Environmental Sustainability Report

UNIVERSITY OF WATERLOO

SUMMARY REPORT

2020

RELEASED OCTOBER 2020

UNIVERSITY OF WATERLOO

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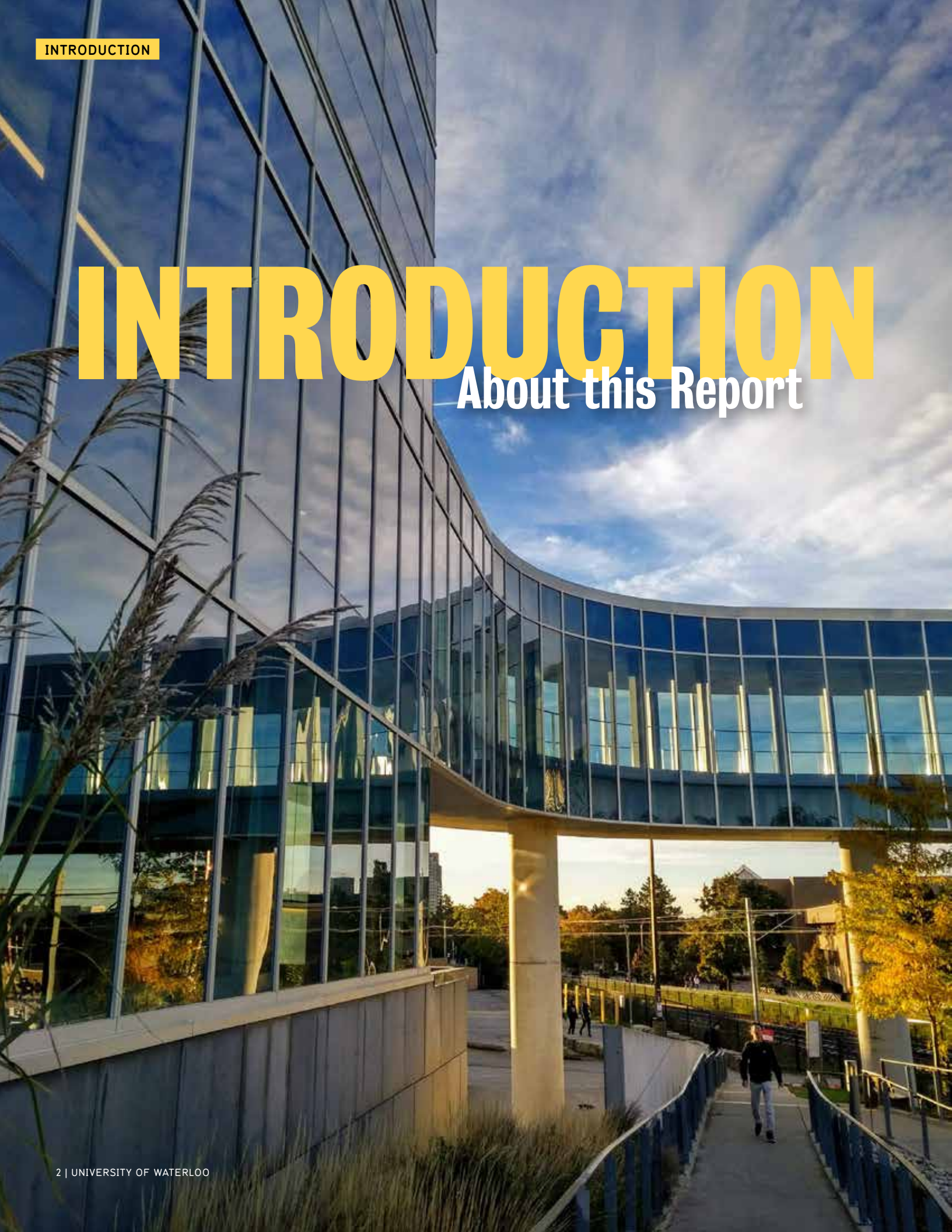
Prepared by the President's Advisory Committee on Environmental Sustainability



INTRODUCTION

About this Report

Overview: This report highlights examples of progress towards each of the 27 objectives that were established in Waterloo's Environmental Sustainability Strategy. The report has sections on Academics, Operations, and Engagement, and describes relevant projects and initiatives that have occurred at the University of Waterloo throughout 2019, up to and including June 2020.

Each objective includes a progress summary, as well as specific indicators that offer more information on the progress.

For full data and details on each objective and indicator, consult the interactive data dashboards and methodologies, available at ***uwaterloo.ca/sustainability/report***

Territorial Acknowledgment: The University of Waterloo acknowledges that it operates on the traditional territory of the Attawandaron (Neutral), Anishinaabeg, and Haudenosaunee peoples. The University of Waterloo is situated on the Haldimand Tract, the land promised to the Six Nations that includes ten kilometers on each side of the Grand River.

Definitions: By definition, sustainability means maintaining the integrated health of the environment, society, and economy for today and into the future. While this report focuses primarily on environmental indicators relevant to the University of Waterloo, it recognizes that there are mutually reinforcing connections with financial and social sustainability. For brevity, the term "sustainability" will refer to environmental sustainability in this report.

Framework: The University of Waterloo has made efforts to align the data and indicators within this report to those of the Sustainability Tracking, Assessment, and Rating System (STARS) developed by the Association for the Advancement of Sustainability in Higher Education (AASHE), as well as to the objectives established under Waterloo's Environmental Sustainability Strategy.

Sustainable Development Goals: Within the framework of the report, Waterloo also maps its actions towards advancement of the global United Nations Sustainable Development Goals (UN SDGs).

Reporting Boundary: This report covers all University of Waterloo campuses, unless otherwise noted. The report indicators do not reflect information from Affiliated and Federated Institutions of Waterloo, although information is included in appendices for transparency.

Contact: Please address any questions about this report to the Sustainability Office (*sustainability@uwaterloo.ca*).

[1] For full details on STARS, see Association for the Advancement of Sustainability in Higher Education (2017). Sustainability Tracking, Assessment, and Rating System. Accessed June 2019 from stars.aashe.org

INTRODUCTION

Message From The President

We release this latest Environmental Sustainability Report at the University of Waterloo as our world has been transformed by the public health crisis brought on by COVID-19. There is no doubt that our daily actions and future plans have been altered due to this global pandemic, but at the same time our need and determination to build a sustainable University has not changed.

This report shows our progress in our targets across Academics, Operations, and Engagement. Despite the pandemic, the urgency of action remains.

The past year has seen a number of positive changes, additions and investments in ensuring we are making progress in our targets. This includes our continued academic efforts to establish a new Sustainability Diploma and integrate sustainability themes into PD1.

Our launch of the Shift:Neutral climate action plan has also added important detail on how the University will become a carbon neutral campus by 2050. A key first step was investing in a campus-wide energy audit that will guide our efforts in the years to come. We have also diverted more waste to recycling or composting and incorporated more local food into our campus food services.

Throughout everything, engaging and empowering the campus community has been at the centre of our efforts. Every step we take, and every success is because of our community of students, faculty and staff, from student-organized events and conferences to ever more Green Office champions. Our legacy of positive change is only possible through their belief in our ability to make change today for long-term impact.

The global public health crisis has demonstrated that profound change is possible when circumstances demand it. As we continue to navigate through this time of uncertainty due to COVID-19, it is an opportunity to take the important steps needed to build a more sustainable pathway than we have walked before.

Thank you for taking the time to read this report and for everything you do to make the University of Waterloo and global community a more sustainable place.

I am pleased to present Waterloo's 2020 Environmental Sustainability Report, which tracks our actions and progress over the past year.

Sincerely,

FERIDUN HAMDULLAHPUR

PRESIDENT AND VICE-CHANCELLOR
UNIVERSITY OF WATERLOO

PROGRESS

Summary of Progress

2019 was a productive year for sustainability on campus, continuing implementation of Waterloo's Environmental Sustainability Strategy and planning new directions, such as the ***Shift***:Neutral climate action plan.

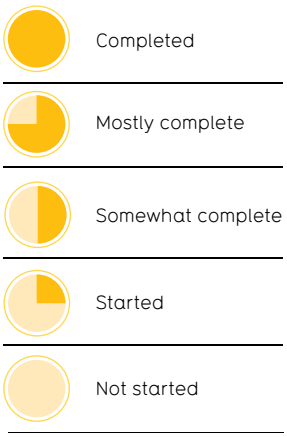
These efforts have begun to show results in some areas, with improvements to Waterloo's waste diversion and local food procurement, new learning opportunities for students, and expanded engagement efforts. In other areas, such as climate change and energy intensity, progress has been slow and the indicators slower to improve, or in some cases are worsening. More effort will be needed to both accelerate positive momentum and shift negative momentum.

In many regards, the data referenced in this report represents a very different time. As it has for almost every other aspect of the University, COVID-19 will change campus sustainability. From waste reduction and reuse initiatives to cleaning chemicals, and from an upended travel environment to an upheaval in global energy markets, the short and long-term implications of COVID-19 will present both challenges and opportunities.

In the short term, it is expected that the indicators in this report and their associated trends will fluctuate significantly as the campus shuts down and then reopens in a new normal. In some cases, it may make objectives easier to meet, while in other instances it becomes more difficult.

Nevertheless, each objective from Waterloo's Environmental Sustainability Strategy is included in the report, with a status bar to summarize qualitative or quantitative completion as of 2019.

STATUS



Goal: be a leader in sustainability education and research

OBJECTIVE	PROGRESS
A1: By 2019, ensure undergraduate students from any program of study will have the opportunity to learn about sustainability in their courses.	
A2: By 2025, identify and implement flexible strategies for 5 programs of study to more deeply integrate sustainability within the curriculum.	
A3: By 2025, every startup emerging from supporting programs at Waterloo will have access to tools and training to embed sustainability into their emerging business plans and models.	
A4: By 2020, celebrate sustainability research as a core thematic strength of Waterloo's reputation and identity.	
A5: By 2025, become a world leader for research excellence in 5 sustainability related themes.	
A6: By 2025, establish Waterloo as a "go-to" hub for knowledge and expertise on sustainability challenges.	
A7: By 2018, implement 3 new sustainability-related projects annually on campus using faculty and student expertise; by 2025, implement at least 8 new projects annually.	2018 2025

Goal: operate the campus sustainably

OBJECTIVE	PROGRESS
O1: By 2019, develop a long-term Climate and Energy Action Plan to achieve carbon neutrality by 2050; achieve a 17.5 per cent reduction in emissions by 2025.	
O2: Implement cost-effective and practical strategies to reduce or minimize growth in energy use on campus.	
O3: By 2025, achieve a 60 per cent diversion rate; by 2035, become a zero-waste (90 per cent diversion rate) campus.	
O4: By 2025, reduce water intensity by 5 per cent per square metre from a 2015 baseline.	
O5: By 2025, expand the deployment of stormwater management technologies to targeted areas.	
O6: By 2025, increase to 90 per cent the proportion of sustainable commuting trips from a 2016 baseline of 85 per cent.	
O7: By 2020, increase electric and alternative-fuel vehicle use on campus.	
O8: By 2025, reduce fossil fuel consumption across the campus fleet by 25 per cent from a 2015 baseline.	
O9: By 2025, all University grounds will be maintained according to sustainable landscaping standards, and plans developed for remediation and preservation of specific natural areas of concern.	
O10: By 2025, 40 per cent of all Food Services food and beverage purchases are produced on-site, locally, or are third-party certified for sustainability.	
O11: By 2018, achieve and maintain a Fair Trade Campus designation.	
O12: By 2020, deliver multifaceted programming to grow student and employee awareness about healthy and sustainable food choices.	
O13: By 2020, evaluate life cycle cost and require sustainability disclosure from suppliers for all purchasing decisions over $100,000.	
O14: By 2018, establish baseline data and targets to improve the percent of campus-wide purchases that meet third-party standards for paper, electronic equipment, and cleaning supplies.	

Goal: embed sustainability into campus culture

OBJECTIVE	PROGRESS
E1: By 2020, Waterloo broadly distributes timely and audience-relevant information about sustainability initiatives and opportunities within the campus community.	
E2: By 2020, additional programming is developed for incoming students during orientation and in residences to encourage sustainable living on campus.	
E3: By 2018, establish a sustainability leaders program in partnership with students from residences, clubs and societies, student government, and for students in off-campus housing.	
E4: By 2025, increase from 5 per cent to 25 per cent the proportion of university departments that are Green Office certified.	
E5: By 2020, Waterloo is recognized as a sustainability leader in Waterloo Region.	

Benchmarking and Foundational Actions

OBJECTIVE	PROGRESS
G1: By 2025, achieve and maintain a STARS Gold designation through the Association for the Advancement of Sustainability in Higher Education.	

Key Stats

527 COURSES
focused on or related to sustainability

489 FACULTY
members conducting research that advance the global Sustainable Development Goals

16th RANKED GLOBALLY
for impact on the UN SDGs by Times Higher Education

33.2% WASTE DIVERTED
from landfill

15% of all departments certified to Green Office Bronze or higher

30.9% TOTAL FOOD
purchases local or certified for sustainability

84.5% of all cleaning and janitorial supplies are **ECO-CERTIFIED**

3 LOCAL SUSTAINABILITY AWARDS
received since 2016

~86% OF TRIPS TO CAMPUS
are by walking, cycling, transit, carpool, or telework

ACADEMICS

PROGRESS SNAPSHOT

OBJECTIVE A1: By 2019, ensure undergraduate students from any program of study will have the opportunity to learn about sustainability in their courses.

STATS

334 Undergraduate courses focused on or related to sustainability

527 Total courses focused on or related to sustainability

OBJECTIVE A2: By 2025, identify and implement flexible strategies for 5 programs of study to more deeply integrate sustainability within the curriculum.

STATS

2 New programs of study considering or integrating sustainability topics

OBJECTIVE A3: By 2025, every startup emerging from supporting programs at Waterloo will have access to tools and training to embed sustainability into their emerging business plans and models.

STATS

-- **(Forthcoming)** Tools and training integrated into Entrepreneurship programming

Teaching and Learning

Supporting UN SDGs:

Waterloo continued to make effort to integrate sustainability across its curriculum and course experiences. The launch of the Sustainability Diploma now provides options for all undergraduate students to integrate sustainability within their studies. In addition, Co-operative Education began integrating sustainability concepts such as the UN Sustainable Development Goals (SDGs) into the Professional Development 1 course, ensuring that students in co-operative education streams are made aware of introductory sustainability issues as part of their professional development coursework.

These are strong steps forward to create learning opportunities, and in the coming years Waterloo will make an effort to quantify how students are accessing these and over 500 other sustainability-related courses.

EMBEDDING SUSTAINABILITY IN CIVIL ENGINEERING

Nadine Ibrahim joined Waterloo as the Turkstra Chair in Urban Engineering to help build a community of urban leaders and develop urban sustainability literacy among students. These efforts aim to increase the role of civil engineers in decision-making processes in cities. She introduced sustainability games "In the Loop: Circular Economy Game" to the structural group, and "Game of Floods" to the water resources group. She hosts discussion groups (City Circle and Urban Provocations) for undergrads and grads to debate sustainable infrastructure issues in global cities. Funded by a LITE grant, she is planning for Urban Design Days – an experiential learning opportunity for engineering and planning students.

CENTRE FOR CAREER ACTION SUPPORTING SDGS THROUGH CO-OP

Co-operative Education, WGSI, WISE, and the Sustainability Office collaborated on an impact assessment model to better understand how international co-op work terms might be contributing to the SDGs. Work terms from the Faculty of Environment for the 2018/19 year held in 12+ countries across the development spectrum – e.g., Netherlands, China, and India – were analyzed. Initial findings were that 40 per cent of organizations employing these students had an impact on at least one SDG, and that 13 per cent of work terms had significant impact across multiple SDGs.

With input from SDG-expert faculty members in the Faculty of Environment, Co-op plans to implement programming to gather a deeper, systematic understanding of student and employer perceptions of their engagement with the SDGs and the actual impact all international co-op work terms might be having on the SDGs.

RESEARCH

PROGRESS SNAPSHOT

OBJECTIVE A4: By 2020, celebrate sustainability research as a core thematic strength of Waterloo's reputation and identity.

STATS

49% Percent of central news releases and research-focused Waterloo stories highlighting scholarship related to UN SDGs

OBJECTIVE A5: By 2025, become a world leader for research excellence in 5 sustainability related themes.

STATS

351 Faculty members conducting research related to Environmental Sustainability

482 Faculty members conducting research advancing the UN Sustainable Development Goals

TOP 10 Ranking for the Water Institute among water research institutes globally

37 Canada Research Chairs conducting research advancing the UN Sustainable Development Goals (out of 61)

OBJECTIVE A6: By 2025, establish Waterloo as a "go-to" hub for knowledge and expertise on sustainability challenges.

STATS

-- Number of research and knowledge mobilization partnerships forthcoming

16th Overall ranking in THE Global Impact ranking globally

2nd Overall ranking on the THE Global Impact ranking within Canada

OBJECTIVE A7: By 2018, implement 3 new sustainability-related project annually on campus using faculty and student expertise; by 2025, implement at least 8 new projects annually.

2018

2025

STATS

4 Living lab projects completed or underway during 2019/20

Research

Supporting UN SDGs:

Waterloo participates in many active partnerships through faculties, departments, and research centres, and continues to leverage scholarly contributions across the public and private sector. For example, multiple faculty members advise various levels of policy development related to sustainability, and Waterloo is the host of the Sustainable Development Solutions Network – Canada, mobilizing researchers across Canada for action on the UN Sustainable Development Goals.

These are underpinned by continued research excellence across a wide variety of sustainability-related topics, from climate change and energy, to water and sustainable transportation. Over 480 faculty members across campus are researching topics which would advance the achievement of the UN SDGs. This scholarly output is a significant reason why Waterloo was ranked 16th globally in the Times Higher Education Global Impact ranking, and 2nd within Canada.

Seeing considerable research strengths in climate change and clean energy, for example, the following three case studies highlight the breadth of interdisciplinary expertise, from natural sciences to policy and governance to technological innovation.

RESEARCHERS BY SDG THEME

Research

GOING TO THE ENDS OF THE WORLD FOR CLIMATE DATA

Christine Dow, Assistant Professor in Geography and Canada Research Chair in Glacier Hydrology and Ice Dynamics, is leading a research project to collect and model data on how polar ice-ocean systems are responding to a warming climate. With a focus on the West Antarctic Ice Sheet, her team's data efforts are critical for understanding the risk of sea level rise around the world, and raises the urgency for action.

LEARN MORE › *uwaterloo.ca/stories/global-impact/everything-going-change*

RE-THINKING OUR RELATIONSHIP WITH FOSSIL FUELS

With the COVID-19 pandemic exacerbating existing issues in the oil and gas industry, clean energy could be part of Canada's economic recovery as well as tackling climate change. Political science professor Angela Carter studies "keep it in the ground" movements, their influence on legislation, and the political conditions necessary to wind down fossil fuel extraction. Her work uncovers the tensions between environmental and community impacts versus economic imperatives. In 2019, Professor Carter played a key role in the City of Kitchener's decision to declare a climate emergency when she identified the climate crisis impacts in Waterloo Region.

LEARN MORE ABOUT THE POLITICS OF LEAVING FOSSIL FUELS IN THE GROUND ›
uwaterloo.ca/stories/global-impact/politics-leaving-fossil-fuels-ground

MIMICKING NATURE TO SEQUESTER CARBON

Reaching global climate targets will not only require a steep reduction in emissions, but also technologies and strategies to remove carbon from the atmosphere. A researcher at Waterloo Engineering has borrowed from nature to create an "artificial leaf" that turns carbon dioxide into an alternative fuel. Yimin Wu, a professor of mechanical and mechatronics engineering, is now working to improve and commercialize the technology as a tool in the fight against climate change.

LEARN MORE › *uwaterloo.ca/news/news/scientists-create-artificial-leaf-turns-carbon-dioxide-fuel*

LIVING LAB SPOTLIGHT

With a large physical and human footprint, Waterloo can use the campus as a living laboratory to study and test new sustainability ideas, technologies, and strategies. Over the past year, some of these projects have included:

- Multiple interviews with undergraduate student groups to integrate sustainability within course assignments and reports, as well as masters and PhD research projects.
- With support through the Sustainability Action Fund, faculty members and graduate students partnered to install new technology for temporary submetering to better understand energy consumption of several campus buildings.
- A student project team in ARTS 490 – The Future of Nature used the campus as an imagination tool for how to integrate nature into buildings and infrastructure. The team developed mock-ups of campus spaces and facilitated discussion. ***livingcampus.wixsite.com/living-campus***
- When the David Johnston R&T Park started thinking about a new vision and master plan, they turned to the most innovative place they could think of – our own University. The Park engaged 12 student teams across three courses in the School of Planning for an intensive three-month dive into everything from infrastructure to biodiversity, and are looking ahead to bring the best of their ideas to life.

Climate Change and Energy

OPERATIONS

PROGRESS SNAPSHOT

OBJECTIVE 01: By 2019, develop a long-term Climate and Energy Action Plan to achieve carbon neutrality by 2050, with interim milestones for 2025 and 2035; Achieve a 17.5 per cent reduction in GHG emissions by 2025 from a 2015 baseline

2018

2025

STATS AND TRENDS:

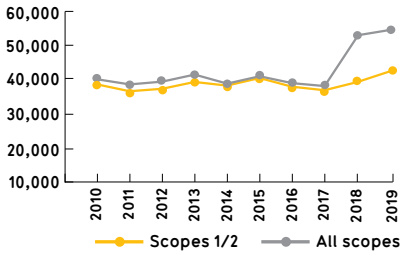
COMPLETE Development of *Shift*:Neutral Climate Action Plan

42,423 Tonnes of GHG emissions (Scope 1 and 2)

+8% Change from 2015

54,207 Tonnes of GHG emissions (all scopes)

TOTAL EMISSIONS (TONNES CO^2-e)



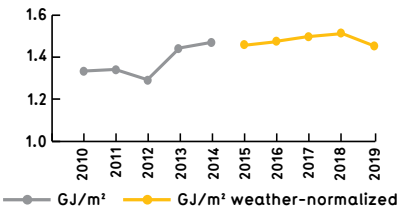
OBJECTIVE 02: Implement cost-effective and practical strategies to reduce or minimize growth in energy use on campus.

STATS AND TRENDS:

1.47 Weather-normalized GJ/m²*

+0.7% Change from 2015

ENERGY INTENSITY (GJ/m²)



*Normalized to Heating Degree Days for 2015 through 2019 due to improved data collection. Prior to 2015, energy is shown in GJ/m2 unadjusted for weather, for comparison purposes, as a similar quality of data was not available.

Climate Change and Energy

Supporting UN SDGs:

Climate change is one of the most pressing sustainability challenges facing the world.

Waterloo's Scope 1 and 2 emissions from campus operations increased in 2019, rising eight per cent from 2015. Several factors contributed to this, including growth of campus buildings. The use of backup fuel oil in the Central Plant during the winter months increased emissions intensity, although this was temporary.

In addition, weather played a significant role, as 2019 experienced a colder than normal winter that required more heating. Since natural gas for heating is Waterloo's largest source of emissions, weather variations can have a large impact on the inventory. Approximately 40 per cent of the increase in natural gas emissions from the 2015 baseline was due to colder weather. To better account for weather, Waterloo adjusted its energy indicators to normalize for weather after 2015. Greenhouse gas emissions are still reported in absolute units.

Another major factor was that electricity generated in Ontario became more carbon-intensive over the past year, reversing recent trends that have helped mitigate the carbon impact of historical campus growth. This change had been anticipated but emphasizes the need for diverse energy sources to achieve carbon neutrality.

Finally, COVID-19 introduces significant uncertainty into energy markets and decarbonisation efforts. Price fluctuations, shifting demand profiles of when and where energy is used, and building energy requirements for increased ventilation present new challenges to be addressed. New opportunities also emerge in shifting building occupancy and rethinking space and physical infrastructure needs, as well as a 'green' lens on economic recovery.

TOTAL EMISSIONS (t CO_2-e)

(SCOPE) SOURCE:
- (1) Natural Gas - 36,562
- (1) Fuel Oil - 1,495
- (3) Business Travel - 264
- (3) Commuting - 10,800
- (3) Water - 11
- (1) Fleet - 497
- (2) Electricity - 3,868
- (3) T&D Loss - 133
- (3) Waste – 575

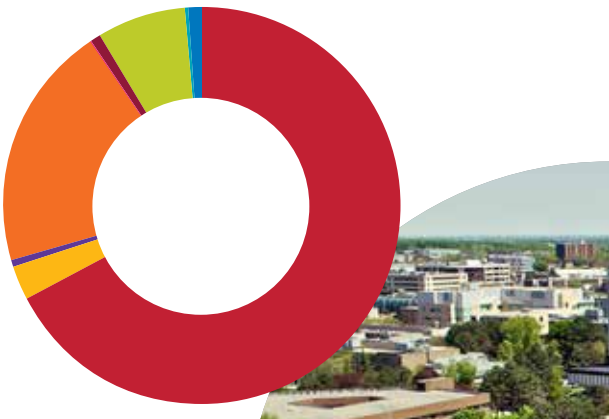


Figure 3: Roadmap to Carbon Neutrality

Shift: NEUTRAL – WATERLOO'S CLIMATE ACTION PLAN

Throughout 2019, Waterloo continued development of its first climate action plan through stakeholder consultations and a series of open house events. ***Shift***:Neutral was approved in early 2020 and creates a long-term roadmap for the campus to reach carbon neutrality by 2050.

The plan outlines important actions to improve energy efficiency, increase low-carbon energy use, reduce indirect emissions from a variety of sources, and offset future emissions. Implementation will be a long-term process requiring involvement from all parts of the campus. To ensure early action, ***Shift***:Neutral also sets targets for a 17.5 per cent reduction by 2025, and 35 per cent reduction by 2030.

READ MORE › *uwaterloo.ca/sustainability/climateplan*

CAMPUS-WIDE ENERGY AUDIT

An early action of ***Shift***:Neutral was to complete a comprehensive audit of all campus buildings to better understand detailed energy consumption and savings opportunities. Waterloo engaged in a competitive bidding process and in early 2020 launched the audit process with design and engineering firm WalterFedy.

The audit includes temporary sub-metering at buildings across campus, and building walkthroughs to generate energy, emissions, and cost savings assessments for efficiency projects. While COVID-19 brought delays, the project intends to continue over the next year.

The project is supported financially by the Provost's Office, Campus Housing, and the Sustainability Action Fund.

DESIGNING FOR A LOW-CARBON FUTURE

Low-carbon building design and construction is critical to Waterloo reaching carbon neutrality. An important component of ***Shift***:Neutral was to develop more stringent guidelines for all new construction on campus to prioritize energy efficiency and low-carbon infrastructure that is ready for future campus needs.

Work began in early 2020 to explore frameworks which could be used to integrate into Waterloo's design guidelines, and will continue over the coming year.

To demonstrate that it is possible, the evolv1 building in the David Johnston Research and Technology Park at Waterloo was recently awarded both LEED Platinum and the Zero Carbon Building – Performance awards by the Canada Green Building Council.

Waste

Supporting UN SDGs:

In 2019, Waterloo continued implementation of its ***Shift***:Zero waste action plan. Rollout of additional standardized bins took place in lobbies across campus, and collection of organics expanded. In early 2020, Custodial Services began supplying department lunch rooms and kitchenettes with centrally-serviced organics collection, in addition to publicly available bins. Meanwhile, diverse efforts across campus have increased programming to reduce and reuse waste.

The result has been a slow but steady increase in Waterloo's diversion rate, and a decrease of waste to landfill by over 164 tonnes from 2018 to 2019, or five per cent. This is a positive indication that efforts are working, but that continued participation by all members of the campus community to reduce, reuse, compost, and recycle waste become increasingly necessary as systems expand.

Once again, it remains to be seen how COVID-19 will impact waste in the future. Although waste generation plummetted as the University closed, there will be increasing pressure for sanitation and health considerations that prioritize single-use and often disposable items rather than reusable options, which can set back many of the programs and efforts implemented at Waterloo over the past several years.

PROGRESS SNAPSHOT

OBJECTIVE 03: By 2025, achieve a 60 per cent diversion rate; by 2035, become a zero-waste campus (90 per cent diversion rate).

STATS AND TRENDS:

33.2% Waste diverted from landfill

3,028 Tonnes of waste sent to landfill

DIVERSION RATE (%)

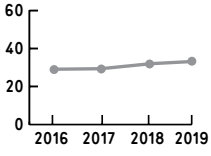


Photo courtesy of Campus Housing

DIVERTING WASTE FROM RESIDENCE MOVE-OUT

Many students leave belongings in residence after they move out, including clothing, household goods, and non-perishable food items. Campus Housing wanted to do their part to tackle this waste and contribute to a more sustainable campus. In spring and fall 2019, they piloted a donation program by setting up collection bins across main campus residences. After move-out, a team of volunteers sorted the donations into clothing, household goods, and electronics. Clothing was sent to WUSA for the termly clothing sale, household goods and working electronics were sent to a community non-profit, and broken electronics were set aside for repair during the repair workshops on campus.

Between their two pilot events, they have diverted more than 3,300 pounds from the landfill! Campus Housing plans to continue this program in future terms.

TO LEARN MORE › *uwaterloo.ca/sustainability/news/campus-housing-diversion-initiative*

BUILDING A CULTURE OF REPAIR

In partnership with Murray Zink, Julie Cook and Sustainable Campus Initiative, the Sustainability Office hosted three repair workshops between July 2019 and February 2020. Looking for a meaningful way to take action on "throwaway culture" and to build community around zero waste practices, Julie, a PhD candidate in the Faculty of Environment, and Murray, a staff member in the Waterloo Professional Development (WatPD) program, contacted the two groups to collaborate.

The repair workshop events invite campus community members to learn how to fix various items of clothing, jewelry, small electronics, and household goods. With the help of expert fixers, more than 60 items have been kept out of the landfill, but more importantly, attendees have walked away with new repair knowledge. A huge thank you to our volunteer fixers for sharing their time and expertise! Stay tuned for future repair events and follow @4repairkw on Instagram for simple at-home repair tips and information on repair workshops in the community!

TO LEARN MORE › *uwaterloo.ca/sustainability/news/repair-workshop-gives-items-second-chance-life*

MATH 3 BIN REMOVAL

Math 3 was the first building to pilot a full removal of individual office waste collection. Custodial Services partnered with the Faculty of Math to install centralized waste stations on all floors and provide small desk-side recycling and small garbage combo bins. Office occupants were encouraged to bring garbage, recycling, and organics to the sorting stations.

The change follows best practice to make recycling and composting equally convenient to disposing garbage, optimizes collection processes for Custodial teams, encourages a bit more physical activity, and increases awareness of the amount of waste generated by having small garbage bins. After all, more than three-quarters of Waterloo's waste can be recycled or composted!

Changes were well-received by participants and will serve as a model that is already being replicated in other areas.

WATER

PROGRESS SNAPSHOT

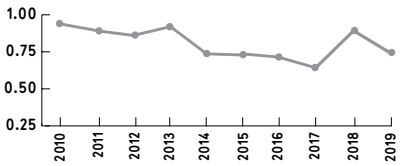
OBJECTIVE 04: By 2025, reduce water intensity by 5 per cent per square metre from a 2015 baseline.

STATS AND TRENDS:

-1.5% Water use per square metre since 2015

0.74 Metres cubed water use per square metre

WATER USE (m^3 per m^2)



OBJECTIVE 05: By 2025, expand the deployment of stormwater management technologies to targeted areas.

STATS:

3 New stormwater management features on campus

14 Stormwater features implemented on campus

Water

Supporting UN SDGs:

The campus' water consumption has fluctuated considerably over the past three years, with a sharp decrease in 2017 followed by a substantial increase in 2018 and another decline in 2019. These changes have been driven by several time-bound factors, such as changes in the use of wells, and to a small degree system leaks. There were also changes made to Waterloo's metering connection to the campus, which created underreported consumption in 2017 which was then added in 2018.

This means that 2019 is a more accurate representation of Waterloo's water intensity, as it factors out many of these changes and is broadly comparable to underlying campus growth. It does, however, mean that Waterloo has not yet reached its 2025 target.

Water is not submetered across the South Campus, meaning that there is limited further information about which systems or areas of the University are using water to enable targeted programming or improvements. Further action will be needed to improve water efficiency through infrastructure and behaviour change.

TRANSPORTATION

PROGRESS SNAPSHOT

OBJECTIVE 06: By 2025, increase to 90 per cent the proportion of sustainable commuting trips from a 2016 baseline of 85 per cent.

STATS (AS OF 2018):

86% Combined student and employee trips to campus using a sustainable mode

91% Student trips to campus by walking, cycling, carpooling, transit, or online learning

43% Employee commuting trips by walking, cycling, carpooling, transit, or telework

OBJECTIVE 07: By 2020, increase electric and alternative-fuel vehicle use on campus.

1% Of vehicles used to commute to campus are electric or plug-in hybrid electric

3 Publically available EV charging stations

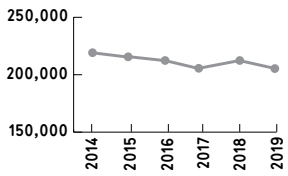
OBJECTIVE 08: By 2025, reduce fossil fuel consumption across the campus fleet by 25 per cent from a 2015 baseline.

STATS AND TRENDS:

-4.2% Decrease in fleet fuel consumption since 2015

207,269 Litres fuel consumption

FLEET FUEL USE (LITRES)



Transportation

Supporting UN SDGs:

Waterloo continues to expand sustainable commuting options for students and employees. Of major note during 2019 was the launch of the ION light rail transit service, with direct stops at South Campus, North Campus, and next to the School of Pharmacy. In addition, construction began recently on the transit hub between Ring Road and Phillip Street, which will link many nearby Grand River Transit routes, ION, and inter-city transit connections to the campus.

Electric vehicle charging stations on campus continue to experience high demand, for which the University is exploring options to expand station access.

Fleet fuel consumption decreased slightly compared to 2018, but further effort will be needed to reach the 25 per cent reduction target. Positive steps include a new hybrid electric vehicle for Custodial Services, and continued expansion of hybrids in 2020.

BIKE FIX-IT STATIONS AT RESIDENCES

Campus Housing installed five new "fix-it" stations for students to do minor tune-ups and adjustments to bicycles. Located outside CLV, V1, Minota Hagey, and UWP, the stations include common tools, a tire pump, and a stand that can help keep your ride to campus in top shape!

FIND THESE AND MORE STATIONS AT: › *uwaterloo.ca/map/?basemap=D&layer=bikerepair*

WORKING FROM HOME

Waterloo's commuting patterns have transformed dramatically with the response to COVID-19. As of June, almost all employees have pivoted to working from home, a transition which would have been almost unthinkable prior to the crisis. While the immediate response is hopefully a temporary change, it also creates opportunities to expand work-from-home arrangements on campus into the future. This could have significant potential for greenhouse gas reductions from commuting for employees and students, which represents more than 10,000 tonnes of emissions each year under normal circumstances, or nearly 20 per cent of Waterloo's measured carbon footprint.

GROUNDS

Grounds

Supporting UN SDGs:

Waterloo operates over 1,000 acres of campus grounds, with multiple uses for recreation, travel, sports, teaching, and research. These are currently managed in alignment with integrated pest management (IPM) principles that eliminate use of pesticides except where necessary, and the University has followed a native species guide for trees for over 20 years to ensure locally appropriate and non-invasive species are prioritized.

PROGRESS SNAPSHOT

OBJECTIVE 09: By 2025, all University grounds will be maintained according to sustainable landscaping standards, and plans developed for remediation and preservation of specific natural areas of concern.

STATS:

-- Percent compliance with sustainable landscaping standard forthcoming

100% Grounds managed to integrated pest management principles

Further action can be taken to advance a formal landscape management standard, in collaboration with a biodiversity assessment. In addition to integrated pest management principles that eliminate use of chemical pesticides except where necessary, the landscaping standard would also include practices which:

- Ensure plant and soil stewardship that ensures ecologically appropriate species and naturally protects nutrients
- Enhance hydrology and water use that promotes infiltration and limits watering while protecting river systems
- Manage materials through composting and mulching to minimize waste
- Improve energy efficiency through shade, windbreaks, and minimizing heat island
- Use ecologically preferable landscaping materials
- Manage snow and ice removal while minimizing environmental impacts

Many of these practices are already in place, in some cases for decades, but have not been standardized and published. These are projects strongly suited to academic partnerships through the Living Laboratory.

RESTORING NATURAL AREAS ON CAMPUS

The Ecology Lab staff continued to lead the way in expanding naturalized areas on our campus. These areas serve as a food source and habitat for native pollinators and wildlife, as well as outdoor classrooms where students learn the benefits of naturalized gardens. Students contribute to restoration on campus through planting native, drought tolerant wildflowers, which increase campus biodiversity. Take a virtual tour of the gardens – or better yet – walk around the Environment buildings to see the bounty of flowers and insects in the gardens. At the North Campus Environment Reserve, students contribute to the Campus Master Plan by planting over 200 native trees and shrubs annually.

TO LEARN MORE › ***uwaterloo.ca/ecology-lab/naturalized-gardens***

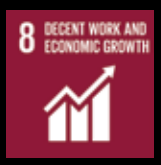
CLEANING UP THE CAMPUS

In April 2019, more than 50 employees and students joined the Sustainability Office for their annual campus clean-up. Together, they collected more than 20 bags of garbage from the Laurel Creek corridor, campus woodlots, and other green spaces on campus. Materials were generously provided by the City of Waterloo as part of their 20 Minute Makeover initiative to support Earth Day.

FOOD

Food

Supporting UN SDGs:



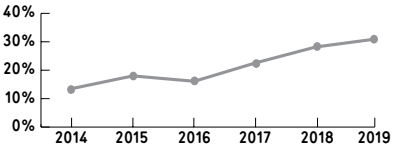
PROGRESS SNAPSHOT

OBJECTIVE 010: By 2025, 40 per cent of all Food Services food and beverage purchases are produced on-site, locally, or are third-party certified for sustainability.

STATS AND TRENDS:

30.9% Of all food and beverage purchases are local, produced on-site, or third-party certified for sustainability

% OF PURCHASES MEETING OBJECTIVE



OBJECTIVE 011: By 2018, achieve and maintain a Fair Trade Campus designation.

STATS AND TRENDS:

COMPLETE Fair Trade Campus Designation received May 2019

OBJECTIVE 012: By 2020, deliver multifaceted programming to grow student and employee awareness about healthy and sustainable food choices.

STATS:

14 Projects or initiatives to increase food health and sustainability awareness

Waterloo continues to take important steps on food system sustainability on campus. In early 2019, Waterloo received the Fair Trade Campus designation for the efforts of Food Services, WUSA, the GSA, and student coffee shops to integrate Fairtrade certified products, a major milestone for the University.

In addition, Food Services has continued to procure more local and sustainably-certified food for the campus. 30.9 per cent of all purchases are now either purchased from the local Ontario economy, MSC certified for sustainable wild-caught seafood, or Fairtrade certified, an increase from 28.9 per cent in 2018.

Students and employees can look for these certifications as well as vegan or vegetarian options on campus menus to reduce the environmental impact of their food choices.

FAIR TRADE LAUNCH EVENT

Waterloo launched its Fair Trade Campus designation in collaboration with Food Services' Toonie Sale and Farm Market in September 2019. A panel discussion during the event featured representatives from the Canadian Fair Trade Network, Baden Coffee, Sustainable Campus Initiative, and Ten Thousand Villages, discussing the fair trade framework and the impact it has on communities, farmers, and the environment around the world.

Vendors also showcased Fairtrade certified products available on campus, while Food Services sold fresh local produce and baked goods.

SUSTAINABLE COOKING SKILL-BUILDING SHOW

Thinking about a sustainable diet may seem daunting, especially if it is a new consideration. That's why Food Services has hosted several sustainability-themed outreach and education sessions that help build knowledge and cooking skills for students. In 2019, these included a cooking show themed around zero waste to share ideas for delicious meals which use all parts of food items, as well as a plant-based cook-off between chefs that let student participants taste delicious vegan and vegetarian options. The zero-waste cooking show was Food Services' best attended cooking show to date!

UW FOOD SYSTEMS COLLABORATIVE

Of course, sustainable food is complex and includes many factors. That's why a team of faculty, students, and staff began meeting over the past year to discuss the intersectional layers of environment, health, equity, affordability, and more when it comes to campus food systems.

Although newly formed, the group is exploring mapping exercises, opportunities to engage classes in Living Lab opportunities, measurement frameworks, and ultimately opportunities for continuous improvement.

Procurement

Supporting UN SDGs:

PROGRESS SNAPSHOT

OBJECTIVE 013: By 2020, evaluate life cycle cost and require sustainability disclosure from suppliers for all purchasing decisions over $100,000

STATS:

IN PROGRESS Development of guidelines is underway

3 Major suppliers participated in pilot sustainability disclosure process

OBJECTIVE 014: By 2018, establish baseline data and targets to improve the percent of campus-wide purchases that meet third-party standards for paper, electronic equipment, and cleaning supplies.

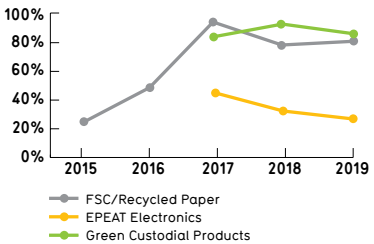
STATS AND TRENDS:

80.6% Of all paper purchases have FSC certification and/or recycled content

24.4% Of all major electronics purchased are certified to EPEAT Bronze or higher

84.5% Of all janitorial cleaning and paper products have an environmental certification

SUSTAINABLE PURCHASING



Procurement is essential for supporting all aspects of campus sustainability, from targeted criteria to processes and guidelines.

While the portion of green-certified Custodial products decreased slightly in 2019, the 2018 numbers were higher than usual due to significant process changes, and 2019 continues to improve on the 2017 baseline. There was a slight increase in recycled or FSC certified paper in 2019, and a continued decline in EPEAT certified electronic equipment.

Waterloo has established a 92 per cent target for certified cleaning supplies, but has not yet set targets for paper or electronic equipment.

CHANGING GLASS CLEANING CHEMICALS TO VINEGAR

Many cleaning chemicals can be certified to UL Ecologo, GreenGuard, or other credible standards, which demonstrate reduced environmental impact from manufacturing and use. Custodial Services went one step further and over the past year has replaced many glass-cleaning chemicals with natural vinegar. This change continued to deliver effective cleaning without any harmful residues, while also limiting exposure to chemicals for cleaning staff.

LIFE CYCLE COSTING PROCESS UPDATE

In 2019, Waterloo continued to develop a framework around life cycle costing. The framework aims to ensure that the long-term utility and operating costs of infrastructure and equipment are factored into the purchasing decision, and therefore places greater priority on efficiency. Conversations on the framework have continued throughout 2020, with an aim to target energy-consuming purchases and acquisitions as a first phase of implementation.

CHECKLIST AND DISCLOSURE PROGRESS

Sustainable procurement builds momentum not just for green products that impact the campus directly, but also for business models that embed sustainability. Waterloo has developed and piloted a new disclosure checklist which will be distributed to shortlisted suppliers bidding on contracts over $100,000. The checklist asks vendors for information about their corporate sustainability commitments, policies, and practices, such as action they are taking on climate change, transparent reporting, and corporate certification. This ensures Waterloo can mitigate long term risks and proactively foster strong corporate citizenship across its supply chain.

ENGAGEMENT

Communications

Supporting UN SDGs:

Communication efforts are foundational for building sustainable norms on campus. The Sustainability Office continued to expand communications about sustainability opportunities through social media, the Daily Bulletin, student e-newsletters, and the Beyond the Bulletin podcast.

The Sustainability Office also hosted four campus-wide engagement campaigns in 2019, including Earth Month, Bike Month, Zero Waste Week, and Eco-Summit, bringing together hundreds of campus community members through in-person events and digital campaigns and challenges.

BUILDING HOPE AT ECO SUMMIT

The Sustainability Office hosted its sixth-annual Eco Summit in November 2019 to bring together the campus community for a celebration on sustainability progress. The event featured case study presentations, a panel discussion, and Green Office awards, as well as networking opportunities over breakfast and lunch. The event welcomed more than 150 students, staff, faculty, and community members in Federation Hall for the largest Eco-Summit event to date.

TO LEARN MORE › *uwaterloo.ca/sustainability/news/eco-summit-builds-hope-future*

PROGRESS SNAPSHOT

OBJECTIVE E1: By 2020, Waterloo broadly distributes timely and audience-relevant information about sustainability initiatives and opportunities within the campus community.

STATS

22,000	Visitors on the sustainability website
3,836	Sustainability report views and downloads
12,566	Engagements on social media channels
3,085	Total followers on social media channels
4	Campus-wide engagement campaigns

Students

Throughout 2019 and 2020, Waterloo continued to develop and expand opportunities for students to get involved with campus sustainability efforts. These included the formal launch of the Green Residence Ambassador program, collaborating on student-led conferences and events, and providing training and support to student orientation leaders. Students also launched new initiatives and events to accelerate sustainability awareness and action among their peers. Due to COVID-19, student engagement efforts and programming have shifted to virtual formats, and it remains to be seen what the activity mix will look like in the coming year.

PROGRESS SNAPSHOT

OBJECTIVE E2: By 2020, additional programming is developed for incoming students during orientation and in residences to encourage sustainable living on campus.

STATS:

~15% Percent of first year students reached by sustainability programs

OBJECTIVE E3: By 2018, establish a sustainability leaders program in partnership with students from residences, clubs and societies, student government, and for students in off-campus housings.

STATS:

26 Student groups and clubs involved in the Sustainability Network/Impact Alliance

PLANTING THE SEEDS OF SUSTAINABILITY IN ENGINEERING

The second annual Canadian Federation of Engineering Students' Conference on Sustainability in Engineering (CFES-CSE) was hosted at the University of Waterloo in February 2020. Organized entirely by students, the conference attracted engineers from coast to coast to participate in a weekend of learning, sustainability, and personal growth. The conference held over 20 sessions with topics ranging from the sustainability of timber construction to the sustainable growth of cites, including presentations from many Waterloo staff and faculty members. The weekend also included a case study focused on solving the worldwide drinking water problem in a sustainable and economic manner. Student organizers and attendees alike gained valuable experience and insight.

TO LEARN MORE › *cse.cfes.ca/home.html*

TACKLING PLASTIC POLLUTION AT HACK THE PLASTICS

In February 2020, the Waterloo Centre for Microbial Research (WCMR) hosted a Hack the Plastics event, welcoming students from post-secondary institutions across Ontario. Students tasked with developing a solution to single-use plastics using microbes, creating a business plan, and pitching their idea to a panel of judges.

TO LEARN MORE › *uwaterloo.ca/waterloo-centre-microbial-research/news/hack-plastics-2020*

STUDENT AMBASSADORS BRING SOME GREEN TO RESIDENCES

Following the success of the winter 2019 pilot, the Sustainability Office formally launched the Green Residence Ambassador program in fall 2019, in partnership with Campus Housing. Nearly 20 ambassadors were recruited from main campus residences to educate their peers on sustainability on campus, with a focus on waste reduction opportunities. Between September 2019 and February 2020, ambassadors ran biweekly booths with a range of activities, including trivia, DIY utensil holders, and zero-waste hot chocolate. Ambassadors engaged more than 600 students and their work contributed to impressive improvements in residence cafeterias: a 19 per cent increase in reusable mug refills, a 14 per cent increase in eco-container purchases, and a 10 per cent increase in eco-container refills compared to the previous year.

TO LEARN MORE › *uwaterloo.ca/sustainability/get-involved/green-residence*

Employees

Waterloo continued to strengthen training, learning, and engagement efforts for employees throughout 2019 and 2020. This included the expansion of the Green Office ambassador network and resource toolkit. The Sustainability Office also continued to deliver training and learning opportunities through the Sustainability Certificate, as well as Lunch & Learn presentations from community partners, and specialized presentations to departments across campus. Most employee engagement efforts have also shifted to virtual formats and will look different moving forward as we balance a mix of on- and off-campus working arrangements.

BUILDING KNOWLEDGE THROUGH THE SUSTAINABILITY CERTIFICATE

The Sustainability Office continued to offer its Sustainability Certificate to University employees, covering global and local sustainability issues, Waterloo's progress and strategic directions, and resources to integrate sustainability at work and home.

As of June 2020, nearly 190 employees had completed the certificate, and 160 more employees were in progress.

In spring 2020, the Sustainability Office also launched a Sustainability Certificate course offering on LEARN to support independent learning. The content is the same as the in-person group offerings, but learners are asked to complete in-course quizzes and reflections in place of group discussions and activities.

TO LEARN MORE › *uwaterloo.ca/sustainability/certificate*

PROGRESS SNAPSHOT

OBJECTIVE E4: By 2025, increase from 5 per cent to 25 per cent the proportion of university departments that are Green Office certified.

STATS

15% University departments achieving at least Green Office Bronze

~5% Participation in Sustainability Certificate

GREEN OFFICE SNAPSHOT

Waterloo's Green Office program supports individual departments on their journey to embed sustainability into office culture. Championed by a dedicated ambassador or green team, departments have access to information, resources, programming, and events. Over time, departments work through a common scorecard to monitor progress and take on new actions that advance sustainability.

Ambassadors continued to find creative ways to engage colleagues in sustainability, such as setting up a swap shop and raising funds to plant a tree on campus.

As of June 2020, there were 58 departments participating in the program, with more than 80 ambassadors and representing more than 2,300 employees on campus. Departments receiving Green Office certificates, and participating departments include:

GREEN OFFICE PLATINUM CERTIFIED

Green Office Platinum (1)

- Centre for Teaching Excellence

GREEN OFFICE GOLD CERTIFIED

Green Office Gold (2)

- WatPD/WatCACE
- Centre for Extended Learning

GREEN OFFICE SILVER CERTIFIED

Green Office Silver (12)

- AccessAbility Services
- Dean of Applied Health Sciences
- Dean of Engineering
- Dean of Environment
- English Language Institute (Renison ELI)
- Knowledge Integration
- Library
- Office of the President
- Plant Operations, Design Services
- Print + Retail Solutions
- St. Jerome's University
- Waterloo International

GREEN OFFICE BRONZE CERTIFIED

Green Office Bronze (12)

- Centre for Career Action
- Economics
- Faculty Association
- Food Services
- Institutional Analysis & Planning
- Office of Research
- Recreation and Leisure Studies
- Registrar's Office
- Social Development Studies
- Social Work (School of)
- Student Success Office
- Water Institute

Participating Departments (31)

- Accounting and Finance (School of)
- Architecture (School of)
- Campus Housing
- Campus Wellness
- Civil and Environmental Engineering
- Computer Science (David R. Cheriton School of)
- Cooperative and Experiential Education
- Dean of Arts/Arts Undergrad
- Dean of Science
- Electrical and Computer Engineering
- Engineering Society
- Environment, Enterprise and Development (School of)
- Finance
- Graduate Student Association
- Graduate Studies and Postdoctoral Affairs
- Human Resources
- Information Systems & Technology
- Institute for Quantum Computing
- Math Faculty Computing Facility
- Office of Advancement
- Office of the Provost
- Pharmacy (School of)
- Political Science
- Psychology
- Public Health and Health Systems (School of)
- Safety Office
- Stratford School of Interaction Design and Business
- Waterloo Institute for Nanotechnology
- Waterloo Institute for Sustainable Energy
- Waterloo Undergraduate Student Association
- Writing and Communication Centre

GREEN OFFICE

SEE ALL GREEN OFFICES ›

uwaterloo.ca/sustainability/go

Community

As a large institution and employer, Waterloo also plays an important role to leverage sustainability action across the local community and beyond. The University maintains many active partnerships with community groups, ranging from youth education on sustainability to community planning for a sustainable future.

PROGRESS SNAPSHOT

OBJECTIVE E4: By 2020, Waterloo is recognized as a sustainability leader in Waterloo Region.

STATS

3 Local sustainability awards since 2016

14 Local non-academic community partnerships, memberships, board roles, or advisory involvement related to sustainability

CLIMATE CHANGE RESEARCH TALKS FOR THE COMMUNITY

In early 2020, the Interdisciplinary Centre on Climate Change (IC3) and Water Institute partnered with THEMUSEUM to host Ideas to Shape the Future, an evening of discussion on climate change. Experts from Waterloo shared perspectives from across academic disciplines on tackling climate change at the individual, local, and global levels. Over 160 community members attended the event.

ENGAGING THE COMMUNITY ON CLIMATE THROUGH GAMES

For several years, Waterloo has partnered with Waterloo Global Science Initiative (WGSI), ClimateActionWR, and local school boards to facilitate a simulation exercise on the local transition to a low-carbon economy. In 2019, WGSI partnered with Waterloo's Games Institute to redesign the exercise into a board game, retaining some of the basic "real world" concepts while expanding playability. The project will be completed in 2020 and will expand beyond the thousands of community members who have already engaged in the simulation exercise.

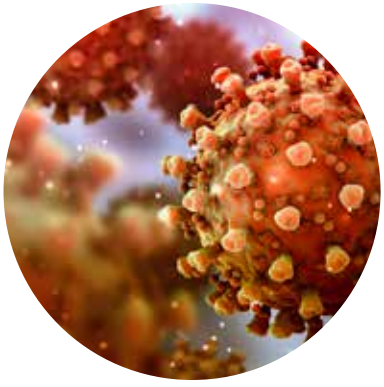
TO LEARN MORE › ***uwaterloo.ca/sustainability/about/partnerships/energize-sustainable-city-challenge***

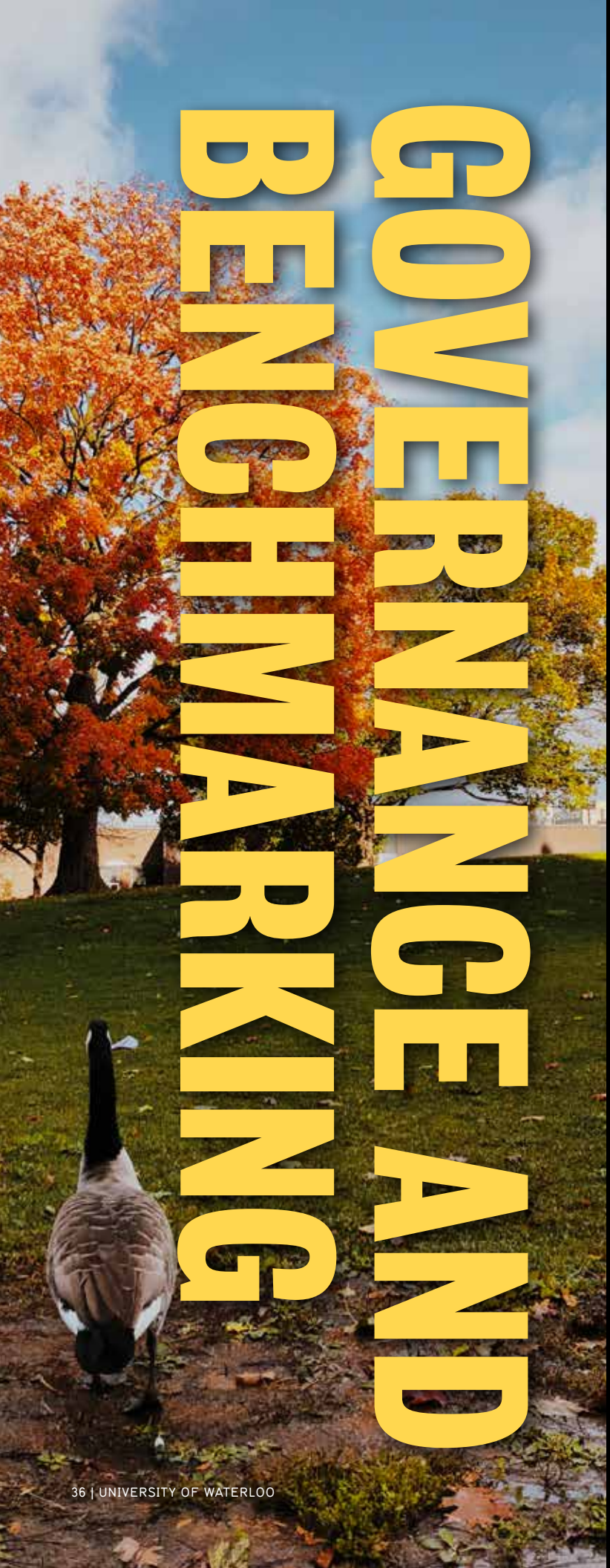
A COMMUNITY EFFORT ON COVID-19 AND BEYOND

As noted throughout this report, COVID-19 has transformed and put significant pressure on all aspects of Waterloo's community, on and off campus, which will be both acute and long-lasting.

In the early days of the crisis, Waterloo responded by mobilizing on-campus resources that could support community efforts. This included donating medical supplies and protective equipment from the University, using 3D printers to create face shields, donating surplus food to local community groups as employees and students left campus, facilitating informed dialogue on COVID-19, and of course focusing health and medical expertise to address COVID-19 directly.

Partnerships at the community level and beyond will be critical to continue responding to public health issues as well as environmental sustainability impacts.





GOVERNANCE AND BENCHMARKING

PROGRESS SNAPSHOT

OBJECTIVE G1: By 2025, achieve and maintain a STARS Gold designation through the Association for the Advancement of Sustainability in Higher Education.

STATS

SILVER STARS Silver Designation earned in November 2018

FORMAL POLICIES, MEMBERSHIPS, PRACTICES, AND COMMITMENTS

Internal:

- Policy 53: Environmental Sustainability (2017)
- Environmental Sustainability Strategy (2017)
- Waste and recycling standard (2017)
- High efficiency lighting retrofits mandated during construction and renovation
- Eliminated use of chemical pesticides (1998)
- Centralized office printers defaulted to double-sided printing
- Campus Master Plan includes sustainability aspects as defining features of campus development (2009)

External:

- Member and host institution in collaboration with WGSI for Sustainable Development Solutions Network Canada (2018)
- Member of University Global Coalition (new 2020)
- Signatory to Council of Ontario Universities Pledge, Ontario Universities, Committed to a Greener World (2009)
- Signatory to 2017 Council of Ontario Universities commitment to design a roadmap to a low-carbon campus (2017)
- Member of the Regional Sustainability Initiative, managed by Sustainable Waterloo Region, and Bronze Pledging Partner for Waste (2017)
- Member of TravelWise, managed by the Region of Waterloo and Sustainable Waterloo Region (2012)
- Member of the Association for the Advancement of Sustainability in Higher Education (2015)

ACKNOWLEDGEMENTS

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