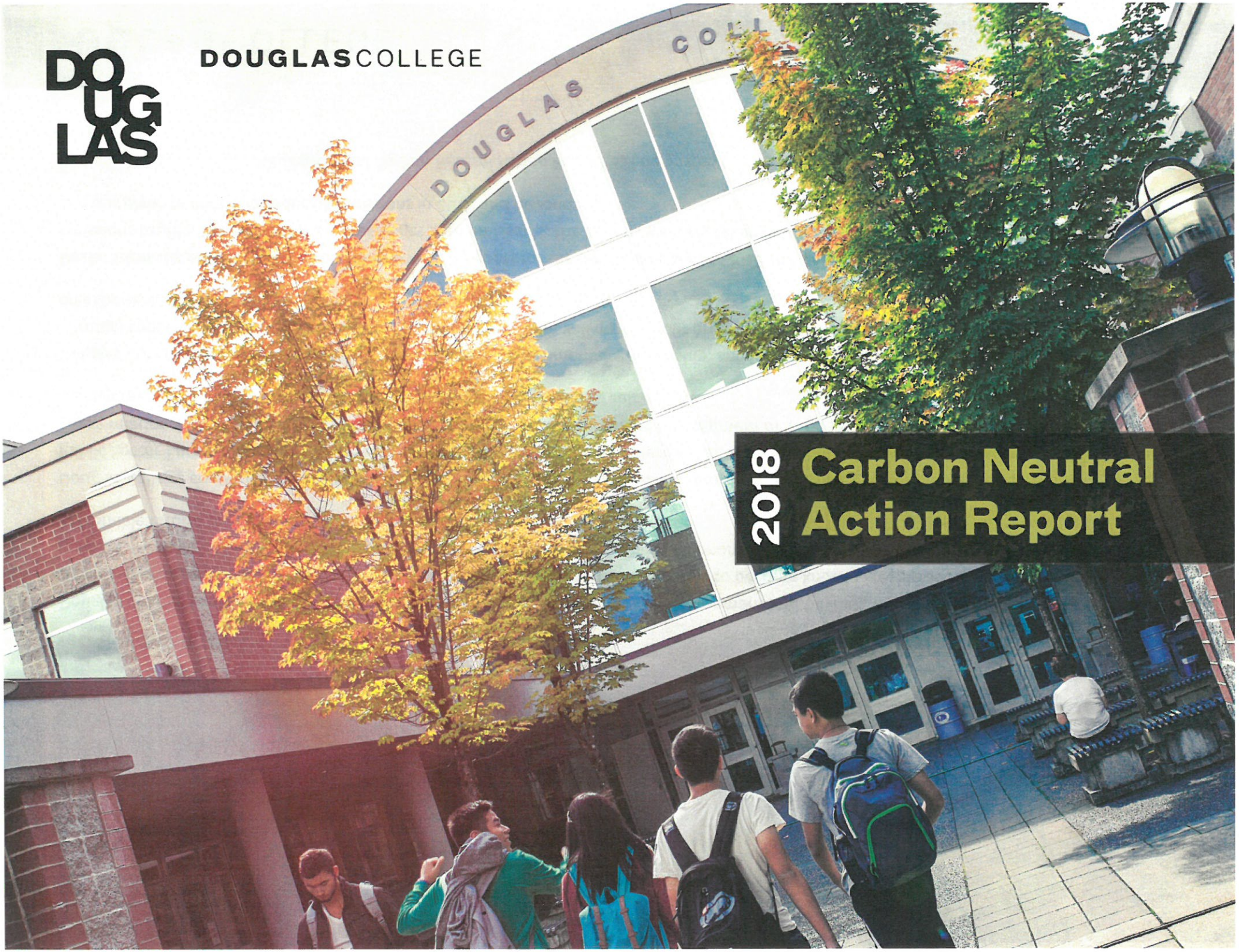
DOUGLAS COLLEGE



2018 Carbon Neutral Action Report

Executive Summary

Douglas College continues to be concerned about the quality of the natural environment and building a sustainable society. As a significant public sector organization, the College has a responsibility to enable our community to become knowledgeable about the environment, and to become environmentally responsible. To educate by example, Douglas College demonstrates positive environmental citizenship by taking all reasonable efforts to make environmentally sound decisions.

Douglas College continues to investigate opportunities provided by organizations such as BC Hydro's Power Smart programs and initiatives, Public Sector Energy Conservation Agreement (PSECA), Energy Canada (Enercan), and the Ministry of Advanced Education, Skills & Training. These relationships provide access to a variety of resources to assist us in the development of a college-wide environmental sustainable energy management plan that focuses on achievable, sustainable and measurable results.

Douglas College is committed to demonstrating quality environmental stewardship, and internal and external resources are being developed. Through consultation with experts and community partners, we will monitor our progress against our plan, and update our procedures based on experience gained.

Declaration statement: 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 Douglas College's final *Carbon Neutral Action Report* will be posted to our website at www.douglascollege.ca.

Emission Reduction Activities in 2018

Key initiatives taken between January 1, 2018 and December 31, 2018 to reduce greenhouse gas emissions include:

New Westminster campus:

- Upgrade of eighteen pneumatic VAV boxes to electronic.
- Upgrade of lighting in the CTELL lab to LED.
- Replacement of 395 100 watt HPS light fixtures to 33 watt LED with occupancy diming capabilities in the parkade.
- Installation of low voltage lighting system and occupancy sensors on levels 3, 5 & 6.
- Replacement of the Laura Muir Theatre production lights to LED technology.
- Additional car (private company) for car sharing options for students and employees for a total of 9 cars at this campus.
- Installation of additional hand dryers in washrooms to reduce use of paper towels.

Coquitlam campus:

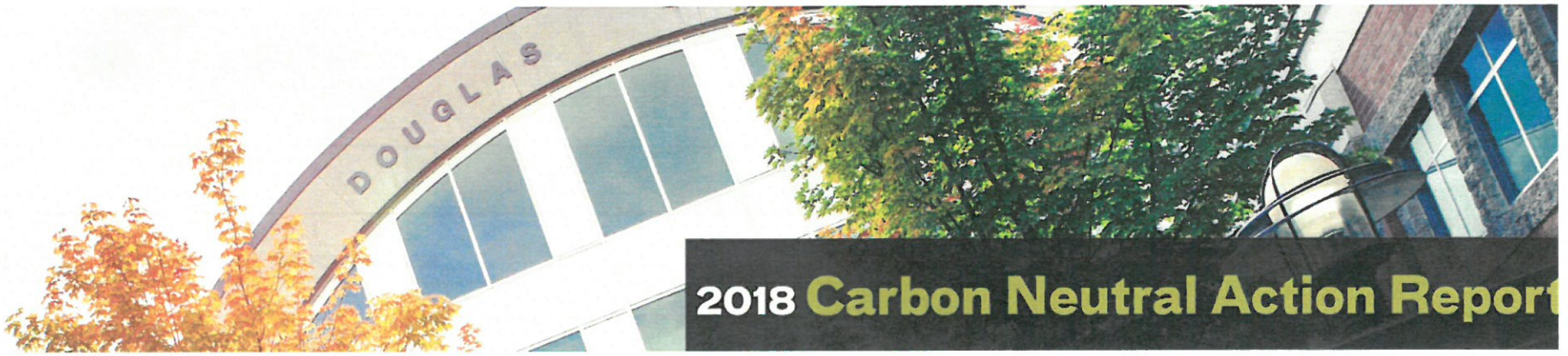
- Replacement of 330 pot lights with LEDs in Building AB.
- Upgrade of low voltage lighting system and installation of occupancy sensors in Building AB and Building CD.

Both campuses:

- Installation of four EV charging stations at the New Westminster and Coquitlam campuses.
- Formed the Douglas College Printing Working Group to focus on paper reduction activities at the College.
- Switch to ceramic plates and metal cutlery for catering instead of disposable items.
- Elimination of bottled water for catering requests.
- Significant increase of plant based food options.
- Elimination of bottled water sales at the Anvil Office Tower campus.
- Participation in Zero Waste Forum 2018.
- Recycling of styrofoam to local depot.
- Re-use of shipment boxes for internal moves.

Plans to Continue Reducing Greenhouse Gas Emissions 2019 and Beyond:

- Replacement of single pane exterior windows with double-glazed, low-e windows (ongoing).
- Install two additional EV charging stations.
- Where necessary, convert control of building exhaust fans from interlocked control to scheduled control based on occupancy. Where required, add DDC monitoring to exhaust fans to allow for improved return fan air flow tracking.
- Continue to convert pneumatic VAV controls to DDC at the NW campus.
- Upgrade Carnarvon parkade stairwell lighting (pot & exit lights).



- For the New Westminster underground parking lot, add Carbon-Monoxide sensors to control exhaust fans. They presently run continuously based on occupancy
- Implement some of the ECMs identified in the ASHRAE level 2 audit (i.e., lighting upgrades, occupancy sensors, etc.).
- For the Coquitlam parking lot, add occupancy sensors to parking lot to turn off non-emergency lights when the lot has low occupancy
- Replacement of heating HW boilers with condensing high efficiency boilers in NW.
- Eliminate bottled water sales on all campuses (planned for Fall 2019).
- Replacement of plastic straws with paper straws.
- Replacement of domestic HW boilers with condensing high efficiency boilers.
- Upgrade library lighting to LED and upgrade VAV systems in NW.
- Install low voltage lighting system and occupancy settings on levels 1, 2 and 4.
- Upgrade science labs including fume hoods and exhaust.
- Upgrade main air handling systems (to allow for higher capacity and increased efficiency).
- In Coquitlam, convert surface parking lot pole lights from 250 watt HPS to LED, sidewalk pole lights from 100 watt HID to LED, and 300 pot lights to LED.
- For the Coquitlam parking lot, add occupancy sensors to parking lot to turn off non-emergency lights when the lot has low occupancy
- Replacement of building envelop for buildings A, B & Daycare in Coquitlam.

Douglas College is committed to researching and initiating where feasible, short and long term initiatives to promote environmental sustainability while meeting provincially mandated legislation for the reduction of Greenhouse Gas Emissions.

The College will continue to pursue sustainability initiatives and has an ongoing awareness campaign to encourage our employees to think creatively and to act on reducing consumption in the workplace and take on the challenge of modeling new personal behaviour around sustainability.

Emissions and Offset Summary Table:

***Douglas College's* GHG Emissions and Offset for 2018 (tCO_2e)**	
GHG Emissions created in Calendar Year 2018:	
Total Emissions (tCO_2e)	1,519
Total Offsets (tCO_2e)	1,519
Adjustments to GHG Emissions Reported in Prior Years:	
Total Emissions (tCO_2e)	0
Total Offsets (tCO_2e)	0
Grand Total Offsets for the 2017 Reporting Year:	
Grand Total Offsets (tCO_2e)	1,519

Retirement of Offsets:

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, *Douglas College* 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.

Executive Approval

Tracey Szirth, VP Administrative Services and CFO	May 31/19 *Date*

Part 1: CNAR Survey

1. General Information

Name: Chris Gardner

Contact Email: gardnerc@douglascollege.ca

Organization Name: Douglas College

Sector: Post Secondary

Role - Please select your role(s) below.
If more than one individual completed the survey, multiple categories may be selected:

Energy Manager: No

Sustainability Coordinator: No

Administrative Assistant: No

Facilities/Operations Manager/Coordinator: No

CEO/President/Exec Director: No

Treasurer/Accounting: No

Superintendent: No

Other - Please Specify: Director, Facilities & Ancillary Services

A. Stationary Sources (e.g. Buildings, Power Generators): Fuel Combustion, Electricity use, Fugitive Emissions.

1. Actions taken by your organization in 2018 to support emissions reductions from buildings.

a) Do you have a strategy to reduce emissions from stationary sources?

No

If yes above, what are the main goals?: Our Procurement Policy includes the following policy statement:
The College will give preference to ethically sourced and environmentally friendly products whose quality, function, and cost are equal or superior to more traditional products. This
policy will, but not be limited to: conserve natural resources, minimize pollution, reduce the use of water and energy, eliminate or reduce environmental hazards to workers, support recycling markets, reduce materials that are landfilled, reward vendors that reduce environmental impacts, and support locally produced goods and services.

b) Whether you have a strategy or not (1.a), briefly describe your organization's plans to continue reducing emissions from stationary sources:

I. Over the medium-term term (1-5 years)

- Continued focus on upgrading lighting to LED technology including occupancy and daylight sensing controls.
- Continued replacement of windows to double pane, low-e argon filled windows at the New West campus.
- Complete a strategic review of EV charging station expansions at each campus including a review of infrastructure needed to support the increasing demand.
- Upgrade the main boiler plant with condensing high efficiency boilers in New West.
- Upgrade chiller plant (variable secondary flow pumping) in New West.
- Upgrade library lighting to LED and upgrade VAV systems in New West.
- Building envelop replacement for buildings A, B & Daycare in Coquitlam.
- Upgrade science labs (including fume hoods and exhaust) in New West.
- Continue replacing pneumatic variable volume boxes with new DDC controlled boxes.
- Upgrade main air handling systems (to allow for higher capacity and increase efficiency) in New West.

II. Over the long term (6-10 years)

- Upgrade main air handling systems (to allow for higher capacity and increase efficiency) in New West.
- Further projects identified in the ASHRAE Level 2 Energy Audit in October 2015.

c) Please describe your strategy's goals (if any) related to energy audits.

- Complete an energy audit of our campuses by 2021.

I. What % on average of your building portfolio has an energy audit completed each year (if any)?: 0

d) Please describe your strategy's goals (if any) related to building retrofits.

As part of our Campus Master Plan we have a number of planned renovations over the next 10 years which will include upgrades to both mechanical and electrical systems in the renovated space. In addition to this, we have a 3 year rolling capital infrastructure maintenance plan to renew building assets and systems resulting in improved building efficiencies.

I. What % on average of your building portfolio is retrofitted each year in the following categories (if any) - click here for further information:

Minor retrofits (e.g., low cost, easy to implement measures including caulking, lighting, adding roof insulation, etc.) (%): 1

Major retrofits (e.g., replacing windows and doors, equipment replacement such as boilers, etc.) (%): 30

Deep retrofits (e.g., replacing roof, replacing the heating, ventilation and air-conditioning system with a renewable technology like a ground-source heat pump, etc.) (%): 0

e) Please describe your strategy's re/retro-commissioning goals (if any)?

When systems are replaced, we recommission the affected system.

I. What % on average of your building portfolio do you recommission each year?: 1

f) Do you keep records of Refrigerant gases category and refilling volumes?

No

II. What, if any, mitigation approaches have been considered? Please describe.

Our contractors keep refrigerant records as part of their contracted service. Ongoing preventative maintenance and replacement of older equipment.

g) How many newly constructed buildings received at least LEED Gold certification in 2018: 0

I. How many newly constructed buildings did not receive LEED Gold certification?: 0

II. Please explain why LEED Gold certification was not obtained.

We did not build a new building in 2018.

h) Other actions? Please describe briefly.

N/A

B. Mobile Sources (Vehicles, Off-road/portable Equipment): Fuel Combustion:

3. Actions taken by your organization in 2018 to support emissions reductions from mobile sources.

a) Do you have a strategy to reduce emissions from mobile sources?

No

b) Whether you have a strategy or not (3.a), briefly describe your organization's plans to continue reducing emissions from mobile sources:

I. Over the medium-term term (1-5 years)

- Car sharing continues to be encouraged for employees and students. Our New West campus has 9 car share cars available (private companies) and the Coquitlam campus has 2 car share cars nearby.
- Staff and students are encouraged to take transit to/from our campuses.
- Expansion of EV charging stations at both campuses.
- Replacement of one small van to electric (when available on the market).

II. Over the long term (6-10 years)

- continue to review the medium-term options as the market changes and implement options to reduce emissions.

c) How many fleet vehicles did you purchase from the following categories:

Electric Vehicle – EV - (e.g., Nissan Leaf, Chevy Bolt): 0

"Plug In" Electric Vehicle – PHEV (e.g., plug-in Prius, Chevy Volt): 0

Hybrid vehicle – HEV – non "Plug In"- (e.g., Toyota Highlander Hybrid): 0

Hydrogen fuel cell vehicle : 0

Natural gas/propane: 0

Gas/diesel vehicle: 0

I. If you purchased new gas/diesel vehicles, can you briefly explain why vehicles from the other categories were not chosen?

N/A

d) How many existing EV charging stations does your organization have in each category:

level 2: 4

level 3: 0

How many level 2 stations (if any) are specifically for your fleet vehicles: 0

How many level 3 stations (if any) are specifically for your fleet vehicles: 0

e) How many EV charging station(s) did you install in 2018 in each category:

level 2: 4

level 3: 0

How many level 2 stations (if any) were installed specifically for your fleet vehicles: 0

How many level 3 stations (if any) were installed specifically for your fleet vehicles: 0

f) Other actions, please describe briefly (e.g. charging station feasibility studies, electrical panel upgrades, etc.)

To complete a study for a charging station strategy plan for 2019.

4. Please indicate the number of the vehicles in the following vehicle classes that are in your current fleet (including any purchased in 2018):

Definitions:

• Light duty vehicles (LDVs) are designated primarily for transport of passengers <13 and GVWR<3900kg
• Light duty trucks (LDTs) are designated primarily for transport of light-weight cargo or that are equipped with special features such as four-wheel drive for off-road operation (include SUVs, vans, trucks with a GVWR<3,900kg)
• Heavy duty vehicles (HDV) includes vehicles with a GVWR>3,900 kg (e.g. ¾ tonne pick-up truck, transport trucks)

a) Light duty vehicles (LDVs)

Electric Vehicles – EV - (e.g., Nissan Leaf, Chevy Bolt): 0

"Plug In" Electric Vehicle – PHEV -- (e.g., plug-in Prius, Chevy Volt) : 0

Hybrid vehicles – HEV – (e.g., non "Plug In"- older Toyota Prius, Toyota Camry hybrid): 0

Hydrogen fuel cell vehicles: 0

Natural gas/propane: 0

Gas/diesel: 0

b) Light duty trucks (LDTs)

Electric Vehicles – EV : 0

"Plug In" Electric Vehicle – PHEV: 0

Hybrid vehicles – HEV – (e.g., non "Plug In"- older Ford Escape Hybrid, older Chevrolet Silverado pickup hybrid etc): 0

Hydrogen fuel cell vehicles: 0

Natural Gas/propane: 0

Gas/diesel: 1

c) Heavy duty vehicles (HDV)

Electric Vehicles – EV : 0

"Plug In" Electric Vehicle – PHEV : 0

Hybrid vehicles – HEV – (e.g., non "Plug In"): 0

Hydrogen fuel cell vehicles: 0

Natural Gas/propane: 0

Gas/diesel: 0

5. Please indicate the number of the vehicles you plan to replace in your fleet:

How much do you budget per LDV?: 0

How many LDVs do you plan to procure annually over the next 5 years?: 0

How much do you budget per LDT?: 35000

How many LDTs do you plan to replace annually over the next 5 years?: 1

How much do you plan to spend per HDV?: 0

How many HDVs do you plan to replace annually over the next 5 years?: 0

C. Office Paper: Indicate which actions your PSO took in 2018:

6. Actions taken by your organization in 2018 to support emissions reductions from paper supplies.

a) Do you have an Office Paper strategy?

Yes

I. If yes, what are its goals?

We have formed a committee (Douglas College Printing Working Group) to focus on paper reduction activities at the College. The goals are:
- Reduce College-wide printing over the next 5 years by a minimum of 2% per year (440,000 pages).
- Implement Papercut as a College-wide print solution for students, faculty, and staff and leverage reporting capabilities to track annual progress towards cumulative 5 year, 10% print reduction goal.
-Create educational campaign for faculty to raise awareness regarding impact of printing and best practices for reducing course-related printing (e.g. course outlines, handouts, assignment submission, exams to Blackboard).
- Create educational campaign for faculty and staff to raise awareness regarding impact of printing and best practices for reducing business process related printing (e.g. meeting and recruitment documentation).
- Create educational campaign for students to raise awareness regarding impact of printing and reduce course-related printing (e.g. course outlines, handouts, assignment submissions, slides).
- Transition away from 300 pages of free student printing per semester over the next five years by reducing free printing by 20% per year (60 pages).

b) Whether you have a strategy or not (6.a), briefly describe your organization's plans to continue reducing emissions from paper use:

I. Over the medium-term (1-5 years)

See answer to 6a)

II. Over the long term (6-10 years)

Continue as per answer from 6a) and the Douglas College Working Group will develop additional goals around paper use.

c) Have an awareness campaign focused on reducing office paper use

Yes

d) Purchased alternate source paper (bamboo, hemp, wheat, etc.)

No

e) Other actions, please specify.

We purchase FSC certified office paper that is 30% Recycled Office Paper.