



# 2018 CARBON NEUTRAL ACTION REPORT



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*For this year's report we chose to focus on the theme of connecting children to nature. Research shows that children who regularly have opportunities to spend time outdoors are healthier, happier and even smarter. And yet statistically, most North American children spend only minutes a day outside and up to seven hours daily in front of a screen. With its focus on place-based and experiential learning, the new BC curriculum is well suited to incorporate outdoor learning and foster connections to nature. As evidenced by the photos in this report, many Surrey Schools educators are finding ways to take learning outdoors. Programs like the East Kensington Outdoor Learning (EKOLogy), grassroots networks like the Surrey Environmental Educators of District #36 (SEED36) and partnerships such as School Travel Planning are building capacity and increasing the number of opportunities for students to get outside and connect with nature.*



**ABOUT THE  
DESIGN**





## DECLARATION STATEMENT

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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 Surrey Schools' final Carbon Neutral Action Report will be posted to our website at [www.surreyschools.ca](http://www.surreyschools.ca).

***Despite continual growth, Surrey Schools has reduced emissions by 17.5 % this decade.***

***Our goal is to reduce emissions by 25% from our 2010 baseline by 2020.***





## EXECUTIVE SUMMARY

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On behalf of Surrey Schools, we are pleased to submit our Carbon Neutral Action Report for 2018. We continue to enhance our focus on sustainability across our organization, both in our operations and through integration in curriculum. In October 2017 Surrey Schools' Board of Education adopted an Environmental Sustainability policy, which recognizes the importance of the natural environment in building a healthy and sustainable future and acknowledges our responsibility to conduct business in an environmentally responsible manner.

Surrey Schools is committed to continuing to enhance our sustainability program by bringing together our sustainability practices under a comprehensive sustainability strategy. Development of an environmental sustainability vision and framework for Surrey Schools continued throughout 2018, with energy and emissions identified as one of eight priority action areas for the district. Staff and students continue to be key drivers of sustainability in the district, incorporating environmental education in the classroom and initiating projects that span many areas including waste reduction, energy and resource conservation, invasive species removal and outdoor clean-ups.

Over the past year, we have continued our efforts to reduce our greenhouse gas emissions and overall environmental footprint. Our primary focus is on our largest source of greenhouse gas (GHG) emissions: the energy used to heat and power our schools and other buildings. A number of energy efficiency projects were successfully completed in 2018 as part of our comprehensive strategic energy management program.

We are extremely proud of the emissions reductions that Surrey Schools has been able to achieve in the past decade. Since our 2010 baseline, we have been able to reduce emissions by 17.5% in spite of continual growth in facility space and student enrollment over this time period.

With increasing evidence that our climate is changing at an unprecedented pace and ambitious CleanBC public sector emissions targets, Surrey Schools is committed to doing our part to continue to reduce greenhouse gas emissions. In 2018 and beyond we will continue to deliver environmental sustainability educational programs and make investments in creating energy efficient and low carbon schools that improve the quality and comfort of the learning environment for students and staff.

Dr. Jordan Tinney  
Superintendent of Schools

D. Greg Frank  
Secretary -Treasurer





# ABOUT SURREY SCHOOLS

The Surrey school district was formed in 1906 and is the largest of 60 school districts in the province of British Columbia. Surrey Schools is governed by an elected board of seven trustees representing the cities of Surrey and White Rock.

One of the fastest growing districts in the province, the Surrey School District is dedicated to the vision of leadership in learning.

With 131 kindergarten to Grade 12 schools serving Surrey, White Rock and Barnston Island, the Surrey School District employs more than 10,000 teachers, administrators, professionals and support staff, all of whom work tirelessly to ensure that children are getting the best start they can, and the preparation to be our leaders of tomorrow.

## Surrey Schools Quick Facts

**71,124** K-12 Students

**10,864** Staff including

**6,137** Teachers

**\$690 million** Operating Budget

**101** Elementary Schools

**20** Secondary Schools

**5** Learning Centres

Schools ranging in size from **57**  
to **1,851 students**





# CLIMATE ACTION IN SURREY SCHOOLS

In 2015 Surrey Schools established 5-year targets for reductions in energy intensity and greenhouse gas emissions. Establishing 2010 as our baseline year, the district aims to achieve reductions of 25% in both energy intensity and greenhouse gas emissions by 2020. Surrey Schools takes action to reduce greenhouse gas emissions through an integrated and strategic planning across multiple departments, working with conservation partners and government agencies. With significant work to date in improving the efficiency of our schools and other buildings (which account for almost 87% of our emissions), we are pleased to be well on our way to achieving our 2020 targets.



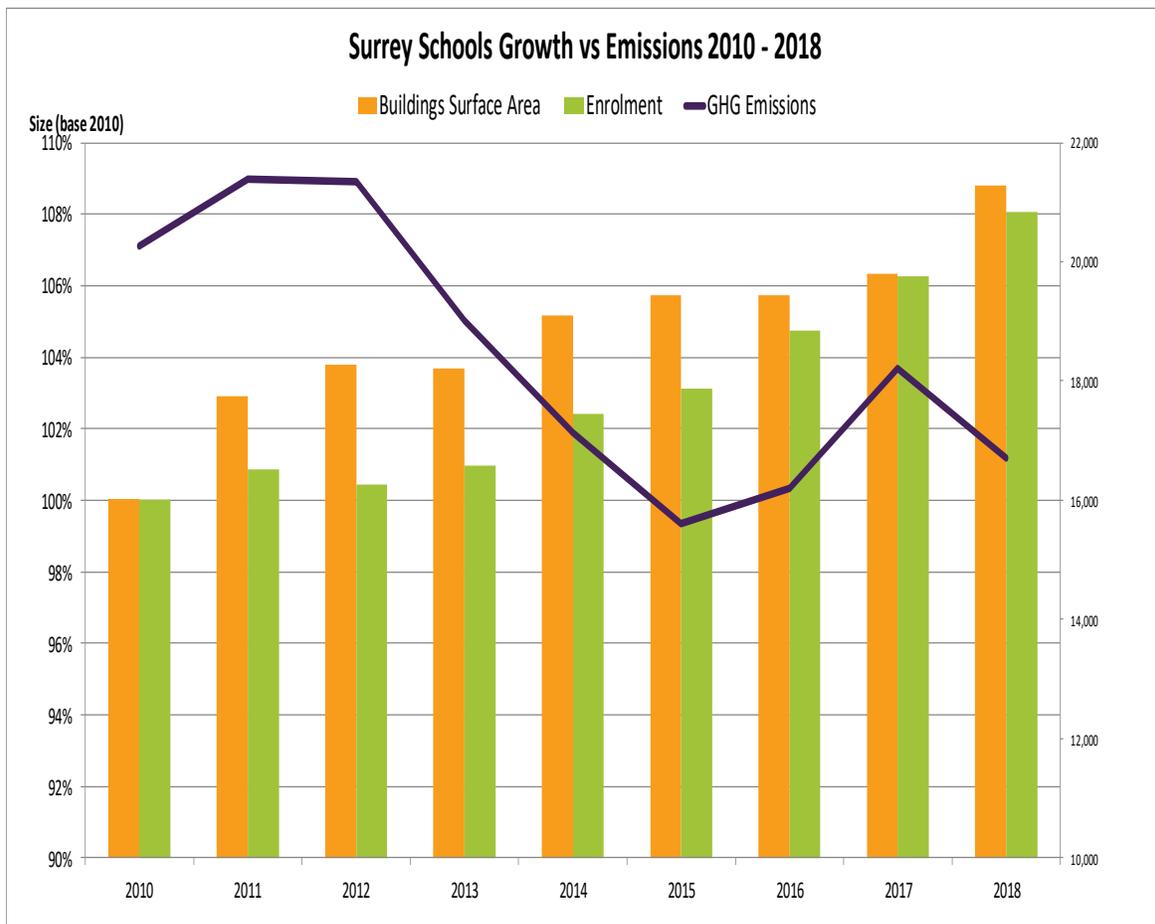
Our most significant concern regarding our ability to meet our 2020 emissions target is that we continue to grow in facility space as we construct new facilities to accommodate our growing student population. In addition, our emissions are largely weather (temperature) dependent given that the largest source of emissions is from natural gas used to heat our buildings. A cold winter in 2019 could have significant impact on our emissions results. In an effort to mitigate the possible impact of weather, we are working to ensure that we operate our buildings efficiently by utilizing building automation systems and encouraging energy-conscious behaviours.





# CLIMATE ACTION

Surrey Schools continues to grow and expand services to an increasing student population. Since our 2020 emissions baseline, Surrey Schools' useable facility space has increased by nine per cent and student enrollment has increased by eight per cent. Keeping pace with this growth has required ongoing construction of new schools, building additions, major renovations to existing facilities, and the use of over 330 portables as instructional spaces. Yet, in spite of increased energy demands, energy conservation and efficiency measures have effectively reduced energy consumption and greenhouse gas emissions, achieving significant declines from the 2010 baseline.





# ACHIEVING CARBON NEUTRALITY

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B.C.'s Climate Change Accountability Act (CCAA, formerly: Greenhouse Gas Reduction Targets Act, GGRTA) updated legislated targets for reducing greenhouse gas emissions:

- ◆ By 2030 GHG emissions are to be reduced by at least 40 percent below 2007 levels;
- ◆ By 2040 GHG emissions are to be reduced by at least 60 percent below 2007 levels;
- ◆ By 2050, GHG emissions will be reduced by at least 80 per cent below 2007 levels.

The act also requires the provincial government, including provincial ministries and agencies, schools, colleges, universities, health authorities and Crown corporations, to be carbon neutral each year starting in 2010 and to make public a report every year detailing actions taken towards reducing greenhouse gas emissions.

Achieving carbon neutrality involves five specific actions: measuring operational GHG emissions, reducing emissions where possible, offsetting the remainder of emissions, reporting on emissions reduction actions and verifying emissions. A carbon offset is a greenhouse gas emissions reduction tool that is used to compensate for emissions. Offsets, measured in terms of carbon dioxide equivalency, represent the net reduction in emissions that occurs when carbon offset payments are invested by the provincial government in emissions-reducing projects.

To become carbon neutral for the 2018 calendar year, Surrey Schools applied carbon offsets of 16,488 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e). At a cost of \$25/tonne, Surrey Schools' total offset investment for 2018 is \$412,200 (\$432,810 with GST included).





# 2018 EMISSIONS & OFFSET SUMMARY

School District #36 (Surrey) GHG Emissions and Offset for 2018 (tCO <sub>2</sub> e)	
<b>GHG Emissions created in calendar year 2018:</b>	
Total Emissions (tCO <sub>2</sub> e)	16,708
Total BioCO <sub>2</sub>	38.26
Total Offsets (tCO <sub>2</sub> e)	16,488
<b>Adjustments to GHG Emissions Reported in Previous Years:</b>	
Total Emissions (tCO <sub>2</sub> e)	0
Total Offsets (tCO <sub>2</sub> e)	0
<b>Grand Total Offsets for the 2018 Reporting Year :</b>	
Grand Total Offsets Required (tCO <sub>2</sub> e)	16,488
Total Offset Investment	\$412,200

### Retirement of Offsets:

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, School District #36 (Surrey) (**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.

May 30, 2019

Signature

Date

D. Greg Frank

Secretary -Treasurer

Name

Title





# 2018 GREENHOUSE GAS EMISSIONS

Surrey Schools has calculated our 2018 carbon footprint, in accordance with the Greenhouse Gas Reduction Targets Act, to be 16,078 tonnes of CO<sub>2</sub> equivalent. Our emissions are generated from three main sources:

## **Buildings**

GHG emissions from buildings result from the fossil fuels consumed to provide heating, cooling, ventilation and power to schools and other district facilities. These emissions account for 87% of our overall emissions.

## **Fleet**

Emissions categorized as fleet are direct emissions resulting from the fossil fuels used to power the district's fleet vehicles, including maintenance vehicles and school busses. These emissions make up 7% of the district's overall emissions.

## **Supplies (Office Paper)**

Emissions categorized as supplies are indirect emissions originating from the district's use of office paper and account for 6% of the district's overall GHG emissions.

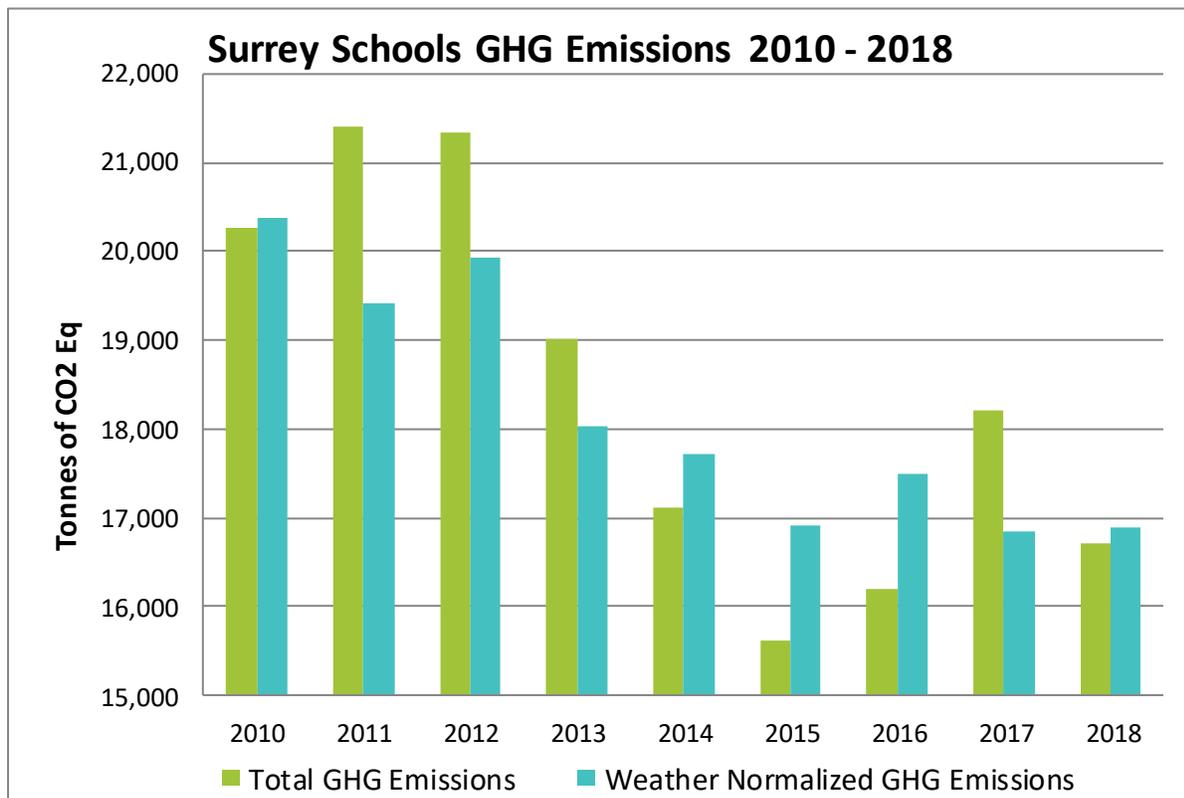
Emission Source	2018 GHG Emissions (Tonnes of CO <sub>2</sub> e)	2018 Results Compared to 2017	2018 Results Compared to 2010 Baseline
Buildings	14,525	9% Decrease	18.5% Decrease
Fleet	1,175	6.5% Decrease	2% Increase
Paper	1,008	1% Decrease	18.5% Decrease





## 2018 GREENHOUSE GAS EMISSIONS

Surrey Schools is proud to have achieved emissions reductions of 17.5% since our 2010 baseline while experiencing continued student enrollment growth and the corresponding increases in staff, facility space and fleet size to accommodate growth. In 2018 Surrey Schools experienced an 8% decrease in total emissions, however we are mindful that the weather has a significant impact on our annual emissions. After normalizing for weather, our emissions were equal to last year's emissions and down a total of 17.7% from our 2010 baseline. In 2018 emissions decreased across all three emissions categories: buildings, fleet and office paper. These decreases are remarkable given that occupied building space, number of fleet vehicles and number of staff and students all increased over the past year. Nonetheless, we recognize that continued strong focus on emissions reductions will be required in order to achieve our objective of 25% reductions by 2020.



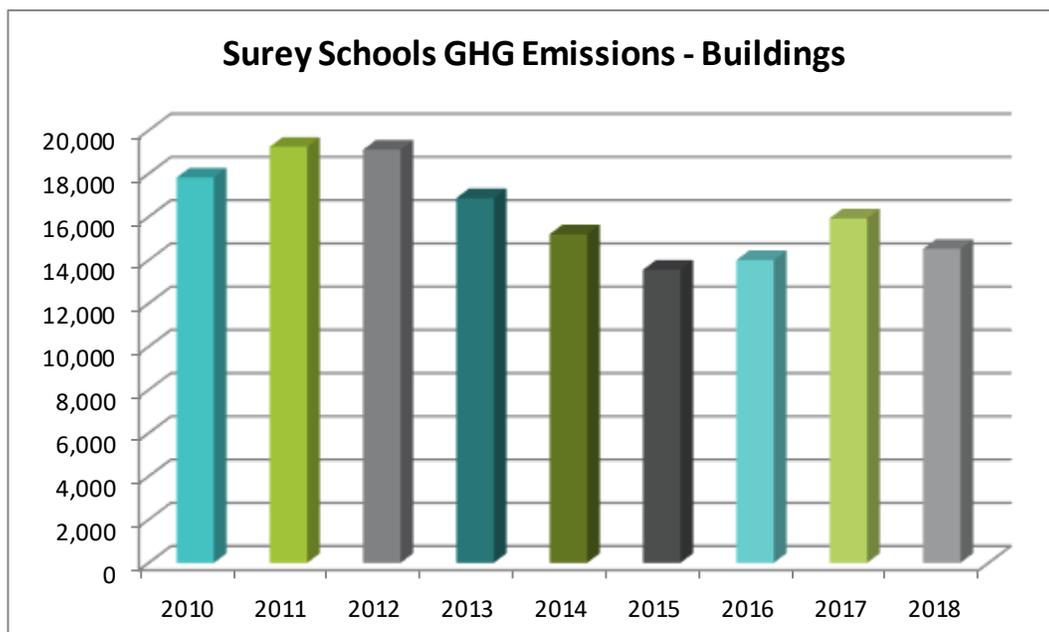


# ACTION TAKEN TO REDUCE GHG EMISSIONS IN 2018

## **BUILDINGS**

Energy used to heat, cool and power our schools and other buildings continues to be the largest source of emissions for Surrey Schools (87% in 2018). Consequently, energy management in our buildings is our primary strategy for reducing our greenhouse gas emissions. Surrey Schools utilizes a three-pronged strategy to lower its carbon footprint: sustainable building design and retrofit, energy efficient building operations, and engagement of staff and students in conservation initiatives.

In 2018 Surrey Schools made significant investments in energy efficiency through the capital budget, annual facilities grant and the support of our conservation partners BC Hydro and FortisBC. Multiple energy efficiency projects, along with the efforts of staff and students in conserving energy on a daily basis, resulted in electricity consumption decreasing by 1% in spite of the opening of Salish Secondary School and an addition at Woodward Hill Elementary School in September 2018. Natural gas consumption decreased by 3.7% in 2018, partially helped by a warmer winter compared to 2017. Overall GHG emissions from buildings decreased by 9% in 2018, however if normalizing for weather, there would be an increase of 1% in emissions from buildings. Overall energy efficiency in Surrey Schools continues to improve and emissions are not increasing in spite of growth in facility space.





## ACTION TAKEN TO REDUCE GHG EMISSIONS IN 2018

Emissions reductions in our buildings have been achieved largely due to the fact that Energy Management is strategically integrated with key departments. Across the organization, several departments have played a critical role in implementing projects that have resulted in the strong energy savings in 2018:

- ◆ The District Facilities Centre oversaw numerous energy efficiency projects including:
  - Boiler upgrades at two elementary schools and the District Facilities Centre
  - LED lighting upgrades at four elementary schools
  - Exterior LED lighting upgrades at seven schools
  - Large-scale mechanical upgrade at one elementary school
  - Automated building controls upgrade at one elementary school
- ◆ The Capital Project Office completed construction of Salish Secondary School. Based on energy modeling, Salish Secondary is projected to be 26% more efficient than a typical secondary school. Results to date show that the school is performing at less than half the average energy intensity of other secondary schools in the district. In 2018 the Capital Project Office also completed energy modeling of two additional new schools: Maddaugh Road Elementary and Grandview Heights Secondary.
- ◆ Information Management Services (IMS) continues to upgrade computing devices to more energy efficient models and manages computer power management software on an ongoing basis. In 2018 IMS and Corporate Services together initiated a print management strategy that will see a fleet of energy-efficient multi-function devices replace hundreds of stand-alone printers in secondary schools.





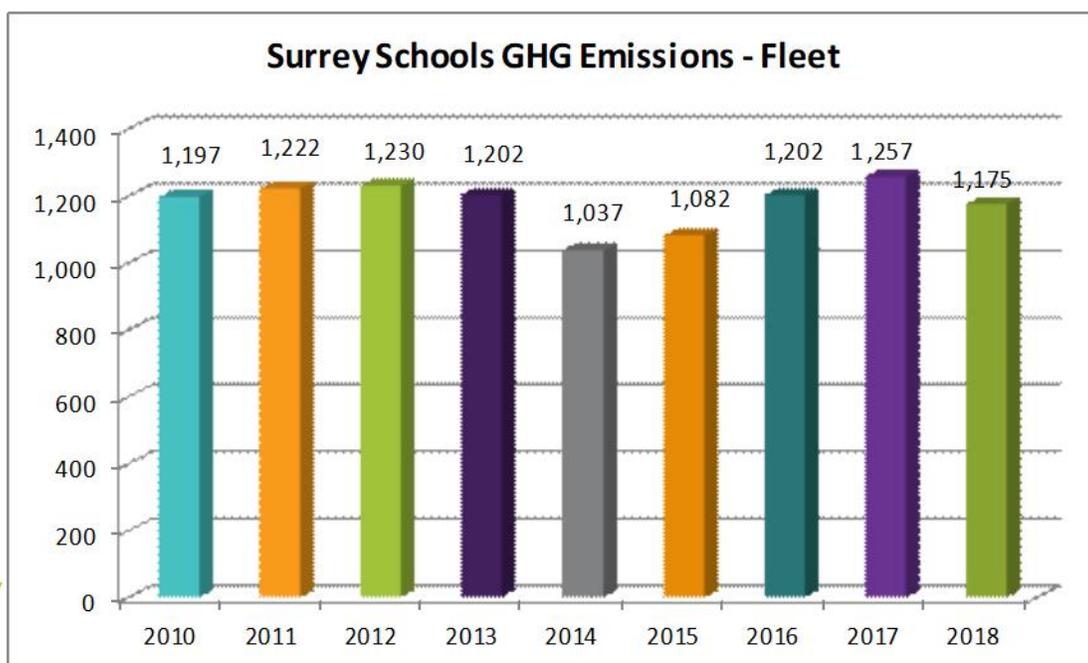
# ACTION TAKEN TO REDUCE GHG EMISSIONS IN 2018

## FLEET

In 2018 Surrey Schools' emissions from fleet vehicles accounted for 7% of the district's overall greenhouse gas emissions. Emissions from fleet as a percentage of total emissions has increased since 2010 (5.9%) due to an increase in the number of fleet vehicles combined with a decrease in emissions from buildings.

Total greenhouse gas emissions from fleet in 2018 were 1175 tonnes of CO<sub>2</sub> equivalent (tCO<sub>2</sub>e), including 221 tCO<sub>2</sub>e from school buses, which are not required to be offset.

In 2018, efforts to reduce greenhouse gas emissions included replacing thirteen fleet vehicles with more fuel efficient models, ensuring quarterly vehicle maintenance for optimal driving performance and encouraging fuel-conscious driving strategies. These measures resulted in reductions of 6.5% from 2017 levels in spite of an increase in the number of fleet vehicles. Due to significant growth in the overall fleet size over the past decade to accommodate more staff and more students on buses, emissions from fleet have grown by 2% from our 2010 baseline. We recognize that electrification of our fleet is likely to be necessary in order to achieve our 2030 GHG targets as we are assessing options for moving in that direction and awaiting suitable models of vehicles (vans, trucks) to be available.



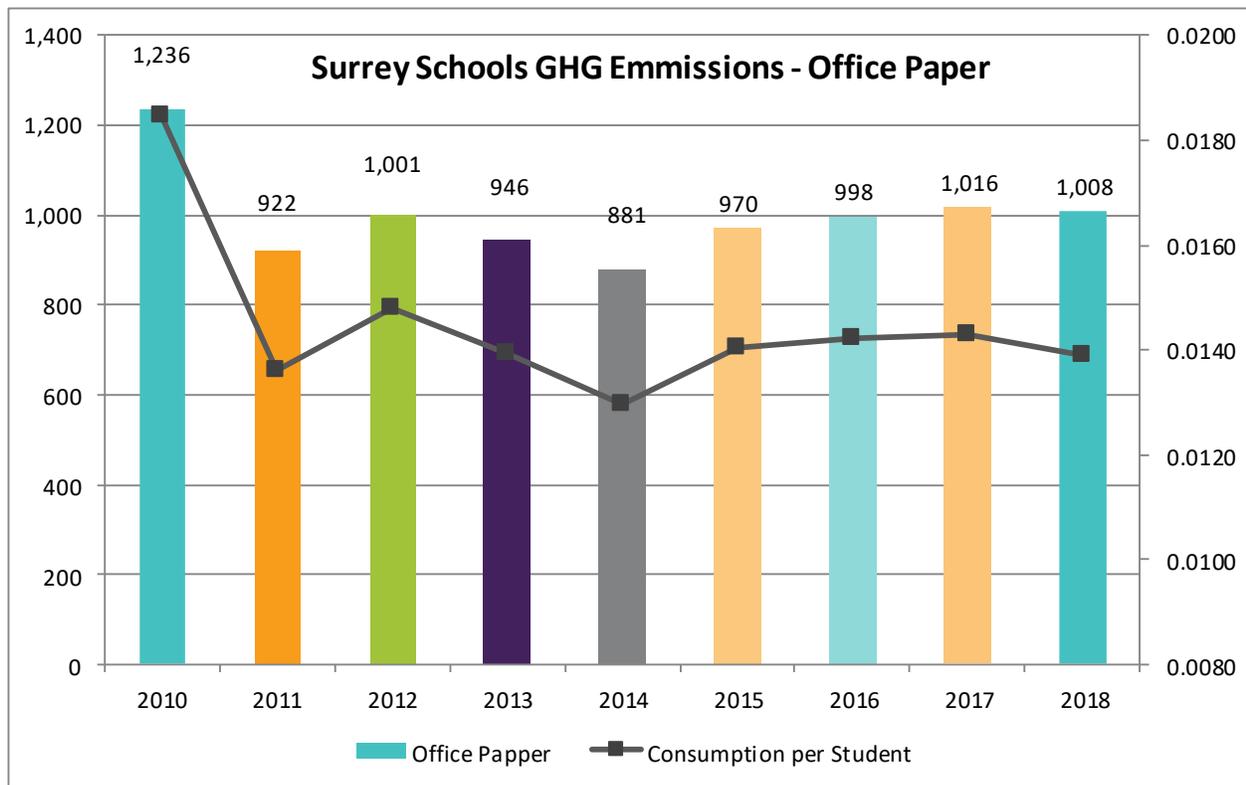


# ACTION TAKEN TO REDUCE GHG EMISSIONS IN 2018

## PAPER

In 2018 Surrey Schools' emissions from office paper accounted for 6% of the district's overall emissions; a level which has remained relatively constant over the past 6 years. Emissions from paper in 2018 were 1008 tCO<sub>2</sub>e, which represents a 1% decrease compared to 2017 paper emissions. Overall the district has reduced emissions from paper by 18.5% from the 2010 baseline. After remaining constant for three years, the paper emissions per student decreased in 2018.

Surrey Schools' purchasing standards for office paper have been updated to include a minimum of 30% recycled content for office paper. Efforts to reduce paper consumption in 2018 included communicating consumption statistics and conservation tips and creating a paper conservation campaign toolkit to encourage school green teams to champion paper conservation at their sites.





## BUILDING A CONSERVATION CULTURE

Surrey Schools is working to create a culture of conservation by engaging staff and students in the district's energy and emissions reduction initiatives. In 2018 staff and students at many schools across the district participated in environmental stewardship initiatives delivered, supported or initiated by the Energy Management and Sustainability program. Many others had school-based green teams and environmental clubs and initiated their own unique school-based environmental stewardship actions. Moreover, teachers in Surrey are taking a leadership role in making environmental, place-based and outdoor education a priority through networks such as Surrey Environmental Educators of District #36 (SEED36) and the East Kensington Outdoor Learning (EKOLog) program.

Students and staff at Surrey Schools are creating a culture that makes conservation an everyday activity and proving that with small efforts they can reduce energy and paper consumption and increase waste diversion rates. In 2018 Surrey Schools ran the seventh annual energy and sustainability challenge for secondary schools: the Energy Conservation Cup. Tamanawis Secondary came out on top as the overall 2018 Energy Conservation Cup winner utilizing a mascot, Edison the Energy Bear, to support their creative conservation campaigns.





## GREEN BUILDINGS

Surrey Schools' new construction projects are built to a higher level of energy efficiency than the standard building code and incorporate low carbon technologies for primary heating sources.

Three building sites are Leadership in Energy and Environmental Design (LEED) certified:

- ◆ Woodward Hill Elementary (LEED Gold), 6082 142 Street
- ◆ District Education Centre (LEED Gold), 14033 92nd Avenue
- ◆ Adams Road Elementary (LEED Silver), 18228 68 Avenue

Three additional sites have been constructed with low carbon heat pumps as a primary heating source and BC Hydro supported energy efficient lighting design:

- ◆ Katzie Elementary, 6887 194A Street
- ◆ Sunnyside Elementary, 2828 159 Street
- ◆ Goldstone Park Elementary, 6287 146 Street

Three new schools at various stages of construction are being built with energy efficient and low carbon designs with the support of the BC Hydro New Construction Whole Building Design program. Energy efficient designs have been completed for:

- ◆ Salish Secondary, 7278 184 Street (opened Sept. 2018)
- ◆ Grandview Heights Secondary, 16987 25th Ave. (opening Sept. 2021)
- ◆ Maddaugh Road Elementary, 19405 76th Avenue (opening Jan. 2021)



Photo credit: DGS Construction Company Ltd.





## PLANS TO CONTINUE REDUCING EMISSIONS

The largest proportion of Surrey Schools' GHG reduction initiatives will continue to be focussed on energy efficiency and conservation within our schools and administrative facilities, which are the largest source of GHG emissions in the district. Surrey Schools is actively pursuing low carbon efficiency in both new construction and retrofit projects and this will be a key strategy in the coming years.

Surrey Schools will continue to update the district's Strategic Energy Management Plan, including assessing the energy performance of each school or site in the district and identifying opportunities for future energy efficiency projects that will enhance performance and reduce greenhouse gas emissions from buildings. With many new schools and additions being constructed in the coming years, energy efficiency opportunities are being assessed during the project design phase, including energy modeling, building envelope enhancements and low carbon heating options.

Surrey Schools is continuing to implement the District's comprehensive energy management program and there are number of energy efficiency projects slated for 2019 including:

- ◆ Lighting retrofits converting from fluorescent to LED lighting at six schools
- ◆ Exterior lighting retrofits at five additional schools
- ◆ Upgrades to heating systems (boiler plants) at two elementary schools
- ◆ Convert natural gas-fired rooftop units to heat pumps at one elementary school
- ◆ Mechanical system upgrade at one elementary school
- ◆ Replace building automation system at one secondary school
- ◆ Controls recommissioning at five schools
- ◆ Implement electric vehicle charging stations at two locations

Beyond 2019, Surrey Schools will continue to evaluate pathways to achieving the Clean BC public sector emissions reduction targets, looking at future options for electrifying fleet vehicles and utilizing low carbon heating sources in new buildings. Surrey Schools will continue to access incentive funding from key energy conservation partners and promote and pursue cost effective energy conservation projects.



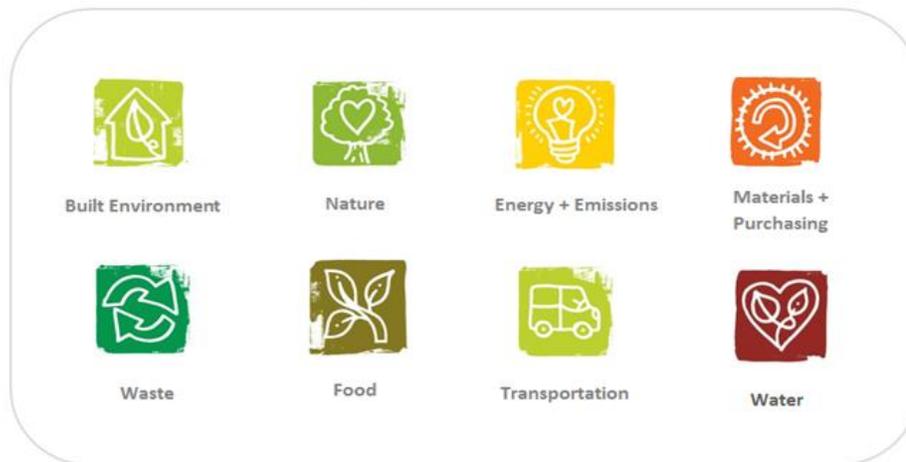


# OTHER SUSTAINABILITY INITIATIVES

Surrey Schools is committed to environmental stewardship, and Energy and Emissions is just one of eight impact areas being targeted. In 2011, the Surrey Board of Education established an Energy Management Conservation Policy. In 2018 the Board adopted an Environmental Sustainability Policy and work began to develop a comprehensive sustainability strategy for the district. To date Surrey Schools has drafted a sustainability vision and framework, identifying eight priority impact areas to enhance environmental sustainability in the district.

*“Surrey Schools is committed to becoming a leader in environmental stewardship by creating a culture of sustainability where students and staff practice, value and contribute to a positive relationship with the environment.”*

## Impact Areas



## Key Approaches





## OTHER SUSTAINABILITY INITIATIVES

Surrey Schools' commitment to sustainability goes far beyond reduction of greenhouse gas emissions. Our strategy identifies eight impact areas: built environment, nature, energy & emissions, materials & purchasing, waste, food, transportation and water. These impact areas vary in maturity. Below are just a few highlights of our work and upcoming plans in priority areas:

- ◆ In 2018 an Environmental Sustainability Working Group comprised of all district stakeholder groups was engaged to formalize the district's environmental stewardship strategy. The Working Group provided recommendations for the district's sustainability vision and framework. Future plans include establishing targets and indicators in each of the eight identified impact areas.
- ◆ Surrey Schools expanded its Rethink Waste program in 2018 to include battery recycling at all sites. The district is measuring and tracking amounts of compost and recycling diverted from landfills at each school and district site and looking forward to communicating diversion rates and setting targets for waste diversion. Surrey Schools currently recycles electronic waste and is reviewing options to enhance programs in this area.
- ◆ Surrey Schools has undertaken a project to be able to benchmark additional resources such as water and office paper. Future plans include engaging employees through social marketing campaigns to encourage ongoing conservation of these resources as well as target-setting for long-term objectives.
- ◆ Surrey Schools continues to participate in programs that support active transportation to and from school such as Walk and Roll Week, Bike to School Week, cycling education programs for elementary students and the City of Surrey sponsored School Travel Planning program.
- ◆ Significant progress is being made in the built environment with low-carbon and energy efficient building design at various stages of completion for six school additions, four new elementary schools and one new secondary school. Project definition is including net zero energy ready options for the elementary school entering design.

