Environmental Sustainability Report

UNIVERSITY OF WATERLOO

2024

RELEASED OCTOBER 2024

UNIVERSITY OF WATERLOO

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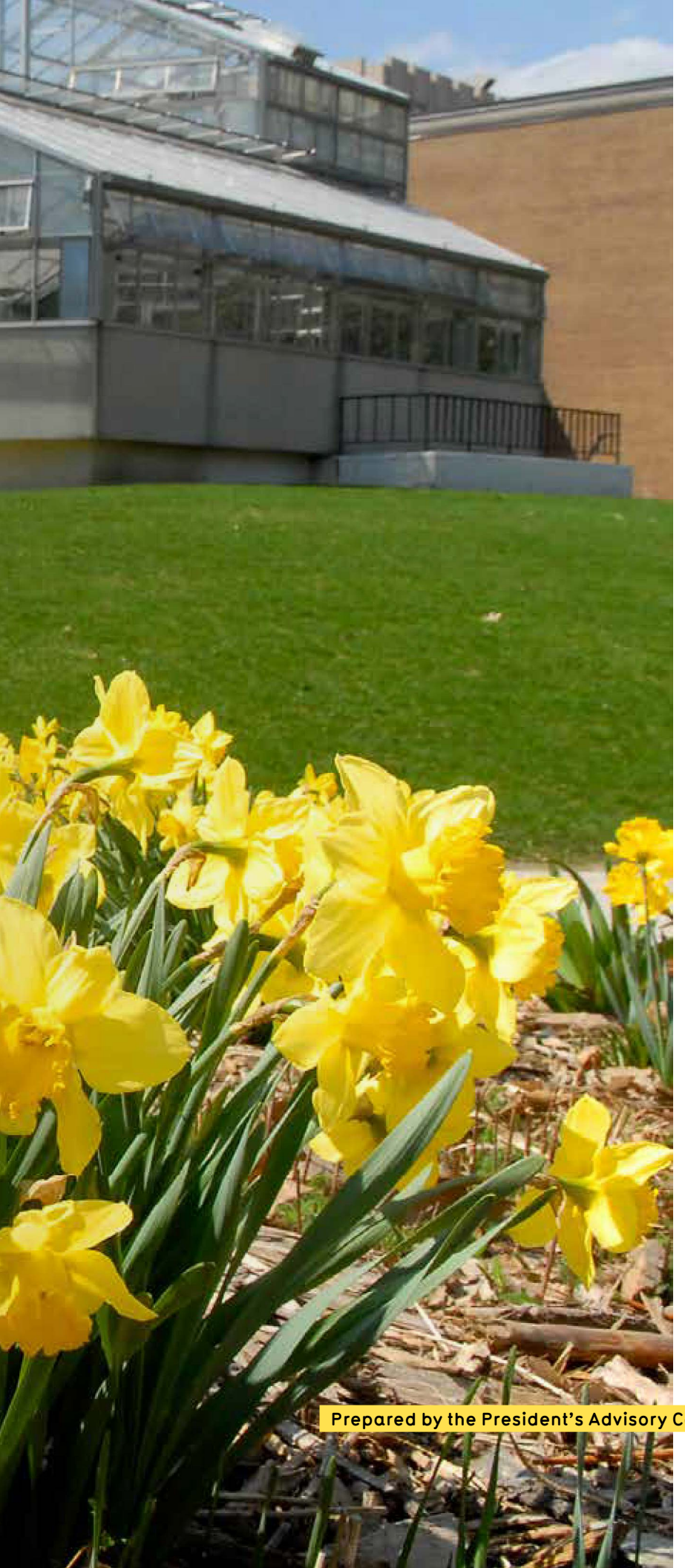

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Prepared by the President's Advisory Committee on Environmental Sustainability

INTRODUCTION

About the Report

TERRITORIAL ACKNOWLEDGMENT:

The University of Waterloo acknowledges that much of our work takes place on the traditional territory of the Neutral, Anishinaabeg, and Haudenosaunee peoples. Our main campus is situated on the Haldimand Tract, the land granted to the Six Nations that includes six miles on each side of the Grand River. Our active work toward reconciliation takes place across our campuses through research, learning, teaching, and community building, and is co-ordinated within the Office of Indigenous Relations.

Overview: This report highlights examples of action towards each of the 27 objectives that were established in 2017 through 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 2023, up to and including June 2024.

For each objective, a summary of progress and details on specific indicators are provided.

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

Definitions: Sustainability refers to maintaining the integrated health of the environment, society, and economy for today and into the future. While this report focuses primarily on environmental indicators, it recognizes that there are mutually reinforcing connections with financial and social sustainability. For brevity, the term "sustainability" refers to environmental sustainability throughout this report.

Framework: To provide a consistent benchmark for reporting progress, the University of Waterloo aligns action areas and indicators within this report and within its Environmental Sustainability Strategy to those of the Sustainability Tracking, Assessment, and Rating System (STARS) developed by the Association for the Advancement of Sustainability in Higher Education (AASHE).*

Sustainable Development Goals: Within the report, the University of Waterloo also maps its actions towards advancement of the global United Nations Sustainable Development Goals (UN SDGs). Additional detail on pan-University efforts related to the SDGs can be found at ***uwaterloo.ca/sustainable-development-goals***.

Reporting Boundary: This report covers all University of Waterloo campuses, unless otherwise noted. The report data and indicators do not include information from Affiliated and Federated Institutions of Waterloo (AFIWs), although information from the AFIWs is included as separate disclosures in the interactive data tables.

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

*For full details on STARS, see Association for the Advancement of Sustainability in Higher Education. stars.aashe.org

INTRODUCTION

Message From the President

The University of Waterloo continues to be a leader in sustainability research and education because of the commitment of our community. Students, faculty, staff and the wider community have voiced strong support for climate action and sustainable solutions. This commitment reaches across our research, teaching, service and campus activities.

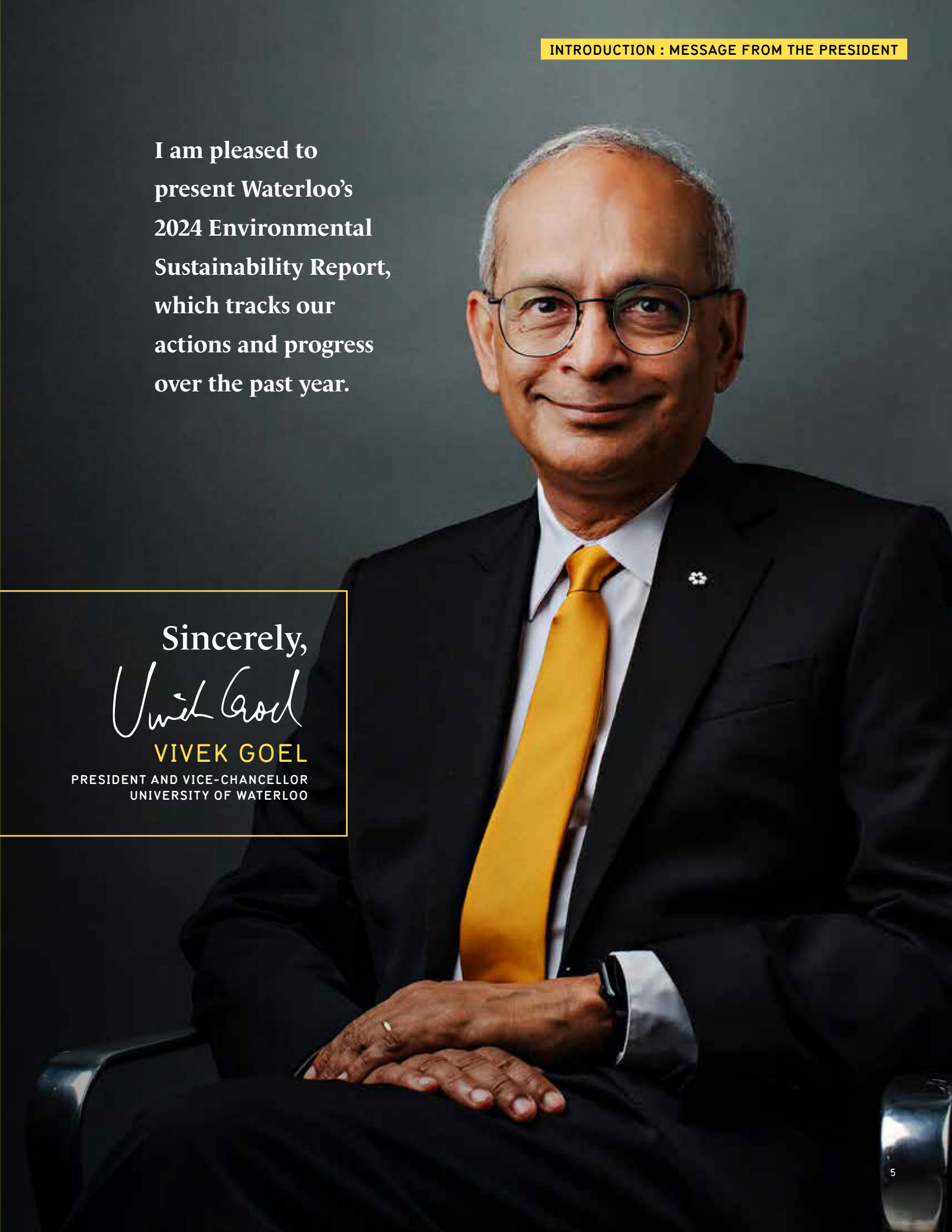
The sustainability of our planet features prominently in our collective vision for Waterloo at 100. Based on the input from thousands within our community, we identified ourselves as a community of curious, collaborative, innovative and entrepreneurial problem-solvers and leaders, who seek to understand and identify equitable and sustainable solutions for the future of humanity and our planet.

A sustainable future is also one of the five Global Futures we identified to help us focus and coordinate our work across disciplines–alongside societal, health, technological and economic futures. We understand that the sustainability of our quality of life, and that of generations to come, is intricately connected to our social, economic and environmental well-being. We continue to build on our interdisciplinary strengths to help direct society towards the sustainable future we envision.

While we have bold ambitions for the impact we want to make on the world, we also recognize that change starts at home. Sustainability continues to play an integral role in our decision-making and daily operations. As you will discover in this report, we are making progress in many key areas such as curriculum integration, naturalization, development and planning. We are scaling our investments in energy efficiency and decarbonization projects and launching new initiatives to encourage action from across our institution.

We also continue to be open to new ideas and approaches that, when implemented, will meet and exceed our sustainability goals. Waterloo's new values of thinking differently, acting with purpose and working together will be critical to helping us meet our institution's sustainability priorities.

Thank you to everyone in our community for your efforts, participation and support of this important work.



I am pleased to present Waterloo's 2024 Environmental Sustainability Report, which tracks our actions and progress over the past year.

Sincerely,

VIVEK GOEL

PRESIDENT AND VICE-CHANCELLOR
UNIVERSITY OF WATERLOO

PROGRESS

Summary of Progress

At a Glance

>800
courses with likely connections to the UN SDGs

20/27
Sustainability strategy objectives complete or mostly complete

>360
faculty members conducting research related to the UN SDGs

8.8%
decrease in greenhouse gas emissions from 2015 base year (Scope 1 & 2)

5% decrease in water intensity since 2015

3.9%
decrease in energy intensity since 2015

FAIR TRADE
Campus designation since 2019

88%
of commuting trips to campus made using a sustainable mode of travel

45
student ambassadors and student leaders engaged in sustainability training

>1/5
of all University departments certified to at least Green Office Bronze

68th
Globally in the QS Sustainability Ranking (2024)

stars a program of aashe **SILVER** through AASHE (2021)


ALUMNI LANE

KEY SHIFTS

› **Clearer climate impacts** – Over the past year, Canadians have been exposed to record-setting wildfires and extreme heat that continue to raise the importance of effective action for many of Waterloo's partners and rightsholders.

› **Global forces and constraints** – At the same time that urgency of sustainability is increasing, Waterloo also faces numerous other pressures, including significant financial constraints and compounding social and economic pressures.

› **Campus development** – After a slowdown in growth of building space for several years, Waterloo is now undertaking several major construction projects that will be utilizing the net neutral design standard.

› **Campus planning** – Recognizing many changes to the operational and academic context of the physical campus, Waterloo is undertaking development of a new Campus Plan that will reinforce goals and objectives of the Environmental Sustainability Strategy and Shift:Neutral climate action plan.

KEY SUCCESSES

› **Curriculum integration** – Phase 1 of the Integrating Sustainability in the Curriculum project concluded with the launch of a pilot toolkit and ongoing work to support program development and student engagement.

› **Naturalization and engagement** – Hundreds of people engaged with campus activities to restore natural areas, remove invasive species, plant trees, collect waste, and join other campus events to support a sustainable campus.

› **Energy roadmap and projects** – Significant progress was made to map out more detailed technical planning to meet Waterloo's short, medium, and long-term climate and energy planning goals, which will be integrated into the 2025 updates to Shift:Neutral.

› **Revolving Fund** – Waterloo officially launched a $1 million revolving fund to provide support for projects that reduce energy and emissions while generating competitive financial returns.

KEY CHALLENGES

› **Institutional capacity** – Increased financial constraints will require creativity, innovation, and partnerships to work toward campus sustainability goals.

› **Public policy** – Policy uncertainty, particularly through rising electricity sector emissions, are making campus efforts more difficult and less effective and will necessitate stronger scenario planning for current and future actions.

› **Change complexity** – Sustainability efforts will need to be carefully woven through multiple layers of campus planning, including integrated budgeting, the Campus Plan, and individual unit and department plans.

KEY PRIORITIES

› **Curriculum integration** – Waterloo will continue with phase 2 of implementing the Integrating Sustainability Across the Curriculum project.

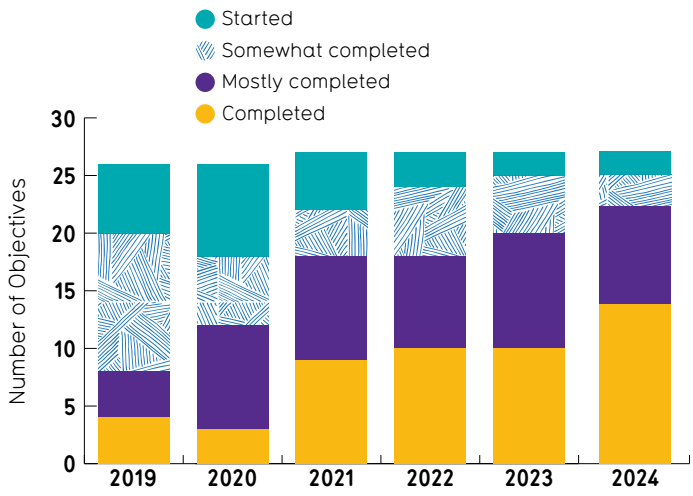
› **Sustainable transportation** – Waterloo is developing a Sustainable Transportation Plan, which will engage many members of the campus community.

› **Planning updates** – Waterloo will begin updates to the Environmental Sustainability Strategy and Shift:Neutral climate action plan, as they reach their 2025 end-dates.

PROGRESS TOWARD OBJECTIVES

The figures below summarize the number of Environmental Sustainability Strategy objectives by various stages of completion, including those with tentative/temporary fluctuations, as of June 2024.

Figure 1: Overall Objective Status over Time



INTRODUCTION: SUMMARY OF PROGRESS

A - ACADEMICS

O - OPERATIONS

E - ENGAGEMENT

G - GOVERNANCE

SUSTAINABILITY OBJECTIVE	STATUS
TEACHING & LEARNING	
A1: By 2019, ensure undergraduate students from any program of study will have the opportunity to learn about sustainability in their courses.	Complete
A2: By 2025, identify and implement flexible strategies for five programs of study to more deeply integrate sustainability within the curriculum.	Mostly complete
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.	Started
RESEARCH	
A4: By 2020, celebrate sustainability research as a core thematic strength of Waterloo's reputation and identity.	Complete
A5: By 2025, become a world leader for research excellence in five sustainability related themes.	Somewhat complete
A6: By 2025, establish Waterloo as a "go-to" hub for knowledge and expertise on sustainability challenges.	Mostly complete
A7: By 2018, implement three new sustainability-related projects annually on campus using faculty and student expertise; by 2025, implement at least eight new projects annually.	Complete ('18) Complete ('25)
CLIMATE CHANGE AND ENERGY	
O1: 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.	Complete ('19) Somewhat complete ('25)
O2: Implement cost-effective and practical strategies to reduce or minimize growth in energy use on campus.	Mostly complete

SUSTAINABILITY OBJECTIVE	STATUS
WASTE	
O3: By 2025, achieve a 60 per cent diversion rate; by 2035, become a zero-waste (90 per cent diversion rate) campus.	Started
WATER	
O4: By 2025, reduce water intensity by five per cent per square metre from a 2015 baseline.	Complete
O5: By 2025, expand the deployment of stormwater management technologies to targeted areas.	Mostly complete
TRANSPORTATION	
O6: By 2025, increase to 90 per cent the proportion of sustainable commuting trips from a 2016 baseline of 85 per cent.	Complete
O7: By 2020, increase electric and alternative-fuel vehicle use on campus.	Complete
O8: By 2025, reduce fossil fuel consumption across the campus fleet by 25 per cent from a 2015 baseline.	Mostly complete
GROUNDS	
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.	Mostly complete
FOOD SYSTEMS	
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.	Mostly complete
O11: By 2018, achieve and maintain a Fair Trade Campus designation.	Complete
O12: By 2020, deliver multifaceted programming to grow student and employee awareness about healthy and sustainable food choices.	Complete

SUSTAINABILITY OBJECTIVE	STATUS
PROCUREMENT	
O13: By 2020, evaluate life cycle cost and require sustainability disclosure from suppliers for all purchasing decisions over $100,000.	Complete
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.	Complete
COMMUNICATIONS	
E1: By 2020, Waterloo broadly distributes timely and audience-relevant information about sustainability initiatives and opportunities within the campus community.	Complete
STUDENT ENGAGEMENT	
E2: By 2020, additional programming is developed for incoming students during orientation and in residences to encourage sustainable living on campus.	Complete
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.	Complete
EMPLOYEE ENGAGEMENT	
E4: By 2025, increase from five per cent to 25 per cent the proportion of university departments that are Green Office certified.	Mostly complete
COMMUNITY ENGAGEMENT	
E5: By 2020, Waterloo is recognized as a sustainability leader in Waterloo Region.	Complete
GOVERNANCE AND BENCH-MARKING	
G1: By 2025, achieve and maintain a STARS Gold designation through the Association for the Advancement of Sustainability in Higher Education.	Somewhat complete

CLIMATE EMERGENCY DECLARATION

In May 2021, the University of Waterloo declared a climate emergency, recognizing the urgency and importance of acting upon the climate crisis. The declaration included 10 commitments, including to report annually on progress. Action on climate change is woven throughout this longer report. For clarity, the section below also provides a non-exhaustive summary of actions and progress to date against the climate emergency declaration.

10 commitments from the climate emergency declaration

1. Mobilizing and enabling climate research

- Launch of Waterloo Institute for Sustainable Aeronautics
- Launch of Future Cities Institute
- Success in Climate Action and Awareness funding
- Six Waterloo authors on IPCC sixth assessment report, the most of any Canadian university

2. Engaging in meaningful partnerships around sustainability and climate

- Founding member of University Global Coalition, with 2021 work on global climate network mapping
- Inaugural host and ongoing member of Sustainable Development Solutions Network Canada
- Signatory to the UN Framework Convention on Climate Change Race to Zero

3. Integrating sustainability and climate in the curriculum

- Launch of Climate and Environmental Change program
- Launch of the Interdisciplinary Graduate Diploma in Climate Change
- Launch of Sustainability and Financial Management program
- Initiation of Integrating Sustainability Across the Curriculum project
- Launch of the Sustainability Living Labs program

4. Working toward carbon neutrality in operations through the *Shift:* Neutral climate action plan

- Over $11M in preliminary investments directly in energy and climate action projects, plus integration in other capital projects
- Decrease of 8.8% in emissions from 2015 base year

5. Aligning investments with climate risks and opportunities

- Signatory to UN Principles of Responsible Investment
- Development of ESG Policy for investment portfolios
- Commitment in 2021 to measure and reduce carbon intensity of investment portfolios, reaching carbon neutral by 2040

6. Engaging employees and students as agents of change

- Launch of Green Labs program
- Continued support and growth of Green Residence and Green Office programs
- Hosting of campaigns and events to provide opportunities for involvement
- Redeveloping the Sustainability Certificate training program for employees
- Supporting the Living Planet @ Campus program in partnership with WWF Canada

7. Demonstrating leadership and spur change within the local community

- Pledging partner for waste and greenhouse gas (GHG) emissions through the Impact Network of Sustainable Waterloo Region
- Founding member of the Region of Waterloo's TravelWise program
- Steward of Energize community decarbonisation simulation and board game resources
- Membership on local advisory boards and committees

8. Making sustainability and climate action a strategic lens for all University decisions

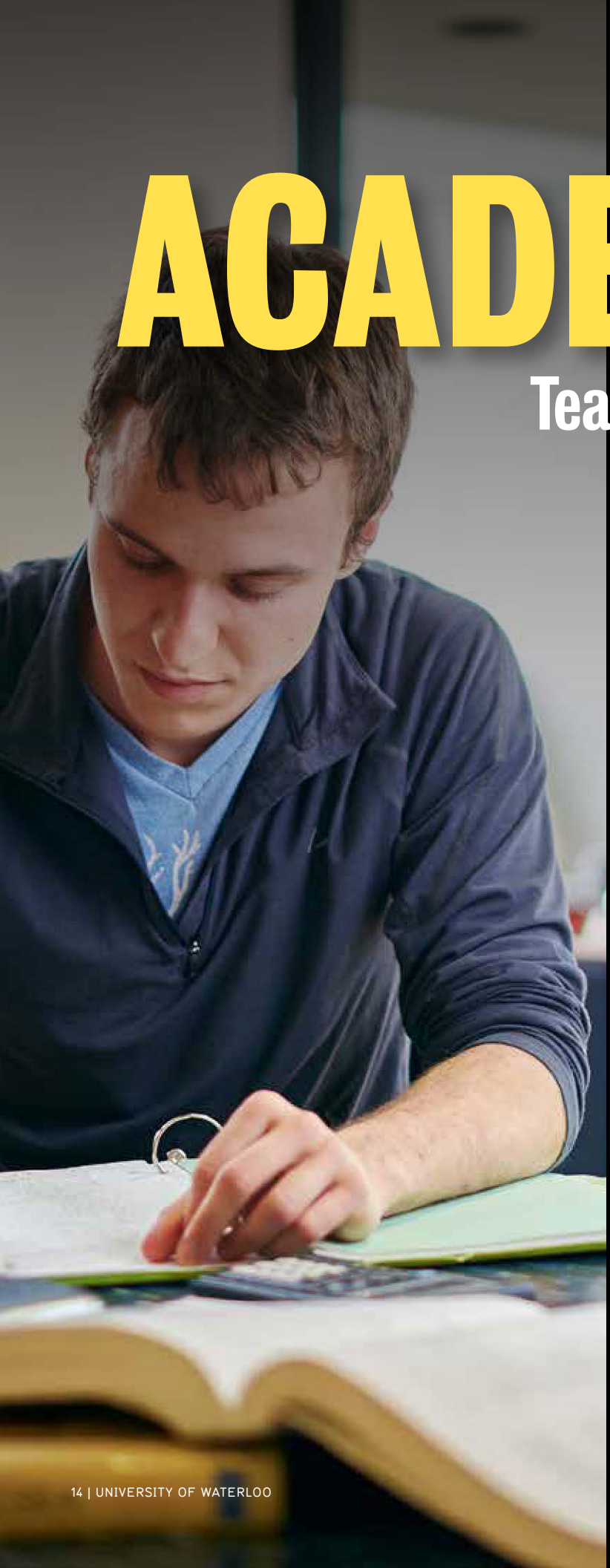
- Publication of new building design guidelines and lifecycle costing guidelines, and stronger integration within the President's Advisory Committee on Design
- Integration of climate into Strategic Plan reporting framework
- Launch of the Sustainability Playbook

9. Approaching climate action efforts alongside considerations of equity, diversity, inclusion and Indigenization

- Preliminary discussions and collaborations have occurred between the EDI-R, Indigenous Relations, Campus Wellness, Accessibility, and Sustainability teams
- Joint panel discussion as part of SDG Week 2023 included EDI-R, Indigenous Relations, Campus Wellness, and the Sustainability Office

10. Reporting annually on progress, and provide opportunities for community input

- Inclusion in this annual report
- Integration of climate-related metrics in Strategic Plan KPIs



ACADEMICS

Teaching and Learning

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

Complete

INDICATORS:

>800 Total courses with likely connections to UN Sustainable Development Goals (2023)

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

Mostly complete

INDICATORS:

6 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

Started

INDICATORS:

4 Resources and/or programs supporting integration of sustainability in entrepreneurship

Waterloo continues to demonstrate leadership in the delivery of innovative academic programs to prepare future sustainability leaders.

Throughout 2023, Waterloo organized the Integrating Sustainability Across Undergraduate Programs project, funded through the Teaching Innovation Incubator. This initiative brought together an advisory committee of leading educators from across all six faculties and multiple academic support units to explore ways Waterloo can provide support so that students from any program of study can be prepared to deal with the complex sustainability challenges and transitions they are likely to face throughout their career.

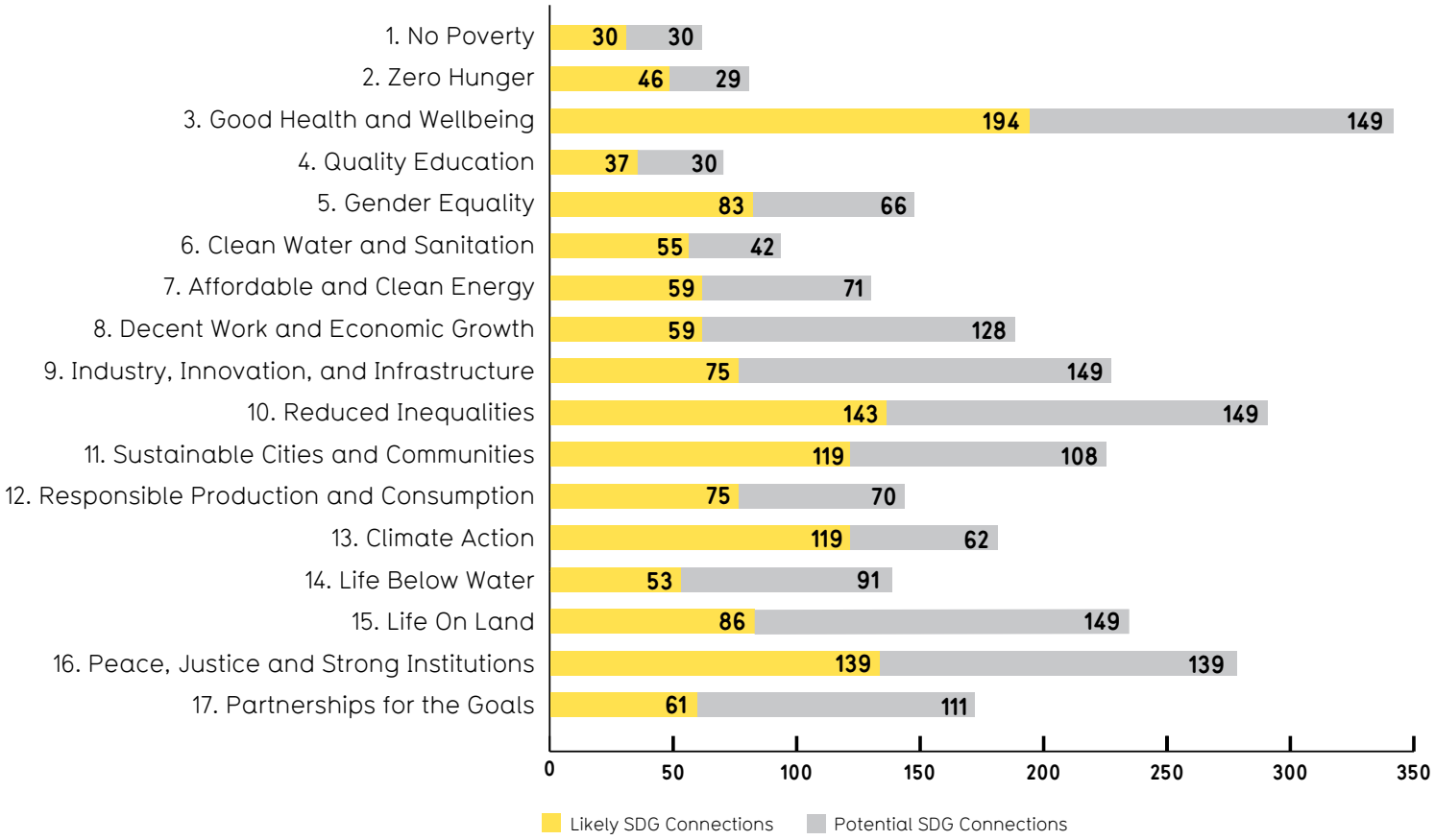
Through consultations with curriculum developers across nearly all academic departments, interviews with other institutions, literature review, and discussions with academic support units, the first phase of the project led to a final report with eleven recommendations for action and support. This has already led to development of a toolkit of resources for any program of study to utilize when exploring sustainability integration. Further work is underway to implement other recommendations as part of phase 2, such as launching a co-curricular and self-guided sustainability certificate. This alternative credential would allow recognition of student learning across a variety of pathways, including volunteer leadership, personal action, co-op and work experience, and formal education related to sustainability.

CASE STUDIES

SUPPORTING CLIMATE PEDAGOGY

Navigating the climate crisis is inherently difficult and teaching it can also be a significant challenge. The Waterloo Climate Institute hosted a full day symposium to bring together educators from across campus and peer institutions to share and explore strategies that can enhance and improve climate-related teaching and learning. The event featured presentations, workshops, and networking opportunities to exchange best practices, as well as insights from Indigenous elders, and had over 70 attendees.

Figure 2: Estimated Number of Courses Connected to the UN SDGs (2023-24 calendar)



CASE STUDIES

CONNECTING ACROSS DISCIPLINES FOR CAPSTONES

Solving sustainability challenges requires perspectives and expertise from many different disciplines. A new initiative by the faculties of Engineering, Environment, and Mathematics began weaving this interdisciplinary approach through their upper-year capstone experiences, with a major focus on sustainability. As a first step, students in the Environment and Business, Computer Science, and various engineering disciplines co-located their work in the Ideas Clinic to begin fostering interdisciplinary interaction and collaboration. This allowed instructors, TAs, and students to exchange approaches and disciplinary expertise that helped project teams expand their understanding of and identify solutions toward real-world problems and opportunities.

QUICK FACTS

- Waterloo has Canada's oldest, largest, and most programmatically diverse dedicated Faculty of Environment, with a wide range of courses designed for a broad audience
- Interdisciplinary sustainability curricula include the Sustainability Diploma, which can be added to **any** undergraduate degree program, and the Collaborative Water Graduate Program, which is a suite of 22 interdisciplinary graduate programs
- In a campus-wide survey on development of the Environmental Sustainability Strategy, more than 80 per cent of students indicated they wanted to learn more about sustainability while at Waterloo, with a majority from all faculties

CASE STUDIES

FORMING A HUB FOR SUSTAINABILITY INTEGRATION

Waterloo's School of Accounting and Finance and School of Environment, Enterprise, and Development recently collaborated to launch a new Hub for Sustainability Integration. Supported by an Executive in Residence, the Hub aims to form a nexus for collaboration between the two schools, their students, business and industry, and other external organizations. The Hub will focus on strengthening and accelerating societal efforts to integrate sustainability across businesses and organizations, from governance and strategy to operations and reporting. An inaugural conference was held in early 2024 in partnership with CPA Ontario to bring together industry, government, researchers, and students on discussions about balancing profit and purpose.

EXPANDING CLIMATE EDUCATION ACROSS DISCIPLINES

Waterloo launched another first-of-its-kind in Canada program to expand climate education through the new Interdisciplinary Graduate Diploma in Climate Change. The diploma is led from the Faculty of Environment and is open to students in all six faculties and can be added to any masters and doctoral program at Waterloo at no additional cost. It will give students the opportunity to deepen their understanding of climate change through a foundational course and one additional specialization course outside a student's home department or school, helping to develop the diverse professional skills, talent, and knowledge that will be needed for Canada to accelerate climate change solutions.

CULTIVATING FUTURE WATER LEADERS

In 2020, the Water Institute launched its WaterLeadership program to help graduate students in water-related disciplines develop skills in knowledge mobilization, research communication, leadership and innovation. Participants who complete all four training sessions and associated assignments receive a WaterLeadership certificate of completion. The program offers practical strategies and tools to enhance the impact of their research through clear writing, engaging presentations, and effective message development. Participants in the 2023 program gave very positive feedback, noting increased confidence in research communication, and 100% said they would recommend the program to their colleagues.

Research

PROGRESS SNAPSHOT

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

Complete

INDICATORS:

27% Percent of central news releases and research-focused Waterloo stories highlighting scholarship related to environmental sustainability

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

Somewhat complete

INDICATORS:

362 Faculty members conducting research advancing the UN Sustainable Development Goals (2022)

37 Canada Research Chairs conducting research connected to the UN Sustainable Development Goals (out of 65)

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

Mostly complete

INDICATORS:

68th Overall ranking in QS Sustainability Ranking, globally

25th Globally for Water Resources research from the Shanghai Ranking

81 Number of countries from which research collaborators jointly published with UW researchers on topics related to the UN SDGs

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

Complete '18

Complete '25

INDICATORS:

10 Sustainability Living Lab project topics explored through class projects and capstones in 2022–23

Supporting UN SDGs:

Waterloo has numerous research strengths related to sustainability, with over 360 faculty members across the campus conducting research related to at least one of the UN Sustainable Development Goals. Much of this research clusters around existing research institutes for energy, water, climate, and materials science, with new strength areas emerging in sustainable aviation and sustainable cities. The Global Futures framework highlights sustainability as a focal point of scholarship and research for the University over the coming decades.

In 2023 and 2024, just some of the new funding announcements to support impactful research related to sustainability included:

› $40.6 million as part of a joint project alongside nine other Canadian institutions to launch the Global Water Futures Observatories, a national network of water observing and demonstration sites across seven provinces and territories

› $2.5 million through the federal New Frontiers Research Fund to support a research project on how managed retreat can help reduce flood risks and support community resilience and wellbeing as an equitable climate adaptation strategy

› $1.5 million through the federal New Frontiers in Research Fund toward the Urban Futures project, which explores health equity, inclusive governance, and climate adaptation in African informal settlements

› $1.3 million through the NSERC Alliance Missions Grant for adaptive management of green stormwater infrastructure to reduce emissions from urban watersheds

› $1.3 million through the NSERC Small Modular Reactors research grant program to support four Waterloo researchers exploring next-generation nuclear technologies

› $1.2 million through the Department of National Defence to develop advanced cybersecurity systems for Canada's energy infrastructure

QUICK FACTS

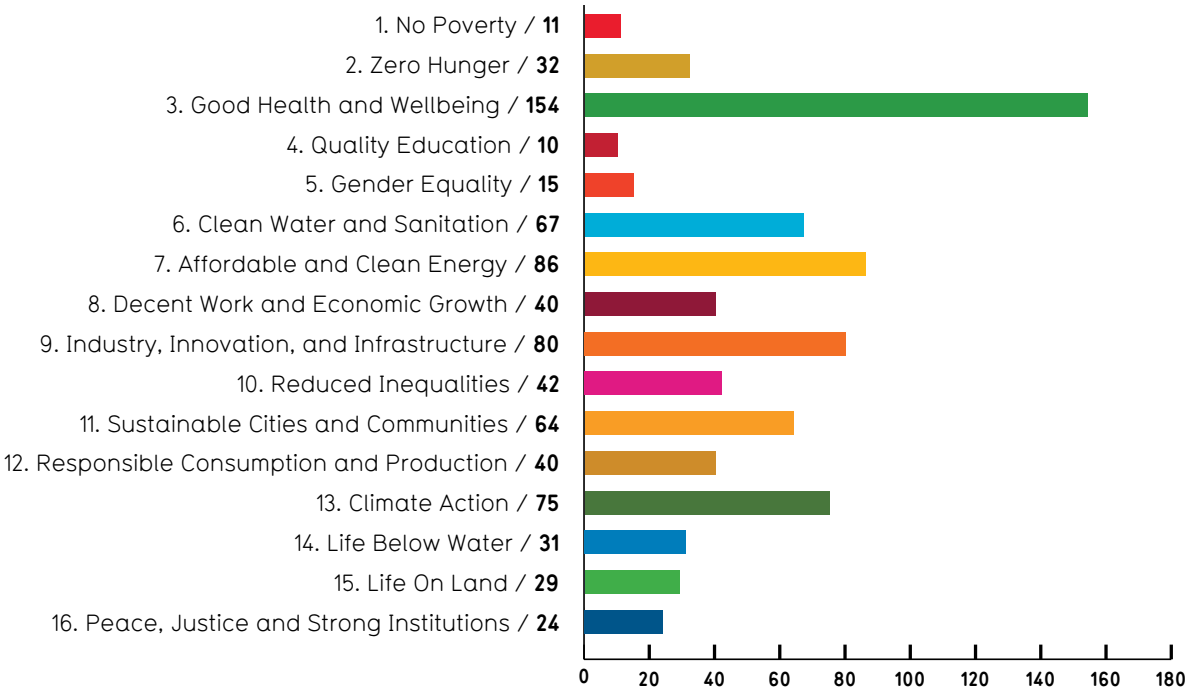
› Waterloo has six University research institutes with significant sustainability focuses or research streams:

1. Waterloo Climate Institute
2. Waterloo Institute for Sustainable Energy
3. Water Institute
4. Waterloo Institute for Sustainable Aeronautics
5. Waterloo Institute for Nanotechnology
6. Waterloo Centre for Automotive Research

› Waterloo has a database of scholarly experts that can be searched by keyword and topics, helping to mobilize sustainability knowledge

› Six researchers from University of Waterloo were lead or contributing authors on the Intergovernmental Panel on Climate Change's Sixth Assessment work, the most of any Canadian university

Figure 3: Number of Researchers with SDG Publications (2018-23)



CASE STUDIES

BUILDING THE CITIES OF THE FUTURE TODAY

Waterloo recently launched the Future Cities Institute founded by Caivan to bring together the University's research strengths and apply them to the field of city building. The institute will convene experts on campus, in industry, and across governments and cities to explore and navigate solutions to complex urban challenges including housing, climate change, aging infrastructure, demographic shifts, and disruptive technologies.

PARTNERING ON MUNICIPAL CLIMATE ACTION

The Municipal Net-Zero Action Partnership (N-ZAP) was launched in 2023 as an ambitious collaboration between University of Waterloo, the Federation of Canadian Municipalities, ICLEI Canada, twelve other higher-education institutions, thirteen cities, and several national climate organizations to support Canadian municipalities in monitoring, measuring, and achieving net zero emissions goals. Initial work has focused on forming a database and new report on the current state of local climate action across Canada, with an aim to enable application of various research methods to identify opportunities for additional climate action efforts and their effectiveness.

HIGHLIGHTING THE ROLE OF NATURE IN CANADIAN CLIMATE ADAPTATION

A new report authored by the University of Waterloo's Intact Centre on Climate Adaptation through the CSA Group was released to support federal, provincial, local, and Indigenous governments with practical guidance

LIVING LAB SNAPSHOT

The Sustainability Living Lab (SLL) was launched in late 2021 to link academic expertise and capacity with sustainability needs and opportunities directly on the campus. Building on a long history of using the campus as a living lab back to the early 1990s, the new iteration will more tightly link operational sustainability initiatives to the University's academic mission.

Many living labs projects from late 2023/early 2024 are highlighted throughout the report. Other projects include:

- **ENVS 200** – Planted trees, shrubs and herbaceous plants across campus in the spring and fall terms as part of their long-term naturalization efforts.
- **ERS 341** – Students tested the most effective way to manage invasive species, and designed restoration plans for sloped areas on campus.
- **INTEG 121** – Knowledge Integration students utilized interdisciplinary thinking to communicate health benefits of sustainability.
- **REC 218** – In the social entrepreneurship for change course, students created business plans to make Waterloo more sustainable.
- **INTEG 499/ENBUS 403** – Identified ways to keep community gardens engaging and created content on the benefits of pollinators.

CASE STUDIES

for managing river flooding and erosion. Recommendations from the report highlighted the need for collaboration and coordination as well as relying on natural solutions wherever possible, including restoring wetlands and floodplains. The report is the latest in a series of publications through the Intact Centre to support Canada's climate adaptation efforts.

USING MATHEMATICAL MODELS TO SAVE CORAL REEFS

A team of researchers from the University of Waterloo has been using mathematical models to predict outbreaks of crown-of-thorns starfish, which can eat through coral reefs and cause major damage to these highly important and beautiful ecosystems. By looking at concentrations of sewage and industrial run-off as well as overfishing as major contributing factors, the team built a model to predict conditions that might lead to large increases in the starfish population and pose threats to reefs in the Philippines and Saudi Arabia.

INTRODUCING INSECTS TO CONTROL INVASIVE PHRAGMITES

Phragmites is a highly invasive grass that spreads quickly around water bodies and outcompetes other native species. To help manage this, Waterloo biologists have been piloting a novel management tool by introducing natural predators for Phragmites: two species of moths. In partnership with Agriculture and Agri-Food Canada and the University of Toronto, the research team has deployed the moths on campus and in over 30 sites across Ontario. The moths have spread as much as 2 km from their release sites and are now affecting *Phragmites* across campus.

OPERATIONS

Climate Change and Energy

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

Complete '19

Somewhat complete '25

INDICATORS:

COMPLETE Development of *Shift*:Neutral Climate Action Plan

-8.8% Change in emissions from 2015

36,378 Tonnes of GHG emissions (Scope 1 and 2)

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

Mostly complete

INDICATORS:

399 ($NekWh/m^2$) Weather-normalized energy intensity**

-3.9% Change in energy intensity from 2015

**Energy intensities are presented in both raw/unadjusted terms as well as post-2015 normalized to the 2015 heating degree day average to better compare the influence of outdoor air temperature. Years for which the raw intensity is less than the normalized intensity is typically due to a milder winter, whereas years for which raw intensity is higher than normalized intensity is typically due to a colder than average winter.

Supporting UN SDGs:

Energy use across campus decreased about 3.9% year-over-year in 2023, with most of this coming from a decrease in gas consumption, and a very minor increase in electricity use. The decrease in gas was primarily influenced by a milder than average winter, which required less space heating than normal. Implementation of energy conservation projects are also starting to have a growing influence on performance, and additional effects will be seen in the current calendar year. Gas consumption is approximately 16% below 2018 and 2019 levels, and 9% below 2015 levels despite the growth of campus over that time.

This reduction in energy use has also led to a 6.8% year-over-year reduction in greenhouse gas emissions, which is now 8.8% below the 2015 base year. It is important to note that Waterloo's on-campus efforts to reduce emissions are challenged by the increasing use of gas-fired electricity generation across the province of Ontario. Since 2017, this has increased Scope 2 emissions from electricity for University of Waterloo by 2,100 tCO2-e even as emissions from gas declined by over 3,400 tCO2-e. Had the rising intensity of the provincial grid not occurred, Waterloo's emissions would be approximately 14% below the 2015 base year.

Projects currently underway to reduce energy and emissions include:
› Finalizing steam trap repairs
› Re/retro-commissioning of multiple campus buildings
› Door and window sealing
› LED lighting retrofits
› Heat recovery between MC and QNC
› Demand control ventilation in PAS
› Domestic hot water electrification
› ESC third floor retrofit
› Central Plant steam pressure reduction

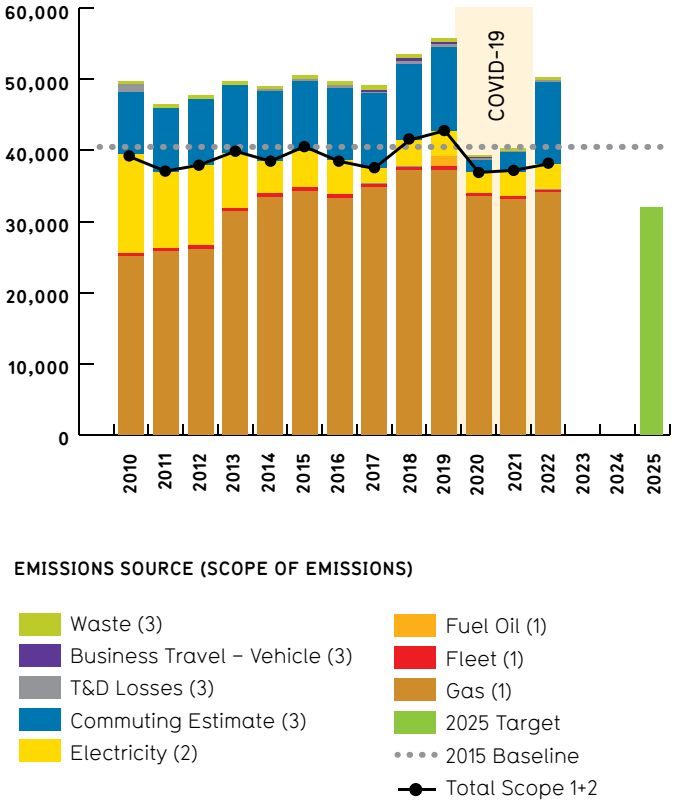
Continued effort is being made to better understand various sources of Scope 3 (indirect) emissions created from University activities. Some are already included in Waterloo's ongoing GHG inventory below, while other sources are still being quantified and may be reported less frequently.

For example, the Sustainability Office collaborated with Finance, Co-operative Education, Waterloo International, and Institutional Analysis and Planning to better understand the emissions impacts of air travel. While there are some refinements to be made to the data collection, it is estimated that institutional travel from University of Waterloo in 2022 generated nearly 22,000 tCO2-e of emissions. About 75% of this was related to incoming travel for students to attend the University, about 15% was related to student travel for research, conferences, co-op work placements, or fieldwork, and about 10% was employee travel for flights, though the employee portion is expected to double in 2023 due to increased flight activity post-pandemic.

QUICK FACTS

› 8.8% decrease in emissions compared to 2015 base year
› Over 90% of Scope 1+2 emissions are from gas for space and water heating
› New buildings are required to meet strict energy efficiency and low-carbon performance targets
› New $1 million Revolving Fund can support energy conservation projects across campus
› Over $11 million in energy conservation and emission reduction projects in progress

Figure 4: Total Emissions (t CO_2-e)



To ensure accountability, transparency, and holism, the University of Waterloo follows the Greenhouse Gas Protocol guidance for accounting of greenhouse gas emissions. The Protocol defines emissions as follows:

Scope 1 – Emissions directly from combustion at the University

Scope 2 – Indirect emissions from energy

Scope 3 – Other indirect emissions from upstream or downstream supply chain or services

Scope 3 can include many sources of emissions. Other material sources which are not included above, but for which ongoing quantification is in progress, include emissions from:

› Air travel for University activities

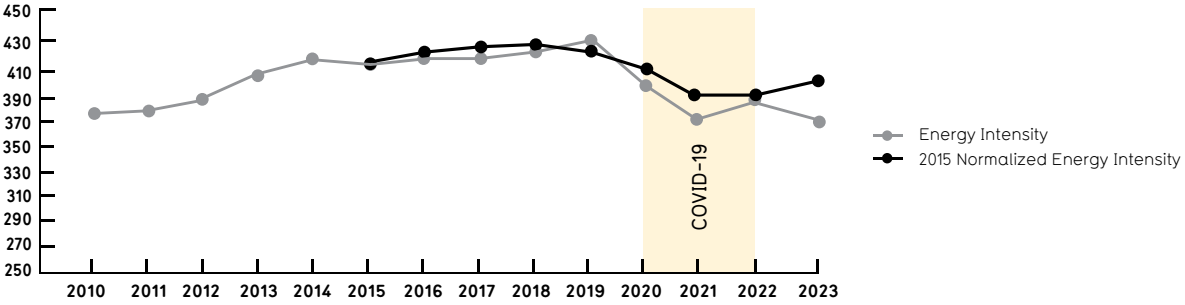
› The supply chain for food purchased and sold on campus

› The supply chain for other products and commodities used on campus

› Embodied carbon in construction materials

› Transportation of goods and services to the campus

Figure 5: Energy Intensity (Normalized ekWh/m²)*



**Energy intensities are presented in both raw/unadjusted terms as well as post-2015 normalized to the 2015 heating degree day average to better compare the influence of outdoor air temperature. Years for which the raw intensity is less than the normalized intensity is typically due to a milder winter, whereas years for which raw intensity is higher than normalized intensity is typically due to a colder than average winter.

CASE STUDIES

VOLUNTARY REPORTING OF AIR TRAVEL EMISSIONS

As part of Waterloo's *Shift:Neutral* climate action plan, the University committed to exploring tools and guidelines to reduce business travel where possible and improve tracking. In January 2024, the Sustainability Office and Finance collaborated to add a new voluntary field in Concur titled "carbon emissions." The field asks claimants who have booked and purchased their airfare out of pocket to voluntarily calculate and include the greenhouse gas emissions associated with their institutional travel.

REVOLVING FUND LAUNCHES

In late 2023, Waterloo released its first call for project proposals as part of the new Revolving Fund. This resource is meant to support initiatives that reduce utilities costs and have a competitive payback, with the savings from those projects reinvested into the fund over time. Initial lighting projects were selected in Athletics and Campus Housing for support, and another round of intake was launched in Spring 2024.

REDESIGNING A CHEMISTRY LAB FOR SUSTAINABILITY

Waterloo's Organic Chemistry Laboratory made significant strides to reduce its energy footprint through ductless fume hoods as well as technology to reduce tap water. Spurred by a required change of location, the lab took the opportunity to upgrade the new equipment to reduce the environmental footprint of its teaching and outreach activities while also creating an opportunity for students and members of the lab to learn about more sustainable lab practices.

LIVING LABS SPOTLIGHT: MSCI 100 CASE DAY

In Fall 2023, students from MSCI 100 were tasked with identifying solutions to reduce emissions on campus related to energy, fleet, commuting, waste, supply chain, food systems and embodied carbon, and create a calculator to quantity the emissions reductions. Some solutions that came out of the Case Day were ways to optimize size of fleet, creating an app to bargain for items, and growing food on campus.

Waste

Supporting UN SDGs:

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)

Started

INDICATORS:

29.3%
Waste diverted from landfill

2,877
Tonnes of waste sent to landfill

Waterloo's diversion rate increased slightly in 2023, with a general increase of waste across all types. There were one-time disposals from a warehouse on North Campus that contributed in part to the increase in waste to landfill. Absent these disposals, the diversion rate would have otherwise been 2-3% higher but still short of the rate of change needed to reach the University's targets.

In early 2024, several departments agreed to more thoroughly develop a waste action plan, building on the branding and core themes of the Shift:Zero initiative that began in 2018-19 and identifying opportunities for additional measures that would better improve campus waste performance.

QUICK FACTS

- 1.2% increase to the diversion rate in 2022
- >25 formal waste diversion streams or programs are active across campus
- 70-80% of what is discarded in garbage could be recycled, according to waste audits
- Waterloo hosts an annual Waste Month campaign in October to engage the campus on waste reduction programs and initiatives

Figure 6: Diversion Rate (%) and Landfill Weight (t)

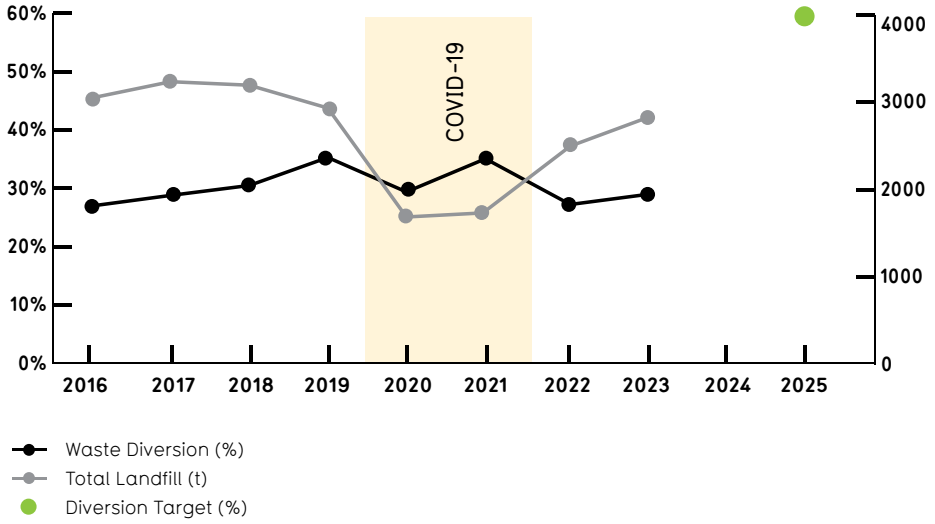
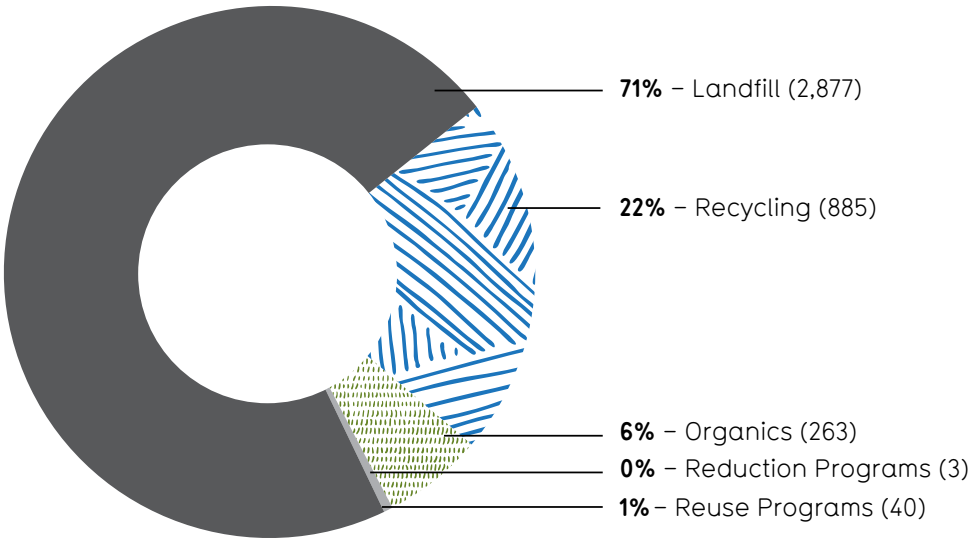


Figure 7: 2023 Waste Composition (tonnes in brackets)



CASE STUDIES

REDUCING AND REUSING WITH THE FREE STORE

In fall 2023, the Sustainability Office launched the Free Store with support from the Sustainability Action Fund. The goal of the Free Store is to rehome items that are still in usable condition to those that want and need them, free of charge, such as home goods, kitchenware, school supplies and more. Since its launch, the Sustainability Office has held 13 Free Store pop-ups in the SLC and has diverted nearly 500kg of usable goods from going to the landfill. The Free Store is currently located in CPH 2383 and will be open for drop-in hours and donations throughout fall 2024 and winter 2025.

DESIGNING WASTE DIVERSION SOLUTIONS WITH GREENHOUSE

Through GreenHouse's Changemaker Labs, teams proposed new ways to improve waste diversion such proposal of new waste sorting stations, repurposing bamboo cutlery into mulch, and using signage that is more emotionally charged.

GreenHouse also hosted the Women in Engineering hackathon where teams were tasked with developing engaging and educational solutions to improve waste sorting practices on campus. Teams came up with ideas such as gamification of waste sorting, apps to identify type of waste, and the creation of more engaging sorting stations.

SUSTAINABILITY ACTION FUND SPOTLIGHT: ECO CONTAINER GIVEAWAY

With support from the Sustainability Action Fund, Food Services distributed a free eco-container to all incoming students on a traditional meal plan in Campus Housing, helping to expand access to the program and reduce barriers to entry. Eco-containers can be purchased from Food Services for a one-time $10 fee and used an unlimited number of times over the year. When students are done, they can swap their empty container for a token and pick up a clean container at their next meal. Between January 2023 and June 2024, the eco-container program has replaced over 100,000 disposable takeout containers in residence!

LIVING LAB SPOTLIGHT: WASTE WARRIORS: INVESTIGATING BARRIERS TO WASTE DIVERSION

Students from ENBUS 402 spent two terms identifying barriers to waste diversion in student residences. By conducting a waste audit, the students identified the most commonly missorted items. The students also conducted a survey and learned that most students are willing to partake in sustainability efforts if provided with additional education.

Water

Supporting UN SDGs:

PROGRESS SNAPSHOT

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

Complete

INDICATORS:

5% Reduction in water use intensity since 2015

0.71 Metres cubed water use per square metre

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

Mostly complete

INDICATORS:

4 New stormwater management features on campus

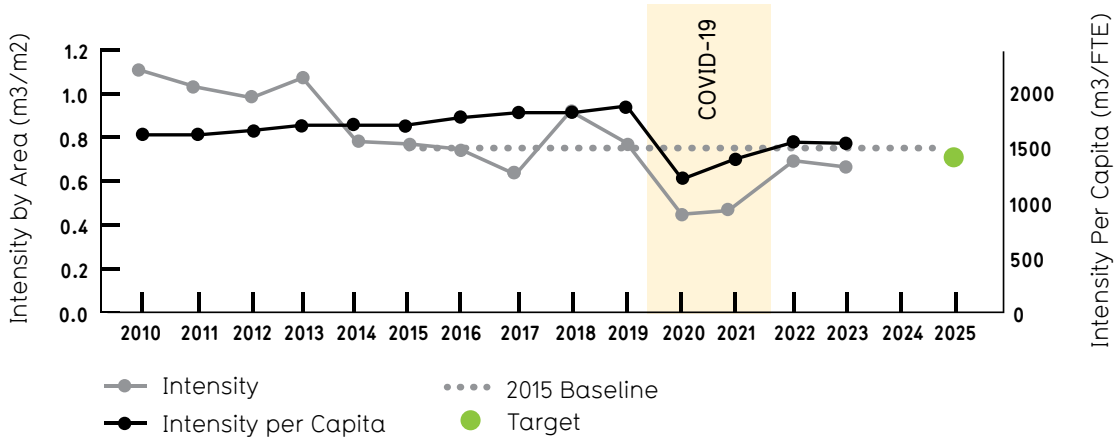
15 Stormwater features implemented on campus

The University's water footprint and intensity declined slightly in 2023 despite most activities on campus fully resuming. Investments in water-saving technologies in late 2022 helped keep consumption lower than the 2018/19 peak years, and will likely support Waterloo maintaining its 5% reduction target. Additional educational measures to encourage water-saving behaviours can complement these investments to minimize consumption.

QUICK FACTS

- 1% year-over-year decrease in water intensity in 2023
- 5 green roofs and/or rooftop gardens
- 3 permeable pavement installation sites
- 5 stormwater ponds and 1 rainwater cistern
- >1,500 showerheads and >3,500 faucets replaced with low-flow fixtures

Figure 8: Water Intensity by Area and Per Capita



CASE STUDIES

SUSTAINABILITY ACTION FUND SPOTLIGHT: DE-IONIZED WATER SYSTEM IN DWE

Chemical Engineering recently completed a retrofit in DWE to replace outdated and inefficient deionized water system with a newer reverse-osmosis system. The retrofit significantly reduces the amount of chemicals and management needed, while providing quality outputs for teaching and research. The system will also be used as a teaching tool to educate more than 650 students on sustainable lab practices.

LIVING LABS SPOTLIGHT: INTERDISCIPLINARY STORMWATER MANAGEMENT PLANS

During the winter term, students from CIVE 583 investigated storm water management around the southeastern portion of campus. Then, the students disseminated their findings to PLAN 211 students who were tasked with re-designing these spaces, using planning theory and design programs to improve storm water management in these areas while making them more usable, versatile, and aesthetically appealing.

Transportation

Supporting UN SDGs:

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

Complete

INDICATORS:

88% Combined student and employee trips* to campus using a sustainable mode

90% Student trips* by walking, cycling, carpooling, transit, or online learning

62% Employee commuting trips* by walking, cycling, carpooling, transit, or telework

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

Complete

INDICATORS:

3.3% Of vehicles used to commute to campus are electric or plug-in hybrid electric

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

Mostly Complete

INDICATORS:

14.5% Reduction in fleet fuel use since 2015

187,254 Litres fuel consumption

Transportation is an important sustainability aspect for the University to manage, as it creates greenhouse gas emissions, is land and resource-intensive, influences health and wellbeing, and impacts the communities around the campus. At Waterloo, transportation sustainability has three distinct components:

1. ***Commuting**: students and employees travel to and from the campus on a regular basis*
2. ***Travel**: campus community members travel for research, conferences, exchanges, co-op, fundraising, recruitment, and student arrivals*
3. ***Fleet**: operation of a fleet of over 130 vehicles directly owned by the University*

Waterloo will launch an updated commuting survey in 2024 to determine biennial trends, but through parking data and observation it is expected that this will show transportation patterns fairly similar to 2019, with some continued increases to remote working for employees. Local transit and walking/cycling infrastructure has been well-utilized, showing consistent demand from both students and employees, and there are consistently more electric vehicles brought to the campus community.

However, as noted above, institutional travel continued to increase, with the total amount of travel activity returning to pre-pandemic levels.

Finally, fleet vehicle usage also increased faster than the deployment of electric vehicles, leading to an approximately 10% year-over-year fuel increase. This was, again, reflective of increased activity on campus, but shows a need for careful planning, policy, and incentives for electrification and efficiency across the fleet.

In June 2024, Waterloo began development of the Sustainable Transportation Plan (STP). The STP is meant to establish key directions for all elements of local transportation planning, including commuting services, campus shuttles, fleet management, and infrastructure. Co-led by the Sustainability Office and the newly redeveloped Parking and Sustainable Transportation Office, the project will conduct activities throughout 2024 and 2025 to create a more detailed plan and initiatives to advance sustainable transportation choices.

QUICK FACTS

- Waterloo has 18 EV charging stations, with 15 added in 2021/22
- Discounted transit passes are available for all students and employees
- Emergency-Ride Home program is available for employees using sustainable transportation
- Carpool/bikepool software is available through the TravelWise program
- 10 new electric vehicles and light-duty vehicles were added to Waterloo's fleet since 2021, with significant growth potential
- Waterloo hosts annual Bike Month campaign in June to engage the campus on active and sustainable transportation education and resources

Figure 9: Sustainable Trips to Campus (% of Total)*

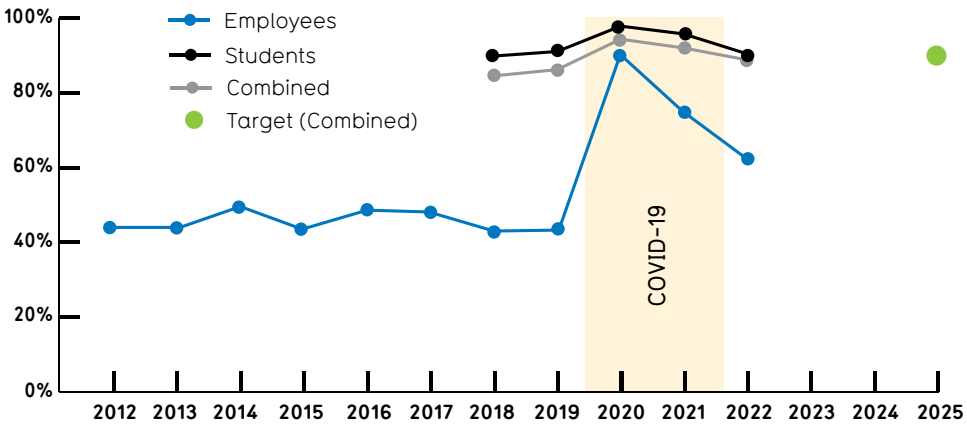
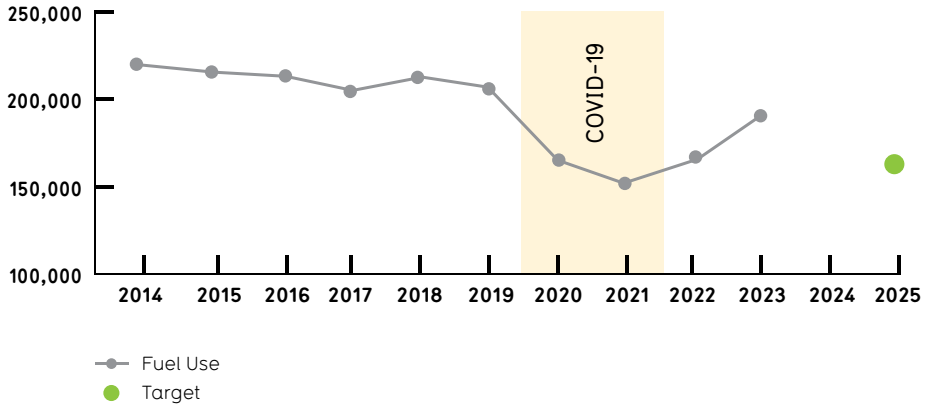


Figure 10: Fleet Fuel Use (L)



*"Trips" is used generically to refer to how students and employees move to a place of work or study from their place of residence. This includes, for example, trips from students living in residences as they travel to academic buildings, as well as "avoided trips" from remote learning or work-from-home activity. Sustainable trips include those by walking, cycling, transit, carpooling, or remote working/learning.

CASE STUDIES

INTRODUCING THE SUSTAINABLE TRANSPORTATION OFFICE

In winter 2024, transportation on campus saw some major changes: the rebrand of Parking to Sustainable Transportation and the hiring of a new Sustainable Transportation Specialist. These changes reflect Waterloo's commitment to supporting and expanding access to a multitude of sustainable commuting options. Over the coming year, the Sustainable Transportation Specialist will lead the development of Waterloo's first Sustainable Transportation Plan to guide planning and implementation of new transportation programs, resources, and services.

NEURON E-SCOOTER AND E-BIKE PROGRAM

The University of Waterloo piloted an e-scooter and e-bike program, in partnership with Neuron Mobility, from May to October 2023. The pilot was part of a regional initiative to support sustainable transportation options between the campus and broader community. The program relaunched in April 2024, with pick-up and drop-off hubs located around Ring Road, UW Place, Columbia Lake Village, and in public locations near the Kitchener and Cambridge campuses.

NEW ELECTRIC VEHICLES ROLL QUIETLY ACROSS CAMPUS

Waterloo continued to expand its electric fleet, adding four new electric models across the campus in 2023. This included a new Ford E-Transit electric light-duty van for Central Stores, an electric golf cart for Grounds, and a Kia Nero EV and Nissan Ariya EV in Parking and Sustainable Transportation. The University continues to offer an internal incentive for departments to replace a combustion-engine vehicle with an electric model, in addition to any government rebates.

LIVING LAB SPOTLIGHT: RE-IMAGINING BIKE INFRASTRUCTURE ON CAMPUS

PLAN 405 students assessed existing bike infrastructure on campus and made recommendations on how to improve secure bike storage, accessibility and overall cycling experience.

Grounds

Supporting UN SDGs:

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

Mostly complete

INDICATORS:

TBC Per cent compliance with sustainable landscaping standard forthcoming

100% Grounds managed to integrated pest management principles

In 2023, Waterloo finalized its Sustainable Land Care Standard and began implementation across a wide range of projects. Exciting initiatives over 2023-24 included everything from species identification to tree planting, invasive species removal to pilots of new electrified equipment, and from chemical-free weed management to salt-reduction equipment. Waterloo's Grounds team and Sustainability Office partnered with students, faculty, and employees across these initiatives, bringing to life the Standard's intended outcomes of protecting and enhancing the campus environment.

QUICK FACTS

- Waterloo has >1,200 acres of managed grounds and a 270 acre Environmental Reserve
- Integrated pest management principles for reduced pesticides/fertilizers have been applied since the 1990s
- Campus Eco-maps highlights major natural, semi-natural, and managed areas, as well as species concentrations across the University
- Over 850 identified species of plants, fungi, insects, molluscs, reptiles, birds, mammals, and other living creatures occupy campus grounds
- Waterloo hosts an annual Earth Month campaign to engage the campus on environmental protection, including a campus-wide clean-up event

CASE STUDIES

GROWING CITIZEN SCIENCE THROUGH BIOBLITZ

In July 2023, the Sustainability Office held its first annual BioBlitz, a community-led effort to identify and record species to support biodiversity on campus. More than 150 Waterloo community members participated as citizen scientists across 10 guided hikes and made more than 800 observations on the iNaturalist app over the 24-hour event. In May 2024, the Sustainability Office held a week-long BioBlitz which included nine guided walks, as well as a Community Fair where students could meet with different community organizations focused on biodiversity and environmental protection. During the week, over 2,000 observations were made of over 500 species.

NATURALIZING CAMPUS, ONE TREE AT A TIME

Throughout 2023 and 2024, the Sustainability Office organized many campus naturalization projects. Across 9 tree planting events, more than 700 native trees and several hundred native wildflowers were planted thanks to the help of more than 350 volunteers. In fall 2023, 150 volunteers removed invasive buckthorn and garlic mustard from DWE and planted native pollinators in their place. These efforts support the implementation of Waterloo's Sustainable Land Card Standard and have been valuable opportunities to engage students and employees in hands-on restoration work.

SUSTAINABILITY ACTION FUND SPOTLIGHT: BUILDING A BIRD-FRIENDLY CAMPUS

Window collisions are a common cause of fatalities and injuries in birds. To tackle this, the Society for Ecological Restoration, UW Chapter launched a monitoring program in June 2023 to track bird-window collisions around campus. This monitoring program identified the SLC/MC bridge as a high-risk area for birds. With support from the Sustainability Action Fund, the University of Waterloo piloted Feather Friendly® window decals on the bridge, which can decrease collision risk by 95%.

LIVING LAB SPOTLIGHT: RESTORING LAUREL CREEK

Students from ERS 341 spent a day building sediment mats to narrow over-widened stretches of Laurel Creek. Future ERS 341 students will continue the stream restoration work and monitor biological, chemical, and physical changes to the creek.

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

Mostly complete

INDICATORS:

32% Of all food and beverage purchases are local, produced on-site, or third-party certified for sustainability

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

Complete

INDICATORS:

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

Complete

INDICATORS:

19 Projects or initiatives to increase awareness of healthy and sustainable food

With tens of thousands of meals served every day across campus, Waterloo's food supply chain is a large contributor to greenhouse gas pollution and requires significant land and water to sustain. Numerous efforts from Food Services and student-run coffee shops and restaurants have worked toward minimizing these impacts while building a healthy and sustainable menu for students, employees, and visitors to enjoy.

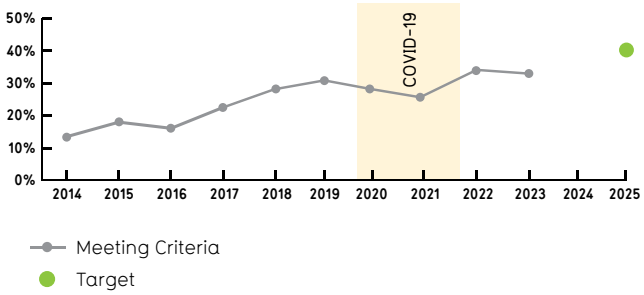
Almost 1/3 of all food purchased by Food Services is locally-sourced or has a third-party sustainability certification, such as Fairtrade certified coffee, tea, chocolate, and bananas, and MSC certified seafood. This represents a slight decrease from 2022, but that decrease was due to cost-savings measures to slice local vegetables in-house rather than purchase them pre-sliced, a change which also reduces waste.

Waterloo continues to celebrate its status as a Fair Trade Campus across University and student-run food locations, ensuring that chocolate and hot beverage consumption on campus provides better livelihoods and environmental protection for the farmers that grow coffee, tea, and cocoa.

QUICK FACTS

- Waterloo is a Fair Trade Certified campus, ensuring that all University and student-run food outlets provide fair trade coffee, tea, and chocolate
- Food Services hosts Farm Markets during harvest season, to connect students and employees with fresh local produce
- The Farm to Campus Fresh program highlights locally sourced options across campus menus
- Vegan and vegetarian options are available across all residence dining halls

Figure 11: Food Purchases Meeting Target Criteria (% of Total)



CASE STUDIES

CELEBRATING FAIRTRADE AT ANNUAL UW FARM MARKET

In 2023, Food Services hosted their annual UW Farm Market pop-ups throughout September, culminating in the Fairtrade Campus Celebration and Toonie Picnic event. Hosted on the BMH Green, the event featured an information booth on our Fairtrade Campus designation and free Fairtrade bananas, as well as a large selection of local produce, baked goods, and preserves at affordable prices. Waterloo has held the Fairtrade Campus designated since 2018, with Fairtrade coffee, tea, and chocolate products available at all University and student-run coffee food outlets on campus.

SUSTAINABILITY ACTION FUND SPOTLIGHT: FOOD GARDEN PILOT PROJECT

In May 2024, the Sustainability Office launched a Food Garden pilot project to support students and employees in growing food on campus. The pilot included the installation of 10 raised garden beds, located adjacent to the Healing Forest by the Village 1 residence. The plots were available on a first-come, first-served basis, with all plots claimed within 24 hours of launching the gardens.

LIVING LAB SPOTLIGHT: FOOD CARBON EMISSIONS CALCULATIONS AND MARKETING

For their capstone project, two ENBUS 402 student groups focused on calculating food carbon emissions from the Ev3rgreen Café and developing a marketing plan to spread awareness of the impact their food choices have on carbon emissions.

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

Complete

INDICATORS:

COMPLETE Development of lifecycle costing guideline and calculator

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

Complete

INDICATORS:

80% Of all paper purchases have FSC certification and/or recycled content

87% Of all major electronics purchased are certified to EPEAT Bronze or higher

70% Of all janitorial cleaning and paper products have an environmental certification

QUICK FACTS

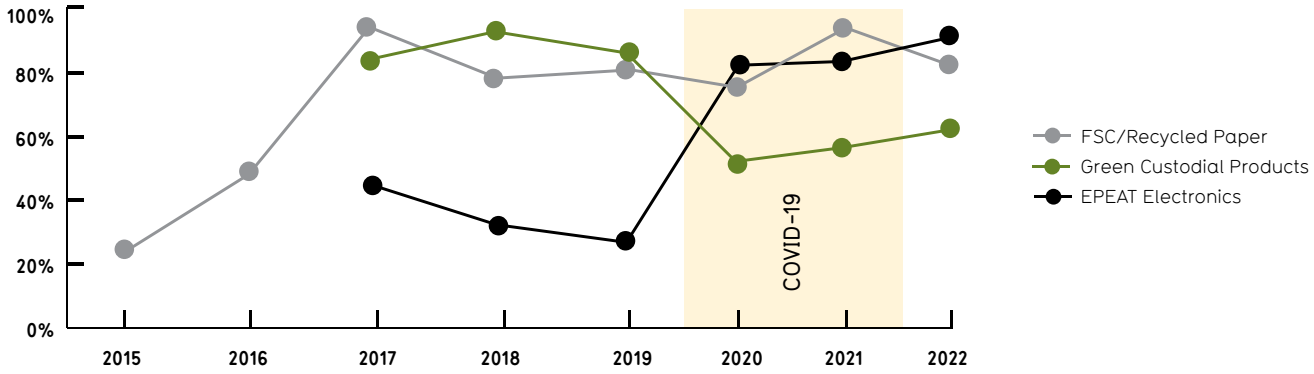
› The Sustainability Office hosts a sustainable procurement guide to help campus users make better purchasing decisions across key categories

› Waterloo's Lifecycle Costing Guideline ensures long-term cost and impact considerations are part of the procurement process

› The University's Staples Professional/eway purchasing program has a dedicated section for sustainable solutions, that can help employees purchase office supplies with sustainable certifications, recycled content, improved packaging, and other environmental benefits

Waterloo continues to utilize Lifecycle Costing in major energy-related procurement decisions and is expanding sustainable purchasing criteria for specific purchasing categories. The launch of a new Sustainable IT Procurement Guideline is a strong example. Over the past year, the percent of total spend on sustainably-certified electronic equipment and paper remained relatively constant, while the spend on sustainably-certified cleaning supplies increased substantially. Future efforts to more formally standardize and prioritize sustainable purchasing decisions across a larger range of categories will continue to be explored, through additional guidelines or new tools such as the Jaggaer platform.

Figure 12: Purchases Meeting Sustainability Criteria (% of Total)



CASE STUDIES

USING ART TO RECONSIDER MATERIAL CULTURE

In fall 2023, the University of Waterloo Art Gallery displayed an art piece called "Material Culture," by José Luis Torres. The piece included over 300 items sourced locally and across campus, suspended in the air. According to the description, the work "uses our familiarity with these domestic, institutional, and recreational items as a way of elevating our appreciation of the everyday, while also inviting us to consider the problematic status of consumer culture: our knack for accumulating stuff, and the growing complexities surrounding the storage, recycling, and disposal of the surplus goods we accumulate." (José Luis Torres, "Material Culture," University of Waterloo Art Gallery, Sep 9–Dec 14, 2023)

SUSTAINABLE IT PROCUREMENT GUIDELINE

After significant collaborations between IST, Print and Retail Solutions, Procurement, the Sustainability Office, and other campus partners, the University launched a new Sustainable IT Procurement Guideline in early 2024. The guideline outlines best practices and requirements for procurement of all major hardware and software purchases, including certifications, recycled content, carbon footprint, durability, and circular economy criteria. The guideline applies immediately to IST and Print and Retail Solutions, and other departments across campus are encouraged to utilize it as well.

LIVING LAB SPOTLIGHT: SCOPE 3 EMISSIONS CALCULATIONS

Students from ENBUS 402 conducted a comprehensive review of literature and documents to identify common themes and gaps in Category 1 scope 3 reporting methodologies. Recommendations included integrating emissions criteria into purchasing decisions, and developing robust data collection and analysis methodology.

ENGAGEMENT

Communications

Supporting UN SDGs:

PROGRESS SNAPSHOT

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

Complete

INDICATORS:

55,300	Visitors on the sustainability website
21,500	Engagements on social media channels
3,000	Total followers on social media channels
5	Campus-wide engagement campaigns

We all have a role to play in building a more sustainable campus. From volunteering as an ambassador for Sustainability Office programs like Green Residence, Green Office, or Green Labs, participating in clubs, societies, or advisory committees, supporting sustainability events and initiatives, or simply talking about sustainability, actions big and small make a significant difference in building a culture of sustainability at Waterloo.

QUICK FACTS

- Waterloo hosts Earth Month, BioBlitz, Bike Month, Waste Month, and Eco Summit campaigns to create opportunities for engagement, education, and advocacy
- Central communications are available through the Sustainability Office Instagram, and LinkedIn channels, and through a monthly Newsletter
- The Sustainability website hosts centralized information on campus sustainability resources, services, and commitments/progress

CASE STUDIES

DEFINING ROLES AND RESPONSIBILITIES FOR SUSTAINABILITY ACTION

Waterloo has set bold sustainability goals, and we will need support from everyone across campus to reach them. In early 2024, the Sustainability Office developed a new Get Involved webpage to provide clarity on the unique roles we play as students, staff, faculty/instructors, and managers. It also highlights common actions that departments can take, and points to supports for deeper strategic planning conversations.

The Sustainability Office also redeveloped the Sustainability Guide, a list of practical tips and resources to live, work, and study sustainably at Waterloo (and beyond).

ACCELERATING ACTION AT 10TH ANNUAL ECO SUMMIT

In November 2023, Waterloo celebrated its 10th annual Eco Summit at Fed Hall with over 175 campus community members. The event featured opening remarks from President Goel, employee and student panels on accelerating sustainability action within teaching and research spaces, across operational projects, and within engagement programs, and sustainability awards for the Green Office, Green Labs, Green Residence, and Living Planet Leader programs. The event culminated in an interactive activity that encouraged attendees to reflect on their unique roles on campus.

LIVING LAB SPOTLIGHT: CAMPUS SUSTAINABILITY CREATIVE PROJECT

ERS 100 students developed their information literacy and critical thinking skills while addressing sustainability challenges. Students designed a sticker that promoted sustainability initiatives on campus. Students were encouraged to research, think critically, and communicate effectively while raising awareness about complex social and ecological issues.

Students

PROGRESS SNAPSHOT

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

Complete

INDICATORS:

45 Ambassadors and student leaders engaged in sustainability leadership training

5 Number of sustainability programs/activities during orientation for first year students

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

Complete

INDICATORS:

11 Distinct pathways for student leadership, including through Green Residence, Living Planet @ Campus, Changemaker Labs, Climate Leaders, student groups, 0-Week coordinators, SDG Student Hub, Sustainability Office volunteers, and formal advisory committees or working groups

QUICK FACTS

- Waterloo has over 14 student clubs connected to sustainability
- The Green Residence Program creates tangible opportunities for peer leadership in Campus Housing
- The Living Planet @ Campus program provides an opportunity for student learning
- Students have dedicated positions on the President's Advisory Committee on Environmental Sustainability

CASE STUDIES

BUILDING A MORE SUSTAINABLE RESIDENCE COMMUNITY

The Green Residence program continued throughout the 2023/24 academic year, engaging 20 student ambassadors from Campus Housing in building sustainability knowledge and leadership skills. In fall term, ambassadors participated in a series of professional development workshops on creating change, leveraging digital media, and event planning. In winter term, student teams hosted a series of events in their residences to engage their peers, such as sustainability trivia, upcycled origami, Fairtrade hot cocoa and movie night, and a sustainable snack and study night!

CLIMATE JUSTICE ECOSYSTEM

Launched in spring 2023, the Climate Justice Ecosystem (CJE) is a coalition of students united for climate justice. They draw connections between the fight for a livable planet and parallel struggles for economic and social justice, and work to build and mobilize student power for an intersectional grassroots movement towards a sustainable, resilient, and just UW for everyone.

Since their inception, they have organised rallies, hosted teach-ins, and led actions around their ten intersectional demands. This has included work around bank divestment, student housing, and public transit. This upcoming year, they are excited to continue their work and start new projects, such as a food garden plot! Contact CJE if you would like to learn more and get involved.

INTEGRATING SUSTAINABILITY INTO ORIENTATION PLANNING

In May 2023 and 2024, the Sustainability Office facilitated a training workshop with incoming O-Week leaders on strategies and best practices for integrating sustainability into orientation planning. The workshops provided a wonderful opportunity for group brainstorming and sharing. Many teams are finding creative ways to reduce waste and make more sustainable purchases, such as reusing and repurposing materials from previous years, avoiding food that requires utensils, and minimizing branding on new items.

SUSTAINABILITY ACTION FUND SPOTLIGHT: EXPANDING STUDENT CLIMATE LEADERSHIP ON CAMPUS

In fall 2023, the Waterloo Climate Institute launched the Climate Leaders Program to provide students an opportunity to build climate leadership training and skills, as well as networking opportunities with climate researchers and professionals. The program is supported by the Student Climate Council, which comprises an undergraduate and graduate representative from each faculty.

In March 2024, Climate Leaders hosted the first annual Climate Con. With support from the Sustainability Action Fund, the Climate Con brought over 100 people together for a full-day convention full of presentations, workshops, and cross-disciplinary connections. The goal of the event was to inspire attendees to be catalysts for change while highlighting contributions to climate change research being undertaken by students. It was an inspiring day of engagement, discussion, learning, and relationship building.

Employees

PROGRESS SNAPSHOT

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

Mostly complete

INDICATORS:

24% University departments achieving at least Green Office Bronze

5 Certified Green Labs

475 Employees have completed Sustainability Certificate

615 Employees have completed at least one module in Sustainability Certificate

QUICK FACTS

- 43 departments have received a certification for the Green Office or Green Labs programs
- Waterloo offers the Sustainability Certificate for departments to build a foundation of sustainability competence and knowledge

CASE STUDIES

GREEN OFFICE SNAPSHOT

Waterloo's Green Office program continued to expand across campus, with more than 50 participating offices and 150 ambassadors supporting sustainability efforts. Since 2016, the Green Office program has supported bottom-up, grassroots sustainability action by fostering a supportive network of ambassadors, building out a resource toolkit to support implementation, and providing a common scorecard to track progress and inspire action. From plant workshops and tree plantings to integrating sustainability into office processes and strategic planning, Green Office departments are helping to build a culture of sustainability on campus.

Certified departments include, as of June 2024:

Green Office Platinum
Centre for Teaching Excellence
Centre for Work-Integrated Learning

Green Office Gold
Centre for Career Development
Civil & Environmental Engineering
Dean of Environment Office
Food Services
Information Systems & Technology
Institutional Analysis & Planning
Library
Plant Operations – Campus Services
Safety Office
School of Environment, Resources & Sustainability
Water Institute

Green Office Silver
Co-operative and Experiential Education – Strategic Enablement Team
Dean of Engineering Office
Dean of Health Office
Finance
Geography and Environmental Management
Legal and Immigration Services
Plant Operations – Grounds
Recreation and Leisure Studies
Registrar's Office
Renison University College
School of Pharmacy
St. Jerome's University
Student Success Office
United College

Green Office Bronze
Centre for Extended Learning
Economics
Games Institute
Office of Indigenous Relations
Office of Research
Office of the President
Office of the Provost
Sustainable Transportation (formerly Parking Services)
Vehicle Shop

GREEN LABS SNAPSHOT

Waterloo's Green Labs program is working to foster lab sustainability best practices with teaching and research labs across campus, including an ambassador network, resource toolkit, and common scorecard to track progress. In 2023, participation in the program remained small. In fall 2023, the Sustainability Office hired a Green Programs Coordinator to increase capacity and expand the program across campus. With an additional staff member, updated resources, and departmental consultations, Green Labs is optimistic about the coming year.

Certified departments, as of June 2024:

› **Gold:**
- Undergraduate Organic Chemistry Teaching Lab
- Chemical Engineering Undergraduate Teaching Labs

› **Silver:**
- Ecology Lab
- Quantum-Nano Fabrication and Characterization Facility
- Pharmacy Flexible Teaching Lab

› **Bronze:**
- Kinesiology Anatomy Lab

Thanks to the Sustainability Action Fund, the Sustainability Office has been able to support other lab-related sustainability initiatives such as:

› Kinesiology lab coat rental program
› Biology growth chamber renovations and retrofits
› Chemical Engineering deionized water system
› Green Labs PPE zero waste program

BUILDING CAPACITY THROUGH SUSTAINABILITY CERTIFICATE

The Sustainability Office continued to deliver offerings of the Sustainability Certificate to departments. The newly redesigned, two-part series builds foundational knowledge of key global and local sustainability challenges and directions, Waterloo's commitments and progress, and how departments and individuals can support at the unit level. Throughout 2023 and early 2024, the Sustainability Office facilitated workshops with teams from Finance, Food Services, Library, Safety Office, School of Pharmacy, and St. Jerome's University.

SUSTAINABILITY ACTION FUND SPOTLIGHT: HEALTHY AND GREEN OFFICE PLANTS

In spring 2023, staff from the Dean of Engineering and Civil & Environmental Engineering offices hosted a series of indoor plant workshops. The hands-on workshops featured an introduction to indoor plant care and maintenance, with participants each taking a free plant back to their office. The events also provided participants with an overview of the Green Office program, with an opportunity to ask questions about starting a green team in their own office. Feedback gathered was very positive and the organizing team created a "how-to" document for hosting similar events across campus.

Community

PROGRESS SNAPSHOT

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

Complete

INDICATORS:

5 Local sustainability awards since 2016

21 Local non-academic community partnerships, memberships, board roles, or advisory involvement related to sustainability since 2016

CASE STUDIES

MAKING CHANGE THROUGH CHANGEMAKER LABS

Changemaker Labs, an initiative of GreenHouse, drives climate action in Canada, creating work-integrated learning opportunities connecting volunteers to campus, municipal and industry partners. Activities are designed with an inclusive participation model; with opportunities for various skills levels and availability. Since it's inception last June, 250 participants and 20 partners have brought 10 different activity streams to life!

From bringing powerful fungi knowledge into climate problem spaces, and developing tech solutions to address heat inequities in Kitchener, to designing easy-to-integrate classroom worm bins, and caretaking for a food bank garden in Cambridge, these changemakers have been making an impact!

SUPPORTING THE GRAND RIVER ENVIROTHON

In April 2024, the Sustainability Office and Faculty of Environment hosted a training day for six high schools in the area on the topics of aquatics, wildlife, soil and trees, to prepare them for the Grand River Envirothon. The top winning school from the Grand River Envirothon won the Ontario Envirothon at the end of May!

SUSTAINABILITY ACTION FUND SPOTLIGHT: BUILDING COMMUNITY THROUGH OUTDOOR GATHERING SPACE

In May 2024, Waterloo expanded its outdoor gathering space in the Environment Greens, with the installation of five log benches that seat up to 25 people. In the coming months, three octagonal picnic tables are also scheduled to be installed. Led by a group of faculty and staff in the Faculty of Environment, this project encourages students and employees to spend more time connecting with nature and fostering community building. The project was supported by the Sustainability Action Fund and the Waterloo Association of Geography Students in partnership with the Student Life Endowment Fund.

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

Somewhat complete

INDICATORS:

SILVER STARS Silver Designation earned in November 2018 and renewed in 2021

FORMAL POLICIES, MEMBERSHIPS, PRACTICES, AND COMMITMENTS

The following are a list of key internal and external guidelines and commitments made by the University of Waterloo to support its sustainability efforts.

Internal:

› Adoption of Responsible Investment Advisory Group recommendations for carbon reduction measures and climate change considerations in investment activity (2021)
› Lifecycle Costing Guideline (2021)
› Net Neutral New Building Guideline (2021)
› Adoption of Responsible Investment Working Group recommendations for integration of ESG considerations in investment decisions (2018)
› Policy 53: Environmental Sustainability (2017)
› Environmental Sustainability Strategy (2017)
› Waste and recycling standard (2017)
› Centralized office printers defaulted to double-sided printing
› Campus Master Plan includes sustainability aspects as defining features of campus development (2009)
› High efficiency lighting retrofits mandated during renovations
› Eliminated use of chemical pesticides (1998)

External:

› Signatory to UN Race to Zero (2021)
› Member of the Impact Network, managed by Sustainable Waterloo Region, and Bronze Pledging Partner for Waste (2017) and climate change (2021)
› Founding Member of University Global Coalition (2020)
› Signatory to Investing in Climate Change Charter (2020)
› Signatory to UN PRI (2020)
› Member and host institution in collaboration for Sustainable Development Solutions Network Canada (2018)
› Signatory to 2017 Council of Ontario Universities commitment to design a roadmap to a low-carbon campus (2017)
› Member of the Association for the Advancement of Sustainability in Higher Education (2015)
› Member of TravelWise, managed by the Region of Waterloo and Sustainable Waterloo Region (2012)
› Signatory to Council of Ontario Universities Pledge, *Ontario Universities, Committed to a Greener World* (2009)

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