Developing
Opportunities for
Sustainable Operations


# 2017/2018 UFV Report on Sustainability

UNIVERSITY OF THE FRASER VALLEY

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# Letter of Commitment to Sustainability

UNIVERSITY OF THE FRASER VALLEY

*Letter of Commitment to Sustainability*
*April 20, 2017*

Globally, there is an overwhelming consensus that climate change poses a serious threat to our environment today and into our future. The University of the Fraser Valley (UFV) intends to mitigate its negative environmental impact that contributes to climate change, and the degradation of our natural environment.

Each member of the UFV community has a role to play in this effort.

We must continue to encourage dialogue, develop ideas, and increase innovation aimed at the discovery of solutions to the environmental problems we face, and in some instances, the problems we continue to create.

UFV is committed to modelling a more sustainable campus and broadcasting leadership in environmental sustainability for our students, staff and faculty. UFV further engages-in and fosters sustainable development within its local communities. We are committed to harnessing creativity in the development of a healthier campus life which supports the well-being of all our students, staff and faculty. UFV does this by:

1. Prioritizing learning everywhere
2. Committing to flexibility and responsiveness in the face of rapidly changing challenges
3. Collaborating with various people and places
4. Developing local and global citizenship
5. Integrating experiential learning

UFV has made significant strides in recent years to reduce its operational impact on the environment, a few impactful initiatives include, but are not limited to: a dedication to green building design and construction, energy efficiency upgrades, monitoring of environmental metrics, reduction of $CO_2$ emissions, reduction of paper consumption, and the development of a more streamlined approach to waste management. UFV will continue to expand its scope and detail of work dedicated to improving sustainability on its campuses.

Sustainability at UFV is a critical and necessary focus for a more sustainable future; a future in which UFV's examples and teachings provide solutions to problems on its campuses and within its communities. Students, faculty and staff will over time develop a greater understanding of the complex challenges related to sustainability, and they will have the ability to take these learnings with them into the different communities their lives may take them to.

Together, we are creating that future. I am proud of UFV's commitment to sustainability, the strides UFV has taken, and the path ahead that we are developing. I look forward to supporting an increased dedication to sustainability and environmental stewardship and to work diligently with a variety of diverse stakeholders to solidify UFV`s position as a green community leader.

Mark Goudsblom
Director of Facilities and Project Management

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# Who We Are

The Centre for Sustainability coordinates SustainableUFV, the action group that carries out sustainability projects, programs, events, and initiatives at the University of the Fraser Valley (UFV).

The Centre is a coordination of both applied and academic activities that collaborate to improve sustainability both at UFV and within the broader community. An advisory committee within the Centre meets multiple times a year to coordinate key stakeholders and attain guidance and support. Additionally, two times per year students, staff, and faculty are invited to a SustainableUFV luncheon to discuss current and future programs.

The applied portion of the Centre's responsibilities is headed by the Facilities Management department, which employs a Student Sustainability Coordinator who is tasked with developing project ideas, increasing efficiencies, and decreasing waste throughout the university. This position is key in promoting sustainability awareness and behavioural changes, which in turn encourages more responsible operations in the Fraser Valley.

The academic portion of the Centre, which is coordinated by the chair, Patrick Harrison, includes various departments within UFV including the Faculties of Science, Biology, and Geography. In past years, guest speakers have been brought in to address a wide range of topics surrounding environmental and social sustainability, from climate change to Indigenous issues.

# The Mission

SustainableUFV aims to guide UFV in how to conduct all university activities in manners that demonstrate leadership, accountability, and promotion of responsible stewardship regarding social, economic, and environmental issues. This will be achieved by:

1. Helping to define sustainability in the vision, values, and actions at UFV and integrate sustainability into the core motives of UFV.
2. Offering recommendations to various departments with regards to sustainability, based on best practices.
3. Providing seminars and forums for discussion on sustainability across the institute, as well as information on future trends and options for the University to consider.
4. Collaborating with Facilities, Ancillary Services, Campus Planning, and key student groups on campus to promote sustainability initiatives.
5. Consolidating all department and organizational plans into a summary report to create awareness of how UFV is advancing sustainability.
6. Promoting involvement in and commitment to sustainability as core values of UFV.

# Overview

This report on sustainability is intended to be a transparent description of the environmental footprint created by the daily operations of UFV. It includes the work being done within the core campuses of Abbotsford, Chilliwack, and Aerospace (to the west of Abbotsford).

This report is intended to help educate the executive leadership group, staff, and students – both current and prospective – so that they can better understand the University's operational impacts. It also allows UFV to reach out to the general public to increase awareness in regards to the work the University is undertaking to become a regional leader in sustainability.

# 2017/2018 Goals

The goals set in 2017/2018 were as follows:

- Improve waste management using the results of the Waste Audit as a guide to pinpoint key areas.
- Reduce energy consumption through behavioral campaigns.
- Increase the recognition and involvement of SustainableUFV on campus.

## Culture Change

Over the last 10 years, the University has grown significantly when compared to its beginnings as a regional college. Over the course of these years, UFV has increased instructional hours by 33%, created 19% more floor space, and welcomed 18% more full time students. While the University itself has expanded, so too has its environmental footprint. In an effort to become a regional leader in environmental sustainability, the University created the Energy Manager position in 2016 to drive positive change and growth in the areas of energy efficiency, sustainability, and outreach. With a full-time position dedicated to sustainability, the University has a consistent figurehead to push forward the campaigns, initiatives, projects, and visions of the SustainableUFV team and the Facilities Department.

Efforts to change cultural and habitual behaviours within the institution is constant and ongoing. Throughout this document, the reader will find a number of ways in which UFV has gained traction in employing sustainable and environmentally responsible operations, which have been supported by students, employees, and individuals within executive leadership groups.

Cultural change is difficult to quantify, so in the absence of numbers, SustainableUFV and the Facilities Department welcome you to explore UFV's campuses and provide us with your feedback. Where are we now? Where are we going? Where will you, the reader, take us?

# Communications

## Sign up form accessibility

Having people join SustainableUFV was once an arduous process of hand-written email addresses and timid participants. Last year, however, an online form was created as a way to expedite the sign-up process and ensure consistency in data collection. This streamlined sign-up – the results of which include updates, articles, and volunteering opportunities – has resulted in a significant boost in interested individuals. SustainableUFV's community has grown to 198 members as of March 31, 2018.

## Social media and sustainability communications

Social media is a powerful communication platform for SustainableUFV, as it is used to promote contests and participant engagement, provide insight into projects, events, and initiatives, and is useful for connecting with those that are interested in sustainability. It takes a lot of dedication, however, to use social media as a medium for maintaining and providing positive, interactive, and informational spaces. SustainableUFV looks to take social media to the next level with the help of a new Sustainability Coordinator who will provide a fresh perspective on communications in 2018/2019.

SustainableUFV currently uses three social media platforms:

- Facebook: www.facebook.com/SustainableUFV (180 likes)
- Instagram: www.instagram.com/sustainableufv (112 followers)
- Twitter: www.twitter.com/sustainableufv (211 followers)

Other information on topics related to campus sustainability can be found at:

- www.ufv.ca/sustainability
- www.ufv.ca/energy
- SustainableUFV blog: www.blogs.ufv.ca/sustainability
- Science Department blog: www.blogs.ufv.ca/science
- The Cascade: www.ufvcascade.ca
- *UFV Now* online staff magazine
- *UFV Today* online staff newsletter

# Events, Campaigns, Initiatives & Projects

## Waste Management

### Sustainable Waste Stations

The 2016 Waste Audit highlighted the need for an increase in compost facilities at the University. A new waste collection plan was drafted through the spring and summer of 2017, and was rolled out in September of the same year. The Sustainable Waste Stations project was based on providing the UFV community with conveniently placed waste receptacles that allow users to make sustainable disposal choices. Four waste streams are represented in each of the 120+ waste stations: Organics, Mixed Recycling, Refundables, and Landfill. Providing options for users to sort their own waste and make sustainable choices supports Facilities' continuous efforts to divert waste from the landfill.

It should also be celebrated that composting is now available throughout the Abbotsford and CEP campuses, in part due to the success of a composting pilot project at Abbotsford Building C. For this project, the Sustainability Coordinator utilized Geographical Information Systems – mapping software and techniques – to identify areas of high traffic and high waste generation to determine where waste stations would be positioned most productively. A work study student was hired to design signage for each of the four waste streams and to install the signage at each station.

In correspondence with the unveiling of the waste stations in September, waste and recycling bins in personal offices and classrooms were to no longer be serviced by janitorial staff. This shift in services promoted a use-less, waste-less environment and ensured that individuals were more conscious of the volumes of waste that they were producing and accountable for how this waste was being disposed of.

The 2018 Waste Audit will identify how successful the waste stations and education have been in facilitating waste diversion from the landfill.

For more information on the plan that has been developed, a short presentation outlining the *what, when, where,* and *how* has been provided:

https://www.youtube.com/watch?v=xh0xx17FcUg


## Waste Audit

On October 18th, 2017 SustainableUFV and the Facilities Department conducted the third annual Waste Audit, “Garbage on the Green.” This year’s waste audit differed from past audits by way of broadening the analysis to include not only the gross amount of waste produced, but also the specific waste within each of the four streams. This change provided more detailed data to analyze, which therefore produced more comprehensive results. To begin the event, two days’

worth of waste from Abbotsford's buildings A and B was collected and transported to an area on the green, which was covered by a large event tent to prevent the driving rain from skewing recorded weights.

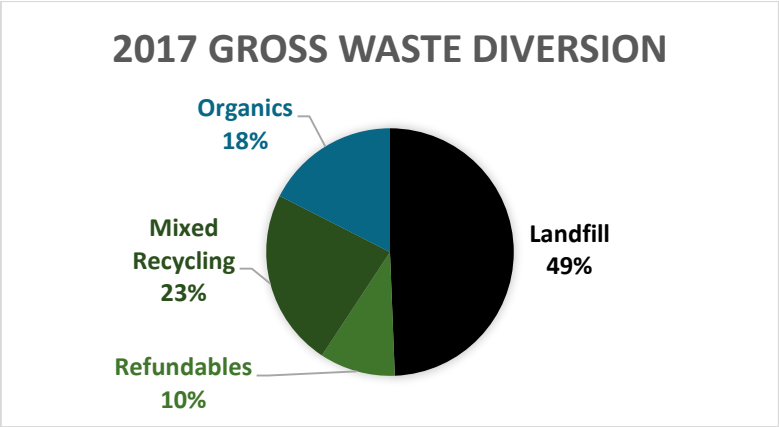



**Figure 1. 2017 composition of waste**

Figure 1 shows a diversion rate of 51%. In other words, 51% of the total waste generated at UFV is separated into more sustainable waste streams (organics, mixed recycling, and refundables) and is therefore not piling up in the landfill. Through waste audits, we are able to track the rate at which streams are being utilized and, by extension, formulate initiatives to change behaviours in regards to how people are discarding their waste. In future years we are hoping to see a significant rise in waste diverted from the landfill.

The charts below, Figures 2, 3, 4 & 5, break down the composition of each of the waste streams. Remember, sustainable waste stations are comprised of four waste streams and the charts below reveal how much waste is being correctly sorted. For example, Figure 2 reveals that in the Organics waste stream, 98% of the waste collected was indeed organic waste, while 2% of the overall waste belonged in the Landfill stream.

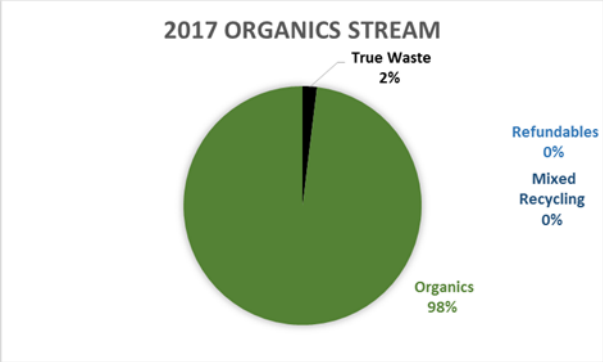



**Figure 2. Composition of organics waste stream**

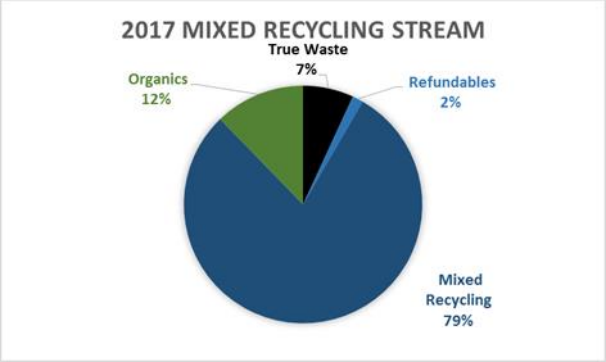



**Figure 3. Composition of mixed recycling waste stream**

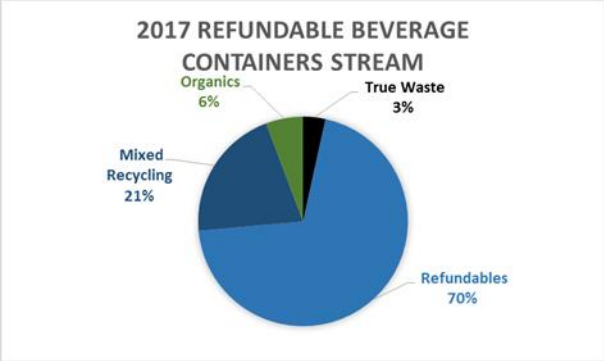



Figure 4. Composition of refundables waste stream

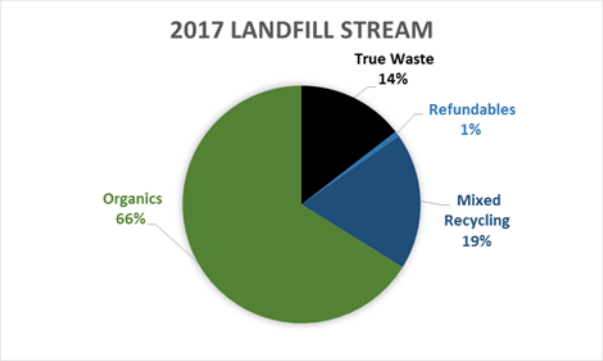



Figure 5. Composition of landfill waste stream

To summarize, compliance with separating waste correctly into each of the sustainable streams (figures 2, 3, and 4) is pretty high: 98%, 79%, and 70%. Within these streams we have identified ways to improve compliance and remove barriers for students and staff to conveniently be a part of the waste solution. The landfill stream, however, continues to be filled with items that could otherwise be placed in sustainable streams.

The full report can be read at: www.ufv.ca/sustainability/waste-management

## New Student Orientations & Student Resource Fairs

In order to better connect with the student body on campus, SustainableUFV partnered with both Student Life and the Student Union Society. These partnerships led to involvement in student-centered events such as New Student Orientations (NSO), U-Join, and some Student Resource Fairs. SustainableUFV had two goals for these events:

1. To connect with students and engage in dialogue regarding responsible waste disposal.
2. To have students get involved with SustainableUFV by having them sign up for the email list and hear about future events.

After the transition to Sustainable Waste Stations was completed, the efforts of SustainableUFV turned to educating individuals on how to responsibly dispose of their waste within the four bin system. At student events, like those listed above, all of the waste stations were removed from the area and one was placed in front of the SustainableUFV booth. This funneled all of the waste to the one remaining station, thereby enabling SustainableUFV members to engage with people who were throwing out their waste, encourage them to sort it, and provide them with detailed information on material composition and proper waste disposal of some of the most common waste items generated on campus.


The culture of sustainability on campus is driven by engaged and informed students. SustainableUFV will continue to harness students' skills, knowledge, and drive to further promote and pursue low-impact operations at UFV.

## Energy Wise Network

SustainableUFV joined the Energy Wise Network in 2016. The Energy Wise Network is a collaborative network made up of Advanced Education, Government, Schools (K-12), Hospitality, Municipalities, Property Management, and Retail sectors. This network supplanted the Workplace Conservation Awareness program and was initiated by BC Hydro and Fortis BC. It provides campaign tool kits, professional coaching hours, networking opportunities, and training webinars, as well as hosts two summits per year, which collectively provides the framework for many of the energy-efficiency-focused initiatives throughout 17/18.

### Energy Efficient Residences:

In the effort to increase awareness of sustainability on campus, who better to involve than those that live on campus? The Energy Efficient Residences campaign was designed to start to connect students to the campus and to have them participate in the increasing sustainability culture that is being developed. In coordination with the Housing Operations staff and management, there was an immediate enthusiasm and commitment to participate in the campaign. They provided valuable insight not only into how to communicate with the residence, but also the particular behaviours that have been observed. The Energy Wise Network was instrumental in developing a framework with which to approach the residence staff, thereby providing them with an idea of what success looks like and options for how to get there. The staff enabled and set in motion the *action* portion of the project to take place in 2018/19 and beyond.

### Get Your Fleece On 2.0:

Get Your Fleece On! or, simply, "The Fleece Blanket Program" as it became known had a successful second heating season. Considering the overwhelmingly positive response received in 2016/17 and the ensuing waitlist for inventory, a continuation of this program was essential. Similarly to previous year, fleece blankets were provided to employees who were feeling consistently chilly in their workspace; however, this was only after they had provided evidence that they had made efforts to have the HVAC system in their area assessed for any deficiencies that may have been causing the cooler temperatures. Additionally, a standard was set that those who were requesting blankets must also have been consistently ensuring windows and doors were closed in their areas, and that they had been dressed appropriately for the season or weather.

Participants of the program were given insight on the adverse effects of space heaters and asked to sign a pledge that stated they would either use such devices less frequently or would remove them entirely from campus. This year, a survey was developed: Part 1 asked why participants were feeling cool, and in the spring part 2 was distributed to provide opportunities for feedback on how the blankets affected their comfort levels.

There were significantly fewer blankets distributed this year compared to last (18 vs. 125). Does this mean that nearly everyone that was once feeling chronically chilly is now comfortable? Had the conversations about HVAC and the diligence from the mechanical staff paid off in terms of troubleshooting and correcting problematic spaces? In all likelihood, it was a bit of both.

As energy efficiency, carbon emissions reduction, and sustainability are increasingly promoted and supported at UFV, students, staff, and faculty are much more understanding of the pressing nature of these issues and welcome any sustainable solutions – in this case, passive personal temperature regulation.

The feedback that was provided by uncomfortable staff members clearly indicated appreciation at having their concerns heard and at having actions taken to improve their comfort at work; the latter being stated even more enthusiastically.

Interestingly, there was an increased number of complaints received by the Facilities department with regards to occupants being 'cool' or 'cold'. Was this in response to having witnessed an institutional willingness to act on those complaints? Or perhaps this is due to the previous search for feedback upon completion of the work? Time will tell.

## Sweater Week:

The annual Sweater Week event is conducted in winter in order to promote warm workplace attire. In 2017 this event ran from the 20th to the 24th of November and built on the successes from the 2016 event. On an operational level, it was decided that this year the temperatures would be lowered by 2°C (to a minimum of 19.5°C instead of the previous year's minimum of 21.5°C). These reductions would be realized across all buildings – academic spaces and offices – at both of the main campuses in Abbotsford and Chilliwack. This decrease would be in full effect for the entire week, rather than administering a progressive reduction of temperatures, as was done in 2016. This new action reduced GHG emissions more significantly than by using the previous strategy, as well as created more talking points, which afforded more opportunities for participation.


The main source of engagement was a social media contest, in which students, staff, and faculty were encouraged to either post Sweater Week selfies on various platforms (Facebook, Twitter, and/or Instagram) or email selfies to the Sustainability

Coordinator. Furthermore, volunteers formed the "Sustainable Selfie Squad," which involved setting up a daily station – an info and photo booth – in the cafeteria during the coffee and lunch time rushes to further drive engagement and get people talking about greenhouse gas emissions and sustainable practices as a whole.

The selfie contest yielded $200 in prizes to winners, including five $20 Campus Card vouchers to use at any food establishment on campus and two $50 grand prize gift cards to Valhalla Pure Outfitters. These prizes were issued for the "Best Overall Selfie" and the "Most Dedicated Sweater Weeker," respectively.

With an increased Sustainable Selfie Squad presence and overall momentum compared to last year, Sweater Week 2017 saw a 15% increase in photo submissions received from 79 to 91. There was also a 24% increase in individuals making submissions from 38 to 47.

2017 provided the most successful Sweater Week to date.

## LEED® Certification Celebration Events

UFV is home to two LEED® Gold certified buildings. LEED® is a third party green building certification system. It is based on a points system, which offers rewards for environmentally responsible design, construction, and operation of new, renovated, and old buildings. There are four ranked (from lowest to highest) levels of certification: certified, silver, gold, and platinum.


Canada Education Park Building A was built in 2012 and emits 68% less carbon per $m^2$ annually than other non-certified buildings at UFV. On September 26th, 2017 a plaque certifying the building was unveiled accompanied by speeches and cake.

Abbotsford Building S, the Student Union Building, was built in 2014. During the cold winter of 2016/2017, it achieved a 67% reduction in natural gas use per $m^2$ compared to other non-certified buildings. As mechanical staff are becoming progressively acquainted with the building, there has also been an increase in energy efficiency. On January 8th, 2018 a certification plaque was unveiled, also accompanied by speeches and cake.

## Goats

Utilizing goats in place of gas-powered tools can play a role in de-carbonizing operations at UFV. Over the last three years, Renee Prasad, Assistant Professor in the Agriculture department, has been championing the use of goats to remove invasive plant species. To achieve this, goats are herded into an area wherein the targeted species is growing and the goats are then allowed to graze freely. Goats are powerful and resilient eaters that make quick work of thick stems, chutes, and thorns; however, Renee mentioned that some plant species, such as blackberries, can be stubborn and may require the goats for a couple of seasons before the plant is permanently removed. Another animal-friendly aspect of Renee's vision is the replacement of the blackberry bushes on campus with pollinating plants that are bee-friendly.

## Clothing and Textile Recycling

The fashion industry is one of the largest polluters in the world. In 2016, SustainableUFV, in a partnership with the Fashion department, developed an informational campaign to spread awareness of the detrimental environmental and societal impacts of 'fast fashion'; a term used to describe the rapid and repeated cycle of purchasing and discarding clothing as seasonal fashion trends change. To further support this campaign, the Facilities Department also partnered with Diabetes Canada to have two clothing donation bins located at UFV, one on the Abbotsford campus in parking lot 10 and one next to Canada Education Park Building A in Lot 6. Between June 2017 and March 2018, the Abbotsford bin collected 1451kg of clothing and the CEP bin amassed 1588kg.

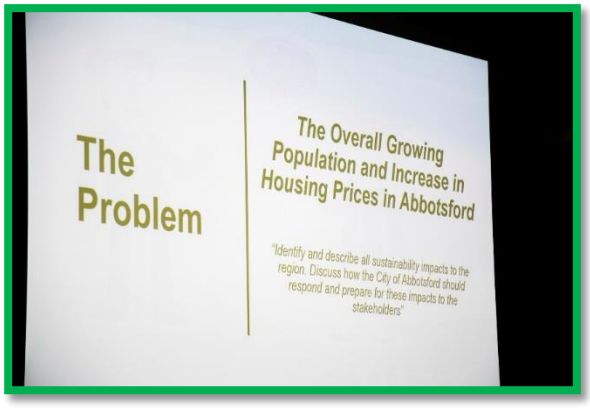
# School of Business

## Sustainability Case Competition (SCC)


The SCC was a one-day competition for all UFV students wherein teams of three or four got to spend the day solving a real problem that is currently being faced by the Fraser Valley. In the morning, each team was presented with this problem and they had three hours to analyze it, provide recommendations, and develop an implementation plan. The analysis needed to be based on the concepts of sustainability (economic, environmental, and social) as well as tied to the UN Sustainable Development Goals and Strategies outlined in the City of Abbotsford's Official Community Plan*

Students from many different programs across UFV participated in this competition, including students from Trades, Global Development Studies, and Business. There was also a mix of domestic and international students, further increasing the inclusivity of the event. Having interdisciplinary teams as participants added considerable value to the presentations, as different ideas and viewpoints could be expressed on a common problem.

The winning team analyzed the example with equal consideration for the three concepts of sustainability, which provided a balanced assessment that also effectively considered both the UN Sustainability Development Goals and the specific strategies outlined in the City of Abbotsford's Official Community Plan. In the analysis, the team identified several impacts such as an increased cost of living for residents of the region, social wellness, and efficiency of local resource usage. They also effectively considered how these impacts were linked to local stakeholders; including small business owners, the Stó:lō Nation, and residents. They came up with some excellent recommendations on community housing options and hydroponic farming, a method of growing plants without soil, using mineral nutrient solutions in a water solvent.




* https://www.abbotsford.ca/business_and_development/community_plans_and_studies/official_community_plan.htm

## Rotterdam Business School of Rotterdam University of Applied Science

Visiting students from the Rotterdam Business School of Rotterdam University of Applied Sciences participated in a re-run of the Sustainability Case Competition. This gave them an opportunity to apply their knowledge of sustainability to issues impacting Abbotsford, which allowed them to form a unique connection with the Fraser Valley.

Considering that Abbotsford is a new community to these students, there was an additional challenge for them as they had to learn the local context. However, they also learned that the core of sustainability issues is rather universal.

## Sustainability Morning

The School of Business and SustainableUFV hosted their second Sustainability Morning in 2017/18. Representatives from the School of Business and SustainableUFV engaged passersby in conversation with Timbits and coffee in order to discuss sustainability on campus. One of the main topics of the morning was centered on promoting the Sustainable Case Competition to students. This was an event that the School of Business hosted on March 9th, 2018. It gave students a chance to solve a real-world, local sustainability challenge, and included the incentive of a $1000 grand prize. More information on this competition will be provided below.

Additionally, Sustainable UFV was further engaging students and staff by asking them to provide suggestions as to what UFV could do to be more sustainable. Many responded positively to the actions already taken by the University; specifically mentioning the new four bin waste station system that was installed campus-wide previously in the summer of 2017.

Some interesting suggestions were put forward, including:

- Fewer paper posters around campus and, subsequently, more electronic ads in their place.
- Restarting the community garden on campus.
- Increasing the shuttle service between campuses, as it would reduce student vehicle emissions.

## Sustainable Development Symposium

Thursday May 18, 2018 marked the UFV School of Business' first Sustainable Development Symposium. This event brought together UFV faculty and students, members of the community, and a variety of perspectives on sustainability.

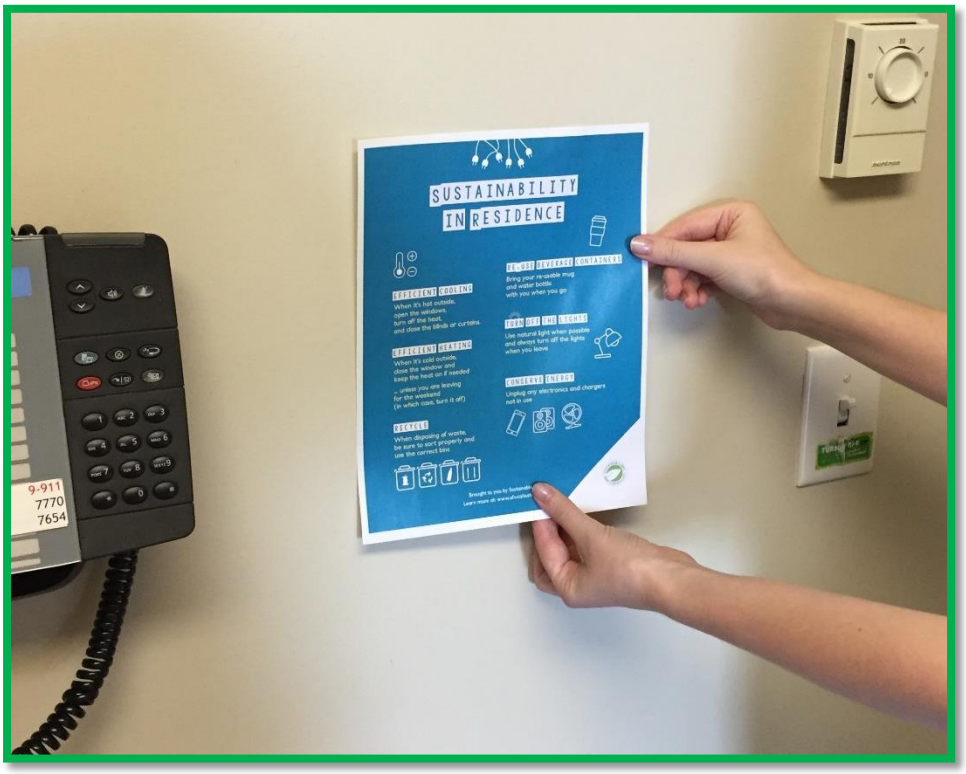
Speaking on behalf of the UFV's School of Business, Professor David Dobson detailed his integration of sustainability-themed projects into his research methods course. This presentation highlighted some of the most notable research projects done by students in his class, as well as discussed the challenges of guiding students through research of this nature.

# Baker House

Baker House, UFV's only residence facility, houses up to 200 students at any time. Baker House staff, Caitlin O'Donohue, Christine Zapisocki, Alston Lee, and a supporting cast of Residence Assistants (RAs) have been busy reducing the environmental impact of the residence. In particular, at the end of semester when students are moving out, Baker House staff have continued to evolve their waste reduction and recycling processes. This involves encouraging students to donate gently used items and to drop-off useful items to the re-use store at Baker House for students to buy and utilize. Baker House staff coordinate with the Facilities Department to ensure that the garbage and recycling bins are serviced frequently enough to service the volume of discarded items from those moving out.

Throughout the Fall and Winter semesters, students are encouraged to allocate their waste into the provided waste stations in communal areas, and to be conscious of energy consumption within their units.

In 2018/2019, Baker House RAs are incorporating sustainability into their welcome week events. Disguised as a fun and friendly competition, a team-building exercise includes sorting waste into the appropriate bins. Increasing familiarity and knowledge of waste allocation practices at the beginning of the semester is important in setting the precedent early for sustainable living as a resident at Baker House.



# Energy, Carbon Emissions, and Sustainability Metrics

## Energy Management

In addition to the energy saving behavioural campaigns listed in the Events & Campaigns section of this report, there were also numerous mechanical and systematic upgrades aimed at increasing energy efficiency and comfort for building occupants. They are:

- Abbotsford Bldg A chiller upgrade
- Abbotsford Bldg B cooling tower upgrade
- Abbotsford Bldg B lecture hall LED upgrade
- Abbotsford Bldg C exterior door insulation
- Abbotsford Bldg G entrance LED upgrade
- Abbotsford Bldg G library LED upgrade
- Abbotsford Bldg G solar PV feasibility study
- CEP Bldg A cross connection corrections
- CEP Bldg H added to BCNET Natural Gas Rate
- CEP Bldg T interior LED lighting purchased
- CEP Bldg T overhead door installations (2)
- DDC holiday re-scheduling to optimize HVAC
- EndoTherm Innovation Fund project installation
- Fortis BC Commercial Energy Assessments
- Fortis BC Energy Specialist Funding Approval

Energy management continues to play a pivotal role within UFV in part due to an increased reliance on technology (computers, scanners/printers, laptops, tablets, projectors, etc.) in classrooms and offices, which in turn increases the demand for electricity. With an increased utilization of energy-requiring technology coupled with an abnormally cold winter, there has been an amplified onus on the Facilities department to optimize major energy consuming systems such as boilers, chillers, and the HVAC system that brings conditioned air to campus.

As UFV increases both floor space – with new construction, renovations, and acquisitions of buildings – and programming hours, lowering energy consumption is a significant challenge. It is important to track both the overall energy use and the amount of energy being used per square meter of floor space. A useful tool is the Building Energy Utilization Index (BEPI) shown in Figure 7. BEPIs help determine the degree of efficiency under which buildings are operating annually, regardless of variations in gross floor space. Keep in mind that fluctuations in weather and temperature can vary significantly from one year to another and have a great impact on the energy used in buildings – 2017/2018 in particular had below average temperatures in three of the four seasons.

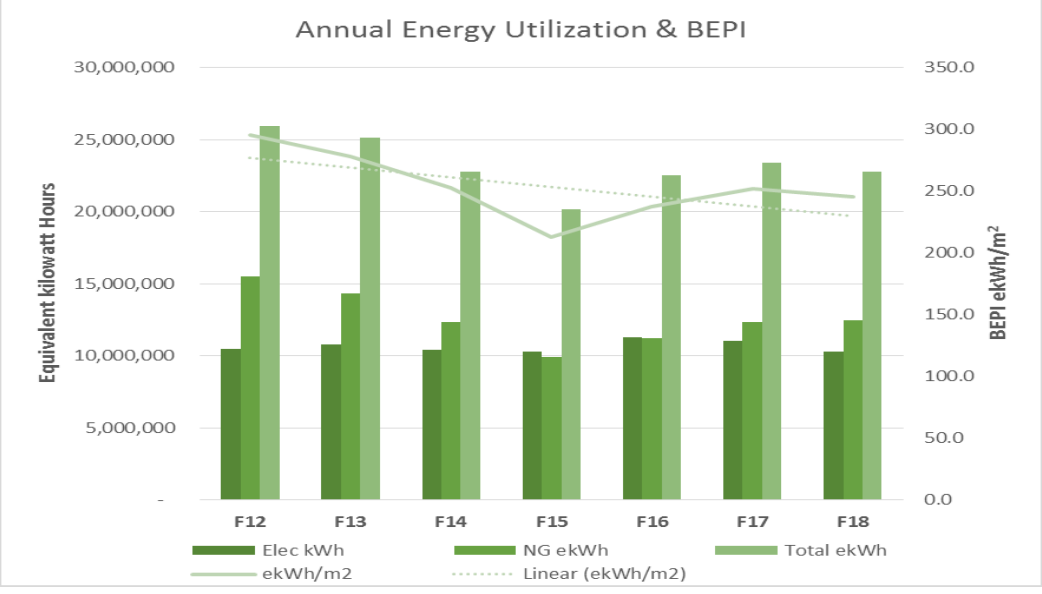



**Figure 6. Annual energy utilization per m² at UFV**

The Sustainable Energy Management (SEMP) Report provides full details and analyses of energy management at UFV. This report can be read at **www.ufv.ca/energy/energy-reports/**.

## Carbon Emissions

Carbon emissions at UFV have been significantly reduced since detailed tracking began in 2009. In fact, there has been a 17% overall reduction between 2009 and 2017, and a further 51% reduction in tonnes of carbon per square meter ($tCo_2e/m^2$) within the building portfolio during that same time frame. It should be noted, however, that there was a significant emissions increase in 2017, compared to 2016, which can be attributed to the historically cold winter and spring, during which more natural gas was used to heat buildings throughout the Fraser Valley. The impacts of the cold winter would have been more even more significant had there not been energy efficiency upgrades in previous years.

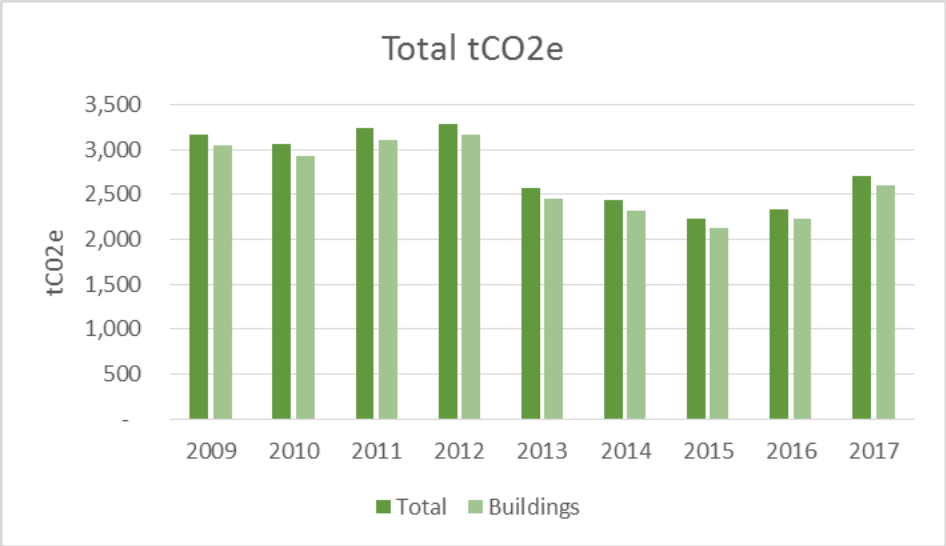



**Figure 7. Carbon emissions per calendar year**

The Carbon Neutral Action Report (CNAR) provides full details and analysis of carbon emissions management at UFV and can be read at **www.ufv.ca/energy/energy-reports/**.

## Electric Vehicle (EV) Charging Stations

UFV has four Level 2 stations capable of charging up to eight vehicles simultaneously. The energy for these stations is available to all students, staff, and faculty free of charge. Level 2 stations provide vehicles with a full charge in 4-8 hours. The first stations were installed in 2012/2013 at the Aerospace Campus (1), Abbotsford Campus (2), and CEP (1). There has been significant year-over-year increases in charging sessions - or, the number of times a vehicle has plugged in to charge - energy provided for cost-free charging, and emissions reductions compared to traditional combustion engine vehicles. The data from 2017/2018 supports the commentary from EV drivers that the stations are frequently utilized during the day and that the campuses could use more charging infrastructures.

An additional two Level 2 charging stations will be installed in 2017/2018, one at each main campus (Abbotsford and CEP). One Level 3 charging station – which provides a full charge to vehicles in 20-40 minutes – has been proposed for the Abbotsford campus. Up to 75% of the total project cost is financially supported by Natural Resources Canada (NRCan). By March 31, 2019 UFV should have the capability to simultaneously charge 14 vehicles.

| | Sessions | Energy (kWh) | Community GHG Savings (t) |
|---|---|---|---|
| 2013/2014 | 51 | 227.5 | 0.096 |
| 2014/2015 | 459 | 3,150 | 1.33 |
| 2015/2016 | 971 | 9,830 | 4.13 |
| 2016/2017 | 1,357 | 13,928 | 5.85 |
| 2017/2018 | 1,396 | 13,076 | 5.49 |

**Figure 8. Electric vehicle charging frequency and impact**

## Water

Water consumption throughout the 24 core buildings and associated grounds of UFV has remained relatively consistent per $m^2$ over the course of the past four years. Data collected from the City of Abbotsford and City of Chilliwack in 2017/2018 show a significant 12.3% decline in overall water consumption at UFV. The Abbotsford Campus led the reduction in water consumption by using 126,666$ft^3$ less water than in the previous year.

UFV has shown a commitment to reducing the amount of plastic bottles that end up in the landfill by facilitating convenient water bottle filling stations throughout the campuses. 17 bottle fill stations can be found in nine buildings throughout the Abbotsford and CEP campuses. An additional four stations will be installed in 2018/2019.

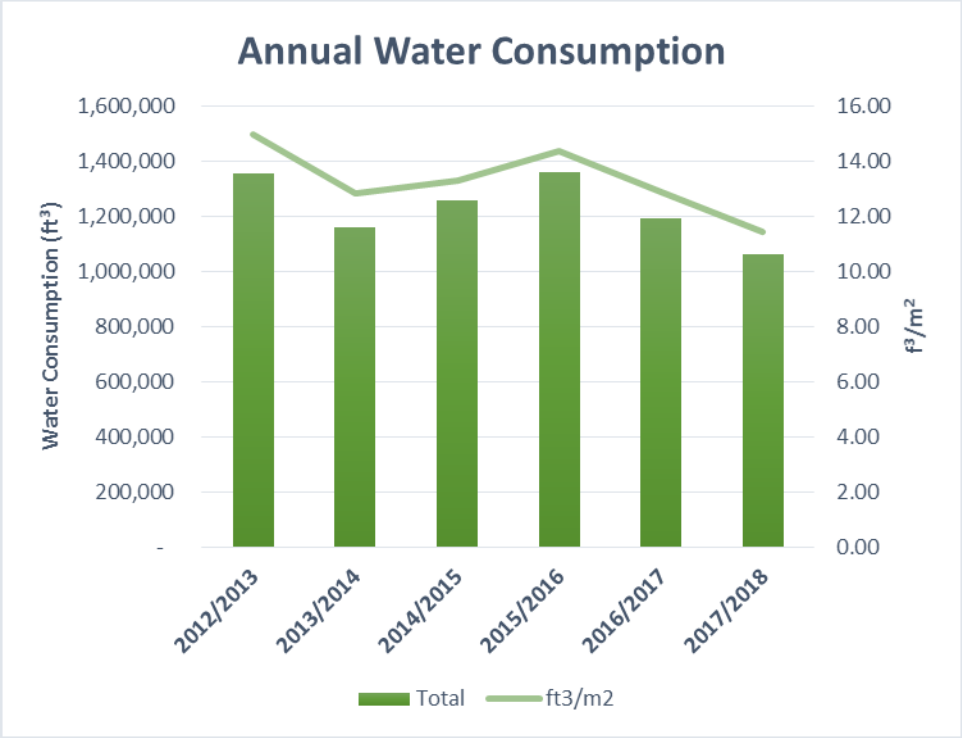



**Figure 9. Annual water consumption totals, and volume consumed by area**

# Goals & Potential Projects/Initiatives for 2018/2019

## Waste Management

The Sustainable Waste Stations project in 2017/2018 has paved the way for other waste initiatives to be born and improved upon. There are many components and stakeholders that can have significant influence in waste diversion rates and participation.

The Student Sustainability Coordinator will focus on re-directing organic waste from the landfill and disposing it properly into the organic/compost waste stream. Making the transition from landfill bins to organics/compost bins in the washrooms will drastically impact the waste landscape, especially considering that, historically, paper towel waste has been one of the most misplaced products into the landfill stream. Paper towels account for a significant portion of the waste found within the landfill stream, so sustainably redirecting that waste will provide a significant boost to UFV's waste diversion rates.

In addition to transitioning washroom bins from landfill to organic, placards will be placed on all paper towel dispensers throughout the Abbotsford, Canada Education Park, Clearbrook, and Aerospace campuses, encouraging the disposal of paper towels into organics bins. Wherever possible, organics bins will be placed adjacent to the paper towel dispensers.

The Sustainable Waste Stations project has been well-received and seamlessly incorporated into the daily routines of students and employees. The locations of these stations were meticulously planned and remain firmly in place. A common problem with the stations, however, is that some areas within the University are used for varying purposes, thereby requiring more flexibility to sustainably remove waste. In 2018/2019 12 mobile waste stations will be purchased to accompany the fixed stations already in place. With affixed signage, the bins will rest firmly on stainless steel trolleys, providing the same level of organization and clarity to the user, but with the mobility to enhance waste removal within otherwise underserviced areas.

Another area that produces a significant amount of waste to all four waste streams is catered events. To combat the large amount of waste, UFV will be including options to identify when food will be served at events and to outline the number of attendees. With this information, Facilities Management will instruct janitorial staff to deploy mobile sustainable waste stations to the event during set up; the stations will be picked up after the event. The intention is that waste will be sorted at the time of use, rather than all of it being dumped into a single stream. This new automated system will be implemented in 2018/2019.

## Sustainable Events

UFV is committed not only to sustainability and environmentally responsible operations within the University, but also within the Fraser Valley as a whole. There is a growing interest in showcasing that commitment to internal and community stakeholders through various events that range from department meetings to New Student Orientation to the largest event, Convocation. A group of SustainableUFV champions will continue to develop green event guidelines and incentives, so that even more events are as sustainable as possible. Green events will be primarily focussed on reducing single-use plastics; finding alternatives to plastics; reducing packaging waste; encouraging convenient and effective responsible waste disposal; introducing more reusable wares; utilizing environmentally friendly decorations; providing plant based menus; and promoting digital conferencing.

## Website Upgrades

The SustainableUFV website will have a full content update in 2018/2019 to include up-to-date information and a reorganization of projects, initiatives, and events. www.ufv.ca/sustainability is a great resource for tracking elements of sustainability that have been worked on at UFV and proposing initiatives for future consideration. The website will be further updated to a new template either later in the year or in 2019/2020.

## Residence Energy Efficiency Awareness 2.0

The Energy Manager, Student Sustainability Coordinator, and Baker House staff will all help to enact the *action* portion of the campaign. By engaging students and providing on-site training to enhance sustainability in residences, these stakeholders will be able to increase their familiarity with individual students and on-campus living behaviours and habits, as well as reduce environmental impacts. The first few weeks of new residents' introduction to life on campus are important. During this time, new students can learn about and integrate into campus culture, and student leaders can optimize on opportunities to push sustainability initiatives forward. We're looking forward to seeing how Baker House residents can make positive impacts in 2018/2019.

## Get Your Fleece On 3.0

The success of Get Your Fleece On in 2016/2017 was abundantly clear, with the demand for fleece blankets exceeding the available inventory, as was stated on page 10. In 2017/2018 there were fewer requests for blankets; however, there was still a high volume of complaints from staff that their spaces were uncomfortably cold. Continued education on how space heaters adversely affect the HVAC system will ideally increase passive personal temperature regulation in 2018/2019. Those who are feel chillier than the majority can rely on the Energy Manager to look for ways to get them easier access to blankets and increase participation in the program.

## Sweater Week 2018

A popular framework for Sweater Week was developed by the Sustainability Coordinator in 2016. The new Student Sustainability Coordinator will continue to build upon that success and increase participation in the event, while ensuring that the foundational education components are being broadcasted campus-wide to increase interest and active participation in carbon-reducing behaviours on campus and in the community.

## Work-Study Student Position

### Resource Reduction and Recovery Analyst

Working within the Facilities Department, the Resource Reduction and Recovery Analyst will develop and utilize skills in data collection and analysis to organize the development of a plan aimed at reducing environmental impacts and

operating costs at UFV. Supported by Janitorial Site Supervisors and the Energy Manager, the Analyst will produce a short report outlining results, findings, and conclusions.

### Sustainable Transportation Feasibility Coordinator

Working alongside the Energy Manager and the Sustainability Coordinator Assistant, key contributions to the developing Sustainable Transportation Project will be made in the areas of researching inter-campus transportation plans, identifying key barriers and benefits by developing surveys and leading focus groups, and liaising with other stakeholder groups to identify organizational synergies and barriers. A final report outlining results, findings, and conclusions will be an essential component of this position.

## Final Words on Sustainability

Sustainability at UFV involves reducing negative impacts on the environment in a fiscally responsible manner. UFV is committed to increasing the prevalence of action pertaining to sustainability, both regionally and globally, and recognizes the impact it holds as an educational facility. To encourage environmental consciousness, SustainableUFV seeks to consistently provide opportunities for different groups to connect, collaborate, and improve their learning and working spaces in sustainable ways. Sustainability at UFV, for many, facilitates an environmentally responsible consciousness. The hope is that these values will be transported with many students and staff as they move on to their next endeavors outside of UFV.

UFV also recognizes that achieving sustainable operations within such a diverse institution can be challenging. In terms of recognizing progress, it can be difficult to determine when or at what point efforts have paid off. Furthermore, a challenge also lies in deciding what constitutes a successful campaign. One example of success is the newly implemented sustainable waste disposal system. This system was unveiled in 2017/2018 and it allowed UFV to make significant strides in reducing the amount of waste sent to the landfill. Further success lies in UFV's ability to increase energy efficiency and provide numerous opportunities for students and employees to participate in sustainability projects, initiatives, and events. For instance, unique and innovative alternatives were used to mitigate the use of traditional, high-pollution tools and systems, which resulted in reduced carbon emissions. These alternatives are not only beneficial to the environment, but they also form a connection between sustainability at UFV and the agricultural roots of the region's economy. Despite the challenges, there is a growing number of SustainableUFV members, higher quality interactions, and more poignant goals within projects.

As the culture of environmental responsibility continues to grow, so too will the impacts of sustainability projects on campus and within the local communities. This consciousness will continue to develop until the culture of environmental accountability is a global one.

With your help, UFV in 2018/2019 will continue to strive to reduce waste and carbon emissions, lower negative environmental impacts, and increase energy efficiency. We thank you for your participation and support in this endeavor.