

EXECUTIVE SUMMARY

Emissions and Offsets Summary Table

Capilano University GHG Emissions and Offsets for 2017 (tCO ₂ E)	
GHG Emissions Created in Calendar Year 2017:	
Total Emissions (tCO ₂ e)	1,469 tCO ₂ e
Total Offsets (tCO ₂ e)	1,468 tCO ₂ e
Adjustments to GHG Emissions Reported in Prior Years:	
Total Emissions (tCO ₂ e)	5 tCO ₂ e
Total Offsets (tCO ₂ e)	5 tCO ₂ e
Grand Total Offsets for the 2017 Reporting Year:	
Grand Total Offsets (tCO ₂ e)	1,473 tCO ₂ e

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, Capilano University (**the Organization**) is responsible for arranging for the retirement of the offsets obligation reported above for the 2017 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:



May 31, 2018

Signature

Date

Jacqui Stewart

Vice President, Finance & Administration

Name (please print)

Title



Executive Emissions Outlook

In the 2018-19 fiscal year, Capilano University is beginning to implement new strategies in carbon mitigation. This is part of our shift away from the strategies of efficiency retrofits and improving control of existing building operational systems. Instead, Capilano University will employ fuel switching technologies as a primary strategy for reducing the emissions of existing buildings.

The climate of the Lower Mainland is ideally suited for the use of air source heat pumps. Even at Capilano University's higher altitude, our winters are relatively mild, with daytime temperatures dropping below zero only during only during the coldest part of our winter. Air source heat pumps offer us the ability to rely on electricity, which has much lower emissions than natural gas, our historical heating fuel. Adopting this technology also allows us to adapt to a warming climate by offering cooling in the summers.

Fortunately, this strategic shift is coming at a time when both Provincial and Federal governments are releasing supportive funding. Programs such as the Government of Canada's Low Carbon Economy Challenge and the Province of British Columbia's initiative to retrofit rooftop natural gas systems to electricity are welcome sources of financial support.

As Capilano University grows, we will employ strategies to mitigate emissions in new buildings. Both the University's executive and our Student Union's executive are developing plans for buildings that use less energy per square meter than our existing campuses' buildings. This is in keeping with British Columbia's new Step Code, which will guide construction projects envisioned in our 2018 Campus Master Plan.

As our 2030 Campus Master Plan is implemented, we will develop a companion ten year energy and emissions plan. By exploring the option of a bio-fueled district energy systems in 2018, we hope to discover sustainable ways of heating our future campus expansion. Our goal is to discover a means of growing sustainably while support British Columbia's lumber, agricultural or manufacturing sectors. We look forward to building a stronger, more resilient British Columbia while combating climate change.

Sincerely,

A handwritten signature in black ink, appearing to read "Jacqui Stewart", is written over a light blue circular stamp.

Jacqui Stewart
Vice-President, Administration and Operations

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INTRODUCTION

This report sets out to describe our climate emissions performance, sustainable actions taken by employees and students, and the culture of sustainability at Capilano University. However, the introduction focuses on describing the operating context that drives our energy and emissions planning and results.

Capilano University's is growing, both by adding programs and by attracting more international students. We have also expanded student services by adding off-campus student residences in 2017. As a result, our 2020 target of 67% greenhouse gas emissions reductions has become more challenging.

In 2017, our emissions grew. Three factors contributed: on-site generation of electricity was needed while replacing high voltage distribution equipment, a colder winter than the previous two years, and the addition of off-campus residences. The low voltage construction is complete, weather varies, and most importantly, we are planning to build efficient, on-campus, student residences, all of which, bodes well for future years.



Student housing can accommodate approximately 250 in shared and single accommodation, depending on demand. Relieving rental housing cost pressure improved the economic sustainability of post-secondary education for our students while avoiding added stress on existing housing stock for residents of the District of North Vancouver. The arrangement also supported regional development by putting buildings to good economic use before receiving redevelopment approvals. Student housing increases our gas heated building space by 14%, while operating 24/7.

The emissions impact of our student residence is less striking in 2017 (92 tCO₂e) than it will be in 2018 (~200tCO₂e), our first full calendar year of operations. The addition of student residences represents a temporary reversal of a hard won emissions reduction trend, but CapU has recovered from similar growth in 2011-12 when our LEED Gold Nat and Flora Bosa Centre for Film and Animation added 11% to our building stock.



The residences are not LEED certified, so opportunities for energy conservation and greenhouse gas reduction exist. Unfortunately these project fail financial tests due to short term occupancy, and third party asset management and operational control. Once the residences have relocated to campus, emissions from residences are likely to be cut in half. In the short-term, a plan to off-set this growth with retrofit projects has been identified.

The university expects to offset emissions growth from the student residence with a single project, valued at 75% of the added emissions anticipated in 2018. We anticipate similar projects to restore our trend of reduced total energy consumption, with full impact on greenhouse gas emissions from this project occurring in 2019.

The project reduces emissions by adding an air source heat pump and heat recovery our largest facility, Birch Building, a hub for campus social life and core facility for administration and teaching. Birch represents 26% of our gas-heated space. In three to five years' time, when our off-campus residences are replaced, this reduction will shift from off-setting emissions growth caused by student residence, to contributing to baseline GHG reductions and our 2050 target.

In addition to reducing emissions, electrification of Birch serves as a climate adaptation measure. Birch Building's south east aspect and concrete "buttress" architectural features, makes it prone to overheating from May through to September. As our climate warms, the number of days where certain building elevations reach temperatures in the high 20s and low 30s is increasing. While the air source heat pump

offers low emissions heating, it also resolves our overheating problem by adding a central cooling plant, prolonging the useful life of the building.

Current estimates suggest that we will eliminate 150 tCO₂e or approximately 5% of baseline GHG emissions (10% of remaining emissions), while reducing operating costs and improving occupant comfort.

Not all of our buildings are eligible for such a conversion. Building design, system age and operating conditions determine the viability of similar projects. In 2018, we hope to explore the design feasibility of capturing similar benefits in another four buildings: Cedar, Sportsplex, Library and Fir. By working well in advance of our need, we can complete the three year cycle of assessment, design and implementation.

A longer cycle is required to supply campus expansion plans with renewable heat. If we hope to achieve a 2050 target of 80% reduction in greenhouse gas emissions, the operation of new buildings will need to be close to carbon neutral from operations. Future heating systems must rely on a renewable energy source.

Given our geographical location, only three renewable energy systems offer reasonable economics, exchanging heat with sewer systems or geothermal wells, biomass heating, or renewable natural gas.

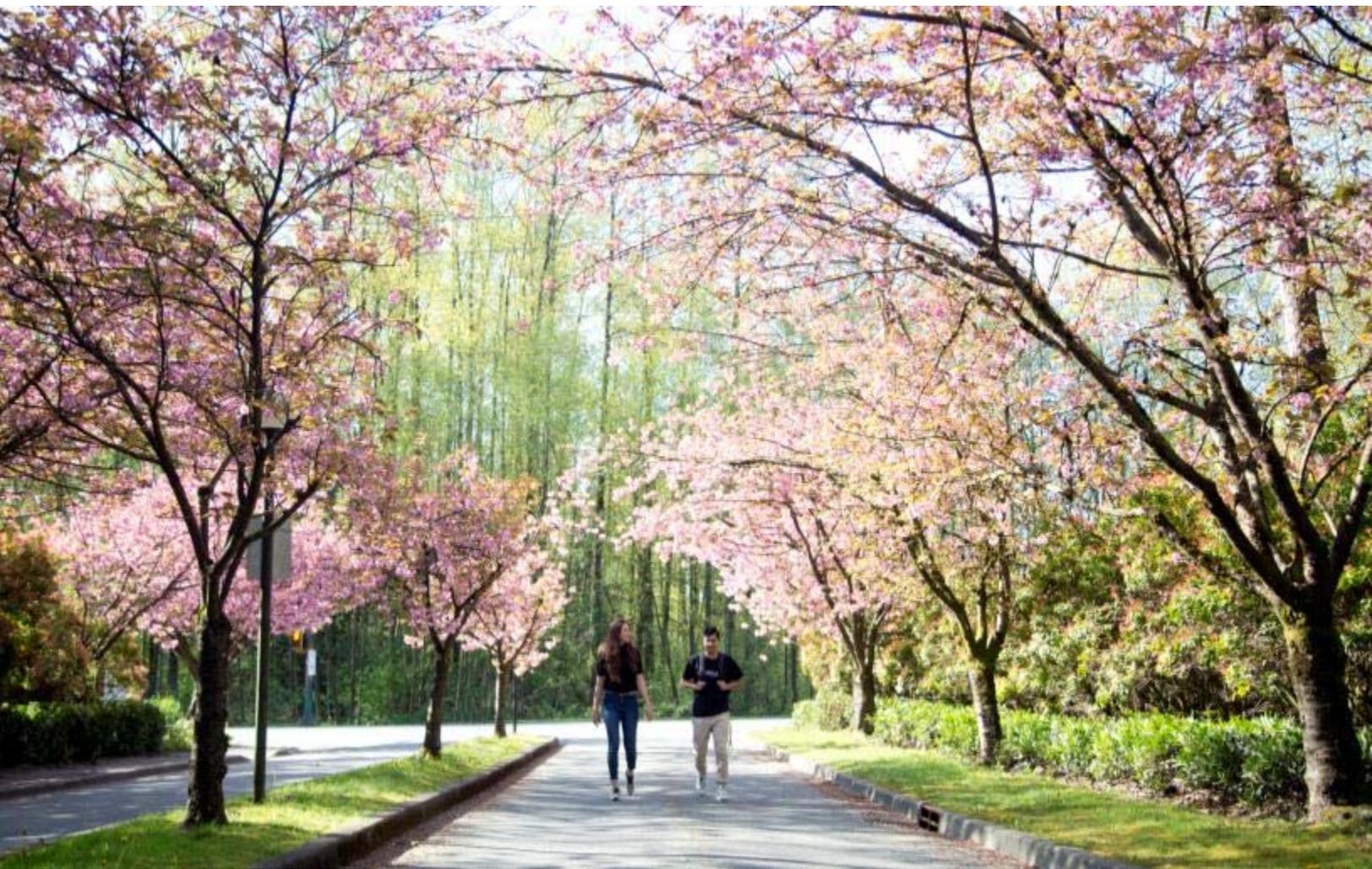
Renewable natural gas offers a solution without adding capital cost, but increases our fossil fuel cost by approximately a factor of seven. Heat exchange and biomass heating are district energy solutions that require a network of piping. We are just beginning to consider the feasibility of district energy and expect to develop a business case comparing operating and capital costs, space conditioning benefits and educational value of different district energy solutions.

This journey to 80% reduction by 2050 involves more than the technical expertise of building science and mechanical engineering. Faculty must weigh in to establish the curriculum value of renewable systems development. Executives must guide scale and timing with academic and strategic plans. Finance and foundation are needed to support both development and implementation.

In short, deciding our energy and emissions future is a whole campus activity, the time is now, and our timing is perfect.

More information is available upon request from the Facilities Department.

Please address inquires and comments to William Demopoulos at sustainability@capilanou.ca





SUSTAINABLE OPERATIONS

This section of the report outlines Utilities and GHG emissions targets, strategies, performance and projects completed during 2017.

UTILITIES & GHG EMISSIONS

As part of the commitment to carbon neutrality made in 2010, Capilano University set short and long term greenhouse gas (GHG) reduction targets. Having surpassed the 2015 target of 33% reduction from a 2007 baseline, this year’s strategies and initiatives will contribute to achieving the next milestone target in 2020.

Targets

The following GHG targets were set in 2010 and are as follows:

Table 1. Capilano University GHG Reduction Targets

Target	Status
33% reduction from 2007 baseline by 2015	Exceeded by 19%
67% reduction from 2007 baseline by 2020	Planned
80% reduction from 2007 baseline by 2050	To be planned

While the specific target percentages are often viewed as “aspirational”. Not so in British Columbia, they reflect our provincial government legislation and the Federal Government’s commitment to climate change accord. It is important that we continue to be successful in both achieving our goals and leading by example.

To that end, we dramatically exceeded our first target a year ahead of schedule and have operational and capital plans to achieve our 2020 target. Our detailed 2050 mitigation planning will follow master plan update, strategic plan update and development of our first campus wide sustainability plan, all of which will be ready before achieving our 2020 goal.

Reduction Strategies

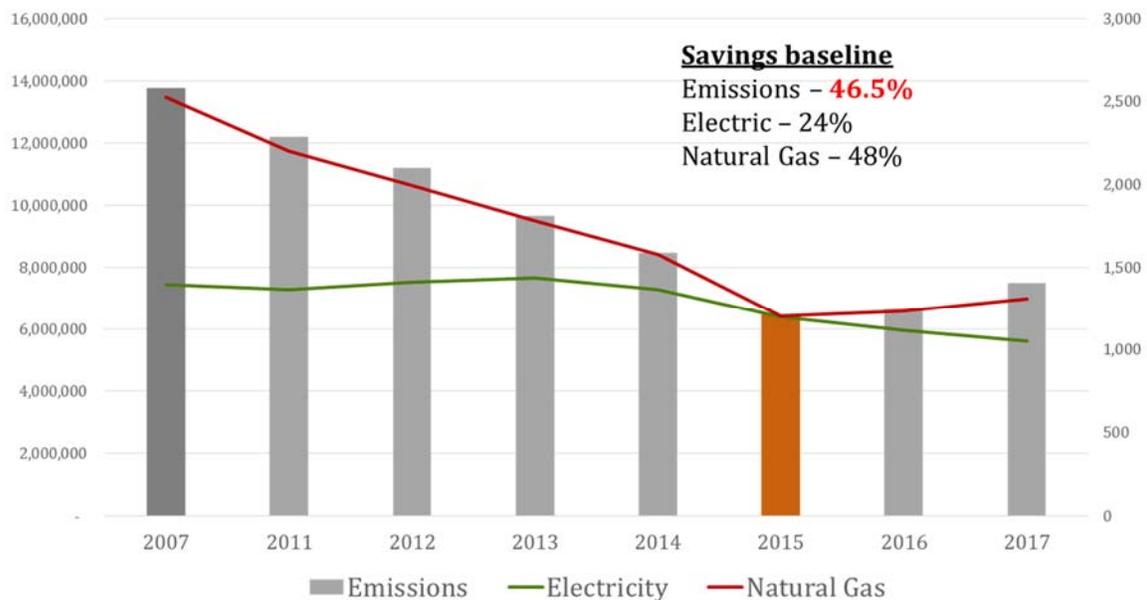
Our current success in reducing GHG emissions relied on a combination of traditional emissions management strategies: behavior based conservation of energy and paper, continuous optimization of building operations, building equipment technology upgrades, and fleet efficiency improvements. As we complete activities outlined in our energy and emissions plans and the returns diminish from these strategies, we are investigating, piloting and implementing four additional strategies:

1. Improving asset utilization
2. Reclaiming wasted thermal energy
3. Switching energy sources
4. Generating renewable energy on-site.

All four strategies require additional investments in equipment, software and expertise, and would alter operating costs both positively and negatively.

Performance

Dominant impacts on our building performance have been positive changes to building plant and operations; other factors affecting building emissions year over year include weather variance and growth, both recently in enrollment (2%) and in building services provided (250 beds in student housing). Our investment levels in building energy retrofits fell slightly in 2017, but are expected to exceed average in 2018. In 2017 we focused primarily on improving building automation and control. We continued our trend toward 100% LED lighting conversion which we expect to complete in 2019.



Note: Energy (left scale) is reported in equivalent KWH, while emissions (right) are reported in tCO₂e.

While Capilano University does not report on emissions from its use of water, it recognizes that there are emissions incurred by our local and regional governments to provide a clean, reliable supply of water and to treat sewer waste. Additionally, we recognize that water taken from our reservoirs deprives BC Hydro of its ability to reserve stored capacity for electricity generation, a relatively clean source of renewable energy. We track our water consumption and implement programs to prevent leaks, minimize landscape use and conserve water at taps.

Sustainability Metrics	Baseline (2007)	Carbon Neutral (2010)	2015	2016	2017
Energy (ekWh)	20,932,905	17,261,940	12,802,854	12,533,816	13,165,939
Water & Sewer (Cu Ft)	35,175	45,869	28,745	24,824	22,314
Fleet (L)	16,145	19,789	15,631	15,431	15,714
Paper (pkgs. purchased)	15,770	13,365	8,175	8,676	7,635
GHG - Energy (tCO ₂ e)	2,606	2,046	1,216	1,244	1,387
GHG - Fleet (tCO ₂ e)	38	46	38	38	39
GHG - Paper (tCO ₂ e)	103	80	47	50	44
Total Emissions	2,747	2,172	1,301	1,332	1,470
Reduction (from 2010)	-	-	40.1%	38.7%	32.3%
Reduction (from 2007)	-	20.9%	52.7%	51.5%	46.5%

Note: Small rounding errors occur for the convenience of tabling results.

While the University has electrified a small portion of our fleet, we continue to the arrival await mainstream electric utility vehicles to further reduce fleet emissions (see section on transportation).

Baselines

When reporting results, Capilano University often references a percentage reduction of baseline. We use two baselines:

- 2007 to measure the performance of our reduction efforts
- 2010 to track financial impact due to reduced off-set purchases each year and to benchmark our performance along with other participants in Carbon Neutral Government.

We have been carbon neutral since 2010, but began making concerted efforts to reduce emissions in 2008. To date, we have not made adjustments to our baselines to evaluate performance against changes to our building portfolio. This is generally referred to as measuring carbon intensity. The overall intensity of our campus (including residences) in 2017 was 235 kwh/m².

Internally, we do adjust for weather and consider intensity to provide our operations team visibility into building performance but continue to report absolute emissions values in this report. Our philosophy has been, and remains, emissions are emissions, pollution is pollution, report the facts without obscuring them.

Changes to Emissions in 2017

Weather modelling of building emissions indicates that our energy use should have resulted in emissions approximately 130 tCO₂e higher than our actual energy consumption results from established buildings. Our models rely on the YVR airport station, which does not perfectly reflect our location at the foot of a mountain.

Overall, Capilano University buildings increased in absolute emission by 155 tCO₂e. Of these 93 tCO₂e are attributable to new off-campus student residences. Of the remaining 62.5 tCO₂e, approximately 8 tCO₂e is attributable to emissions from diesel energy generation during a building unit sub-station retrofit. The remainder can be attributed to:

- Weather severity
- Increased reliance on natural gas due to air source heat pump failure in one building
- Experiments in electricity demand management (~2 tCO₂e)

Risks & Challenges

As presented in the previous section, we are continuing to move forward with reducing our energy use and GHG emissions. Five financial and economic factors concern Capilano University regularly when managing climate risks:

1. Electrical supply availability and reliability to support fuel switching
2. Sufficient resources to address climate change adaptation issues
3. Sufficient budget to adopt more efficient technologies, especially when facing aging building and linear infrastructure and competing institutional priorities
4. Macro-economic pressure on the business case for retrofits (low fossil fuel costs), especially in light of the number of positive investment projects already completed
5. Growth in energy use due to campus growth and service level expansion

2017 Energy & Emissions Projects

Capilano University undertook a number of projects, some of which did not have significant effect until the 2018 operating year. Highlights included:

- **WiFi Occupancy Sensing** - this project allows us to detect room occupancy and automate HVAC operation based on personal devices (Smart phones, computers, tablets) connected to the campus WiFi network.
- **DDC Retrofit** -while building automation and controls can always be improved, Capilano University has added all major buildings' heating systems to a *direct digital control* system.
- **Variable Air Volume Renewal** - this lifecycle replacement project results in satisfying thermostat calls for heat more easily, allowing equipment to run more efficiently.
- **LED Pot Lighting** - this project replaced approximately 1200 florescent pot lights with adjustable LED fixtures. We two remaining lighting projects to reach 100% LED.
- **Gymnasium Lighting** - Capilano University upgraded T5 fixtures to LED
- **Lighting Controls** - We began a program of lighting controls modernization in 2017-18.
- **A/C Rightsizing** - a server room air conditioner, which was incompatible with emergency back-up power, was replaced, resulting in both reliability and energy conservation.

In addition, progress on a number of planning initiatives occurred. Highlights included:

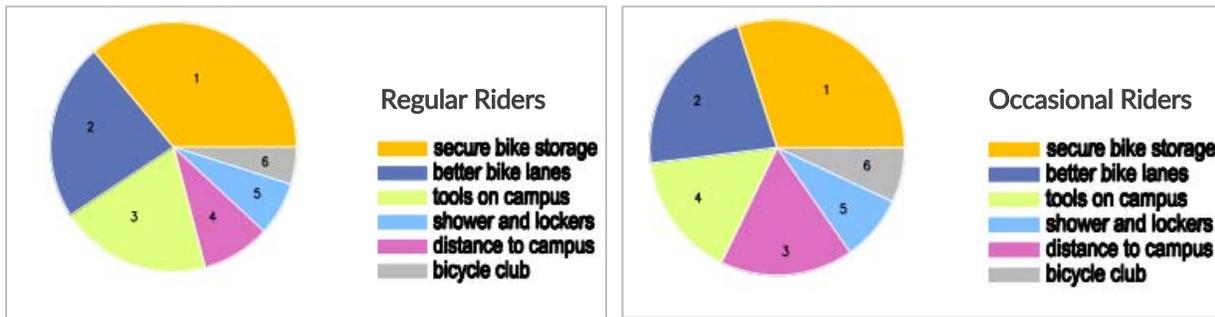
- **Air Source Heat Pump** - feasibility and design efforts to identify ideal heating and cooling systems that optimized operating costs and CO2 reduction in Birch Building. See introduction for more details.
- **Boiler Retrofit** - we have one remaining boiler plant in need of renewal. While we aspire to install air source heat pump technology, we may need to replace existing low efficiency systems with condensing boilers to remain within available budget and avoid plant failure.
- **Boiler Augmentation** - our reliance on a poorly designed ASHP system in BOSA building demands greater redundant heating capacity.
- **Heat Recovery** - a second heat recovery project was identified within Birch Building and designs completed.
- **High Voltage Distribution Renewal** - many of our underground distribution systems are aging, small opportunities for electrical conservation may emerge as these systems are redesigned.

TRANSPORTATION

Bike Culture

To encourage biking as a viable option for sustainable transportation, a survey was conducted to better understand the challenges students, staff and faculty experience in riding a bike to campus. 125 cyclists on campus were surveyed capturing a good proportion of those who ride their bike to school or work.

Bike storage emerges as the primary barrier to cycling for regular riders (36%) and occasional riders (30%) (once weather is excluded). See figures below for ranking of cyclist concerns. The survey also identified a trend of people using electric assist bikes. Of these cyclists, 90% are concerned about secure bike storage.



Other highly ranked concerns included bike lane quality and accessible bike tools on campus were identified significant barriers to riding a bike to work. Removing these barriers, enables more staff, students and faculty to choose low emissions commute alternatives while improving wellness and freeing parking space for buildings.

Secure Bike Storage

Sustainability staff identified design and location options for secure bike storage on campus. A number of things need to be considered in this kind of initiative, such end of trip amenities, alignment with the campus master plan, rider satisfaction (shelter/security) and residence siting.

Although a Residence building with 60 bike storage spaces is scheduled for development in the near future, we require secure bike storage across the University.

During the consultation and feedback process, an undercover area adjacent to the Library building was identified as an ideal location for immediate secure storage for up to 25 bikes. With minor adjustments to existing doors, and adding security, wayfinding, and charging infrastructure, this storage can be available for staff, student and faculty. The location is well suited to summer campus use of the Library and the central outdoor congregation area (Cedar courtyard) while provide rain shelter for the winter months. Three longer term secure bike storage locations and preliminary design options have been created for future expansion once Campus Master Planning decisions are complete.

Electric Vehicles and Charging Stations

Capilano University recognizes the importance of reducing transportation emissions associated with staff, student and faculty commuting and the operations of the vehicle fleet. To address this, the University has increased its' ability to charge electric vehicles on campus and is exploring electric service vehicle options. Four new electric vehicle (EV) stations have been installed in parking lot 3, near the Community Garden, doubling the number of charging stations accessible to the public on campus.

EV costing analysis suggests campus fleet vehicles travelling 15,000 KM per year will save as much in fuel cost as their vehicle purchase price (after provincial rebates). Maintenance costs are known to be lower for electric vehicles, due to their reduced number of moving parts. However residual vehicles values are still unknown. Given that the higher capital cost will be recovered in operating the vehicle and further savings may be achieved through maintenance costs, research on purchasing electric service vehicles was conducted.

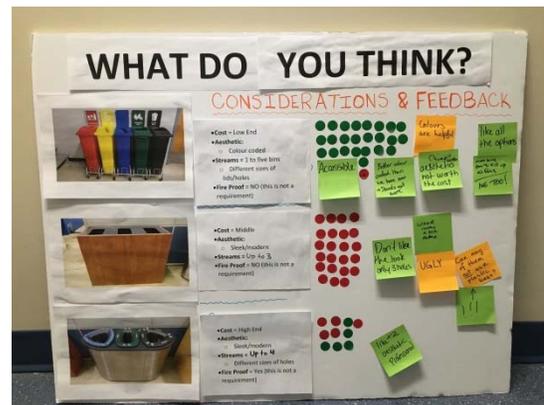
Research results showed Canadian options to be high cost or low performing. An overseas alternative, the Nissan NV200, sold as a right side drive in the UK and Japan has been identified as a good fit; we are waiting for North American arrival. The University will continue to track electric service vehicle options in order to decrease both operating costs and emissions associated with the fleet.

WASTE DIVERSION

In order to increase the rate of materials being diverted from landfill, Capilano University will be upgrading the 41 Zero Waste Stations found across campus. Bin and signage selection involved a variety of employees and students in different consultation processes. The picture to the right shows a board used to capture feedback on possible zero waste station bins using green for 'yes' and red for 'no'. Sticky notes were available for people to provide additional comments.

A set of multi-coloured Waste Watcher bins were deployed in the cafeteria to test waste and recycling sorting effectiveness and housekeeping use-ability. These factors along with durability, fire safety and aesthetics were considered in bin and signage selection process. Research and consultation for this project was performed by CapU Works student employees.

Exploration of repurposing the existing stations is underway with one possibility suggesting bins be used as temporary units for the numerous outdoor events the university hosts throughout the year.



Zero Waste Station feedback collected at the Spring Market



PAPER

Capilano University promotes a culture of paper reduction through use of student laptops, digital learning materials and software that tracks and prompts staff to think before they print.

PaperCut

The PaperCut software has been motivating individuals to reduce paper consumption since 2012. Tracking individual paper use and attributing printing costs to departments provide staff, faculty and students with accountability for their printing usage and costs.



In comparison to last year, the number of sheets used by across campus was approximately 7500 sheets, 9% higher than in 2016. This can partially be attributed to brand changes.

As our document transactions, whether internal or public facing, become more digital, this small but manageable source of greenhouse gas will be further reduced.

TOXIC REDUCTION

A number of toxic reduction initiatives have been implemented this year within the University.

Specifically:

- **Salting practices** – Over 5,600 kg's of salt were used at Capilano University this year to keep roads and walk-ways safe for staff, students and faculty. The campus has moved to a new salting product, Enviro Melt, which is 100% biodegradable and environmentally friendly.
- **Steam based weed-killer** – Weedtechnics uses steam to kill plants at the root after 3 applications. Compared to the previous method of weed control, weed whacking the tops of plants off when needed, this equipment decreases chemical use, fuel use and associated fumes, and maintenance labour. Capilano University has followed the City of Tsawwassen in adopting this technology, making it the first post-secondary education institute in BC to do so.
- **Electric lawn-care equipment**- Facilities continues to explore electric equipment options. Currently most equipment used has at least one electric alternative. Although the diminished power of electric options limits their application, research continues to seek new models in order to decrease fuel use, and the exhaust and noise emissions associated with gas powered equipment.
- **Low VOC paint**- Low volatile organic compound paint is being applied wherever possible across campus. This includes 100% of typical wall surfaces, such as classrooms, and 80% of industrial applications such as outdoor fence and door structures. A switch to low VOC paint contributes to improved indoor air quality, reduced ozone emissions, water contamination and landfill impacts.

PURCHASING

Purchasing policies could ensure campus equipment and supplies used on campus meet specific sustainability standards. The Purchasing Department facilitates ad hoc application of such rules by seeking energy star branded items, encouraging contract food and beverage service providers to adopt green practices, and supporting transportation demand management programs on campus.

CSU Board Member developed a purchasing policy that was implemented this year at the Capilano University Student Union. It outlines specific requirements that an item needs to meet such as bio-degradable, recyclable packaging or locally sourced. If the item does not check enough of the requirement boxes, an alternative product is chosen for purchase.



SUSTAINABILITY INITIATIVES

Forty-three individual Sustainability Initiatives were implemented this year, engaging over 3,000 campus community members thanks to CapU Works, EarthWorks, Health & Wellness Committee and the Capilano University Student Union. From education & awareness to energy reduction and a re-usable container program, a variety of event structures and sustainability topics were explored. For details on Initiatives and Events, including which programs led initiatives, see **Appendix B**. For a graphical representation of CapU Works and EarthWorks events that were supported by CapU Works students, see **Appendix C**. The numbers given in this spider diagram reflect participant levels.

The activities listed in this section are not formally reported as part of our GHG reductions. While we know many events have GHG benefits, the resources required to measure and track benefits is cost prohibitive. Regardless of the magnitude of impact these events and activities have on campus emission, we value these activities for their ability to engender a culture of sustainability at CapU, encourage sustainable behaviour off campus, enliven campus life and support curriculum focused on sustainability.

ENERGY

In addition to energy efficiency strategies and activities, four energy focused behaviour change initiatives were completed on campus this year. BC Hydro's Energy Wise Network provided support through behaviour change and engagement training, networking opportunities and customized coaching for initiatives. Details of each activity are described below.

Sweater Day



WWF Sweater Day Image

This year's Sweater Day took place on Thursday, February 8th. Initiated by the World Wildlife Foundation in 2010, Sweater Day brings awareness to climate change, decreases energy consumption and increases engagement on campus by encouraging people to cozy up in their favorite sweater while temperatures are turned down by 1-2 degrees. CapU Works student, added an element of social Sustainability by collecting at least 25 lightly used sweaters for donation to the Downtown Eastside Women's Centre.

When exploring energy consumption data for Sweater Day, we found an estimated decrease of 14 GJ and an increase of over 1,000 kWh. The increase in electrical consumption may be due to staff and faculty responding to decreased space temperatures by relying on personal space heaters, but this cannot be easily confirmed.

When converting GJ to equivalent kilowatt hours, the estimated overall energy savings associated with the event was almost 2,900 ekWh. A great success given the relatively little effort it took for facilities staff to

turn down building heat using new direct digital control systems. But the more important result was the energy conservation awareness raised across campus and the sweater donations received.

Energy Eaters Inventory

An audit of the Birch Building (22% of the North Vancouver campus) was conducted to understand the type and quantity of electric devices used by staff and faculty. The student lead also explored reasons why these inessential items are making their way into campus work and learning spaces. This information will inform possible future campaigns by identifying what behaviour change is needed.

Knowing that Space Heaters and Keurig coffee machines consume high amounts of electricity and suspecting a large number of these items are located in workspaces across campus, information sheets on these two devices were created and placed where the devices were found. The sheets summarized energy, waste, health and safety impacts of using these devices. Future efforts may begin to track device quantity over time and survey frequency of use and willingness to change.

Not all office spaces were audited due to staff activity or restricted access, however the majority of the building was assessed. Results by device include:

- Fan - 76
- Space Heater - 34
- Kettle - 25
- Keurig/Nespresso - 16
- Traditional Coffee Machines 6

In conversation with staff and faculty, the auditor was met with numerous 'too hot' and 'too cold' complaints which seemed to corresponded to the type of device located in workspaces. This inventory collected valuable information while raising awareness of energy and waste consumption in addition to health and safety issues associated with certain devices found on campus. Next steps include audits of other buildings on campus and exploration of designing and implementing an energy conservation campaign based on the information gathered.



30 Day Challenge

It takes 30 days to change a habit. That is the rationale behind the 6th annual 30 Day Challenge. This year, our Sustainability Assistant structured the challenge to focus on energy saving behaviours, such as turning off and unplugging their computers when not in use. Checklists were available at the Capilano University Street Party held on September 5th, allowing participants to track each energy saving behaviour they performed daily for 30 days.

A gift card from Mountain Equipment Co-op provided motivation to change energy consumption habits for any student willing to submit their tracking card at a submission box in the Student Union Office or a photo of their tracking card via email.

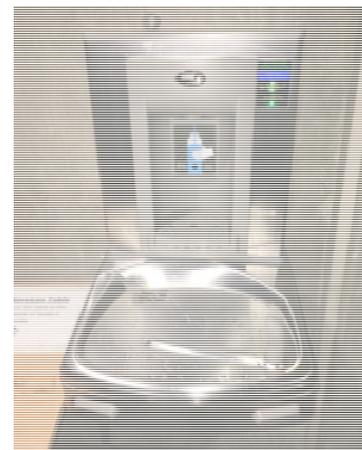


Take the Stairs Survey

During the process of capturing student ideas of the definition of *Sustainability*, a CapU Works student organizer observed a noticeable trend of staff, students and faculty using elevators instead of the stairs in the BOSA building. In order to better understand this behaviour, a survey was conducted.

Of interest, just under half of survey respondents reported that they took the stairs more frequently than the elevator – a contradictory finding to the observations that initiated the survey. The survey highlighted barriers and motivators to taking the stairs in addition to recommendations to encourage taking the stair instead of the elevators, namely:

- Adding more water re-fill stations throughout the building – there is currently only one located in the basement
- Direction to the nearest staircase – there is no signage or intuitive wayfinding to support stairway use



The only water station in BOSA. Located in basement.

- Allowing open access to stairs between 8:00am – 5:00pm – stair access to most floors in the Bosa Building requires key card access
- Add a motivational mural on the wall in the stairwell – this has been proven to successfully motivate people to use the stairs more often



Facilities is currently exploring the feasibility of moving ahead with these recommendations.

CLASSROOM CURRICULUM

Although an official sustainability degree is not currently offered by Capilano University, sustainability is a strong theme woven into multiple course curriculums such as Tourism Management, Geography, Biology and Business Administration. In addition, there are many opportunities for students to learn about and engage in sustainability topics and activities inside and outside of coursework.

Sustainability in Curriculum

Capilano University offers both sustainability courses and courses with sustainability components as defined by the Sustainability Tracking, Assessment & Rating System (STARS). Addressing the growing demand for sustainability in curriculum, two faculty members are leading the development of a BA with a major in Environmental Studies and a minor in Environmental Stewardship. An additional Sustainability related degree, BSci Environmental Technology & Innovation degree, is also currently under development by Capilano University faculty members.

Weather Station

Facilities Services has worked with faculty members in the Arts & Sciences Faculty on the activation of a weather station at the North Vancouver campus. This professional grade tool gives students the opportunity for hands-on study of weather and the impacts of climate change; it also clears the way for Faculty research projects.

The Information Technology Services is exploring software alternatives and establishing secure data storage. This software is not yet operational, but completion is expected this summer. Once up and running, the software will store hourly data, eventually becoming a reliable local source for weather adjusting energy consumption data at a local level. This will improve the accuracy of reported energy savings and help identify performance issues on the North Vancouver campus.

Waste Audit

With over 125 students participating in the 7th annual Waste Audit, this day-long event of sorting waste and recycling provides an opportunity for hands-on learning related to student coursework in departments such as Geography, Biology, Outdoor Recreation, Tourism and Archaeology. From waste management and consumption to methods of sorting and classifying materials, the Waste Audit is integrated into courses in a variety of ways.

This year's audit was organized by CapU Works student organizer and Geography faculty member, with support from EarthWorks student liaison and faculty from a multitude of other departments. Additional departments and individuals supporting the event include BEST Janitorial Services – waste sample collection and removal; Facilities – set-up and take-down of waste audit station and equipment; the District of North Vancouver Solid Waste Coordinator – onsite waste knowledge and student training support.



There are challenges in comparing Capilano University waste audit data from year to year: a one day sample may not be representative of typical waste behaviour patterns for the entire year; audit methods and participants vary, student composition and training vary each year. Despite these challenges, data collected still provides insight into opportunities for increasing waste reduction and diversion. The better our waste separation, the fewer the GHG emissions resulting from landfill.

This year's waste sample showed an overall compliance rate of 65% ranging from 22% to 97% when examining individual streams from our zero waste stations.

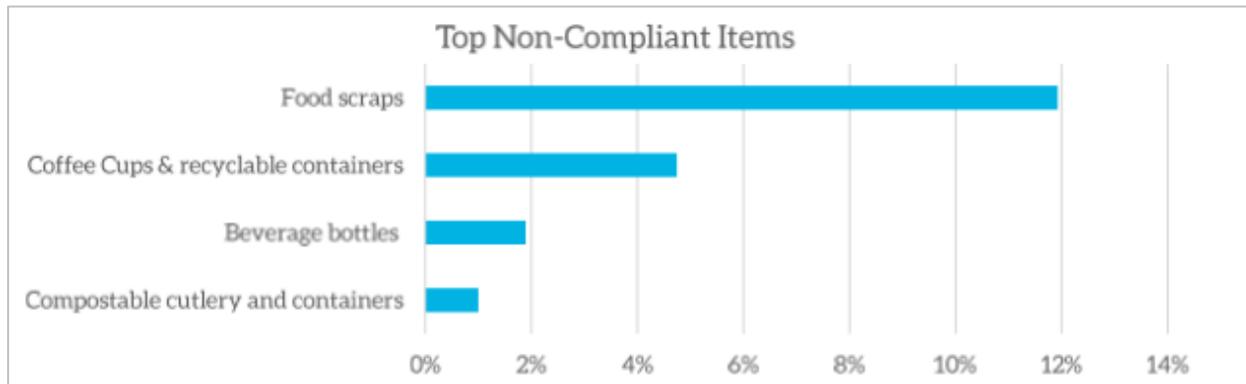
Table 2. Waste Audit Compliance Results, 2018

Stream	Items Accepted	Compliance Rate
Refundable	Drink bottles and cans	73%
Containers	Yoghurt containers, soup cans	46%
Paper	Office paper, construction paper	72%
Organics	Food scraps and food soiled paper items	97%
Landfill	All remaining items – foil wrappers, soft plastic, multi-material items	22%

This year's audit overall results are consistent with previous years in regards to:

- Organics representing the largest proportion of material of Landfill contamination
- Landfill and Containers streams having the lowest levels of compliance

The specific items that are most commonly causing this contamination are shown in the graph below.



Given organics bins are located with all Zero Waste Stations across campus, the issue seems to lie with users sorting waste, rather than bin availability.

Key actions for staff, students and faculty to make the greatest impact in reducing waste and increasing diversion on campus include:

- Use a re-useable mug for coffee and tea
- Empty containers of food into the organics bin
- Combine the refundable and recyclable containers bins

ENGAGEMENT + AWARENESS

Activities in this section are hands-on or in-person events that promote campus community interaction and learning.

Lecture Series

This popular series invites members of the community with expertise or relevant knowledge to share their work and perspectives with the intention of raising the profile of environmental education and sustainability on campus. These events are open to students, staff, faculty and the local community.



Earth Works Panel Event

Film Screenings

Topical films are selected based on their potential to increase knowledge and awareness about sustainability and the environmental issues they address. EarthWorks has also supported screenings of CapU student films.



Earth Works screening of "The Messenger"

Student Residences Pumpkin Carving

Inspired by the annual Pumpkin Carving event held in the cafeteria and leveraging the spirit of Hallowe'en, CapU Works hosted a pumpkin carving for International Students at an off-campus residence. Over 20 students joined the CapU FoodWorks student, to create jack-o-lanterns (most of them for the first time) and learn how each part of the pumpkin can be used in different ways. From roasted seeds to cooked pumpkin for use in soup or desserts, this activity used elements of fun and creativity to engage participants and increase food waste awareness.

Great Ideas Fund

As part of the celebration of Capilano University's 50th year, all staff and faculty were invited to develop a business case on a project that would improve the campus. One winning idea proposed linking existing trail networks to make a loop within the campus. It will be built by Outdoor Tourism and Recreation students with support from CapU Works students and Facilities. The trail system will include education components such as interpretive signs identifying things such as invasive plants species. Our work to protect carbon sinks (our forest) is an immersive educational experience for students, employees and visitors. Trail construction is scheduled to commence in the 2018 Fall semester.



Sustainability Week

Capilano University's second annual Sustainability Week (October 2 - 5) was a unique, four-day event delivered by CapUWorks, in collaboration with Facilities Services, the Bookstore, EarthWorks and Chartwells.

Through nine events, 650 people made sustainability a priority by engaging in activities that focussed on stakeholder feedback and collaboration; the three driving events being *Raise Your Voice!*, *Employee Town Hall* and *Faculty Town Hall*. Staff, faculty and student shared their concepts of Sustainability and how they envisioned it moving forward at Capilano University in future.

The Raise My Voice! Event was awesome. I got to meet people with similar passion for preserving the environment and brainstorm with them about sustainability in school.

--- First Year Outdoor Recreation Student

Raise Your Voice

Combining facilitated discussion and written feedback, Raise Your Voice! was an idea generation event for students focussed on increasing Capilano University's Sustainability performance. Over 100 suggestions were collected and summarized in an info-graphic. Many of the suggestions focused on tangible changes in the cafeteria and on campus food service providers such as banning coffee cups.

Faculty Town Hall

24 faculty attended the Faculty Town Hall. The goals of the session were to arrive at a commonly understood definition of sustainability and encourage discussion about sustainability in curriculum.

Although the group agreed sustainability is relevant to every discipline, the definition and view of sustainability among participants varied. Participants agreed a follow-up dialogue should take place to determine both a definition of Sustainability and how it can be further incorporated into current and future curriculum.

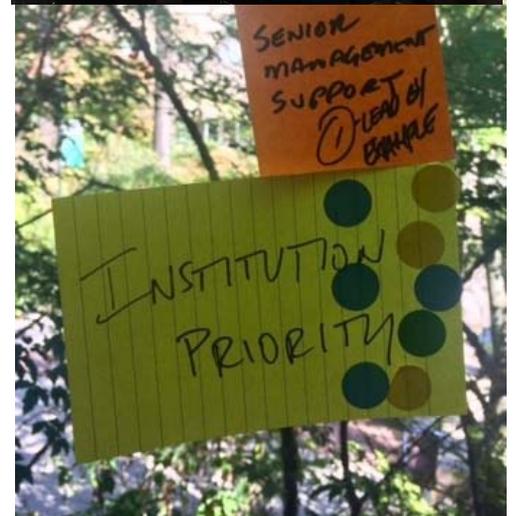
Employee Town Hall

18 employees attended the Employee Town Hall. With the goal engaging employees in discussion about improving the integration of sustainability into campus operations and culture, session results are as follows:

- Embedding sustainability into operations needs to follow an institutional plan or objective.
- Make sustainability an institutional priority through Senior Management leading by example.
- Program suggestions included:
 - Redevelop the sustainability policy
 - Develop a smoke free campus

Quite simply: something is sustainable if you can keep on doing it indefinitely

--- Chair School of STEM & Biology Instructor



Over 40% of participating staff identified Sustainability should be an Institution Priority and that Senior Management needs to support it through 'leading by example'

Invasive Species Pull

Rotating around the 34-acre campus, Invasive Species Pulls are organized two to three times a year and provide an opportunity for staff, students and faculty to increase their understanding of plants, connect with their natural surroundings and help to control the invasive species found on campus - including Ivy, Holly, Laurel, Silver Nettle Vine, Periwinkle and Himalayan Blackberry. The campus groundskeeper selects dates for pulls during non-nesting times to ensure bird populations are not disturbed. This year two pulls were organized in November with 16 participants attending one event and 27 attending the other.

Furthering Sustainability principles and learning opportunities, the event also re-uses the plant material in landscaping initiatives like bank stabilization pads or creative projects such as basket weaving.



Native Species Planting Day

This year the spring event focused on planting native species such as Oregon Grape, Wild Rose, Sword Fern, Deer Fern, Willow and Violet on the bank by the Willow building. 36 participants helped to increase the amount of native species on campus which promotes biodiversity and provides food and shelter for native animals. In addition, many of these plants are edible and medicinal, providing opportunity for further hands on learning and education on campus.

Learning Opportunities in Sustainability

A research and engagement project lead by CapU Works Sustainability Intern explored student leadership frameworks and learning opportunities in the field of sustainability. Surveys and interviews with Secondary School Educators and a review of 11 case studies resulted in recommendations for new program elements. CapU Works could add an active learning program for high school students that provided leadership experiences for CapU Students. The result would be lasting secondary school relationships. Specific recommendations were:

- Leverage university student-secondary student mentorship, including hands-on aspects
- Consider current trends in sustainability education and initiatives
- Encourage guest speaking as valuable for inspiration sharing and building relationships with students, teachers and the school
- Connect the program to high school curriculum
- Define which sustainability lenses to apply
- Collaborate with and respect First Nations culture
- Include outdoor immersion & nature therapy



TASK 1: INTERVIEWING EDUCATORS

- 6 QUESTION SURVEYMONKEY
- IN PERSON/PHONE CALL INTERVIEW (INTERPRETIVE INQUIRY)
- EMAIL INVITATION

Email invitation sent to roughly 40 educators in the following school district:

- North Vancouver
- West Vancouver
- Sea to Sky
- Vancouver
- Burnaby

11 SURVEY RESPONSES

6 INTERVIEWS

WASTE REDUCTION

Even more effective than diverting waste from landfill to reduce GHG emissions and environmental impact is eliminating waste in the first place. This winter, a multi-year effort was actualized in the form of the Greentainers program launch.



Greentainers Program

Take-out containers have been a key offender in contaminating our organics waste stream and incorrectly being disposed of in garbages across campus. Suspected reasons for this include:

- People don't understand what containers to recycle and what to compost
- People don't care and throw them into the most convenient bin (even if it's not the right one)
- There are no recycling bins located where they are disposing of containers

Eliminating take-out containers, eliminates these issues. Introducing... the Greentainers Program.

In the first 4 weeks of the program over 1,200 disposable containers were eliminated from landfill and student feedback has been overwhelmingly positive.

--- Capilano University
Sustainability Assistant

The program was launched this year by CapU Works student organizer after an accumulation of two years' initial planning guided by various departments across the university. The program provides a solution for reducing waste on campus while decreasing container costs for Chartwells.

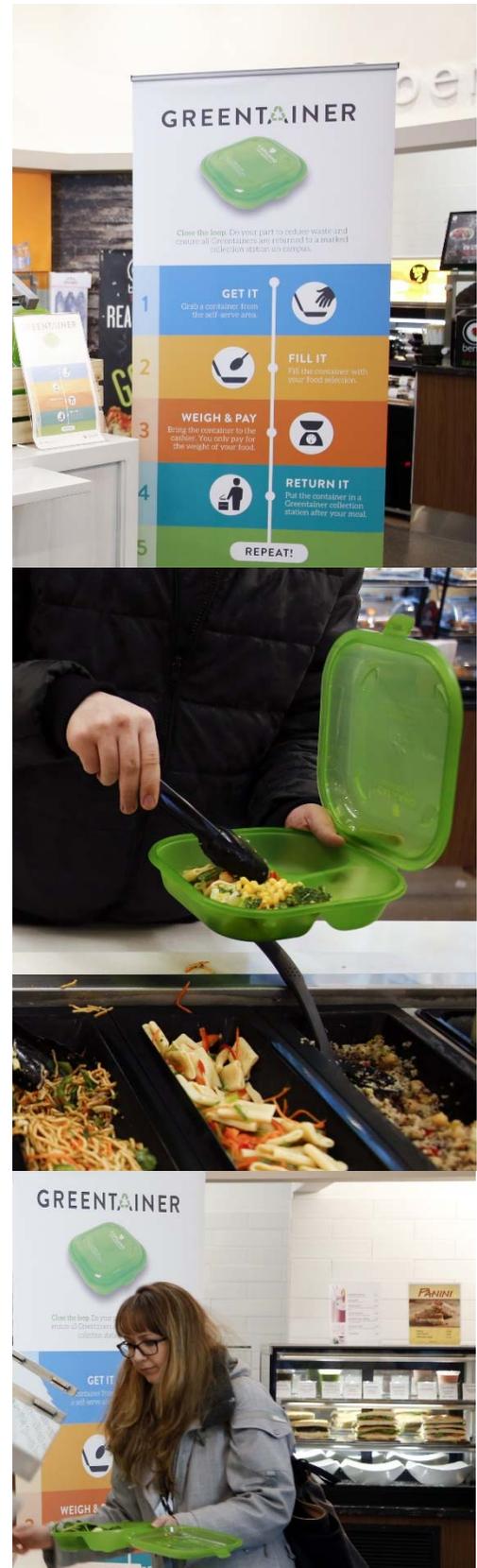
With containers available in the cafeteria and multiple drop-off stations around campus, this no deposit system made it simple to use and return a Greentainer.

Cafeteria patrons were educated through various communications & marketing efforts in addition to CapU Works in person interaction at the cafeteria on how to use the Greentainers and where on campus to return them. Although some containers were found piled up at the CSU or in garbage cans, the majority of them seem to remain in circulation.

To ensure program success, further education efforts through posters, signage and face to face interactions at Zero Waste Stations were made and four new drop-off stations were added on campus within the first two months of the program. Although true container loss rates won't be known until the salad bar closes in July, initial findings suggest the program is retaining containers at a rate that will deem the program successful and therefore be considered for expansion to include other disposable containers used on campus next September.

Only when we tie global issues of ocean acidification and plastic pollution back to every day actions, can we begin to change behaviour and influence the future.

--- CapU Works FoodWaste Student



TRANSPORTATION

Sustainable transportation is encouraged at Capilano University through the U-Pass for eligible students, improvements to on-campus bike storage, amenities such as change rooms and showers, and events like Bike to Work Week.

Bike to Work Week

Capilano University participated in the annual HUB Bike to Work Week, logging 867 trips and 7,875 kilometers, which equates to an avoidance of 1,712Kg's of GHGs--the same amount emitted by 1 passenger vehicle for 4 months.

Spearheaded by the Health & Wellness Committee, students, staff and faculty were engaged through bike maintenance workshops and Celebration stations where snacks, bike repairs and prizes were provided for riders.

This year a total of 63 participants joined the Capilano University team, a significant increase from the 10 participants the event attracted in its' initial year in 2014. The event promotes physical fitness, community connection and a form of sustainable commuting.

Reducing Emissions & Promoting Health:

The Capilano University Team avoided over 1,700 Kg's of GHG during Bike to Work Week



U-Pass

University students have access to the U-Pass which provides a discount on bus, Seabus and SkyTrain services within Metro Vancouver, in addition to the West Coast Express. The pass can be loaded onto a Compass Card to help students save money as well as greenhouse gases by using sustainable forms of transportation.

COMMUNITY ENGAGEMENT

Through the planning and coordination of three Community Engagement Initiatives, staff, students and faculty had the opportunity to partner and interact with local businesses and community members.

Community Garden

The Campus Community Garden has been in operation since 2013, offering plots to staff, students, faculty, alumni and those living in adjoining townhomes. Currently a combination of 57 raised wooden, 6 accessible raised, 8 cement plots and 7 communal planters provide space to cultivate flowers, veggies and relationships with other garden enthusiasts. It has been well received by the Capilano University community as the growing waitlist indicates.

Individual plot owners plant and tend their spaces in addition to helping with a communal shed and general grounds clean-up as part of the annual AGM. Our grounds keepers play a vital role in maintaining the garden walkways, communal strawberry and blueberry beds, and compost.

Communal plots are used to support campus-based initiatives such as planting native plants like tobacco and sweet grass to be harvested and used in on campus ceremonies through the Kéxwusm-áyakn Centre. This year the community will also explore planting species that can be used in dyeing textiles to be used within Early Child Care Education (ECCE) and Costuming Departments as well as with children the Child Care Centre.

Other activities planned for the year include a hanging basket workshop and another 'Art in the Garden' event this summer.



Winter Market

In November, Capilano University hosted a Winter Market offering a variety of locally grown and produced goods from 27 vendors to promote more sustainable gift options for students, staff and faculty. From cricket flour consumables, to handmade pottery, to holiday crafts, local vendors showcased their products in this full day event held outside the cafeteria.

This year's Winter Market doubled the number of vendors compared to last year and saw increased customer traffic due to a change in location. Led by the CapU FoodWorks student, this event was planned and implemented in partnership with Facilities Management and Special Events & Ceremonies.



Spring Sustainable Market

This year's Spring Market took place in the Arbutus Courtyard and was organized by the Capilano Student Union, VP of Equity, Owen Sigurdsson. Four local vendors and two community organizations set-up tents and tables from 11:00-4:00 on a Tuesday to offer local, sustainable goods and interact with Capilano University staff, students and faculty. Both the Edible Garden Project and the Harvest Project educated and patrons about their organizations and provided an opportunity for them to volunteer to support their organization objectives.

CapU Works was also in attendance, collecting a substantial amount of feedback on the new Zero Waste stations and signage that will be purchased for campus in the coming months. This event is another example of a variety of individuals, departments and programs are incorporating, organizing and implementing Sustainability initiatives and events at Capilano University.

Opportunities to improve vendor and patron participation in the event for next year include: partnering with the University to advertise to local townhouse residents and reaching out to vendors earlier in order to allow more time for administrative issues such as vendor insurance policies to be in place for the event.

Bear Day

This co-sponsored community event uses a family fun approach to promote everything bear aware. Learning about bear habitat, behavior and what we can do to protect these creatures is a focus of the BC Bear Day afternoon.

Live music, puppet shows, fish printing, face painting, presentations and interpretive walks are a number of different ways Raincoast Conservation Foundation, North Shore Black Bear Society, North Vancouver, the Grizzly Bear Foundation, and EarthWorks engaged with the local community on this topic that is particularly relevant to the North Shore and British Columbia.



Photo used to advertise the Bear Day Event



SUSTAINABILITY PROGRAMS & COLLECTIVES

A number of programs and individuals are involved in moving campus Sustainability and energy saving initiatives forward through curriculum alignment and development, experimental learning and community and campus engagement. These programs and individuals are described below.

CAPU WORKS

CapU Works is a program that employs students to develop and implement projects under supervision of the Sustainability Manager and Assistant. In addition to their course load, students dedicate 10 hours a week to planning, coordinating and implementing events on campus. This year's students were selected based on their desire, skills and ability to create a more sustainable and community connected campus.



This past year the program employed 6 students in 7 positions from May 2017 to April 2018. Collectively they implemented 13 initiatives and events, while supporting an additional 15 events to support other campus programs and cross market CapU Works activities. Notable events run and initiatives launched this year include:

- Sustainability Week
- Winter Market
- Greentainer Launch
- Sweater Day

For further details see the Events and Initiatives summary table in **Appendix B**.

EARTH WORKS

Earth Works events use lecture, film and hands-on activities to educate, bring awareness and encourage action on topics related to environmental stewardship both within the campus and local community. Every year an annual theme is selected, this year's being 'A Sense of Place'. With 11 events hosted across the Fall and Spring semesters this program is the result of collaborative efforts between student, staff and faculty from a number of the university's departments.



Events are considered co-curricular (activities students engage with outside of their regular course load) and students attending at least 3 lectures or films and 1 hands-on event receive an Earthworks notation on their transcript.

Earth Works is always supported by a dedicated CapUWorks Student Organizer, the Earth Works Liaison. For further details on EarthWorks events, see the Events and Initiatives summary table in **Appendix B**.

HEALTH & WELLNESS COMMITTEE

Our campus Health and Wellness Committee, comprised of volunteers from Administrators, Exempt, Faculty and Staff, implements employee wellness initiatives to promote wellness in mental, social and physical health matters. The committee delivers initiatives year round, many of which have a carbon reduction element or environmental awareness component, such as bike to work week, wellness walks and the Love Your Heart event.

The Health & Wellness Committee is comprised of volunteers from across the University.

SOCIAL JUSTICE COLLECTIVE

Driven by the Capilano University Students' Union (CSU), this student governance advisory body represents student voices on social justice and environmental topics both within and outside the campus community. Owen Sigurdsson was active this year in organizing Sustainability events such as Green Drinks and the CSU Spring Sustainable Market.



OPERATIONS MANAGEMENT

Operations Management includes Facilities Maintenance, Purchasing and Information Technology (IT). Collectively, these departments are responsible for maintaining and managing numerous complex systems and day to day activities that allow students, staff and faculty to learn and work on campus.

Individually and working together, Operations Management is exploring ways to decrease the impact of energy, waste, water, transportation and toxic chemicals used in daily operations as outlined in this report.

APPENDIX A – CAPU WORKS TEAM



Tessa Janzen - Summer and WasteWorks Student

Tessa has been in student organizer roles at Capilano University over the past 2 years. As the EarthWorks student organizer for 2016/17, the 2017 Summer Student and now the WasteWorks Student, she has been the main lead for numerous projects such as Bear Day, Greentainers, and the annual Waste Audit. She is an Outdoor Recreation student with a background in hospitality management and strong passion for waste minimization.



Erica Hearn - PowerWorks Student

In the eight months Erica has been with CapU works she has been involved in a number of sustainability events and activities. In addition to supporting Sustainability Week, Pumpkin Carving and Greentainer events she led Sweater Day and an Energy Eaters Inventory. Erica is a fourth year Business student who dreams of incorporating sustainability practices in every organization she meets.



Joshua Larsen - FoodWorks Student

In his second year study Sciences, Josh actively pursues opportunities to work with others in order to solve real world problems, particularly those concerning the integrity of biological systems. In his role as FoodWorks student, Josh planned this years Winter Market attracting the highest number of vendors to date. In addition to supporting other CapU works events, he is also responsible for coordinating the Community Garden.



Layla Kadri – Sustainability Intern

‘As a Reckie in Cap’s Outdoor Recreation Management Program the outdoors mean the world to her so naturally sustainability is connected. Her main role in the CapUWorks 2017 team was to research an opportunity for CapUWorks to create a sustainability program connecting with local secondary school’s youth. She also supported the program in other initiatives such as the Free Coffee for Reusable Mugs Mornings.

APPENDIX B – INITIATIVES TABLE

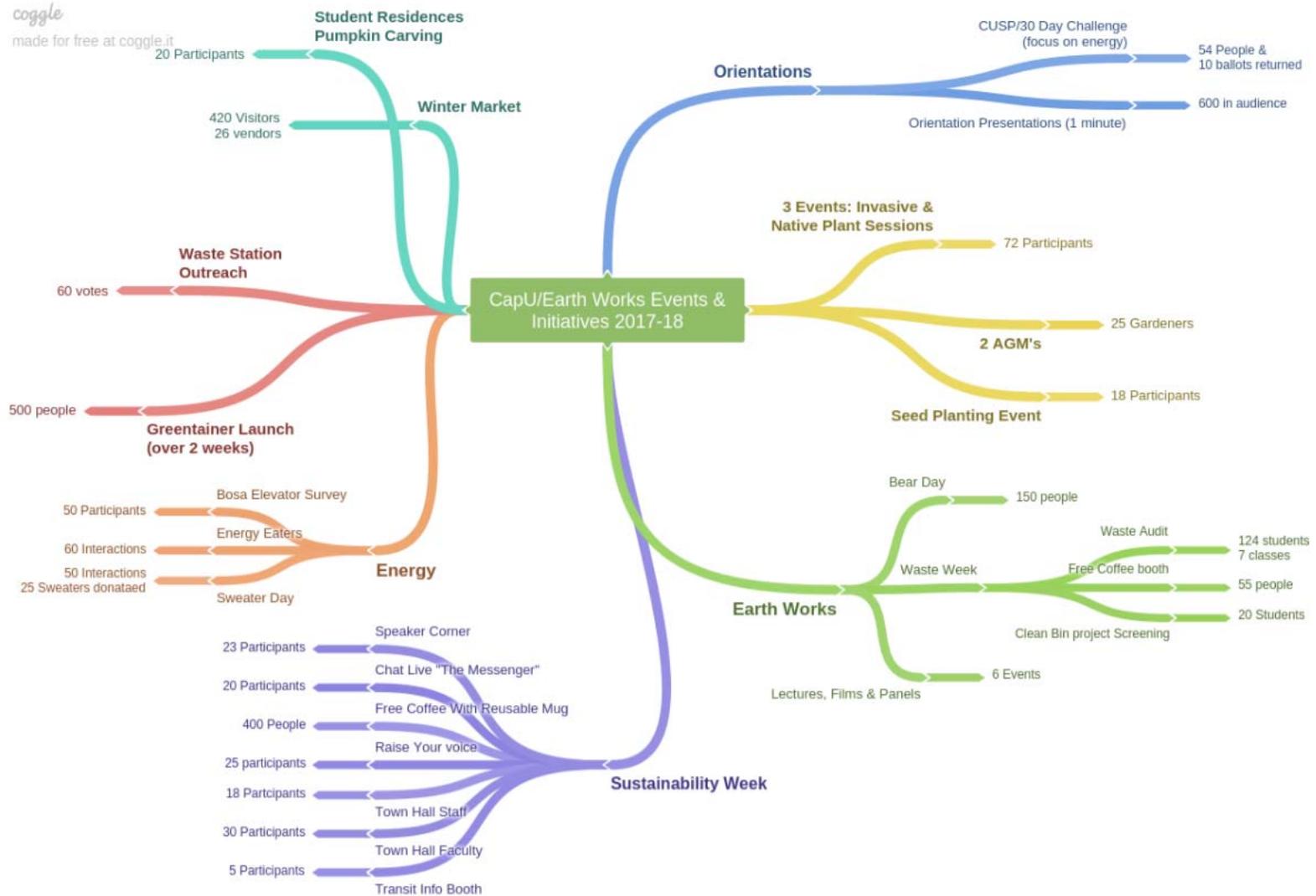
Summary Table.

	Lead Program	Support Program(s)	Topic
	CapU Works		Energy
ory	CapU Works		Energy
	CapU Works		Energy
y	CapU Works		Energy
ent	Academics		Curriculum
	CapU Works/Academics	EarthWorks, Facilities, Events, Chartwells	Curriculum
am Competition	Academics	Facilities	Curriculum
	Facilities/Academics	Academics	Curriculum
Opportunities	CapU Works	Facilities	Curriculum
s book launch	EarthWorks	CapU Works	Engagement + Awareness
offee, Chocolate, and	EarthWorks	CapU Works	Engagement + Awareness
n a Changing World	EarthWorks	CapU Works	Engagement + Awareness
A work in progress	EarthWorks	CapU Works	Engagement + Awareness
The Messenger'	EarthWorks	CapU Works	Engagement + Awareness
Serving up food (waste) in Not Bombs	EarthWorks	CapU Works	Engagement + Awareness
and community forums	EarthWorks	CapU Works	Engagement + Awareness

Event	Lead Program	Support Program(s)	Topic
Sustainability Week <ul style="list-style-type: none"> · Speaker Corner · Chat Live “The Messenger” · Free Coffee with Reusable Mug · Raise Your Voice · Town Hall Staff · Town Hall Faculty · Transit Info Booth 	CapU Works	Facilities, Events	Engagement + Awareness
Student Residences Pumpkin Carving	CapU Works		Engagement + Awareness
Invasive species pull 1	EarthWorks	Facilities/CapU Works	Engagement + Awareness
Invasive species pull 2	EarthWorks	Facilities/CapU Works	Engagement + Awareness
Native Species Planting Day	EarthWorks	Facilities/CapU Works	Engagement + Awareness
Wellness Walks	Health & Wellness Committee		Engagement + Awareness
Love Your Heart	Health & Wellness Committee		Engagement + Awareness
Bird House Building	EarthWorks	CapU Works	Engagement + Awareness
Cleanbin Screening Project	CapUWorks	EarthWorks	Engagement + Awareness
Information Night	Registrars Office	CapU Works	Engagement + Awareness
Orientation Presentations	CapUWorks		Engagement + Awareness
Green Drinks	CSU Social Justice Collective		Engagement + Awareness
Greentainers Program	CapU Works	Facilities, Purchasing, Events, Chartwells, BEST, Janitors, C+M	Waste Reduction
Free Coffee with Reusable Mug	EarthWorks	CapU Works	Waste Reduction
Sushi plastic garnish removal	Food & Beverage Committee	CapU Works	Waste Reduction
Bike to Work Week	Health & Wellness Committee		Transportation

Event	Lead Program	Support Program(s)	Topic
Community Garden AGMs	CapU Works	Facilities	Community Engagement
Seed Planting Event	CapUWorks	Facilities	Community Engagement
Winter Market	CapUWorks	Facilities, Events	Community Engagement
Spring Market	CSU Social Justice Collective	CapU Works, Events	Community Engagement
BC Bear Day	EarthWorks	CapU Works	Community Engagement

APPENDIX C – ENGAGEMENT ACTIVITIES



Part 1: CNAR Survey

1. General Information

Name: William Demopoulos

Contact Email: williamdemopoulos@capilanou.ca

Organization Name: Capilano University

Sector: Post Secondary

2. Stationary Sources (eg. Buildings, Power Generators): Fuel Combustion, Electricity use, Fugitive Emissions.

During 2017, did your organization take any of the following actions to support emissions reductions from buildings? (please select all that apply)

Conducted an energy audit/study of building(s) in the organization's portfolio.; Performed energy retrofits of the organization's building(s)

If you selected "*Performed energy retrofits of the organization's building(s)*":

How many buildings were retrofitted?: 14

If you selected "*Built, or are building new LEED Gold or other "Green" buildings*":

How many new "Green" buildings?:

Did your Organization perform any retrofits during 2017? Please describe briefly:

We retrofitted several buildings to improve DDC systems, renew heating delivery systems, install LED lighting and improve energy controls through automated building systems.

2a. Stationary Sources (eg. Buildings, Power Generators): Fuel Combustion, Electricity use, Fugitive Emissions.

Please briefly describe your organization's plans to continue reducing emissions from its stationary sources:

a) Over the next 1-5 years

Capilano University is focused on three strategies for building emissions: building automation, heat recovery and low GHG plant operations. This last item includes: renewable heat sources, electrification, heating hot water chemistry, heating equipment efficiency.

b) Over the following 6-10 years

District energy systems utilizing biomass and/or geothermal heating systems.

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

During 2017, did your organization take any of the following actions to support emission reductions from its mobile sources? (please select all that apply)

Replaced existing vehicles with more fuel efficient vehicles (gas/diesel)

If you selected "*Replaced existing vehicles with more fuel efficient vehicles (gas/diesel)*":

How many vehicles?: 1

If you selected "*Replaced existing vehicles with hybrid or electric vehicles*":

How many vehicles?:

3a. Mobile Sources (Vehicles, Off-road/portable Equipment): Fuel Combustion:

Please briefly describe your organization's plans to continue reducing emissions from its mobile sources:

a) Over the next 1-5 years

We are currently focused on piloting electric hand tools for efficacy.

b) Over the following 6-10 years

Service vehicle electrification.

4. Supplies (Paper): Indicate which actions your PSO took in 2017:

During 2017, did your organization take any of the following actions to support emissions reductions from paper supplies? (please select all the apply)

None of the above

4) Supplies (Paper): Indicate which actions your PSO took in 2017: - Other? Please describe briefly: We had a brand transition in 2017 and made heavy use of 100% recycled content paper during that transition.

If you selected "*Had a policy requiring the purchase of recycled content paper*":

State the required recycled content here (30%, 50%, 100%): 30

If you selected "*Had a policy requiring the purchase of alternate source paper (bamboo, hemp, wheat, etc)*", which type of alternate source paper did you use?

Our understanding is that purchasing consolidation is currently a barrier to competitive pricing of these papers.

Please briefly describe your organization's plans to continue reducing emissions associated with its office paper use in future years.

5. Other Sustainability Actions

a) Business Travel

During 2017, did your organization take any of the following actions to support emissions reductions from business travel? (please select all that apply)

None of the above

b) Education/Awareness

During 2017, did your organization have any of the following programs or initiatives to support sustainability education and awareness? (please select all that apply)

A Green, Sustainability or Climate Action Team; Support for professional development on sustainability (e.g. workshops, conferences, training); Supported or provided education to staff about the science of climate change, conservation of water, energy and/or raw materials

c) Other Sustainability Actions

During 2017, did your organization have any of the following programs or initiatives to support sustainability? (please select all that apply)

A water conservation strategy which may include a plan or policy for replacing water fixtures with efficient models; An operations policy or program to facilitate the reduction and diversion of building occupant waste (e.g., composting, collection of plastics, batteries) from landfills or incineration facilities