

2015 CARBON NEUTRAL ACTION REPORT





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We chose to incorporate the spotted owl into the design of the 2015 Carbon Neutral Action Report, because Spotted Owls are listed as one of the most endangered species in British Columbia.

Recent surveys suggest only 8-30 pairs of spotted owls currently live in British Columbia, mostly in isolated fragments of old-growth forests within the province. The population is threatened by a lack of available habitat, continued timber harvesting, and urban encroachment.







DECLARATION STATEMENT

This Carbon Neutral Action Report for the period January 1st, 2015 to December 31st, 2015 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2015 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2016 and beyond.

By June 30, 2016 Surrey Schools' final Carbon Neutral Action Report will be posted to our website at www.surreyschools.ca.

Compared to last year, Surrey Schools reduced total Greenhouse Gas Emissions by 1,510 tCO₂e − the equivalent of the annual emissions from 318 passenger vehicles driven for 1 year.

Surrey Schools has reduced GHG emissions by 23% since 2010.





EXECUTIVE SUMMARY

On behalf of Surrey Schools, I am pleased to submit our Carbon Neutral Action Report for 2015. Over the past year, we have continued to work diligently to reduce our greenhouse gas emissions and overall environmental impact

As Surrey Schools prepares our learners to think creatively and critically, communicate skilfully, and demonstrate care for self and others, we continue to enhance our focus on sustainability across our organization. Environmental stewardship is one of the Board of Education's six guiding principles. Our environmental sustainability objectives continue to be advanced by the passion and commitment of staff and students. We are proud to be recognized as one of Canada's Greenest Employers (2016) and are committed to continuing to develop our sustainability program.

Our largest source of greenhouse gas (GHG) emissions continues to be the energy used to heat and power our schools and other buildings, and we continue to focus our emissions reduction in this area. With our three-pronged strategy of sustainable building design, energy efficient building operations and engagement of staff and students in our conservation initiatives, we continue to reduce our environmental footprint. Our commitment to reducing GHG emissions is evident in our results. In 2015 Surrey Schools achieved a 23% reduction in annual GHG emissions compared to our 2010 baseline.

We will continue our efforts to reduce our carbon footprint. In 2016 and beyond, we aim to bring together and our sustainability practices under a comprehensive sustainability strategy. We plan continue our efforts in educational programs for sustainability and will

continue to make investments in our energy efficiency programs while improving the learning environment for students and staff.

Dr. Jordan Tinney

Superihtendent of Schools







ABOUT SURREY SCHOOLS

We are British Columbia's largest school district with the highest student enrolment in the province, serving one of Canada's fastest growing cities.

The Surrey School District was formed in 1906 and is one of the province's 60 school districts. Located in the southwestern corner of British Columbia, the school district serves the City of Surrey, the City of White Rock and includes the rural area of Barnston Island. The total area of the district is approximately 328 square miles.

Surrey Schools has 101 elementary schools, 19 secondary schools, five student learning centres, three adult education centres, a distributed (online) learning program and a variety of satellite and inter-agency programs serving a wide range of specific student needs.

Surrey Schools Quick Facts

69,100 Students

9,675 Staff including

5,508 teachers

\$618 million Operating Budget

101 Elementary Schools

19 Secondary Schools

5 Learning Centres

4 Adult Education Centres







ACHIEVING CARBON NEUTRALITY

The 2007 Greenhouse Gas Reduction Targets Act established the following emission reduction targets for the B.C. public sector:

- By 2020, B.C. will reduce greenhouse gas emissions (GHG) by 33 per cent, compared to 2007 levels.
- By 2050, GHG emissions will be reduced by at least 80 per cent below 2007 levels.
- To meet the legislated targets, all public sector organizations including school districts are required to be carbon neutral.

Achieving carbon neutrality involves four specific actions: measuring operational GHG emissions, reducing emissions where possible, offsetting the remainder of emissions, and reporting on emissions reduction actions. 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 2015 calendar year, Surrey Schools applied carbon offsets of 15,550 tonnes of carbon dioxide equivalent (tCO_2e). An additional 5 tonnes of CO_2e was offset for adjustments to emissions occurring in prior years. At a cost of \$25/tonne, Surrey Schools' total offset investment for 2015 is \$388,875 (\$408,318.75 with GST included).





2015 EMISSIONS & OFFSETS SUMMARY

School District #36 (Surrey) GHG Emis 2015 (tCO₂e)	ssions and Offsets for	
GHG Emissions created in calendar year 201	5:	
Total Emissions (tCO2e)	15,766	
Total Emissions for Offsets (tCO2e)	15,550	
Adjustments to GHG Emissions Reported in Previous Years:		
Total Emissions (tCO2e)	5	
Total Emissions for Offsets (tCO2e)	5	
Total Emission for Offset for the 2015 Report	ing Year	
(from SMART Tool Homepage):		
Total Offsets (tCO2e)	15,555	

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 2015 calendar year, together with any adjustments reported for past calendar years. The Organization hereby agrees that, in exchange for the Ministry of Environment ensuring that these offsets are retired on the Organization's behalf, the Organization will pay 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 24, 2016

Signature

Date

Wayne Noye

Secretary Treasurer

Title





Surrey Schools has calculated our 2015 carbon footprint, in accordance with the Greenhouse Gas Reduction Targets Act, to be 15,766 tonnes of CO2 equivalent. Our emissions a generated from three main sources:

Buildings

GHG emissions from buildings result from the fossil fuels consumed to provide heating and cooling and electricity to schools and other district facilities. These emissions account for 86.9% 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 6.9% of the district's overall emissions.

Supplies

Emissions categorized as supplies are indirect emissions originating from the district's use of office paper and account for 6.2% of the district's overall GHG emissions.

Emission Source	2015 GHG Emissions (Tonnes of CO₂e)	2015 Results Compared to 2014	2015 Results Compared to 2010 Baseline
Buildings	13714	10% Decrease	23% Decrease
Fleet	1082	4% Increase	10% Decrease
Paper	970	10% Increase	21% Decrease

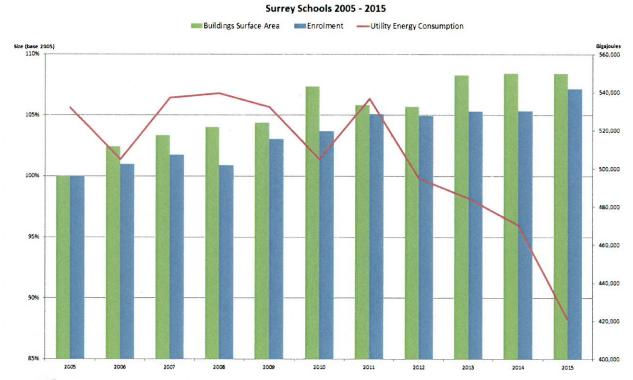




Strategic, Integrated Planning and Coordination Achieves Results

Surrey Schools plans strategically to lower its carbon footprint through student and staff engagement, energy efficient building design, and continuous improvement of building performance.

Surrey Schools has the largest student enrolment in British Columbia. The last decade has been characterized by steady growth in the student population — an increase of 7 per cent since 2005. Keeping pace with this growth has required ongoing construction of new schools, building additions, major renovations to existing facilities, and the use of over 300 portables as instructional spaces. Since 2005, the building floor area has increased by 8 per cent. Yet, in spite of increased energy demand, energy conservation and efficiency measures have effectively reduced energy consumption and greenhouse gas emissions, with both in a pattern of steady decline over the past five years.







Surrey Schools has met the challenges of rising costs and increased demands on building capacity through integrated and strategic planning across multiple departments, working with conservation partners and government agencies.

Executive support has also been a critical component of the district's energy management success. In 2011, the Surrey Board of Education established an Energy Management and Conservation policy and in 2014 the Board reaffirmed the district's commitment to maintaining and enhancing conservation initiatives by once again identifying to environmental stewardship as a guiding principle. Senior management has played an active role in energy and emissions planning and assessment with BC Hydro and other key conservation partners. Surrey Schools was recognized for Leadership Excellence by BC Hydro at the BC Hydro Power Smart Excellence Awards in 2014 and previous years.

Despite increases in student enrollment and facility space, energy consumption in Surrey Schools is at it's lowest point in over a decade!

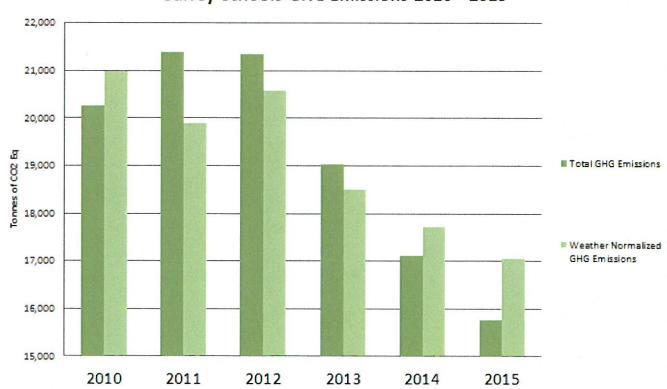




In 2015 Surrey Schools:

- Reduced electrical consumption by an additional 1.6% for a total reduction of 11% since 2010.
- Reduced natural gas consumption by more than 29,000 gigajoules; a decrease of 10% over the previous year.
- Reduced Greenhouse Gas Emissions by 1506 tCO₂ equivalent, achieving a 22% reduction compared to 2010 baseline emissions.

Surrey Schools GHG Emissions 2010 - 2015







BUILDINGS

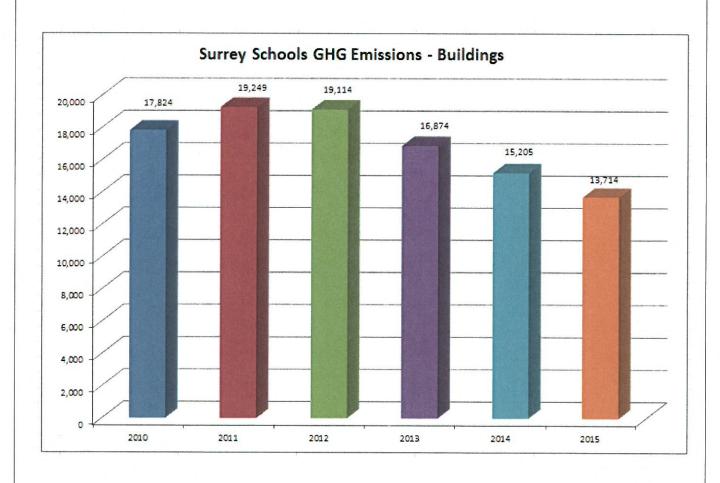
Energy used to heat, cool and power our schools and other buildings continues to be the largest source of emissions for Surrey Schools (87.0% in 2015). Consequently, energy management is our primary strategy for reducing our greenhouse gas emissions. Energy Management is strategically integrated with key departments in the implementation of technical energy efficiency projects. Across the organization, several departments have played a critical role in implementing projects that have resulted in strong energy savings in 2015:

- The District Facilities Centre oversaw numerous energy efficiency projects including:
 - Lighting upgrades at three schools;
 - Implementation of the Continuous Optimization Program at fourteen sites, making improvements to the heating and cooling systems and ensuring that building automation systems are operating efficiently at each site;
 - Installation of energy efficient domestic hot water systems at five schools;
 - Boiler replacements and accompanying mechanical upgrades at four schools;
 - Ventilation upgrade at one school;
 - Furnaces upgraded to energy efficient models in 53 portables.
- Business Management Services enabled district participation in the BC Hydro New Construction Program through the implementation of energy efficient lighting design the Resource Education Centre, which opened in the fall of 2015, and the whole building design of Surrey's newest secondary school, which will begin construction in 2016.
- Information Management Services facilitated the installation of nine new virtual servers and continue to transition to more energy efficient computing devices and manage computer power management software on an ongoing basis.
- Corporate Services replaced 121 multi-function print devices across 93 sites with more energy efficient models and continued to purchase Energy Star appliances where replacements were needed.





As a result of inter-departmental cooperation and teamwork, the district received over \$700,000 in incentive funding for energy efficiency projects from the Carbon Neutral Capital Program and our conservation partners BC Hydro and FortisBC. The combination of multiple energy efficiency projects, along with the efforts of staff and students in conserving energy on a daily basis have resulted in significant energy savings. In 2015, electricity consumption declined by 1.6%; a reduction of 722,500 kWh. Natural gas consumption decreased by 10% which is a reduction of 29,177 Gj; however, it should be noted that with warmer temperatures in 2015, we can assume that a portion of these natural gas savings are due to the weather.





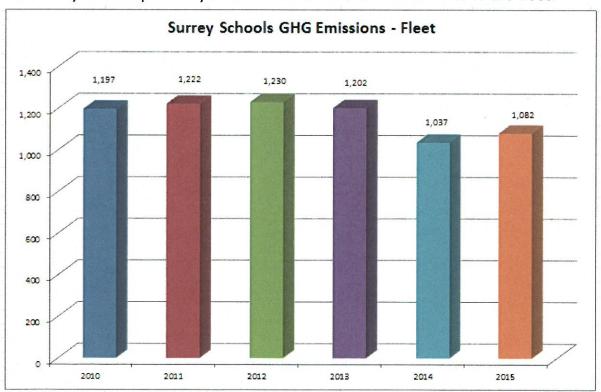


FLEET

In 2015 Surrey Schools' emissions from fleet vehicles accounted for 6.9% of the district's overall greenhouse gas emissions. Emissions from the fleet has increased slightly since 2010 (5.9%) as a percentage of total emissions due to an increase in the number of fleet vehicles combined with a sharp decrease in the overall level of emissions due primarily to strong reductions in emissions from buildings.

Total greenhouse gas emissions from fleet in 2015 were 1082 tonnes of CO_2 equivalent (tCO₂e), including 216 tCO₂e from school buses, which are not required to be offset.

In 2015, efforts to reduce greenhouse gas emissions included replacing eight fleet vehicles with more fuel efficient models, grouping of work orders by geographic location to reduce kilometers driven for maintenance and reminders of the district's anti-idling procedure. In spite of these measures, overall emissions from fleet increased by 4% due primarily to the addition of two new vehicles to the fleet.



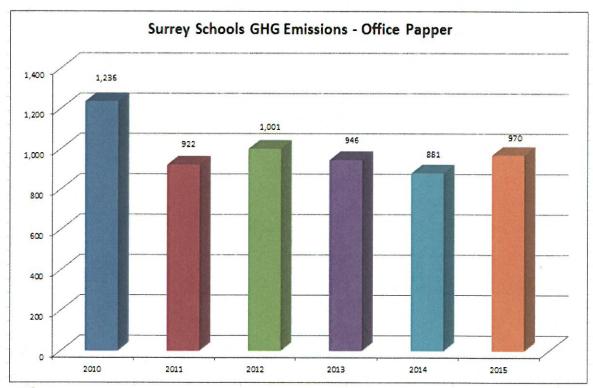




PAPER

In 2015 Surrey Schools' emissions from office paper accounted for 6.2% of the district's overall emissions; a level which has remained relatively constant over the past 5 years. Emissions from paper in 2015 were 970 tCO_2e . Although emissions from paper increased 10% compared to 2014 paper emissions, overall the district has reduced emissions from paper by 21% from the 2010 baseline.

Efforts to reduce office paper consumption in 2015 included implementing a new print strategy at two sites. This print strategy involved installing additional multi-function print devices accompanied by "print and hold" technology, default double-sided printing and print tracking and reporting. Surrey Schools also continues to encourage paperless meetings, use of electronic newsletters, and purchase of paper with a minimum of 30% recycled content in order to reduce paper consumption and emissions from paper.







Office Paper—Emissions Per Student

Year	Paper Emissions	Students	Emissions/Student
2010	1,236	66,902	0.018
2011	922	67,792	0.014
2012	1,001	67,699	0.015
2013	946	67,942	0.014
2014	881	67,964	0.013
2015	970	69,136	0.014

After an initial decrease in emissions in 2011, analysis shows that emissions from paper have remained relatively stable in the past 4 years on an emissions per student basis. Nonetheless, the overall amount of paper purchased in the district increased in 2015 compared to 2014. In addition, there was slightly more virgin paper and less paper with 30% or more recycled content purchased in 2015 indicating that ongoing efforts are required to communicate the benefits and encourage the purchase of paper with more recycled content.





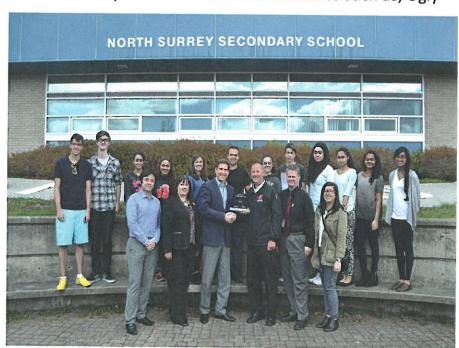
BUILDING A CONSERVATION CULTURE

Behaviour change is a key component of the district's carbon reduction strategy. Students and staff at many schools across the district participated in environmental stewardship initiatives delivered, coordinated or supported by the Energy Management and Sustainability program while many others had school-based Green Teams and initiated their own school-based environmental stewardship actions.

In 2015, the district continued its commitment to Workplace Conservation Awareness, widening the outreach by inviting every school in the district to participate in conservation campaigns. Students and staff in Surrey schools are creating a culture that makes energy conservation an everyday activity. Through the district's "Turn it Off Before You Take Off" shutdown campaigns prior to winter, spring and summer breaks, staff and students are proving that with small efforts they can reduce electricity consumption and save money by shutting down equipment when their schools are largely unoccupied.

In 2015 Surrey Schools ran the fourth annual inter-school energy challenge for secondary schools: the Energy Conservation Cup. The schools chose initiatives such as, Ugly

Sweater Day, and
"unplugged concerts"
at lunch and promoted
habit-changing actions
such as turning off
unneeded lights. North
Surrey Secondary was
the winner, with 19 per
cent savings, adding up
to a \$9,581 reduction in
BC Hydro bills for the
school.







GREEN BUILDINGS

Surrey Schools new construction projects are built to a higher level of energy efficiency than the standard building code.

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

Six sites have been constructed with Energy Efficient Lighting Design:

- Katzie Elementary, 6887 194A Street
- Sunnyside Elementary, 2828 159 Street
- Goldstone Park Elementary, 6287 146 Street
- Fraser Heights Secondary addition, 16060 108 Avenue
- Panorama Ridge Secondary addition, 13220 64 Avenue
- Resource Education Centre, 14123 92 Avenue

An energy study has been completed for Surrey's new secondary school in the North Clayton Area under the BC Hydro New Construction Whole Building Design program. Construction on the new energy efficient school will begin in 2016.







PLANS TO CONTINUE REDUCING EMISSIONS

The largest proportion of our GHG reduction initiatives will continue to be focussed on energy conservation within our schools and administrative facilities, which are the largest source of GHG emissions in the district.

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 energy consumption of buildings.

Surrey Schools is continuing to implement the District's comprehensive energy conservation program and there are number of energy efficiency projects slated for 2016 including:

- Completion of the Power Smart Continuous Optimization Program implementation at four schools which will complete the 3-year process of reviewing and improving the efficient operation of twenty-eight of the district's largest energy consuming facilities.
- Lighting retrofits at four schools
- Exterior lighting retrofits at three schools
- Upgrades to furnaces at one elementary school and in a number of portables
- Upgrades to heating systems (boiler plants) at 4 secondary schools
- New energy efficient domestic hot water heaters at three secondary schools
- Building automation system upgrades at three schools
- Retro-commissioning of the building automation system at the District Education Centre





PLANS TO CONTINUE REDUCING EMISSIONS

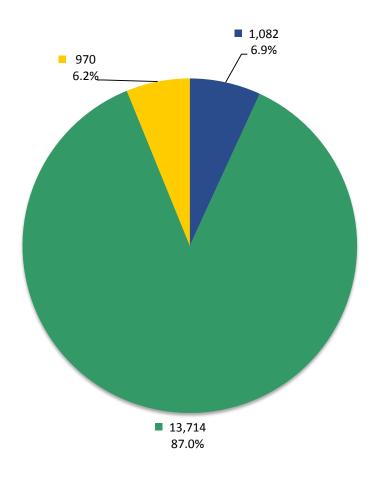
Surrey Schools will continue to access incentive funding from key energy conservation partners and promote and pursue cost effective energy conservation projects. In addition to energy efficiency projects, Surrey Schools will continue to support school energy conservation through energy conservation campaigns, green teams and district -wide energy awareness programs and competitions.

Surrey Schools' commitment to sustainability goes beyond reduction of greenhouse gas emissions and touches on areas such as waste management, procurement, education and engagement, and others. Below are just a few highlights of our work and upcoming plans in those other areas:

- With a comprehensive energy management policy in place, in 2016 Surrey Schools will be working to formalize the district's commitment to environmental stewardship in an environmental sustainability policy. Stakeholder consultations will begin in Spring 2016
- Now that Surrey Schools has completed the implementation of the "Rethink Waste" program (an expanded recycling program for all district locations that includes composting of organic waste and recycling of glass, metal, plastic, paper and cardboard), in 2016 new 'waste stations' will be rolled out to all schools to promote higher diversion rates.
- We are planning ongoing employee engagement campaigns to continue reduction of resources such as energy, water and office paper
- Surrey Schools will continue to participate in programs that support active transportation to and from work and school such as Bike to School/Work Week and the City of Surrey sponsored School Travel Planning program.



School District 36 - Surrey Greenhouse Gas Emissions by Source for the 2015 Calendar Year (tCO₂e*)



Total Emissions: 15,766

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion (Building Heating and Generators) and Electricity
- Supplies (Paper)

Offsets Applied to Become Carbon Neutral in 2015 (Generated May 26, 2016 9:05 AM)

Total offsets required: 15,550. Total offset investment: \$388,750. Emissions which do not require offsets: 216 **

^{*}Tonnes of carbon dioxide equivalent (tCO₂e) is a standard unit of measure in which all types of greenhouse gases are expressed based on their global warming potential relative to carbon dioxide.

^{**} Under the Carbon Neutral Government Regulation of the Greenhouse Gas Reduction Targets Act, all emissions from the sources listed above must be reported. As outlined in the regulation, some emissions do not require offsets.

2015 Carbon Neutral Action Report Survey

1
Organization Name:
School District #36 (Surrey)
Please select your sector:
School District
1) Stationary Sources (Buildings, Power Generators, Ext. Lighting) Fuel Combustion, Electricity use, Fugitive Emissions:
Please indicate which actions your PSO took in 2015:
Have developed an overall strategy/plan to reduce energy use in your organization's buildings inventory:
Yes
If Yes, please describe: We have a Strategic Energy Management Plan in which we plan for reducing energy used in building through a 3-pronged approach: building design (building and retrofitting for energy efficiency), building operations (leveraging building automation systems to
operate buildings more efficiently) and building occupants (encouraging building occupants to conserve energy).
Undertook evaluations of building energy use:
Yes
Performed energy retrofits on existing buildings:
Yes
Built or are building new LEED Gold or other "Green" buildings: Yes
163
Please list any other actions, programs or initiatives that your organization has introduced that support emissions reductions from buildings:

SD#36 has an extensive Workplace Conservation Awareness program that engages staff and students in energy conservation.

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<u>Page 5</u>
2) Mobile Sources (Fleet, Off-road/Portable Equipment) Fuel Combustion:
Indicate which actions your PSO took in 2015:
Have put in place an operations policy/program to support systematic reductions in fleet related emissions:
(e.g., program to convert fleet to renewable fuels)
No
If Yes, please describe:
(No response)
Replaced existing vehicles with more fuel efficient vehicles (gas/diesel):
Yes
Replaced existing vehicles with hybrid or electric vehicles:
No
Took steps to drive less than previous years:
Yes
Please list any other actions, programs or initiatives that your organization has introduced that support emissions reductions from fleet combustion:
(No response)
3) Supplies (Paper):
Indicate which actions your PSO took in 2015:
Have put in place an operations policy/program to facilitate a systematic reduction in paper-related emissions:
(e.g., policy to purchase 100% Recycled Content; default to double-sided printing)
Yes

If yes, please describe:

⁻ Default to double-sided printing - Implementing new print strategy with multi-function devices that includes a "print & hold" strategy to eliminate 'forgotten' print jobs

and a data tracking process to allow for communicating # of prints per person.

Have put in place an operations policy/program to facilitate behavioural changes from paper use:
(e.g. awareness campaign to reduce paper use):
No
If yes, please describe:
(No response)
Used only 100% recycled paper:
No
Used some recycled paper:
Yes
Used alternate source paper:
(e.g., bamboo, hemp, wheat etc.)
No
Please list any other actions, programs or initiatives that your organization has introduced that support emissions reductions from paper supplies:

(No response)

Page 4 4) Other Sustainability Actions: Please note that this section is optional **Business Travel** Created a low-carbon travel policy or travel reduction goal: (low-carbon = lowest emission of greenhouse gas per kilometer per passenger) No Encouraged alternative travel for business: (e.g. bicycles, public transit, walking) No Encouraged or allow telework/working from home: No Other: (No response) **Education Awareness** Have a Green/Sustainability/Climate Action Team: Yes Supported green professional development: (e.g. workshops, conferences, training) No

(No response)

Other:

No

water, energy and/or raw materials:

Supported or provided education to staff about the science of climate change, conservation of

Adaptation Planning for Climate Risks

Have assessed whether increased frequency of extreme weather events and/or long term changes in climate will affect your organization's infrastructure, its employees and/or its clients:
Yes
Have incorporated these anticipated changes in climate into your organization's planning and decision making:
No
Other:
Connecting with City of Surrey to review their climate analysis and adaptation strategy to see where interests may be aligned and collaboration may be possible
Other Sustainability Actions
Established a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models:
No
Have put in place an operations policy/program to facilitate the reduction and diversion of building occupant waste stream from landfills or incineration facilities:
(e.g., composting, collection of plastics, batteries)
Yes
Established green standards for goods that are replaced infrequently and/or may require capital funds to purchase:
(e.g., office furniture, carpeting, etc.)
No
Incorporated lifecycle costing into new construction or renovations:
No

Please list any other sustainability actions your organization has taken not listed above:

Whole building energy study performed for new secondary school construction with energy efficiency a key component of building design.

Embarking on the process of developing a sustainability policy and comprehensive sustainability strategy for the organization.