush (per the latest ASHRAE, BC CDC and US CDC guidelines). This has returned our HVAC operations to pre-pandemic schedules. Further, SD38 has completed a project to install mechanical ventilation into all schools that did not have it, which has also helped to alleviate concerns about needing to open exterior doors and/or windows during heating season.

E. Plans to Continue Reducing Greenhouse Gas Emissions

In 2024, we are continuing with the District's comprehensive energy conservation program and have a number of energy efficiency projects slated for 2023/24 including:

- Investigation of Continuous Optimization programs at 10 sites: Currie Elementary,

- DeBeck Elementary,
- Garden City Elementary
- Grauer Elementary,
- Ferris Elementary,
- Homma Elementary,
- Kingswood Elementary,
- Maple Lane Elementary,
- McKay Elementary,
- Steves Elementary.
- Boiler upgrade projects to high-efficiency condensing boilers at Boyd and Kilgour Elementary Schools.
- Direct Digital Control (DDC) upgrades at Errington, Kingswood, and McNeely.
- LED lighting upgrade at 3 sites: Blundell, Brighthouse, and Palmer.
- Rooftop Unit (RTU) replacement project to high-efficiency RTU at Facilities Services Centre.
- The EV infrastructure upgrade at the Facilities Services Centre with the support of the federal Zero Emission Transit Fund (ZETF) (50%) and the EV Fleet Ready program (50% upon completion of a fleet electrification and infrastructure upgrade study).

2023 GHG EMISSIONS AND OFFSETS SUMMARY TABLE

Richmond School District 38's 2023 GHG Emissions and Offsets Summary	
GHG emissions for the period January 1 - December 31, 2023	
Total BioCO ₂	15.5
Total Emissions (tCO ₂ e)	5,885
Total Offsets (tCO ₂ e)	5,709
Adjustments to Offset Required GHG Emissions Reported in Prior Years	
Total Offsets Adjustment (tCO ₂ e)	0
Grand Total Offsets for the 2023 Reporting Year	
Grand Total Offsets to be Retired for 2023 Reporting Year (tCO ₂ e)	5,709
Offset Investment (\$)	142,725

RETIREMENT OF OFFSETS:

In accordance with the requirements of the *Climate Change Accountability Act* and Carbon Neutral Government Regulation, School District 38 (Richmond) (**the Organization**) is responsible for arranging for the retirement of the offsets obligation reported above for the 2023 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.

PART 2. Public Sector Leadership

2A. CLIMATE RISK MANAGEMENT

In March 2019, Richmond City Council declared a climate emergency in response to the urgent call set out by the United Nations' Intergovernmental Panel on Climate Change (IPCC), joining more than 600 cities across the world that have made similar declarations. The City has set the target of reducing GHG emissions in Richmond by 50% by 2030, and net-zero GHG emissions by 2050¹.

In 2021, SD38 added a Climate Action pillar to our sustainability strategy to emphasize the importance of taking bold and swift action to do our part to mitigate the impacts of climate change. We will do this by reducing our emissions, operating low carbon, efficient and climate resilient facilities and schools, and outlining the operational and engagement changes we need to take to meet our climate goals.

We also acknowledge the climate emergency and will develop climate adaptation plans to identify how SD38 can mitigate our climate risks and enhance resiliency of our facilities and operations. In our schools, climate action also needs to be understood as a social justice issue since climate change will impact marginalized populations the most.

Under BC's Carbon Neutral Government Regulation, SD38 is required to track, report and offset greenhouse gas (GHG) emissions each year. As the majority of our emissions come from using natural gas to heat District buildings, reducing building related emissions is our major priority. Fleet emissions represent a smaller portion of our emissions and are addressed through our Sustainable Transportation Strategy. With the provincial carbon tax scheduled to rise in \$25 per year increments until 2030, reducing our carbon emissions will not only help us mitigate our climate impact but will also result in cost savings for the District.

The impact of climate change increases the following risks for Richmond residents:

- More severe and more frequent flooding
- Increased demand on City drainage and sewage systems
- Loss of critical shoreline ecosystems
- Increased health risks caused by exposure to wildfire smoke
- Increased risk of heat stress and heat stroke
- Increased frequency and severity of summertime water restrictions
- Increased likelihood of wildfires

- *Information via City of Richmond*

¹ <https://www.richmond.ca/sustainability/climate/climateleadership.htm>

We also aim to provide educational opportunities to staff, educators, and students on climate change and how to take action on climate change, incorporating these important concepts into the curriculum and into staff training opportunities.

In 2023, the District conducted Climate Change Risk Assessments at three (3) sites in the District. Using the localized climate change projections through 2050, each facility was evaluated for actions to improve resiliency, service continuity, and embedding climate change into the Long Range Facilities Plan and District policies and regulations.

2B. OTHER SUSTAINABILITY INITIATIVES

The Richmond School District continues to create and support the necessary structures for an integrated, system-wide approach to environmental sustainability through the work of the **Richmond Sustainability Advisory Committee (RSAC)**, comprised of representatives from all stakeholder groups.

- The **RSAC** is a District advisory group made up of stakeholders from across the organization, including students, parents, educators, senior leadership and District staff.
- **Eco Cafés**: These meetings are meant to showcase the good work that Green and Eco Teams do with respect to sustainability and provide opportunities for schools to connect with each other in order to foster additional collaboration.

Meeting quarterly, the Energy and Sustainability Team reports on SD38's progress on its sustainability and climate action goals and solicits feedback on other initiatives that should be considered. Through our 'Eco-Wise' program, we continue to work towards embedding environmental stewardship in the day-to-day operations of the District and to incorporate Environmental Stewardship into the school curriculum and into the delivery of each employee's core mandates. The last RSAC meeting was held in April 2023.

The last Eco Café was held in February 2024 and featured the efforts of Richmond Secondary and Ferris Elementary and their Miyawaki Pocket Forest updates. Of note was the use of a variety of plant and tree species that was informed by First Nations perspectives, as well as species that are indigenous in Oregon state. This is to account for a changing climate and the anticipated increase in average temperatures over the next 30 years.

Inspired by the Environmental Stewardship Policy and guided by the DSCAP, multiple sustainability initiatives led by teachers and students have been implemented at schools:

1. **School-based Green and Eco Teams**: through the annual Eco-Wise grants funded by the Energy and Sustainability team, schools would undertake ownership of various sustainability initiatives. A number of activities are undertaken by school-based Green and Eco Teams, including:

- *Outdoor Learning Space upkeep*: recently presented to the Facilities and Buildings Committee, this is an initiative to work with school Green and Eco teams to teach them how to maintain these spaces, especially when the teacher who initiated them moves to another school. The intent is to provide continuity of approach culture across schools in maintaining these spaces, as teachers move around, and students graduate.
 - *Energy Wise Network activities*: as part of the Eco-Wise grants, Green and Eco Teams were asked to help with behaviour change campaigns that focus on energy conservation. The Energy-Wise Network is a program, jointly funded by BC Hydro and Fortis BC, that works with participating organizations to promote sustainable behaviours. Activities include: Holiday shutdowns (unplugging devices), BRR Days (sweater days when we lower the temperature in a school, in coordination with the HVAC team), Litter-less Lunches, and “Dining in the Dark” (turning out the lights).
2. **Green Ambassadors program**: run in conjunction with the City of Richmond, Green Ambassadors are volunteers who work at large community events to help the community appropriately sort their waste at these events. It has since morphed into a monthly meeting that is part training, part students presenting on various sustainability topics of interest each month. We present a District update and answer questions students may have about all things sustainability that the District is doing.
 3. **Zero Waste Strategy**: We have been implementing a full waste management program comprising District-wide organics and recyclables collection in our schools and administrative buildings. Paper towel is now collected like other organic wastes, all are being separated and diverted from the landfill to become ‘class A’ compost in all of our facilities. Refundable beverage container collection programs for schools were widely implemented as well. In addition, there is a pilot program of “Superfy waste monitoring meters” inside the bins of 3 sites: Facilities Service Centre, School Board Office, and Technology Services Centre. To collect data on the volume of waste generation over time and to provide benchmarking of waste data for different sites.
 4. **Utility Management**: We have Prism Utility Monitoring & Analysis Software (PUMA), a web-based utility monitoring software that provides actionable insights for energy, water and greenhouse gas management across a large portfolio of 54 buildings in our District.

Internal benchmarked energy, paper, and water consumption data have been shared with staff and students to engage them in reducing carbon and water footprint.
 5. **Continuous Optimization**: With support from BC Hydro, Richmond School District regularly completes evaluation of the HVAC systems, settings, and associated systems to ensure proper operation. These low-cost, high-impact projects saved over 1.34 million kWh and 9,000 GJ of natural gas through optimizing building automation systems, settings, and low-cost maintenance activities.

2C. SUCCESS STORIES

“Plug Load Pirates” Campaign Part 1

In the school year of 2023/24, the District has run a campaign in addition to our regular campaigns such as Holiday Shutdowns. The campaign is to educate students and staff about the power consumed by devices plugged into power bars when not in use and to achieve a net 10% reduction in electricity consumption by 2024/25. The District has encouraged competition between schools to obtain the highest % decrease in plug loads compared to the baseline.

The District has developed a slide deck for Eco and Green team teachers to show students how the campaign and watt meters work, a web form to log pertinent information from the watt meter, and instructions for students on how to get the needed data from the watt meters.

The results varied with different schools. Some schools demonstrated weekly and biweekly data logging, while some did not. There are some challenges in how to record data from the watt meters. The District will continue this campaign for better results.

Low Carbon Electrification of Building Systems

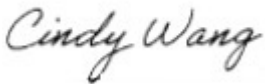
With the support of the Ministry of Education and Child Care, the District has received funding to install a number of modular child care centres in 2023. These modular systems are equipped with air source heat pumps to provide both heating and cooling, instead of traditional natural gas or propane systems that provide heating with a separate air conditioning system. Not only do the heat pumps eliminate fossil fuel use, they also demonstrate the District’s response to climate change, in keeping with our District Sustainability and Climate Action Plan.

Further technical reviews were conducted in 2023 to expand the use of air source heat pumps to other District facilities, with a number of projects slated for 2024. These include existing buildings as well as upcoming modular classroom additions to elementary schools to support increased student enrollment.

2D.CONCLUSION

The Richmond School District continues its efforts to reduce greenhouse gas emissions in keeping with our Strategic Plan. As noted in our District Sustainability and Climate Action Plan, this is an effort that will continue until we have achieved our climate action goals. We are proud of our work to reduce our greenhouse gas emissions to pre-pandemic levels, but recognize further efforts are needed. In collaboration with our District stakeholders and community partners, we look forward to overcoming the challenges ahead.

Executive Sign-off:



Signature

Date: May 29, 2024

Cindy Wang

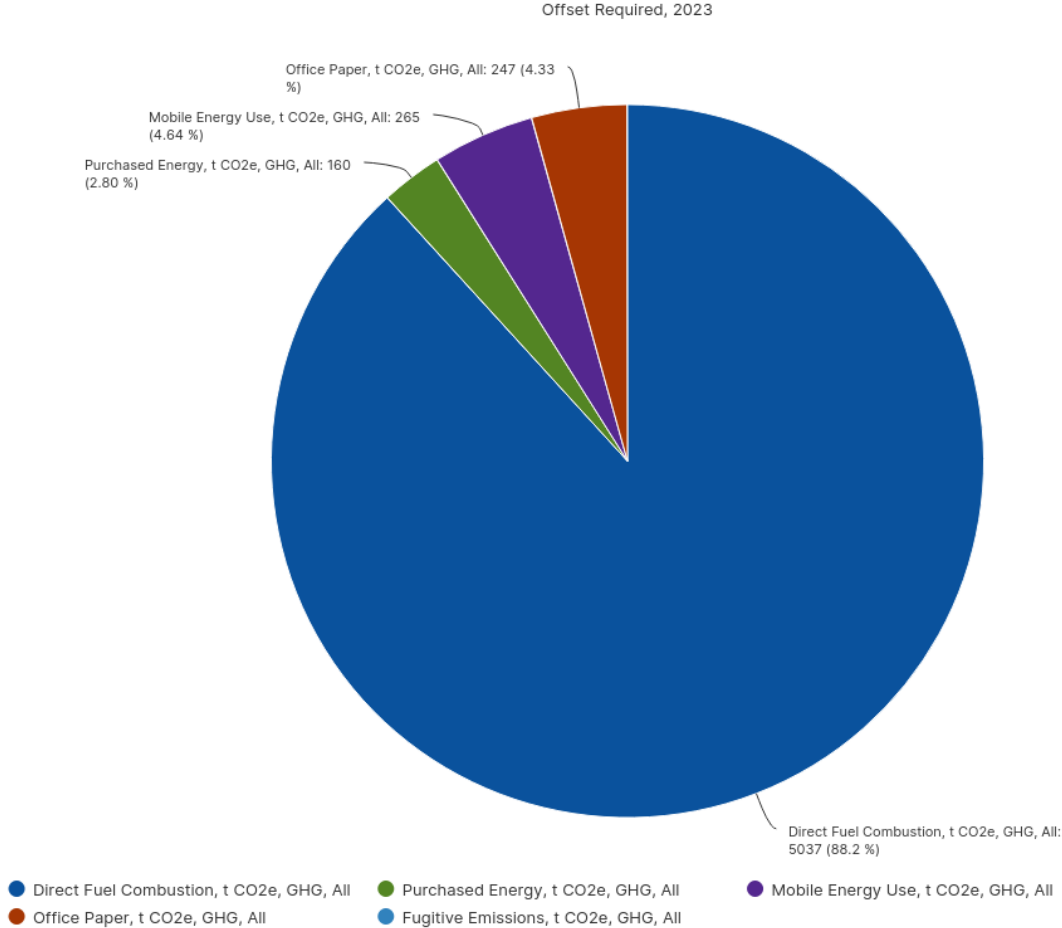
Name

Secretary Treasurer

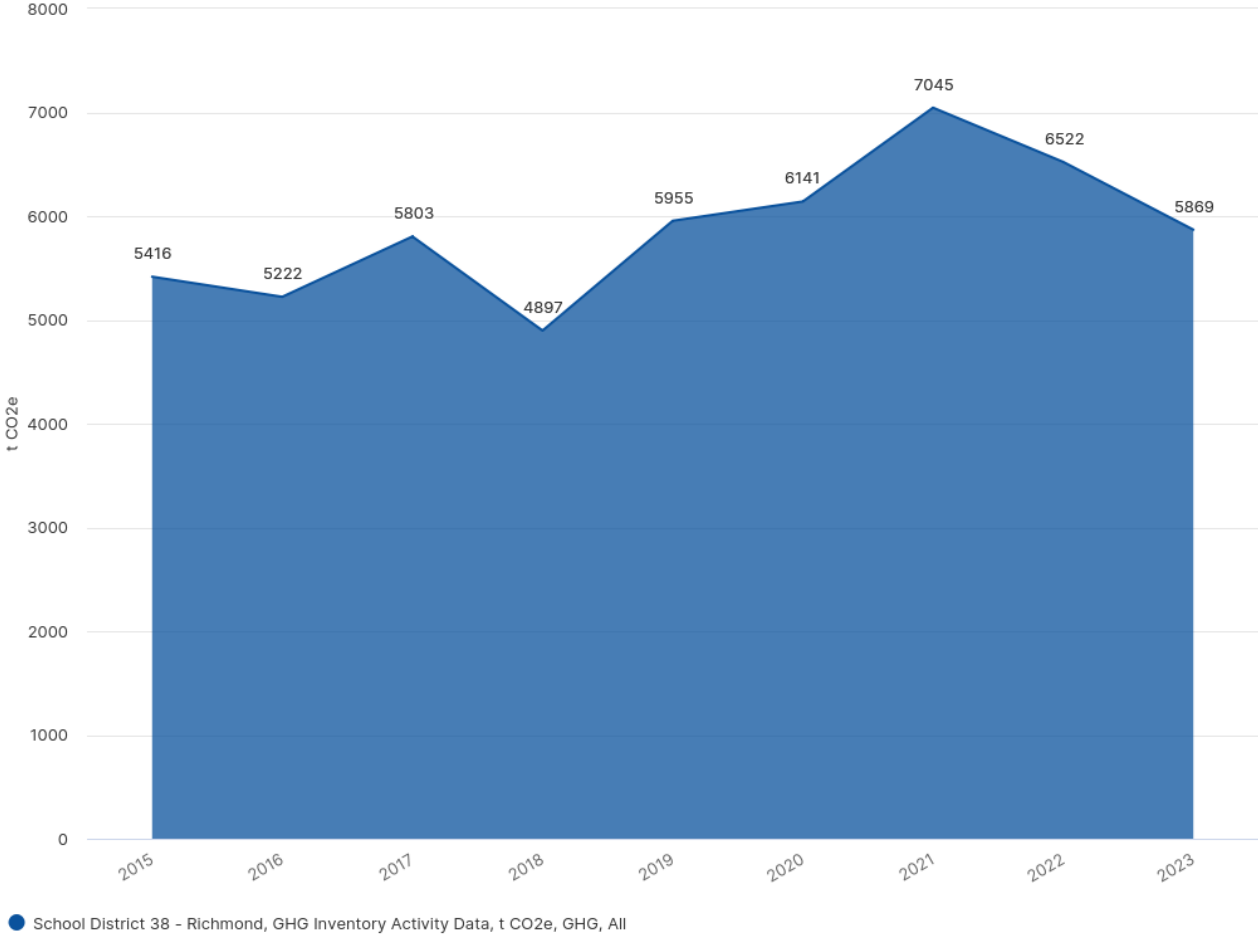
Title

[Please email your signed, completed report to Carbon.Neutral@gov.bc.ca by no later than May 31, 2024.]

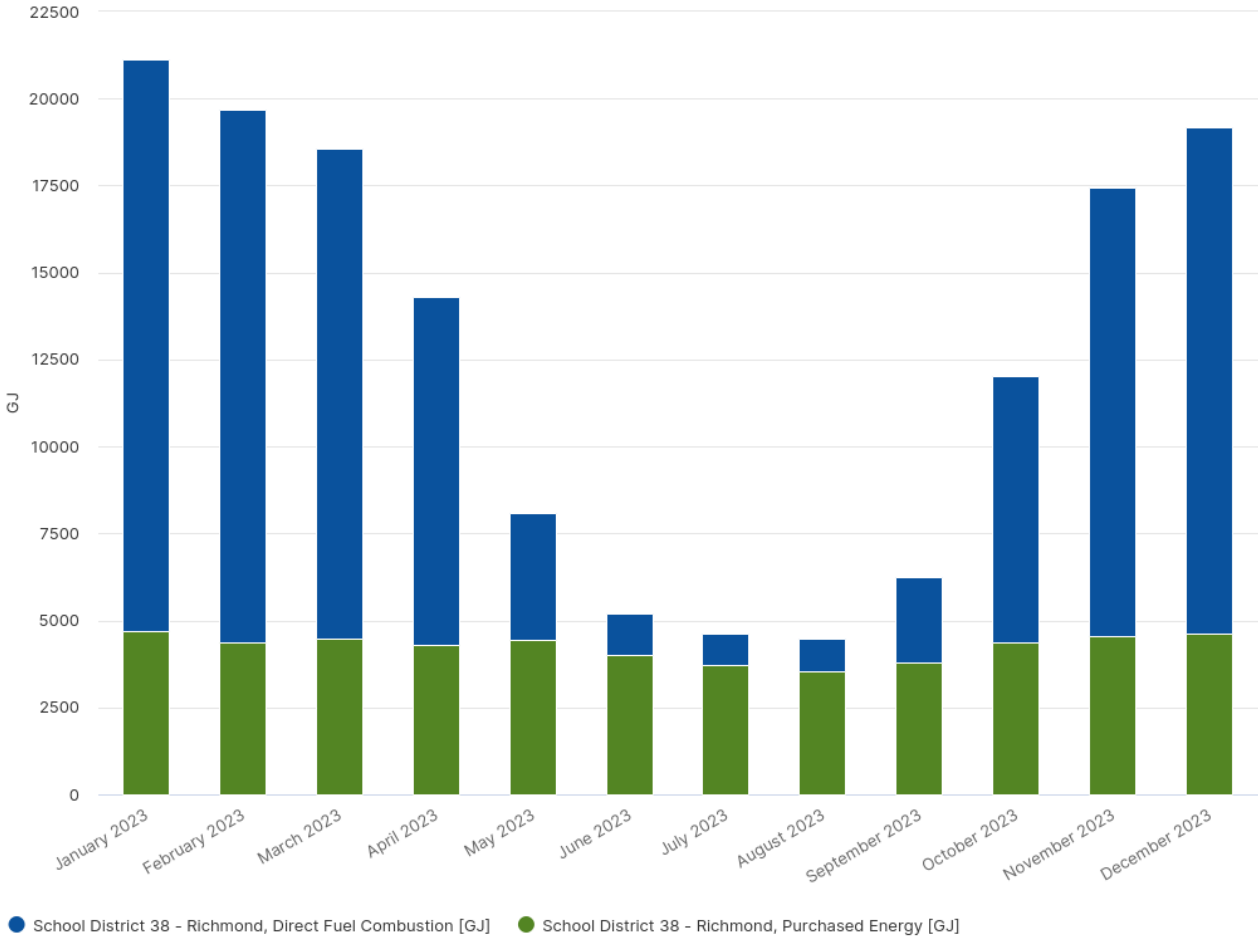
Appendix A: GHG Emissions Offset required in 2023



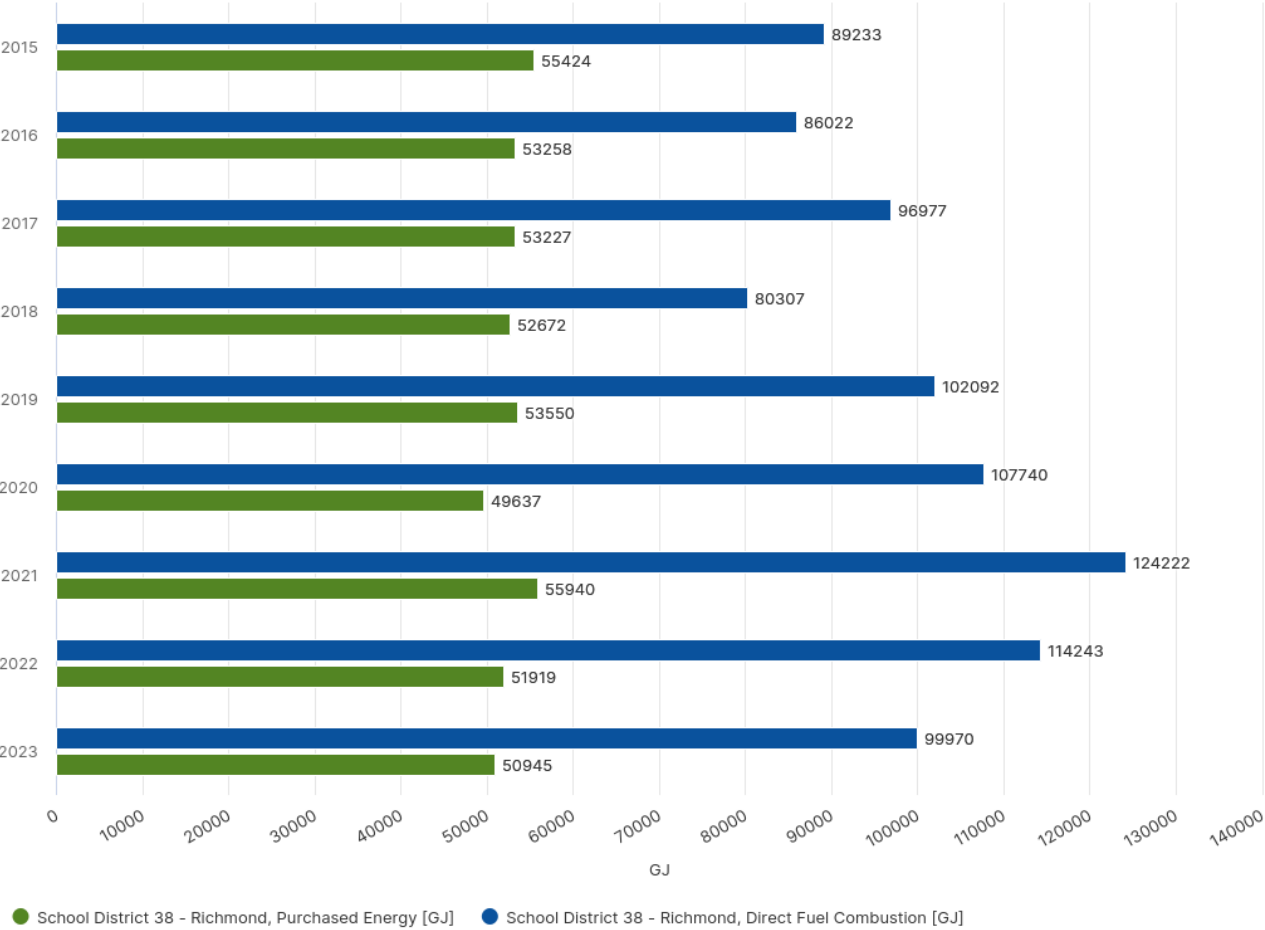
Appendix B: GHG Emissions Trend



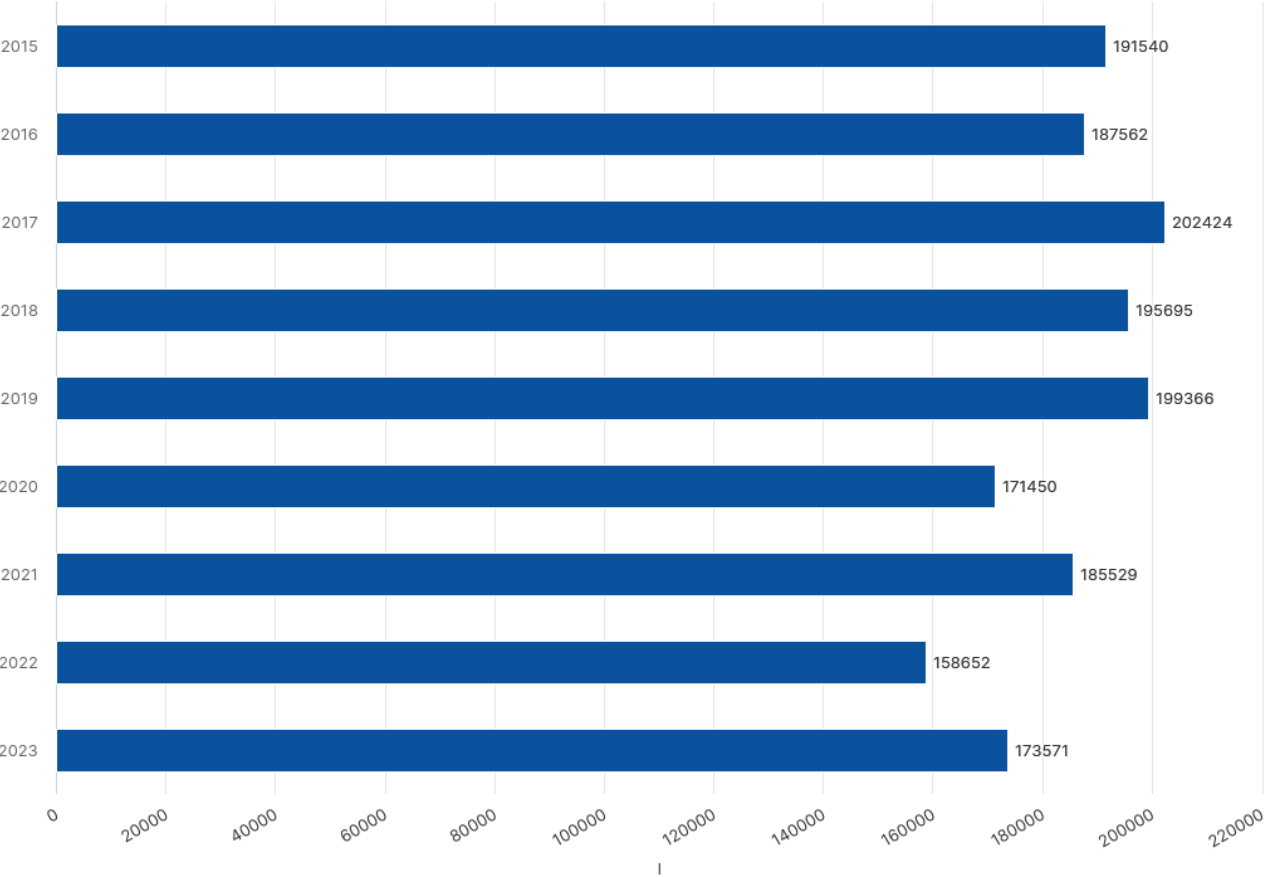
Appendix C: Stationary Energy Use by Month, 2023



Appendix D: Station Energy Use Trend

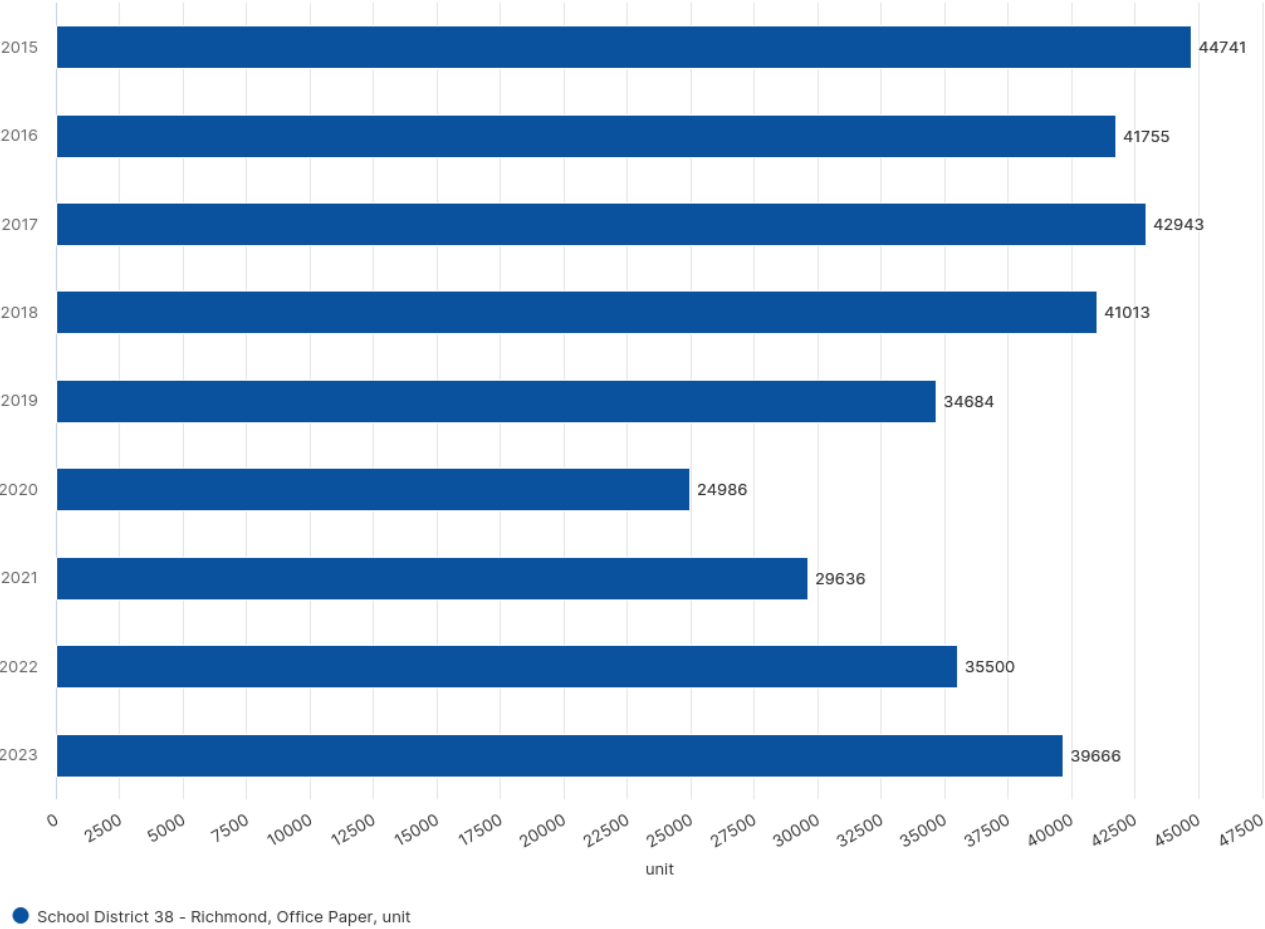


Appendix E: Mobile Energy Use Trend



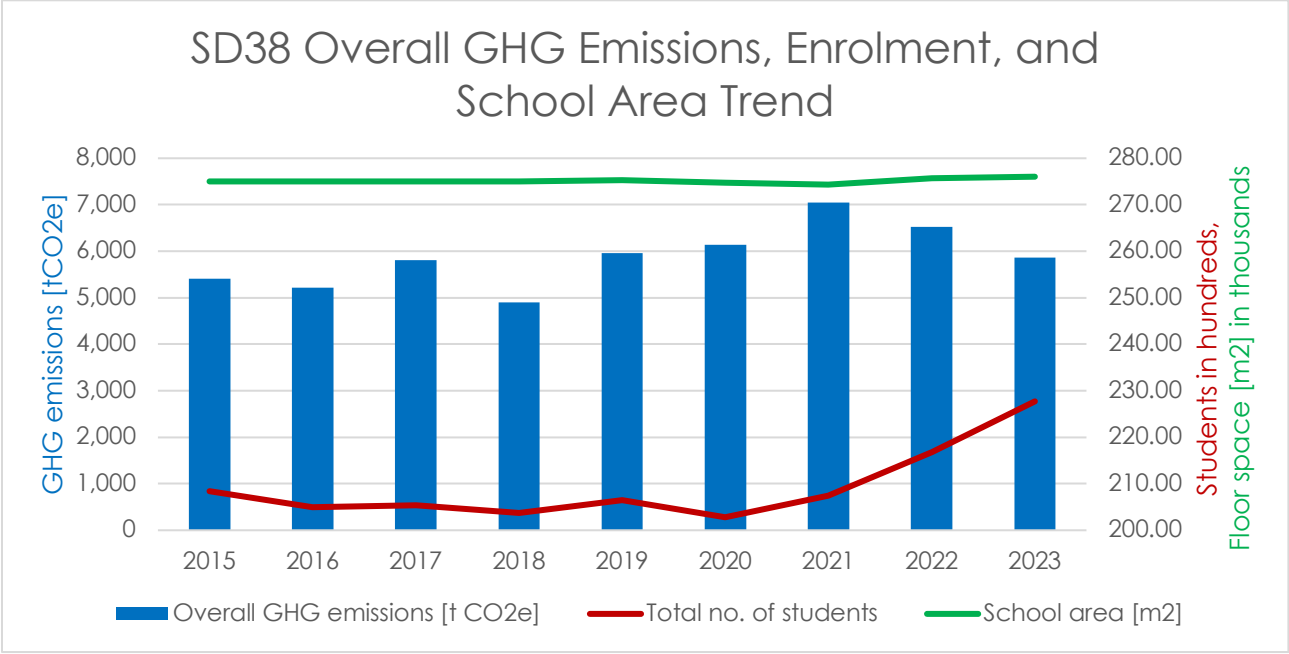
● School District 38 - Richmond, Mobile Energy Use [I]

Appendix F: Office Paper Use Trend



P.S.: 1 unit = 500-sheet (20lb) all-color paper package in size of 8.5" x 11", 8.5" x 14", and 11" x 17", made by wood fiber and non-wood fiber sources including wheat, eucalyptus, sugarcane, and bamboo.

Appendix G: SD38 Overall GHG Emissions, Enrolment, and School Area Trend



	2015	2016	2017	2018	2019	2020	2021	2022	2023
Overall GHG [t CO2e]	5,415.9	5,222.1	5,803.4	4,897.0	5,954.9	6,140.6	7,044.7	6,522.4	5,869.2
Total # of students	20,845	20,493	20,536	20,377	20,645	20,280	20,750	21,678	22,772
School Area [m2]	274,971.6	274,971.6	274,971.6	274,971.6	275,241.8	274,751.2	274,335.2	275,770.2	276,037.6