



Sustainability Strategic Plan

2017 update



Sustainability
CARLETON UNIVERSITY



Carleton
UNIVERSITY

INTRODUCTION

For the past 5 years, Carleton University has been working to implement sustainable programs across the university and ensure it is seen as a leader in sustainable building and operations. The implementation of the Sustainability Strategic Plan has underpinned this commitment and ensured a strategic process for program delivery. Our strategic plan defines Sustainability for Carleton as, 'To live, learn and grow within our campus community in a manner that protects and strengthens our physical and social environments such that the students, staff and faculty of future generations can continue to develop and enjoy our campus community'.

This update provides an overview of our key recommendations and objectives, and our progress to date. The highlights of this include the use of Green Globes to sustain and drive improvement across campus buildings, both new builds and renovations. The commitment to energy retrofits delivered through a systemic Energy Master Plan, which has seen year on year electricity and gas reductions, has been a key deliverable.

The broader benchmarking and use of rating systems to further develop our programs is also seen as critical. Carleton was awarded a silver rating, on our first submission, against the Sustainability Tracking and Assessment Rating System (STARS). In addition Carleton was ranked 33rd (Global) and 2nd (Canada) under the UI Green Metric University rankings.

There also continues to be an emphasis on engagement and communications and ensuring staff, faculty and students play a role in the overall delivery of programming. An example of this is Carleton staff working alongside Student groups to ensure Fairtrade Campus certification, students talking to students about sustainability and the benefits of sustainable programs to the student experience.

As we continue to engage our community we will evolve our Sustainability Strategic Plan to align to new and evolving programs on campus. We will also ensure that Carleton implements best practice and continues to advance the limits of innovation and creativity in sustainability.

1. KEY RECOMMENDATIONS

The Sustainability Strategic Plan provided for five key recommendations:

1.1 Develop a Green Revolving Fund



The development of a fund to allow for the funding of sustainability focused projects that meet specific cost-savings criteria and have a positive environmental impact on campus life. The fund is valued at \$1 million.

The Green Revolving Fund has been established since 2013, with over 60 project entries submitted for review. During this time the type and subject matter of each project has ranged to include waste and recycling, electricity and energy based projects, sustainable transport ideas and projects focused on engagement and behavior change.

Each year up to 3 winners are announced to the community. The Fund allowed for the implementation of projects concerning the implantation of LED lighting in the campus tunnel system, the implementation of a student led program for Intelligent Indoor Climate Control in the Canal Building, the installation of Building Energy Dashboards and the roll-out of Computer Sleep Software.

The Fund is open for new submissions each year, with continued engagement focused on the student population and linking green fund submissions to both academic learning and course submissions. An online platform, open year round and promoted to staff for the development of ideas that benefit the campus community has also been rolled out.

1.2 Create a multi-stakeholder sustainability advisory committee on campus operations that would report and make recommendations to the Vice-President (Finance and Administration).

The effective implementation of the overall sustainability strategic plan requires input and engagement from a wide variety of people at Carleton University. The advisory committee is structured to engage a cross representation and includes: One Undergraduate student representative, One Graduate student representative, Three Faculty (with direct research/interest in sustainability), Four Staff (University Services (Food), Residence, Research, Facilities Management and Planning), One Sustainability Officer (support), Assistant Vice-President (Facilities Management and Planning).

The committee reports to the Vice-President (Finance and Administration) and meets as required (at least bi-annually). The mandate for the committee is to foster a culture focused on sustainability and work to ensure that it is embedded into all operations of the university. It is also used to enhance the development and implementation of sustainability goals, policies and targets. The committee is also

asked to promote university community input into the vision and direction of sustainability at Carleton University and to assist with the review and prioritization of sustainability initiatives.

1.3 Develop a Green Team Program across campus



The Housing and Residence Life Team receiving their Bronze certification for their green workplace

The recommendation to develop a Green Team Program was intended as building an effective network of sustainability-focused individuals across the university. Green teams work by tapping into individuals that are already engaged in sustainability initiatives in different departments. The individuals form a green team for that department or office.

A pilot program was launched in 2013, with subsequent expansion to the campus community in 2015. Carleton Eco Reps, represent a wide range of services and buildings, who are in part focused on workplace sustainability initiatives as part of their

regular role. In addition to online resource site and various educational materials, the Eco Reps lead a formal recognition program, entitled CU Sustainable Office Program.

This step by step program has been further developed and allows staff to review their workplace against a sustainability checklist and make progress towards certification. To date 6 departments have been certified. This network is seen as critical to engage the university community in all facets of sustainability.

Within residence, students are engaged through the Project Green program. Students who volunteer within this program engage fellow residents on green behaviors and champion energy saving during a month long campaign. This group meets monthly to develop actions and programs, of which one key initiative has been over 100 students being certified as having 'green rooms' based on a sustainability checklist of ideas.

1.4 Measure progress and evaluate programs using key sustainability metrics

To effectively develop and manage our sustainability program, we will continue to measure key indicators to ensure that the program is providing desired results. For areas related to facility design and operations, the Green Globes Assessment System is the most effective tool. For general university operations, the Association for the Advancement of Sustainability in Higher Education (AASHE) has developed a set of metrics that can be used to assess and measure sustainability, entitled Environmental Sustainability Assessment Tool (ESAT).

All new buildings and buildings with major renovations from the previous 6 years have been assessed under the Green Globe program. The target of at least 3 Green Globes has been surpassed, with an average building rating assessment being 4 Globes. In addition to the post building assessment all planned building are also being assessed at the concept stage, to enable best practice sustainability design to be fully integrated. The new Health Sciences Building, due for completion in early 2018, was assessed as 4 Green Globes.

In addition to Green Globe reviews all building on campus have been reviewed using the Environmental Sustainability Assessment Tool (ESAT) to provide for an ongoing review and assessment of all buildings energy and wider sustainability practices. Buildings are assessed every 4 years, or after major renovation or changes. The ESAT assessment in 2017 showed that of the buildings assessed all demonstrated an increased score. Examples of this include the Athletics building complex which showed a 25% increase to a new score of 67% and the Herzberg building increasing by 6% to a new score of 72%.

In regard to the wider sustainability program and evaluation of Carleton's programs the Sustainability Tracking and Reporting System (STARS), developed by AASHE, has been adopted. Carleton received a silver rating against the STARS program. In addition to this Carleton has been recognized as a top 35 university in the global Green Metric program and is recognized as a Green School by the Harvard Business School.



1.5 Conduct public consultation and engage the community to establish buy-in for the Strategic Plan

The overall success of the sustainability strategic plan has largely depended on the level of engagement and buy-in from the staff, faculty and students involved. It has been critical to have the engagement of senior administrators to ensure that resources are made available and support is allocated where needed and to ensure buy-in has been established as part of decision-making processes.

A fully comprehensive communications strategy for sustainability has been developed that aims to serve to engage and educate participants, share successes and build commitment. This includes annual reporting of progress prepared for the community and posted on the website.

In addition to the annual updates Carleton's commitment to sustainability is communicated in numerous way, through promotions at events, and through a mix of communication channels and programs. Events for students include promotions during Student Expo, Orientation week and at move-in and out. Sustainability updates and progress is also included in courses throughout the year, through guest lectures providing campus updates, tours and progress reports. Events reaching the broader campus community throughout the year focus on key themes such as the annual Cycle Fair, Building Energy Retrofits, Fairtrade Week and Earth Day. Targeted messages on internal email newsletters and via twitter promote ongoing engagement.

2. CAMPUS PLANNING, BUILDING DESIGN AND CONSTRUCTION

2.1 Continue to use Green Globes to assess all new construction and major renovations – with a minimum target standard of 3 out of 5 globes.

The Green Globes building assessment program is being used to design and assess all new buildings and major renovations on campus, ensuring sustainable buildings are a part of the campus portfolio. To date 10 buildings across the campus have been Green Globe certified including: Canal Building (5 Globes), Residence Commons (4 Globes) and the New Health Sciences Building (4 Globes). In addition to the Green Globe assessment a full day sustainability design charrette is included within the planning process to ensure detailed processes and project integration aligned to best practice.

The use and commitment to Green Globes has also been recognized externally as Ritchcraft Hall (formally River Building) was named, in 2017, by Unique Venues magazine as the Best Earth Friendly venue.



2.2 Ensure a waste management/recycling strategy is utilized for all construction and renovation projects.

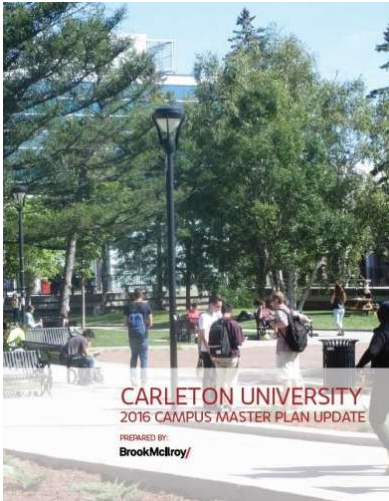
To ensure that we continue to meet our commitments around construction waste, Carleton aims to ensure that all opportunities for minimizing waste and maximizing diversion are pursued for all construction and renovation jobs.

In larger construction and renovation projects this means that any contractor that works at Carleton on a project above 2,000 square meters is required to conduct a Waste Audit. This audit shall cover the waste that will be generated in the project and the extent to which materials or products used consist of recycled or reused materials or products.

In addition a Waste Management Success Measurement Report shall also be prepared to contain a summary of the weight of the materials that were actually generated through the project, including a summary of materials that were reduced, reused and recycled. Through the utilization of these requirements within the Design Guidelines Carleton has seen diversion from landfill at 80% for individual projects.

2.3 Ensure that the campus development is consistent with the Sustainability principles contained in the current Campus Master Plan.

Carleton's strategic goals focus on the University as a custodian of the future, and as stewards of healthier, more sustainable communities. This is undertaken at the same time as balancing the University's physical and financial resources. Carleton promotes its role in sustaining the earth's ecological and climatic health through its teaching, research, physical development, operations and the lifestyle of its students and staff.



In its development plan, Carleton will continually seek ways to build, renew and maintain buildings, infrastructure and landscapes in a way that conserves resources, land, water and vegetation, reduces energy use, and limits waste disposal.

The Campus Master Plan Update (2107) recognizes the importance of acting sustainably and applying best practices as they evolve. Wherever possible new campus development should clearly articulate the environmentally sustainable features of a project through building science. Signage and education opportunities should further and promote Carleton's commitment to environmentally responsible Campus development and maintenance.

3. WASTE MANAGEMENT

3.1 Increase the diversion of waste to 60 per cent.

Carleton's current Waste diversion rate is 61%. This captures all waste generated through our operations. Recent programs towards compost collection and dining operations have provided some areas to be recognized as 'zero' waste, including the University Centre Food Court and Residence Food Court, The Caf.

The focus to move towards an increase in our overall recycling rates has been targeted programs around key waste issues. Waste generated in residence, both during term time and at move-in and move-out times, has been a focus area. Following a trial program in a single residence all students can now opt in to benefiting from compost waste collections in suites and kitchens. A greater focus on Move in and Move out periods saw sustainability volunteers providing guidance and assisting for cardboard recycling. In addition a program of donation boxes has seen over 5,000kg of household and clothing items being donated annually to the Canadian Diabetes Association.

A program to improve waste contamination in residence buildings has seen the introduction of single stream recycling being introduced, while too early to assess the impact of this, the plan is to engage residents towards a simplified waste program.

A focus on the expansion of organic compost waste collections has also allowed for new compost collections front of house, in public areas, including the main university centre food court. This is in addition to continued compost collections in kitchen preparation areas.



Waste and Recycling station in University Centre

Waste communications have provided for revised waste signage on campus, which focus on colour coded streams and defined waste types. In addition a new waste station in the university centre emphasizes recycling as simply as possible. With easily defined waste streams and bins and a broader communication campaign which included waste ambassadors promoting best practice. The hope is the station will

be successful enough to expand the concept across campus.

3.2 Develop a comprehensive strategy for dealing with all electronic waste and hazardous waste

A revised strategy has seen the review of how electronic waste is collected on campus and a renewal of communications to engage the campus community. In 2016, through the ITS service provided to the campus over 19,000kg of electronic waste was collected and processed for recycling. This program is available to our community free of charge. In addition to the ITS central function a network of smaller recycling bins was also introduced in 2016 which targeted student small e-waste disposal. The three recycling positions located across campus provide for a convenient option for free disposal.

Facilities Management and Planning also purchased a “bulb eater” to begin recycling all burnt out fluorescent tubes.

4. TRANSPORTATION

4.1 Develop a long term Demand Management Transportation Plan to engage students, staff and faculty to get to and from Carleton University in a sustainable way

A revised Demand Transport Management Plan has been developed, with support from Parking



Velogo bike hub

Services, which provides an overview of alternative transport options available to the Carleton community. This includes an overview of walking and cycling programs on campus, car sharing and carpooling. Carleton currently has two bike share programs on campus which are being used by over 200 people per year as a means to access cycle infrastructure. The recent (2017) addition of Velogo allows the Carleton community to access a wider cycle network in Ottawa and Gatineau. This

program is accessed through a mobile app and ensures broad support through a reduced student rate.

There has also been an expansion of car share programs on campus, with Carleton offering VirtuCar, StudentCarShare and Zip Car programs on campus. The car-sharing service provides members with access to a fleet of vehicles on an hourly basis, suitable for both business and personal needs.

Carleton University also provides flexibility in parking permit options for those persons wishing to organize/declare themselves as a carpool group. Parking permits can be shared among several vehicles so long as all vehicles are registered under the permit holder's.

The TDM program has also looked to embrace changing technologies and needs. This has meant the provision of Electric Vehicle (EV) charging station being installed. This then allows EV users to charge cars on campus while either working or visiting. To date three stations have been installed.

4.2 Develop a long term strategy for ensuring that fleet vehicles are as efficient and sustainable as possible.

Carleton University has a relatively small campus fleet, supplemented by a fleet of electric carts which utilize the campus tunnel network. The Carleton fleet contributes little in the way of carbon emissions and the focus and opportunity to improve the larger impact of emissions comes from commuters.

In regard to our campus fleet there is a program of transition to electric or hybrid vehicles to replace existing vehicles, as financially responsible to do so. This has included recently (2016) the purchasing of an electric vehicle for grounds maintenance, replacing a previous diesel truck.

5. Environmental Health and Safety

5.1 Implement a plan to reduce laboratory related waste and energy use

The focus for laboratory energy use has been through the implementation of energy programs in lab space within the university. This has seen improvements in energy performance in spaces including Herzberg and Stacie buildings. One specific example of these savings has been through the implementation of an exhaust heat recovery. Broader to this faculty continue to be engaged to promote best practice including specific measures on the engagement and promotion on shut the sash and wider EHS messaging developed to promote energy saving.

5.2 Develop a chemical inventory system

Chemicals and other hazardous materials are an integral part of Carleton's research and teaching objectives. Proper management of these hazardous materials is crucial to ensuring safe working and

learning environments. Carleton has put in place responsible way for ensuring regulatory compliance of the use, management and security of hazardous materials on campus.

To help manage these materials and reduce risk, Carleton has joined a growing number of Canadian universities by participating in the HECHMET project. As part of this project, Carleton implemented an online chemical inventory system, Vertere, in 2013 as a means to monitor the purchase of all chemicals, monitor distribution of and access to these substances, ensure appropriate disposal, and limit the storage of unnecessary hazardous materials.

6. ENERGY AND GREENHOUSE GAS EMISSIONS

6.1 Develop an Energy Master Plan which would have a major energy and water conservation component.

Carleton has developed an Energy Master Plan which looks at the historical energy and water use and the future requirements for these utilities to satisfy physical development set in the wider campus master plan. The plan captures building operating data as the first step toward improved management of the campus facilities. This data is the accumulation of good progress toward monitoring, collecting and managing energy and water operating data. Virtually all buildings are equipped with sub meters allows both direct and targeted performance support and response but also individual monitoring of consumption.

The plan first published in January 2015 and to be updated in February 2018, outlines the goals and objectives for managing, conserving and reducing energy consumption alongside costs and estimated savings for proposals.

Large scale energy retrofits have been completed in Athletics, Robertson Hall, Loeb, Mackenzie and Minto CASE. This has seen targeted energy reduction measures including building assessment and energy audits, LED re-lamping, replacing control systems, retrofitting plumbing fixtures with high efficiency, IT computer sleep software and improvements to building exteriors.

To date within the five targeted buildings included as part of the initial phase of energy retrofit programs there have been annual cost savings of \$660,342 and GHG reductions 1281 CO₂ Ton. A number of other buildings have been targeted for future implementation and retrofits.

Further promotion and engagement to individual departments to encourage energy conservation has also been developed. This is included as part of Eco Rep programming and the Green Workplace checklist. Targeted promotion in residence has seen the installation of Energy Display Screens to provide real-time data regarding energy use to all residents. In addition the development of a sustainable living floor has ensured wider promotion of best practices.

Building	Annual Savings	GHG Reduction CO₂ Ton
Athletics	\$137,049	459
Robertson Hall	\$120,349	242
Loeb Building	\$158,281	288
Mackenzie Building	\$143,209	188
Minto CASE	\$101,454	104
Total	\$660,342	1281

Energy retrofit program savings

6.2 Develop a strategy to reduce workstation consumption

The key focus of reducing workstation consumption has been two fold. The first element is the roll out of specific Smart strip power bars which enable all IT and auxiliary equipment plugged in to switch off overnight and power down when not in use. This has seen savings of 40% from computer electricity loads.

In addition a program has begun to reduce the amount of printers on campus and to consolidate printing to networked group printers accessible by departments and teams. This has seen both a campus wide audit of all printers and usage and two pilot programs introducing hub print stations. A wider program and roll out will begin in 2018.

7. WATER USE

7.1 Develop a water management plan

Water management and consumption is included in the broader Energy Master Plan and addresses both the future historic usage and expected future use. The plan includes conservation opportunities.

Water management is also included within the recently revised building specifications for all new and renovations with the inclusion of ultra-low fixtures. This fixture replacement has allowed for savings of up to 60% in water use for buildings going from previous older fixtures.

The roll out of additional water bottle filling stations and signage for existing location on campus ensures continued success of reducing single bottle water use.

8. DINING SERVICES

8.1 Review the food and supplies purchased to ensure alignment to sustainable criteria

Carleton is committed to responsible and sustainable food procurement. Currently 24% of purchases are comprised of local, ecological and humane foods. We support local farmers and producers by buying local foods wherever possible. We specify through the use of a 'Locally Grown' icon on menu boards, menu items with more than 50% local ingredients. This is in addition to go local Wednesday where promotions highlight local purchased produce.

In 2016, Carleton University gained Fair Trade Campus designation that showcased our commitment to sustainability and social responsibility. This designation is granted to Colleges and Universities that prioritize the availability and visibility of Fair Trade products, and promote and embody Fair Trade values with their initiatives, contributions, and business practices. All of our coffee is Fair Trade as well as a selection of tea, chocolate, and other products. We are also expanding on these offerings to include other items such as Fair Trade sugar and coconut.



A series of farm tours, aimed at students, has also been developed. This allows students to visit nearby farms to see practically where their food comes from.

8.2 Develop and implement a waste diversion strategy for dining operations

There is good awareness that waste arising from dining operations represents a great opportunity for both reduction and user engagement. The strategy developed provides for composting to be central to waste reduction. All kitchen waste arising is composted and front of house (tray scraps) are also composted. In addition kitchen programs have been developed to review and weigh left over food, by product line, to reduce unnecessary production and wastage.

As well as composting leftover food a program of tray less dining has seen been introduced. The elimination of the use of trays at all locations and seen food waste reduce by up to 30% per person.

The strategy includes a number of other initiatives to remove waste from landfill. The introduction of green packaging has seen the use of recyclable and compostable 'to go' containers, bowls, plates and cutlery in use across the campus. Targeting the reduction in single use coffee cup reduction through increased savings (money off) for re-use has helped to save the equivalent of over 35,000 cups going to landfill.

Our fryer oil is also filtered to help reduce waste improve taste, usage has been reduced by 30% saving approximately 4000L a year. Where used the oil is then recycled through a partner organization who use the fryer oil for bio-diesel fuel, which is then used to power landscape vehicles.

8.3 Ensure the energy efficiency of dining facilities

In to the need to improve energy efficiency within the dining facilities a number of improvements have been made. From a greener equipment perspective this has meant that to help conserve water and energy, Energy Star certified equipment is used for all new purchases. In addition as part of an ongoing initiative for energy retrofits, LED lighting is used to minimize power consumption used by regular lighting.

Staff training and engagement is also imperative to sustainable facilitates. All staff participate in Sustainability, Energy and Water Conservation and Waste Management training sessions.

9. PROCUREMENT

9.1 Explore the possibility of expanding the surplus good process

The use of a surplus goods list continues to be a key driver to reuse and re-distribute office furniture and goods throughout the campus. In addition to this process an online Carleton specific 'Kijiji' style website has been introduced for use by staff to both sell and buy goods. This site is part of our internal intranet and is also used to advertise free goods for use on campus.

Where furniture and goods are wanted to be saved by a department or team, they are stored on campus for future use. Where furniture is not sold and surplus to requirements on campus they are donated or recycled as appropriate. An example of recycling has been the donation of mattresses for reuse by a local charity in Africa.

9.2 Develop a procurement policy that ensures all major purchases undergo a lifecycle analysis.

Our sustainable purchasing efforts to date have been very much program based and reflect individual sector improvements. As such this has seen progress towards purchasing and specifications in areas such as new buildings and retrofits, cleaning programs, print operations and local/certified food purchasing. This is reflected in our STARS assessment and is a driver for a push towards more holistic and process based decision making efforts. The development of a procurement policy will follow a wider review a benchmarking of work to date.

10. CLEANING

10.1 Develop green cleaning standards

Carleton is committed to the use of green products to clean the campus. The development of Green Cleaning Standard, working with our cleaning partner, has seen the introduction of a review of all products and targets set for the transition to new greener products.

The use of Aqueous Ozone System cleaning, a more sustainable cleaning routine reducing waste and the carbon footprint associated with cleaning is a key example of our transition to green products.

11. EDUCATING AND ENGAGING THE COMMUNITY

11.1 Launch a series of outreach programs to raise awareness and garner support

Included within the wider communications plan there have been a series of programs which are established and ongoing. These include:

- Participation at the Student Expo.
- Student move-in program engaging new residents.
- Annual Eco/Cycle Fair, including external community environment groups.
- CUSA/Sustainability Office Environment Week - distributed over 400 water bottles in 2016.
- Fairtrade Week – including giveaways, external speakers and vendors.
- Launch events for Retrofit Energy Programs.
- Earth Day - Clean up the Campus event engaging over 60 staff.
- Residence Engagement Program - Carleton signed up the North American Campus Conservation National program, with students involved throughout program.
- Information table at Healthy Workplace Fair.
- Guest lectures to Students studying environmental based programs.
- Annual Carleton Fix It Café – Introducing the idea of repair and reuse of goods.
- Monthly Sustainability Newsletter to Eco Reps and all staff who sign up to receive newsletter.
- 700 twitter followers with updates on initiatives and events.

11.2 Integrate sustainability as a topic in employee and student orientation

Sustainability is included a key topic in student and employee orientation sessions with information provided as to current programs and how both student and staff can get more involved in campus programs. This includes information provided on the Eco Reps program, links to the Carleton Sustainability pledge, and the Staff Sustainability guide.

In addition a Sustainability tour has been developed which provides a walking tour of the campus and highlights key programs, initiatives and updates on campus concerned with energy and sustainability.