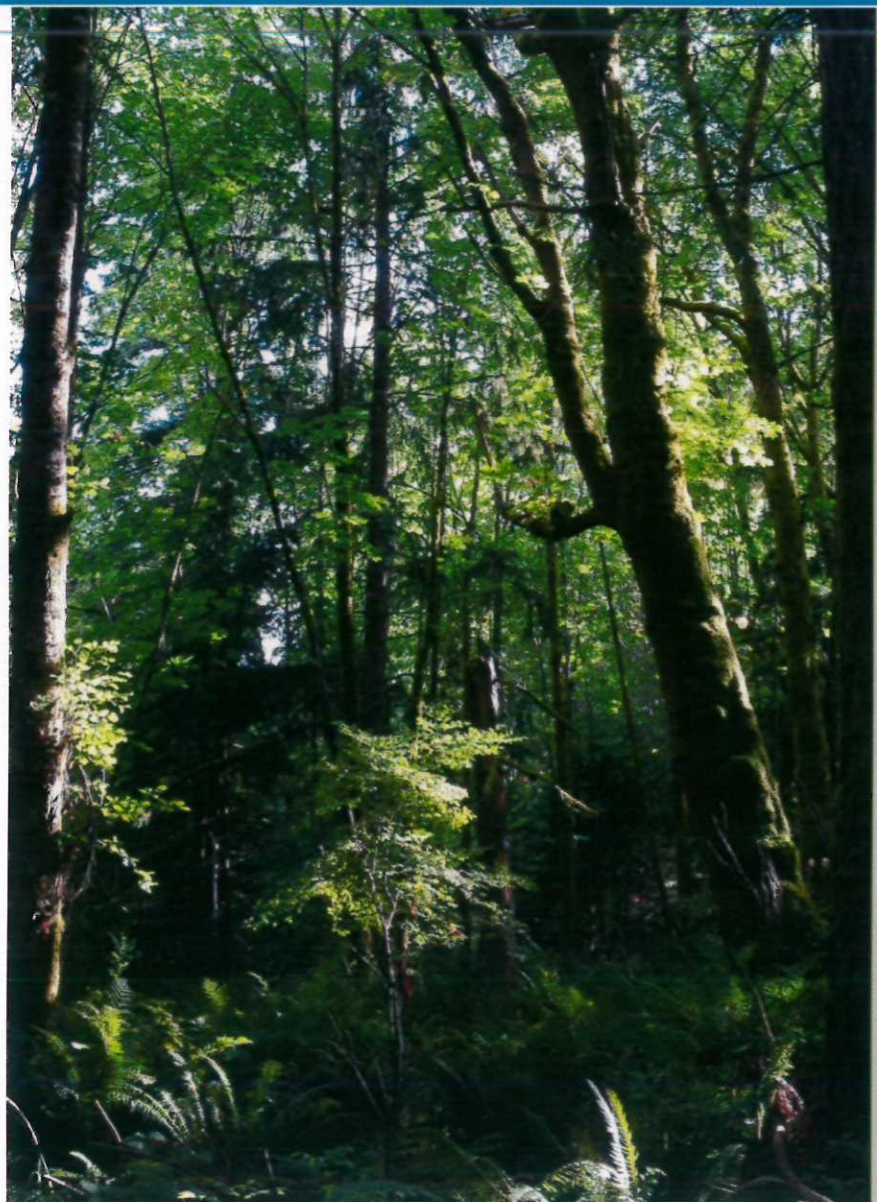




2015

2015 Carbon Neutral Action Report  
School District #71, Comox Valley





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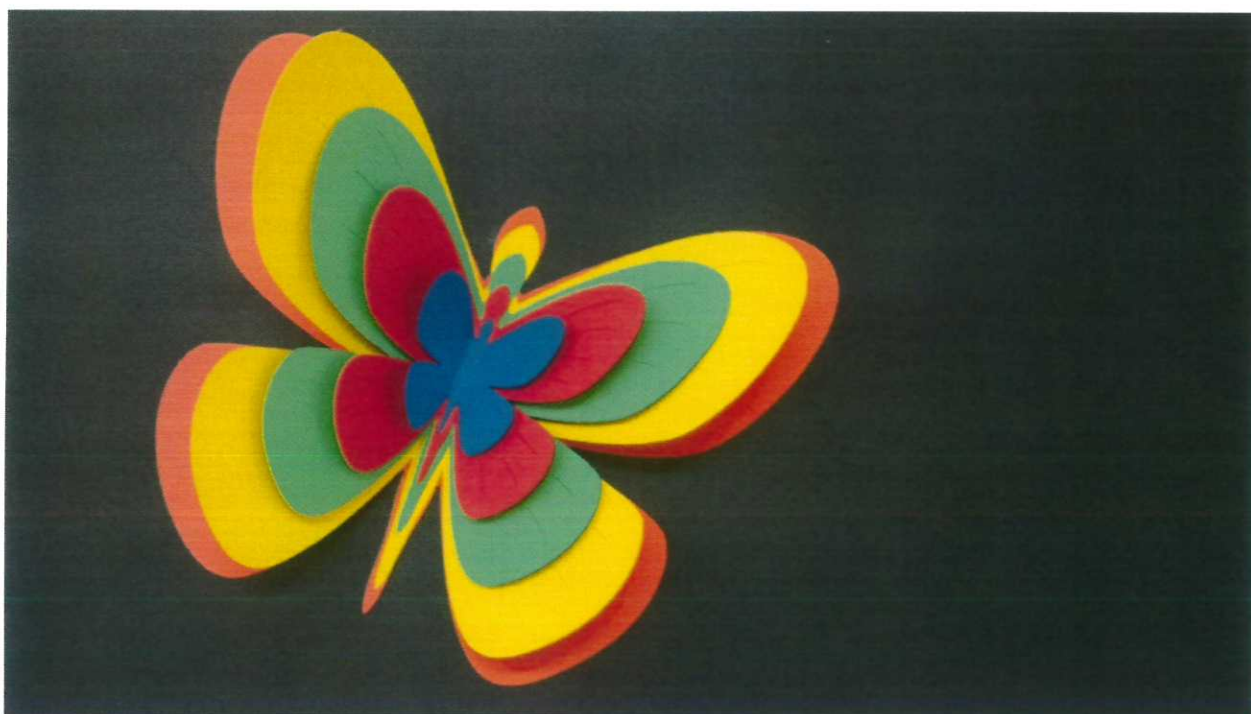


Figure 1 Student Art - Robb Road Elementary

## CNAR Declaration Statement

This *Carbon Neutral Action Report* for the period January 1<sup>st</sup> to December 31<sup>st</sup>, 2015 summarizes our emissions profile, the amount of offsets purchased 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<sup>th</sup>, 2016 School District 71, Comox Valley's final *Carbon Neutral Action Report* will be posted to our website at [www.sd71.bc.ca](http://www.sd71.bc.ca).

## Overview of Key Actions

Throughout SD#71 we are committed to preparing all learners for a changing world. We value healthy living and social responsibility as well as academics. Building on the SD#71 core policies and our successes in GHG reductions since 2011. School District #71, Comox Valley submits the Carbon Neutral Action Report for 2015 to the Climate Action Secretariat for review.

### **KEY ACTIONS SD #71 HAS TAKEN TO REDUCE GHG EMISSIONS FOR 2015:**

#### **Mechanical and Building Upgrades**

- Completed Mechanical Feasibility studies on 5 sites (G.P Vanier, Courtenay El., Royston El., Lake Trail Middle, and Cumberland Junior to determine GHG emissions savings if a complete HVAC upgrade were to occur in those schools.

Royston Elementary Heating and Ventilation system mid-efficiency (60%) boiler replacement with IBC high efficiency 98% condensing boilers. Data comparison reveals consumption in OCT – NOV 2013 is 216.5 GJ and after replacement it is 122 GJ for OCT – NOV 2015.

- Put into action our Preventative Maintenance Plan for boilers, water heaters, exhaust fans, and air handler units.



*Figure 2 Boiler Upgrade at Royston Elementary.*



### IT Hardware upgrades

- Six hundred outdated LCD or CRT monitors were replaced with new LED monitors. A CRT monitor needs 110 W to work but the new LED monitors need 17.18 W to work. This translates to 68% power savings per Energy Star LED monitor.

### Building Envelope

- Cladding upgrade and replacement at Courtenay Elementary is well underway with ½ of the building complete. This is integral in maintaining effective building envelope to reduce energy consumption.



*Figure 3 Building Envelope Upgrade Courtenay Elementary*

### Occupancy Sensors

- Throughout the district we make the switch to overhead classroom occupancy sensors. In the fall of 2015 we began this project in 18 classrooms of Huband Park Elementary to test equipment. Occupancy sensors save energy by keeping the lights off while the room is unoccupied. Users complained that the wall occupancy sensors were not working correctly so the Electrical Department made the move to a Levitron Ceiling Occupancy Sensors. With 1000 sq. ft. of coverage and 360 degree radius the result is a trouble free, install and forget solution of light control. The user response, “I love it, because it adjusts to my class’s pattern”.

### Fleet Reduction

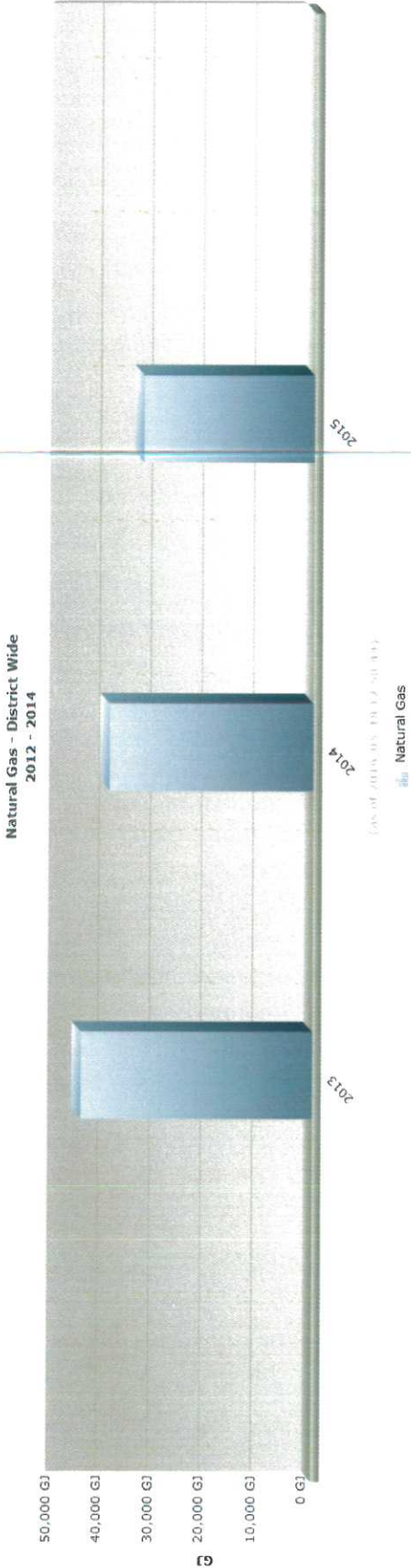
- Reduced SD71 fleet in 2015 by two buses, two Chevy V-8 van, and one light duty truck. In one case a light duty truck was replaced with small hatch back and an electric bike as a fuel saving measure. See Figure 4.



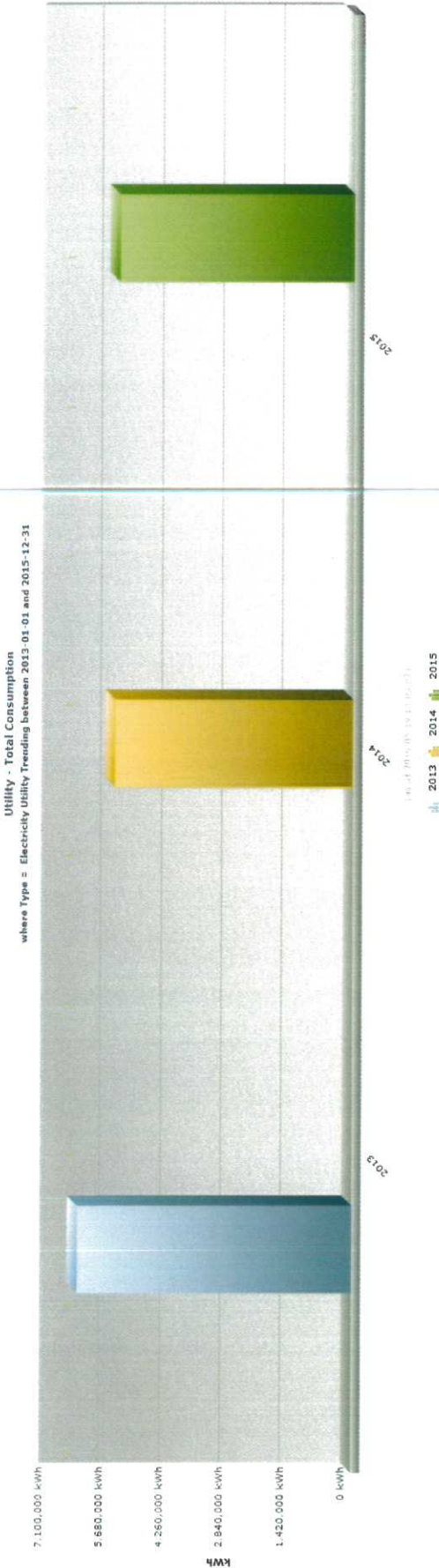
*Figure 4 Electric Assist Devinci Newton fleet vehicle*

Results

Actions taken reduce the amount of NATURAL GAS consumed. Since 2013 to 2015 natural gas consumption has been reduced from 45,180 GJ to 33,414 GJ. See graph below.



Actions taken reduce the amount of ELECTRICITY consumed. Since 2013 to 2015 electricity consumption has been reduced from 6,446.443 KWh to 5,507,712 KWh . See graph below.





## Emissions and Offset Summary Table:

### School District #71, Comox Valley GHG Emissions and Offsets for 2015(TCO2E)

GHG Emissions created in calendar year 2015 (from SMARTTool Homepage):	
Total Emissions (TCO2E)	1,981
Total Emissions for Offsets (TCO2E)	1,975
Adjustments to GHG Emissions Reported in Previous Years (from SMARTTool Homepage):	
Total Emissions (TCO2E)	2
Total Offsets (TCO2E)	2
Total Emissions for Offsets for the 2014 Reporting Year (from Offset Invoice):	
Total Offsets (TCO2E)	1977

In summary, as the Greenhouse Gas Emissions Source Detail Report indicates, it is still essential to focus on energy consumption of our 110,000 square meters of building space as this area is the highest emitter of tCO2e over Fleet consumption and Paper consumption. (Reference: Green House Gas Emissions by Source Report). We continue to see improvements.

2012 Total Emissions	2013 Total Emissions	2014 Total Emissions	2015 Total Emissions
2,509 tCO2	2,305 tCO2	2,240 tCO2	1981 tCO2

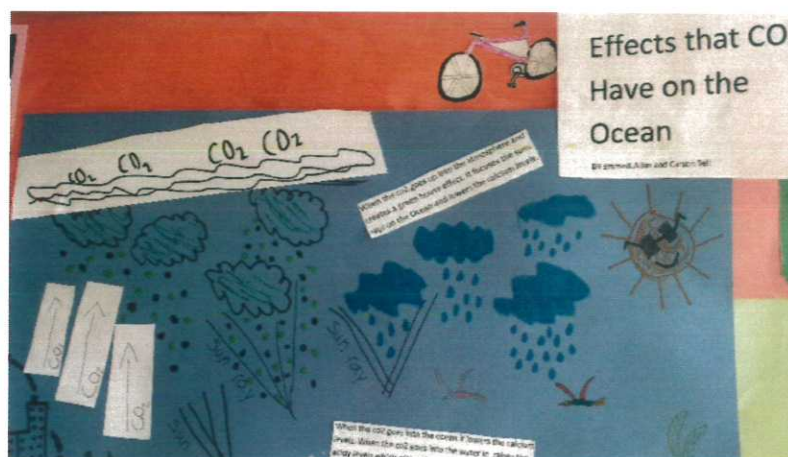


Figure 5 Huband Park Elementary submission to David Suzuki Foundation



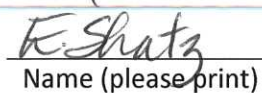
## Retirement of Offsets:

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, School District 71, Comox Valley (**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.

### Executive sign-off:

  
Signature

  
Date

  
Name (please print)

  
Title



Figure 6 Future Green Team Leader, Grade 2 Student - Ripley Wyker

## Plans to Continue Reducing Emissions

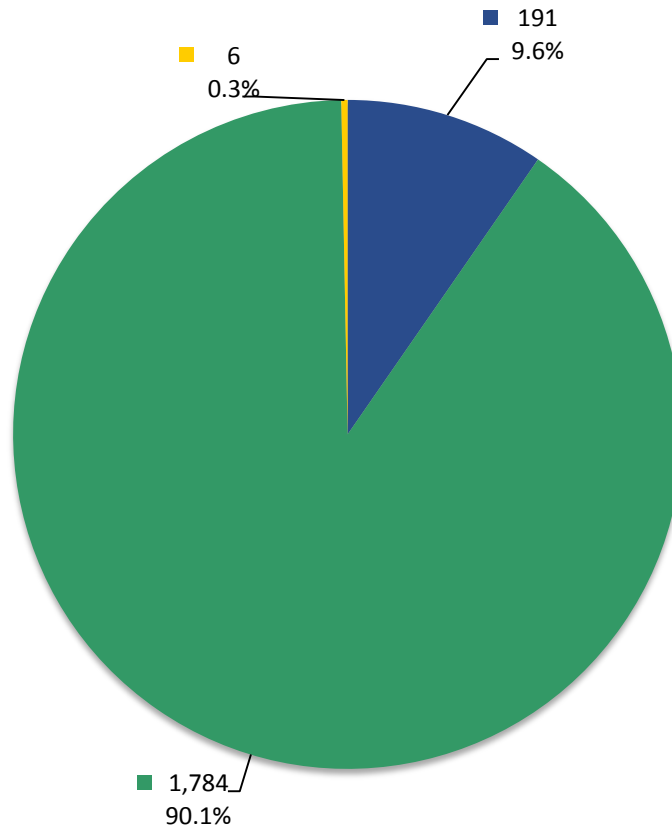
Comox Valley School District is located in the center of Vancouver Island, BC. The 23 schools in the district span 3 municipalities, one regional district, and the Gulf Island communities of Denman and Hornby.

Administration and School buildings add up to 110,000 square meters of buildings that need heating and to be lit for our students, staff and community users. These buildings are the highest emitters of GHG gases in our district - 90.1% of emissions are sourced from buildings. In comparison to the 9.6% from the School District fleet the 90.1% number speaks for itself, and gives a focus point for our GHG reduction efforts moving forward.

- Funding from the CNCP budget and our partner in conservation, Fortis BC has allowed our Maintenance Department to go ahead with the replacement of the **boilers at Lake Trail Middle School**. To be completed in September 2016. Lake Trail Middle School is the in a class of our 2nd highest emitter of GHG per square meter of all the buildings in SD71. The current boilers have been in service for thirty years and will be replaced with a natural gas condensing boiler system which squeezes the most heat out of every GJ of natural gas. This project will save an estimated – 33.3% - 60.57 tons of CO<sub>2</sub>.
- Completion of two **DDC upgrade projects** at Lake Trail Middle School and Mark R. Isfeld High School.
- Building on the success of changing over to a **ceiling occupancy sensor**. We will continue to change out more occupancy sensors in schools as determined by budget and need.
- Implement Courtenay Elementary **cladding project** Phase 2. It will be completed with funding from the Ministry of Education School Enhancement Project funding. This project will extend the life of the building, improve the comforts of staff and students and improve the efficiency of the building.
- As part of the seismic upgrade project G.P. Vanier will receive a **complete mechanical upgrade**.
- Committed to following our **Energy Policy**, and continue to update and implement our **Strategic Energy Management Plan**. Part of this commitment is assessing school sites to determine where the best GHG emissions savings and operational cost savings will be from the investment. In addition, reviewing past projects to see what effect the upgrades had on electrical and natural gas consumption. Comox Valley schools will need to continue to access incentive funding from energy conservation partners like BC Hydro, Fortis BC and Shell Canada.



# School District 71 - Comox Valley Greenhouse Gas Emissions by Source for the 2015 Calendar Year (tCO<sub>2</sub>e\*)



**Total Emissions: 1,981**

- 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 9:14 AM)

Total offsets required: **1,975**. Total offset investment: **\$49,375**. Emissions which do not require offsets: **6** \*\*

\*Tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) 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

Organization Name:

School District 71, Comox Valley

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:

2015 - 2020 SD71 Operations Plan includes a strategy to target 5 schools ( 1 per year) and complete boiler upgrades to high efficiency boiler systems.. As we work with a new Preventative Maintenance plan we incorporate LED upgrades to our classroom and gymnasium lighting systems.

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:

No

Please list any other actions, programs or initiatives that your organization has introduced that support emissions reductions from buildings:

- Through the CNCP funding, retrofitted Royston Elementary school with high efficiency boilers.



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)

Yes

If Yes, please describe:

*Developed a Vehicle Maintenance and Operations policy, that outlines policy on idling. Vehicle operators are monitored for their idling through tracking system. Conversation with operators to bring awareness to anti idling policy.*

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:

*Buy the vehicle for the job. Replaced a light duty truck with an 4 door hatch-back and electric bike.*

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)

No

If yes, please describe:

*(No response)*

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)



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 response)

Other:

(No response)

Education Awareness

Have a Green/Sustainability/Climate Action Team:

(No response)

Supported green professional development:

(e.g. workshops, conferences, training)

(No response)

Supported or provided education to staff about the science of climate change, conservation of water, energy and/or raw materials:

(No response)

Other:

(No response)

## 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:

*(No response)*

Have incorporated these anticipated changes in climate into your organization's planning and decision making:

*(No response)*

Other:

*(No response)*

## Other Sustainability Actions

Established a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models:

*(No response)*

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)

*(No response)*

Established green standards for goods that are replaced infrequently and/or may require capital funds to purchase:

(e.g., office furniture, carpeting, etc.)

*(No response)*

Incorporated lifecycle costing into new construction or renovations:

*(No response)*

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

*(No response)*