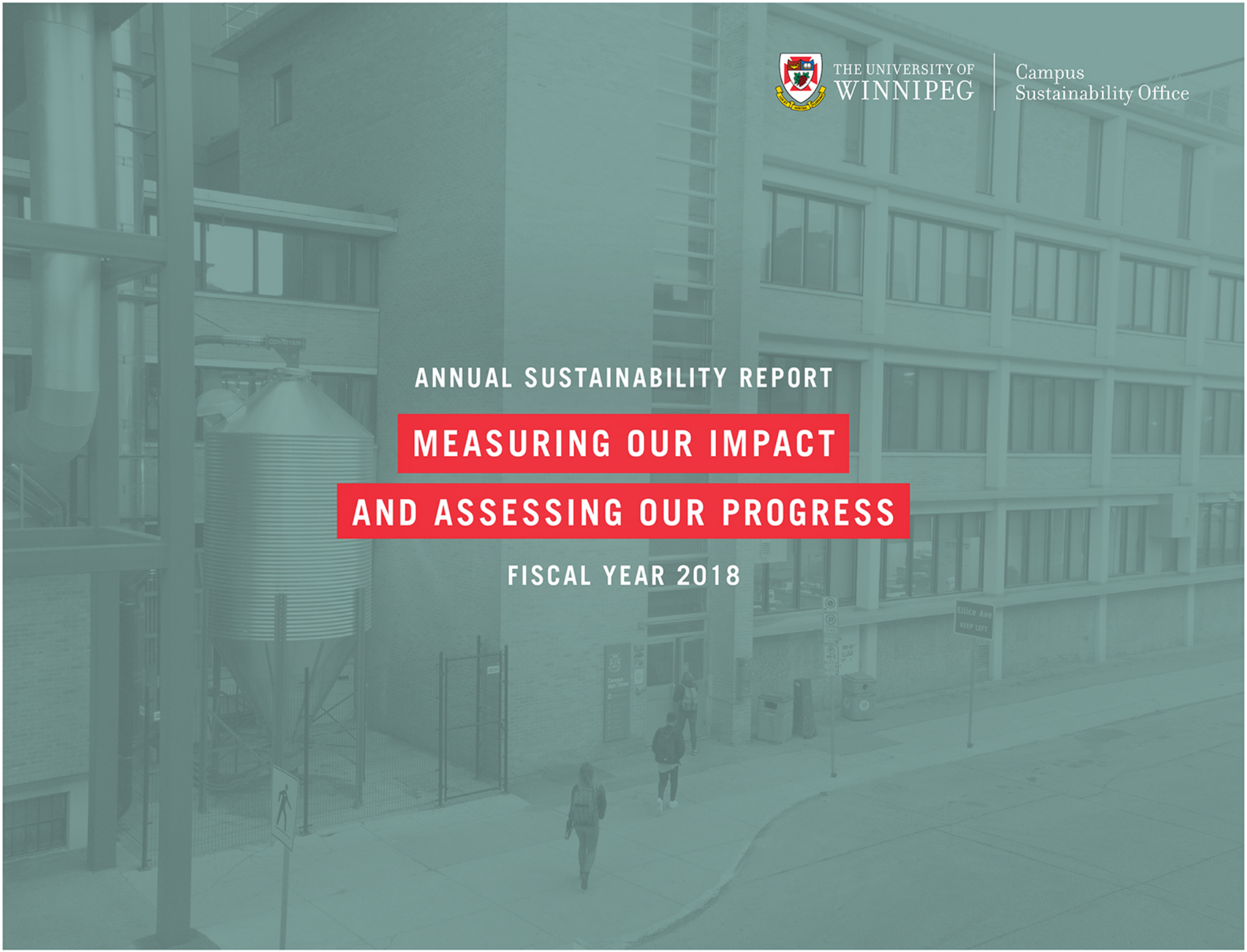
THE UNIVERSITY OF
WINNIPEG
Campus
Sustainability Office
ANNUAL SUSTAINABILITY REPORT
MEASURING OUR IMPACT
AND ASSESSING OUR PROGRESS
FISCAL YEAR 2018

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1 EXECUTIVE SUMMARY

1.1 About this Report: Scope and Purpose

This report provides a review of the University of Winnipeg's environmental performance and other sustainability impacts during the fiscal year of 2018 (FY2018), from April 1, 2018 to March 31, 2019. This document was prepared by the Campus Sustainability Office (CSO) using a wide range of sustainability indicators and metrics to assess:

- ✓ the day-to-day operations and management of all the University's owned and leased space, including capital construction and renovations, and all university programs and services,
- ✓ all university programs, initiatives and events, and "arms-length" agencies, corporations, institutes, research centres or other entities, to which University policies may generally apply,
- ✓ and the routine activities of students, faculty, and staff on campus

This report considers both the environmental impacts of the University's buildings and operations, such as resource consumption, waste generation, and emissions, and the contributions made by research, education, engagement, and community partnerships to broader sustainability objectives. It is an approach that reflects our commitment to leading on sustainability by taking responsibility for our environmental footprint and leveraging the many ways in which universities mobilize knowledge, foster innovation, and inspire change.

Beyond accounting for sustainability outcomes within a given year, our annual reporting process allows us to assess our progress toward our strategic objectives over an extended period of time. This is our second year reporting on the University's new five year Institutional Sustainability Strategy, which established nineteen specific targets within four overarching goals:

1) Exceed Canada's commitments under the Paris Accord.
2) Cultivate principled relationships with people on and off campus and with ecosystems near and far.
3) Develop and deliver curriculum, student services, and programming that deepen student knowledge about sustainability and that help motivate thoughtful leadership and action
4) Mobilize evidence and research to address local and global sustainability challenges

The four main sections of this report each focus on one of these goals, assessing progress on specific targets and outlining our strategic approaches to navigating emergent challenges.

This report can help people on and off campus learn about the University's sustainability initiatives and the ways in which the University is addressing climate change and other environmental issues. We are intentionally contributing to a body of knowledge guiding university sustainability professionals across Canada and abroad while inviting businesses and organizations here in Manitoba into a dialogue about how we uphold our environmental responsibilities. If you would like to learn more about the University's sustainability projects, or take a closer look at the data presented in this report, please contact the Campus Sustainability Office.

If you have any questions please contact

University of Winnipeg Campus Sustainability Office

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204.988.7618

https://www.uwinnipeg.ca/sustainability

1.2 Reviewing the University's Environmental Performance in FY2018

1.2.1 CHANGES TO OWNED AND OCCUPIED SPACE AND THE CAMPUS POPULATION

For the first time in several years, owned and leased space remained stable from FY2017 to FY2018 (Table 1). Though our campus footprint has steadily increased since FY1990, the University remains committed to targets based on gross emissions and similar performance factors. Our student population has grown marginally over the last year (less than 0.5%), so this is not a major factor in performance changes reported (Table 2).

Table 1: Changes to the University's occupied, owned and leased space (FY 1990, FY2017, FY2018)

	Total Area Occupied	Total Owned Space	Total Leased Space
FY1990	90137.28	90137.28	-
FY2017	154,904.49	145,207.20	9,698.29
FY2018	154,904.49	145,207.20	9,698.29
% change between FY2017 and FY2018	**0%**	**0%**	**0%**

Table 2: Student and staff population at University of Winnipeg (FY2010 – FY2018).

Fiscal Year	Students (FCE*)	Students (FTE)	Staff (FTE)
FY2010	NA	NA	724
FY2011	23,452	NA	756
FY2012	24,074	7,559	824
FY2013	27,842	7,679	810
FY2014	26,961	7,496	854
FY2015	26,567	7,563	832
FY2016	26,567	7,576	832
FY2017	26,931	7680	869
FY2018	**TBD**	**7790**	**869**

*FCE numbers revised to align with streamlined reporting processes.

1.2.2 PRIMARY ENVIRONMENTAL PERFORMANCE INDICATORS

Looking at a wide range of indicators, it is clear that the University of Winnipeg continues to improve its sustainability performance. The University performed better in FY2018 than in FY2017 in all building operations categories, except for

electrical consumption, which increased by 3.7% (Figure 1). Natural gas consumption and greenhouse gas emissions fell by nearly 11%, while waste diversion increased by 13%. Sections 2 and 3 provide more detail about the environmental costs of day-to-day operations and the University's work to mitigate these negative impacts.

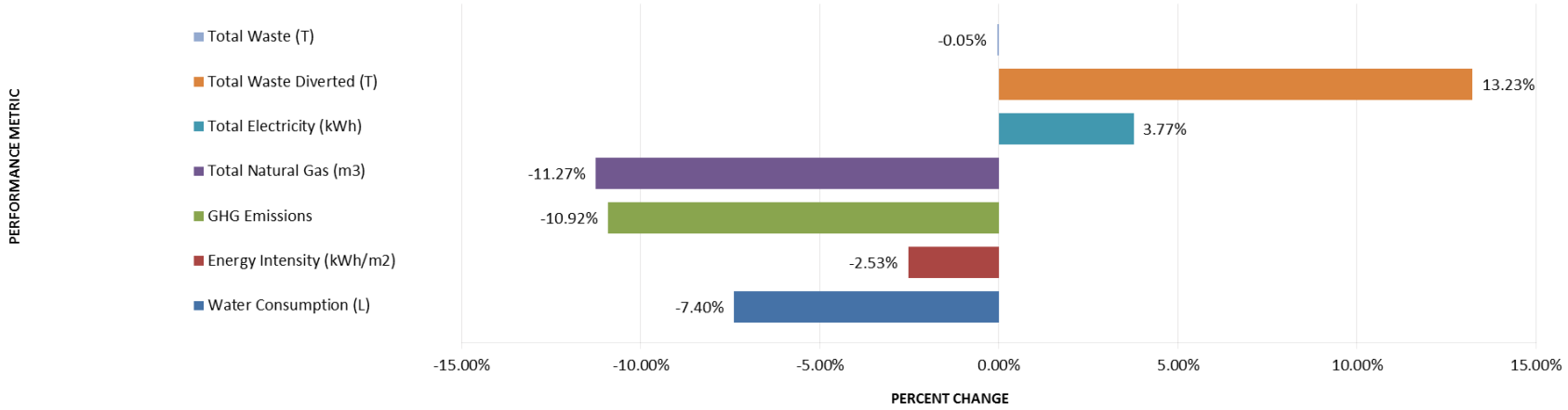


Figure 1. Sustainability performance summary for the University of Winnipeg from April 1st, 2017 – March 31st, 2018 showing annual percent change for waste collection (T), waste diverted (T), water consumption (L), energy intensity (kWh/m2), electricity consumption (kWh), natural gas consumption (m3), and greenhouse gas (GHG) emissions (TCO2e). GHG emissions and natural gas consumption are normalized for weather.

UWinnipeg's emissions fell by 11% during FY2018 thanks to a number of upgrades and improvements to our energy systems. In November the University's new biomass energy system in Ashdown Hall came online. The system consists of two 100 kilowatt boilers that consume plant-based pellets. Due to the unique challenges of biomass fuel supplies in Manitoba, there have been some gaps in fuel availability. The University is working with its partners to ensure we have continuous operation of the biomass system. Once the biomass units are running at 100%, the University will be half way to its renewable energy target. We will need to monitor the system for another year before we can generate accurate

energy and emissions data. The replacement of steam traps and efficiency upgrades to the Ashdown steam plant also contributed to the drop in emissions.

The University also replaced several rooftop units at the Duckworth Centre, improving the efficiency with which the building's air temperature is regulated for heating and cooling purposes. These upgrades did not have a measureable impact on emissions in 2018 as they were installed at the end of the fiscal year. However, based on early comparisons, the new rooftop units are expected to reduce emissions by 22 tonnes in FY2019.

Upgrades to building analytics software helped the University achieve a 7% drop in water consumption between FY2017 and FY2018. Because of ongoing digital monitoring, building operators now receive notifications when utilities like water experience abnormally high usage rates. This means that when water fixtures fail, causing water to flow continuously, the facilities team is able to address the problem much sooner.

1.3 Sustainability Highlights in FY2018

Biomass Heating System

One of UWinnipeg's most noteworthy sustainability accomplishments of FY2018 was the installation of a new biomass heating system consisting of two 100 kilowatt boilers powered by locally-sourced wood pellets. The project was made possible through a partnership with Manitoba Hydro. The system is expected to help UWinnipeg get halfway to the target of sourcing 5% of our energy needs from nonconventional renewables (Institutional Sustainability Strategy: Goal 1, Target 2), reducing emissions by decreasing demand on natural gas and hydroelectricity. The project also contributes to alternative energy solutions at a wider scale for our city and province by demonstrating the feasibility of new technologies and supply chains.

Sustainability Tracking, Assessment and Rating System (STARS)

In May, 2019, the University received a silver ranking from the Sustainability Tracking, Assessment, and Rating (STARS) program for an application that was completed during FY2018. STARS is a voluntary reporting initiative run by the Association for the Advancement of Sustainability in Higher Education (AASHE) that provides a framework for post-secondary institutions to benchmark, compare and improve their sustainability performance. UWinnipeg received its first STARS Silver ranking in 2015, and retaining this accreditation is a major accomplishment. As of June 2019 our university is one of 27 institutions in Canada with a silver ranking, and there are only 16 gold rankings and one platinum ranking. Although changes in the STARS reporting criteria meant we did not move up to a gold rating, our institution saw improvements in a number of reporting categories, including campus and public engagement, energy, purchasing, transportation, waste and water. UWinnipeg can certainly achieve a gold ranking with our next application if we can continue enhancing sustainability education, providing support for sustainability research, improving our equity, diversity and inclusion reporting, and developing renewable energy projects.

Eco Team UWinnipeg

Progress continued towards student engagement goals articulated in the 2017 Institutional Sustainability Strategy. A major accomplishment was the establishment of Eco Team UWinnipeg, an initiative that brings together students looking for opportunities to engage with sustainability outside of their studies. Through the Eco Team, students work on environmental issues on campus, volunteer on sustainability-related events in the community, and develop extracurricular projects of their own. The CSO will continue to support Eco Team UWinnipeg as a means for engaging students who want to make a difference and develop skills for careers in sustainability. In FY2019 we will plan a series of issue-focused workshops and begin to host monthly planning meetings with students.

1.4 Sustainability Challenges in FY2018

Budget Constraints, Infrastructure Improvements, and Emissions Targets

Since 2017, the Province has decreased the amount funding available to post-secondary institutions for capital projects. This is a major challenge for the University, which has relyed on support from the federal and provincial government for infrastructure upgrades. The University is trying to maintain existing facilities with ongoing operations & maintenance budgets and is not in a position to fund any of the larger initiatives required to meet our deep emissions reduction targets. The University will continue to be creative in small-scale emissions reductions, but will require additional funding partnerships in order to meet our strategic sustainability targets on time.

Landfill Diversion and Waste Contamination

Landfill diversion and waste contamination continued to be an issues in FY2018 as has been the case in other recent years. Data collected from our waste haulers indicates that since FY2014, between 63% and 69% of all waste generated on campus in a given year ends up in landfill. The results of our recent internal waste audit also revealed that 52% of all our compostable and recyclable materials were sent to the landfill. Our data tell us that the campus community can be more diligent when it comes to ensuring waste items end up in the correct stream while striving generate less landfill waste in the first place. To address these challenges, the CSO will be engaging staff and students with waste education initiatives throughout 2019. This will include the development of better instructional materials and a bin-side waste volunteer program. The CSO hopes to create a new part-time waste management staff position tasked with coordinating education and outreach as well as the monitoring and upkeep of waste collection infrastructure.

1.5 Priorities and Opportunities for 2018

Staff Education and Engagement

Since 2016 the CSO has made a more concerted effort to engage with staff on sustainability through our Green Office Program (GOP). Regular workshops and office walkthroughs with CSO staff are having a positive, if slight, impact. However, more work is needed to educate staff on certain practices relating to our sustainability performance. In 2018 the CSO and Facilities updated a series of University guidelines and procedures which now reference specific criteria, standards, and protocols, largely taken from the LEED (Leadership in Energy and Environmental Design) Operations and Management certification. Guidelines were updated for several sustainability-related areas, including cleaning, purchasing, maintenance and waste. In FY2019, the CSO will tailor staff education efforts based on these new standards, reaching out to people working in the areas to which they apply. Purchasing will be the primary focus, as there are many staff across campus who make purchasing decisions, and this is also the most effective way for the University to decrease our Scope 3 emissions. The CSO will work with Purchasing to develop training modules covering sustainability criteria as well protocol for reporting the sustainability criteria met by purchases. The CSO will also be running trainings for Bee Clean staff to bring them up to speed on best practices.

Developing a Sustainability Micro-Credential with the Richardson College for the Environment

The 2018-2019 academic year marked the beginning of a more formal alignment between the CSO, the Academic Working Group on Sustainability (AWG), and the Richardson College for the Environment (RCFE). Overall, these groups are interested in coordinating and streamlining their efforts to increase the profile of sustainability teaching, research, and service within and beyond the campus, and this past year we piloted a number of initiatives to increase campus collaboration and integration. This past year has informed an emerging strategy for the RCFE and demonstrated that the AWG has a role to play in guiding new initiatives within the College, with the CSO providing necessary supports along the way. In the coming year, these groups will continue working together to enhance and incentivise sustainability learning opportunities in the classroom and beyond. Specifically, they will explore the possibility of establishing a sustainability micro-credential that would offer students an additional designation beyond their major and incentivize holistic sustainability education on campus. Creating such a certificate would be a collaborative effort that would also connect to the work establishing a community of practice for sustainability education and research on campus.

2 ENERGY, EMISSIONS AND RESPONDING TO CLIMATE CHANGE

As in years past, we are reporting on the energy consumption and GHG emissions for owned space only. Because we do not operate the energy systems of leased buildings and cannot exercise direct influence over these spaces, they are not included in our inventory. Table 1 displays changes in owned space since FY2008, numbers that should be kept in mind when making year to year comparisons for energy and emissions. The University's greenhouse gas (GHG) emissions are down 10% since FY2017, and energy intensity is down 3%.

One of UWinnipeg's most noteworthy sustainability accomplishments of FY2018 was the installation of a new biomass heating system, consisting of two 100 kilowatt boilers powered by locally-sourced wood pellets. The project was made possible through a partnership with Manitoba Hydro. The system is expected to help UWinnipeg get halfway to the target of sourcing 5% of our energy needs from nonconventional renewables (Institutional Sustainability Strategy: Goal 1, Target 2), reducing emissions by decreasing demand on natural gas and hydroelectricity. The project also contributes to alternative energy solutions at a wider scale for our city and province by demonstrating the feasibility of new technologies and supply chains.

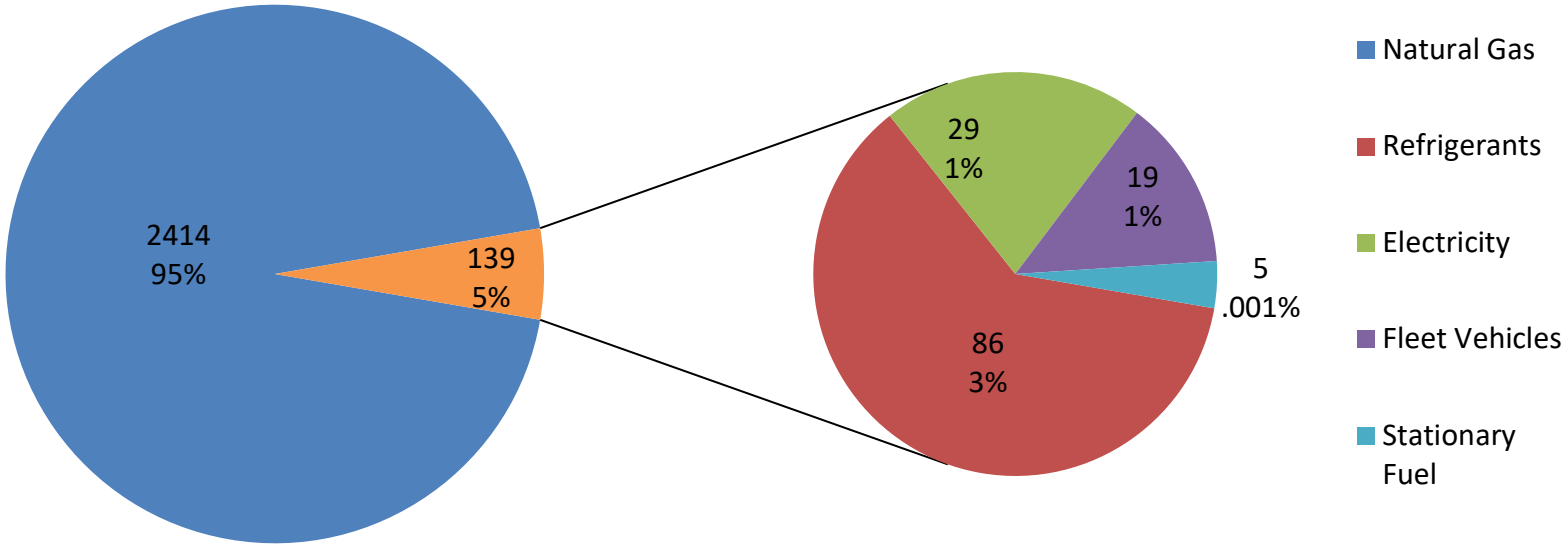


Figure 2. Breakdown of greenhouse gas emissions (TCO2e) from the University in FY2018 by source, including electricity, natural gas, fleet vehicles, stationary fuel, and refrigerants**.**

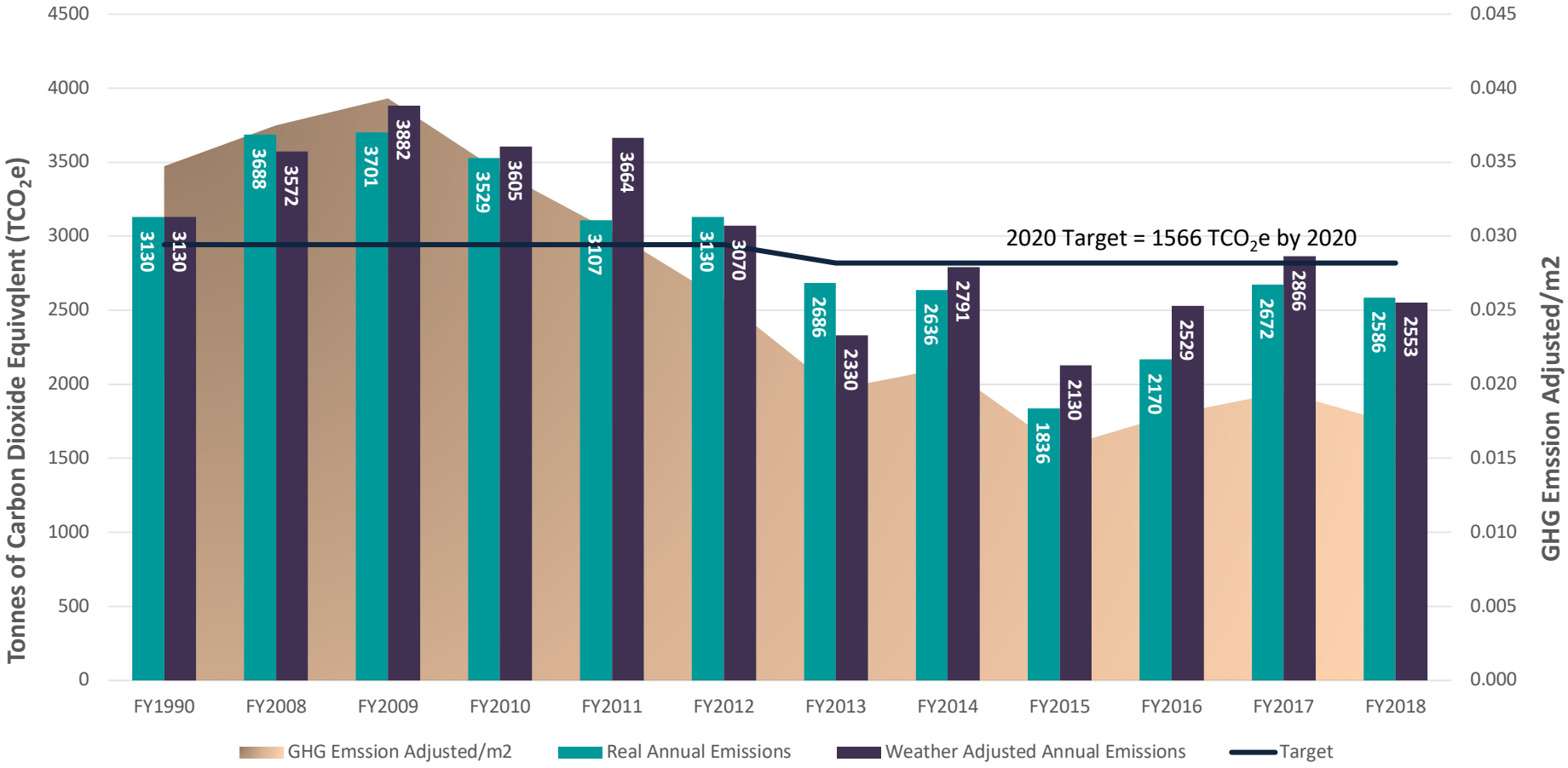


Figure 3. Greenhouse gas emissions and targets (TCO2e) from FY2008 to FY2018 (including the baseline year of 1990) for the University. Real annual emissions and weather adjusted amounts are shown.

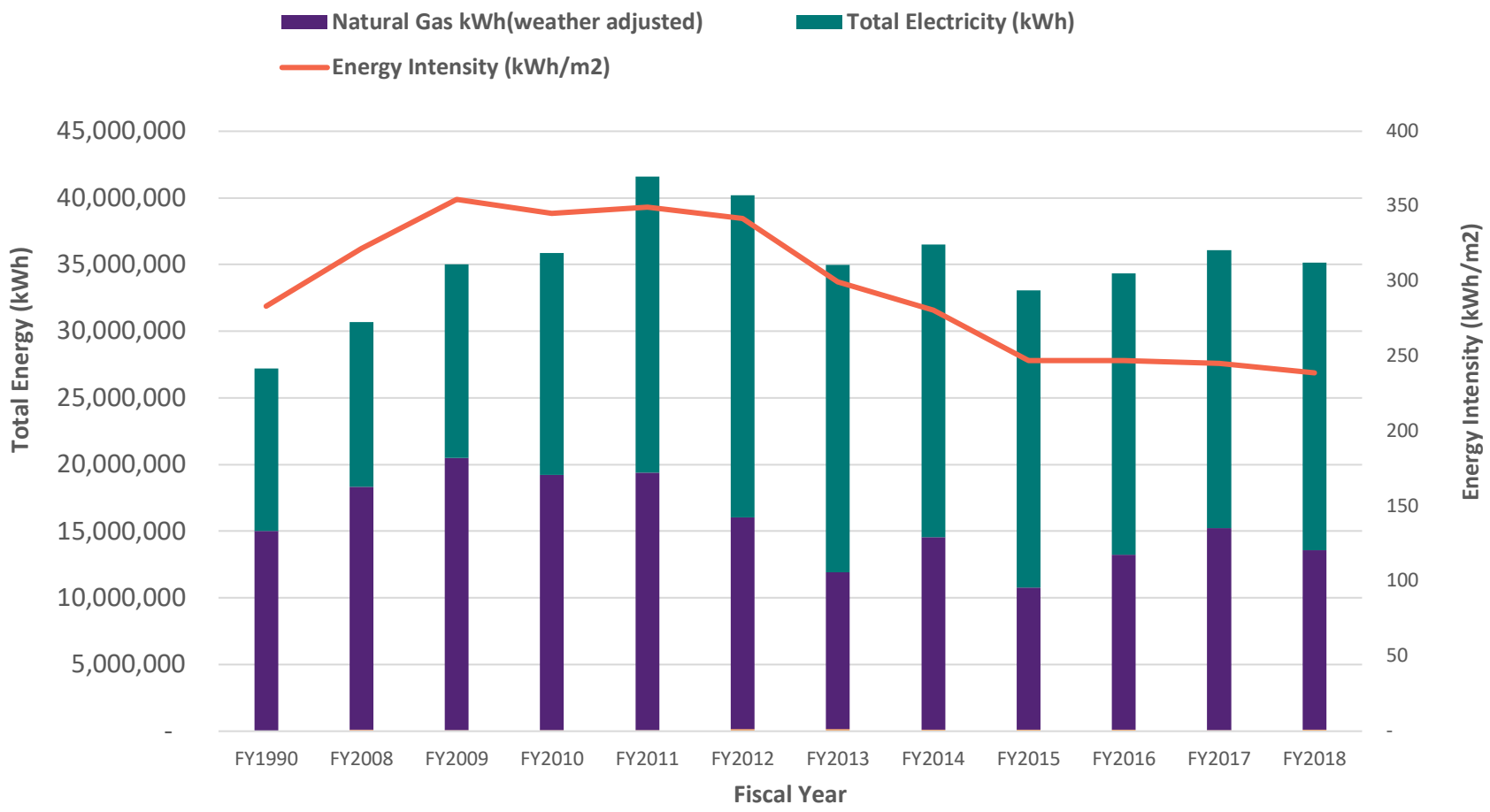


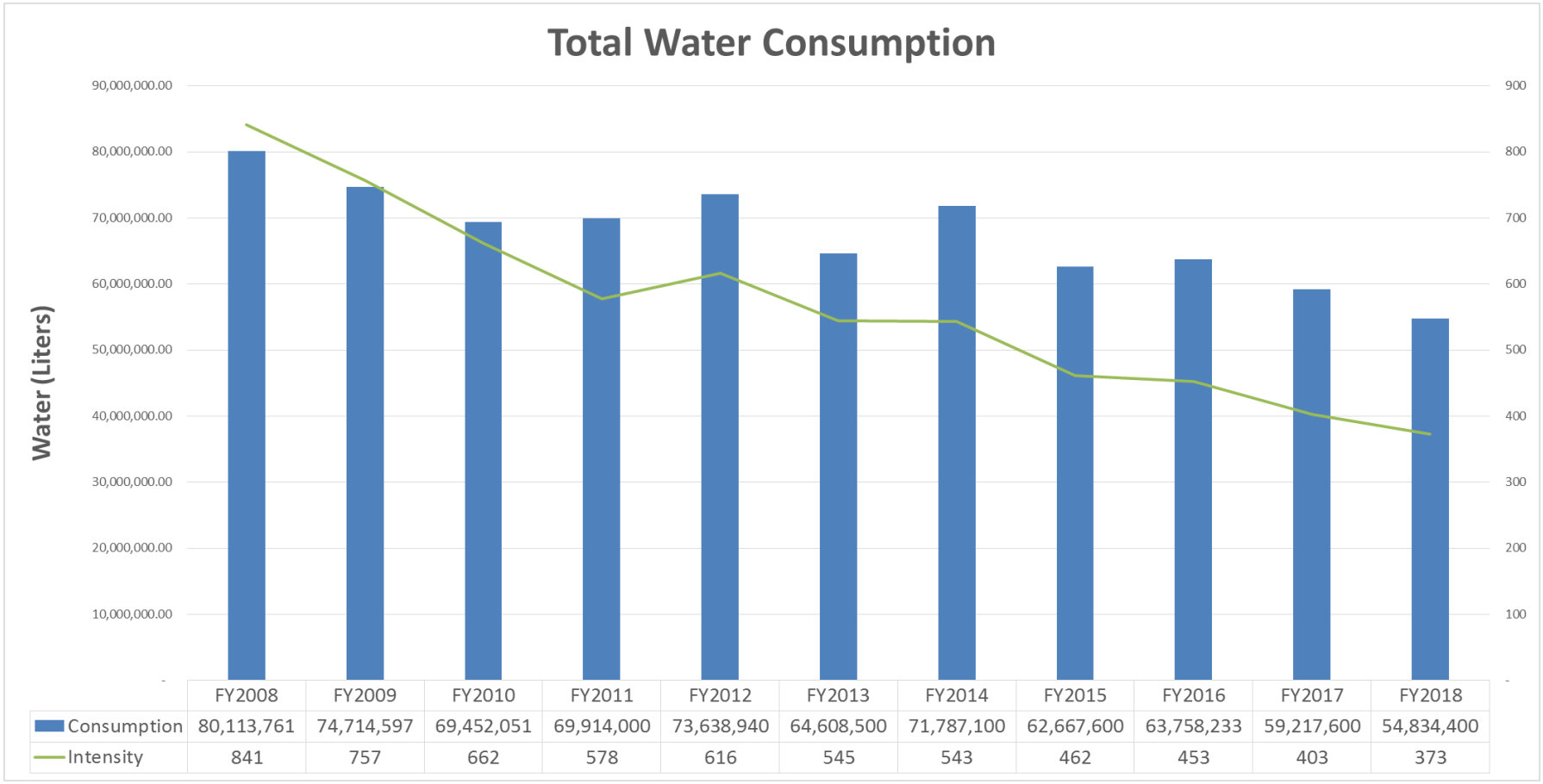
Figure 4. Energy consumption (kWh) breakdown for the University from FY1990 to FY2018 including natural gas (weather adjusted) and hydro. The intensity (kWh /m2) is also shown. (Stationary fuel and vehicle fuel, which comprise <1% energy consumption per year, not pictured.)

3 RESILIENT ECOSYSTEMS AND HEALTHY COMMUNITIES

3.1 Water Consumption

FY2018 saw an improvement in water usage over FY2017 (-7%). Because of ongoing digital monitoring, building operators now receive notifications when utilities like water experience abnormally high usage rates. This means that when water fixtures fail, causing water to flow continuously, the facilities team is able to address the problem much sooner. That said, fluctuations in annual water usage are the result of a variety of factors, including user behavior and operational breakdowns, and this software is not a catchall solution for performance improvement. Future water initiatives include additional metering and continued water use education by the CSO.

The University also established new Indoor Water Use Reduction Guidelines in February, establishing a new goal for the University: to achieve an annual metered water intensity of 400L/m^3 by 2021, a 10% reduction from the FY2015-2017 average. We have achieved this goal quickly and hope to maintain this level of water use in the coming years.



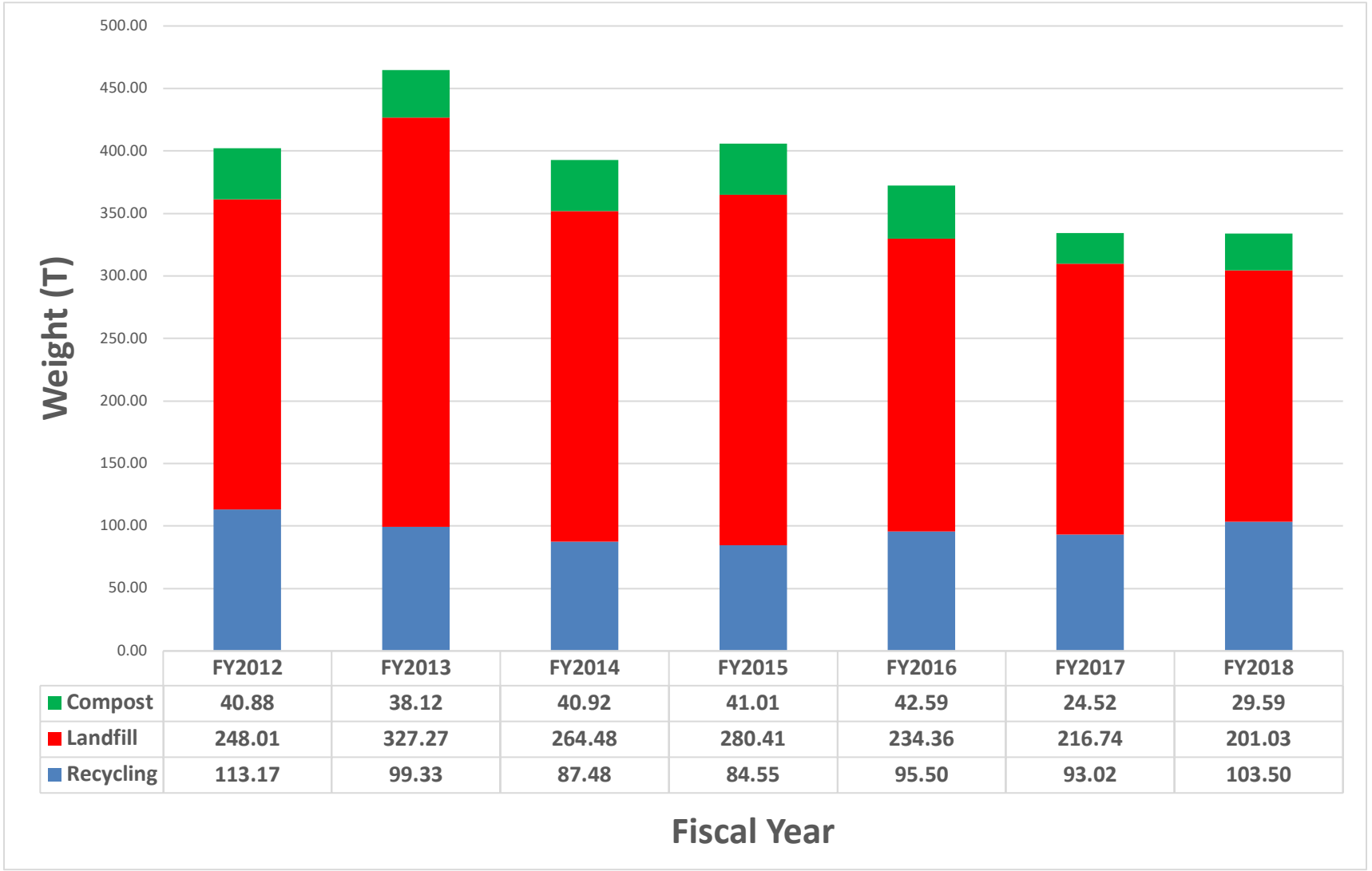
	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
Consumption	80,113,761	74,714,597	69,452,051	69,914,000	73,638,940	64,608,500	71,787,100	62,667,600	63,758,233	59,217,600	54,834,400
Intensity	841	757	662	578	616	545	543	462	453	403	373

Figure 5. Water consumption (L) for UWinnipeg from FY2008 to FY2018.

3.2 Waste Diversion

Total waste as reported by our hauler has remained steady since FY2017. Diversion, or percent waste that is diverted from landfills to either recycling or compost streams, is at 40%, up 13% from FY2017 (see Figure 6). This year, the CSO worked with our new student group Eco Team UWinnipeg to provide waste education at bins in the Riddell Hall cafeteria during busy lunch hours, and they hope to expand these efforts in FY2019 to include large scale “Bin Blitzes” with all waste educators present.

The CSO also conducted its third waste audit for the IG Wealth Management building at 201 Portage Ave. 10 student auditors worked over 3 days sorting and weighing waste from both offices and kitchens, and some students were also able to help with data analysis for the final report. Partnerships like these are an opportunity for the CSO to share our expertise in waste reduction and management, engage students in paid, hands-on environmental learning, and build on the University’s reputation as an environmental leader. We are looking into further waste auditing contracts in FY2019.



	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
Compost	40.88	38.12	40.92	41.01	42.59	24.52	29.59
Landfill	248.01	327.27	264.48	280.41	234.36	216.74	201.03
Recycling	113.17	99.33	87.48	84.55	95.50	93.02	103.50

Figure 6. Annual compost, landfill, and recycling weights by proportion and diversion rate, as reported by hauler (FY 2008-2018).

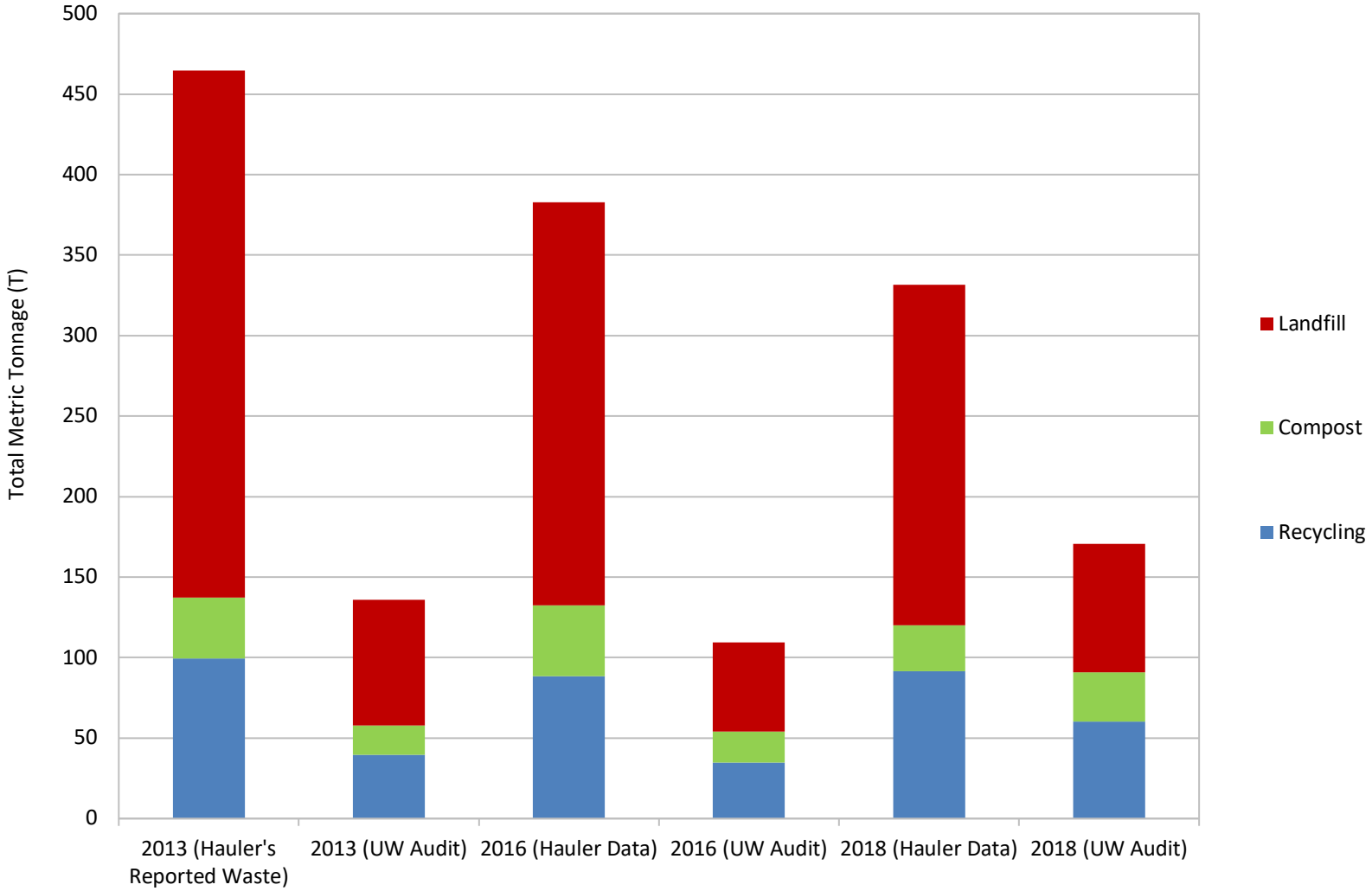


Figure 7. Comparison of total waste reported (T) by campus hauler and waste audit (FY2013, 16, and 18).

3.3 Cleaning, Maintenance and Grounds Keeping

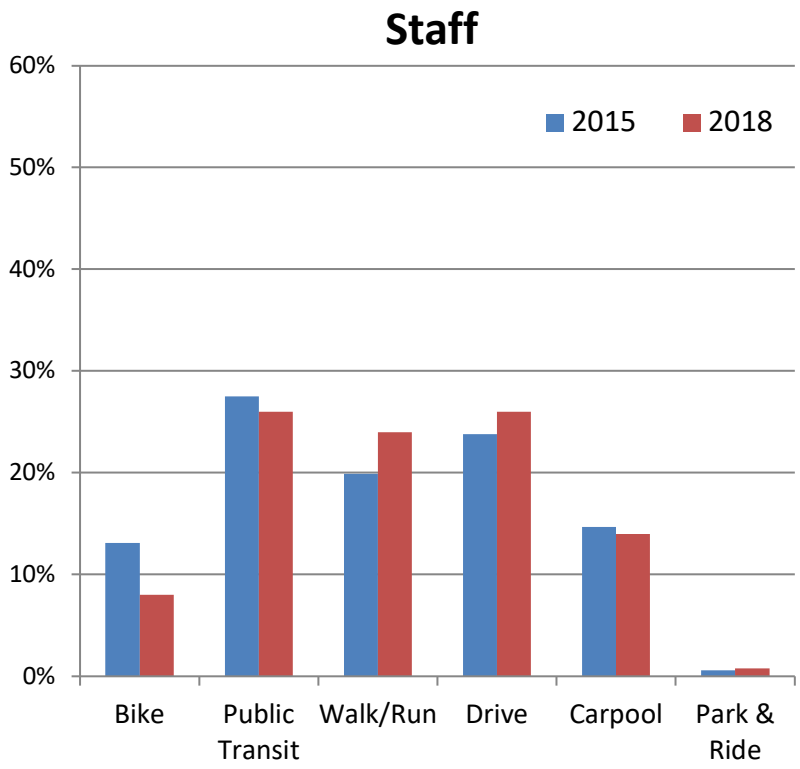
The purchase of necessary green cleaning products continues to be a priority for our facilities department, with 85% of products bought in-house having either a GreenSeal or ECOLOGO certification. That said, because the use of ionized water has significantly reduced the use of some green cleaners, the year-over-year comparison of percent green products purchased is no longer a useful mechanism for tracking improvements in sustainability cleaning practices on campus. We are working on better ways to reflect such improvements in our reporting processes.

In FY2018, Physical plant purchased a suite of electric outdoor maintenance equipment including two lawn mowers, two leaf blowers, two trimmers and a hedge trimmer. We will continue to replace gas equipment with electric equipment as opportunities arise.

In addition to these improvements, the University's Cleaning Guidelines were updated in FY2018. The document now includes preferred products, specifications, and standards for cleaning materials and equipment, most of which come from LEED Operations & Maintenance. The updated guidelines will help us increase the proportion of cleaning products used on campus that are environmentally sustainable, and the CSO will make sure all cleaning staff are trained with this information in 2019.

3.4 Transportation Modal Split

The University established Active Transportation Infrastructure Guidelines in February. These set new targets around green commuting in general and biking in particular: To have 80% of students commuting using a mode other than single-occupancy vehicle, and 10% of students commuting by bicycle from May-October; and to have 80% of faculty and staff commuting using a mode other than single-occupancy vehicle, and 15% of faculty and staff commuting by bicycle from May-October. Figure 8 shows the results of our last commuter survey. The increasing popularity of initiatives like the Commuter Challenge, a summer event run by the CSO in conjunction with the Green Action Centre to track green commuting on campus, indicates an interest in sustainable transit on the part of staff and students alike.



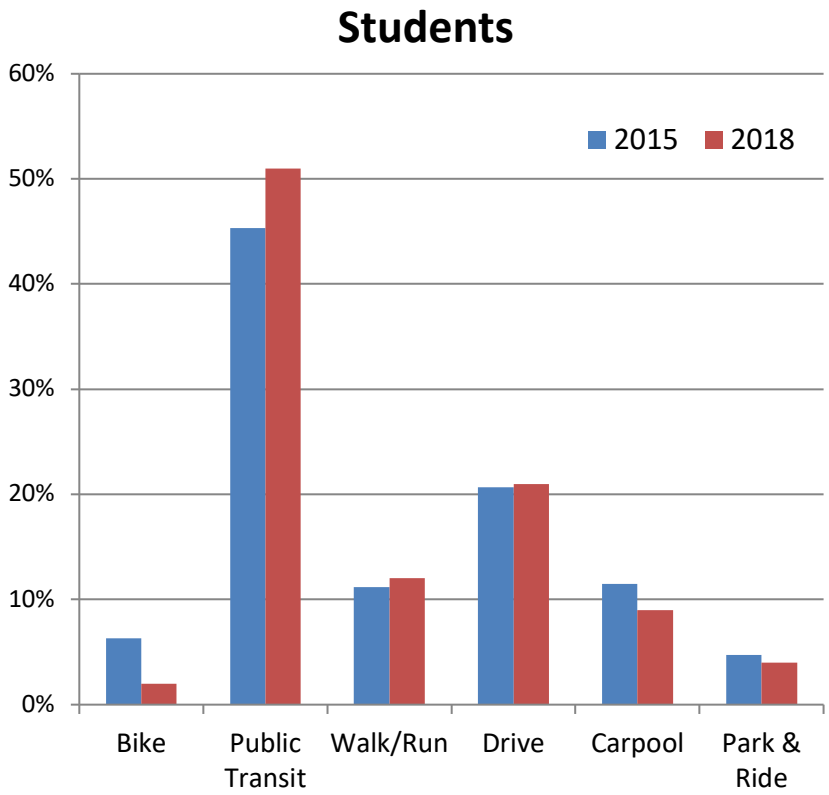


Figure 8. Comparison of the FY2015 and FY2018 transportation modal splits for staff and students at the University

3.5 New Buildings, Renovations and Retrofits

UWinnipeg's emissions fell by 11% during FY2018 thanks to a number of upgrades and improvements to our energy systems. First, in, November of 2018 the University's new biomass energy system located in Ashdown Hall came online. The system consists of two 100 kilowatt boilers that consume plant-based pellets. The system will begin operating at full capacity once fuel sourcing challenges are figured out. Once the biomass units are running at 100%, they will get the University half way to its renewable energy target. We will need to monitor the system for another year before we can generate accurate energy and emissions data. Second, the replacement of steam traps and efficiency upgrades to the Ashdown steam plant also contributed to the drop in emissions.

The University also replaced several rooftop units at the Duckworth Centre, improving the efficiency with which the building's air temperature is regulated for heating and cooling purposes. These upgrades did not have a measureable impact on emissions in 2018 as they were installed at the end of the fiscal year. However, based on early comparisons, the new rooftop units are expected to reduce emissions by 22 tonnes in FY2019.

Upgrades to building analytics software helped the University achieve a 7% drop in water consumption between FY2017 and FY2018. Because of ongoing digital monitoring, building operators now receive notifications when utilities like water experience abnormally high usage rates. This means that when water fixtures fail, causing water to flow continuously, the facilities team is able to address the problem much sooner.

3.6 Environmentally and Socially Preferable Purchasing

Last year, our institution made big steps towards improving environmentally and socially responsible purchasing practices on campus. The CSO worked closely with the Purchasing department to publish new Sustainable Purchasing Guidelines as well as update our Purchasing Procedures. These documents encourage socially and environmentally preferred purchasing by calling on all staff to look for certain criteria, standards and third party verifications for a wide range of goods and services,. UWinnipeg's Nav purchasing software now includes dropdown menus that reflect that criteria and

certifications in the Guidelines. Furthermore, vendors must now complete a sustainability questionnaire as part of the RFP process. The intent here is to include social and environmental impacts as part of the scoring system and awarding of contracts.

All of these improvements bring us closer to meeting purchasing-related targets set in the 2017 Institutional Sustainability Strategy but more work is required to ensure staff are following sustainable purchasing practices, and reporting on them. In FY2019, the CSO will work with Purchasing to develop a training program for staff so that they are following the new Guidelines wherever possible. We also hope to introduce sustainable purchasing fields into forms used for office-level purchases, and to train staff on how to use these when submitting purchasing and expense paperwork. Ultimately, these new processes will allow our institution to report on the percentage of purchases that meet sustainability criteria and to set realistic goals for improvement once we know our baseline, something called for in the Sustainability Strategy.

3.7 Campus Food

Diversity Food Services continued its work as a leader in food systems sustainability in FY2018. The University's STARS performance was among the top in North America thanks to their efforts. Some notable achievements from the report included:

- 64% of food purchases have some sort of sustainability attribute, and only 4.5% of animal product purchases were "conventional" products (see Figure 9).
- In additional to rural farm partnerships, Diversity works with city growers like Cultivate UW and Fort Whyte Farms to provide local produce on campus.
- The University scored bonus innovation points for Diversity's Leadership in Environmentally Accountable Foodservice (LEAF) certification; LEAF works with restaurants to reduce environmental impact by targeting energy, water, and waste reduction.
- This is the 5th year that Diversity has been the top ranking campus food service in Canada.

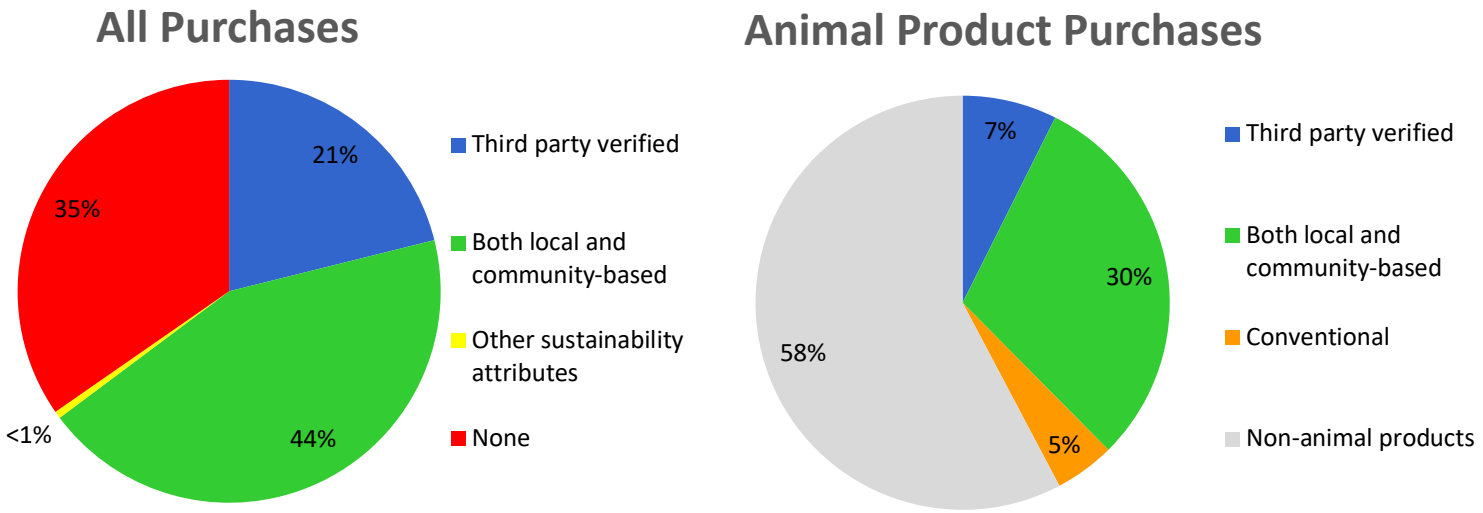


Figure 9. Sustainability attributes of Diversity's expenditures on all food and beverage products (left) and a breakdown of animal product purchasing (right) for FY2018.

3.8 Equity, Inclusion, Diversity and Indigenization

The University of Winnipeg is committed to equity, diversity and inclusion (EDI), as well as the general improvement of social sustainability on campus. In the spring of 2019 UWinnipeg was awarded an EDI Institutional Capacity Building Grant as part of the Equity, Diversity and Inclusion (EDI) Institutional Capacity-Building program from the Canadian Government. This grant coupled with continued prioritization of EDI will enhance the universities collection and analysis of EDI information. The CSO and the Human Resources department will continue collaboration leveraging the data for

strategic forward action highlighting the links between environmental sustainability and workplace wellness.

FY2018 was the third year of the UWinnipeg Indigenous Course Requirement (ICR). The ICR was implemented soon after the final report from the Truth and Reconciliation Commission was released, outlining 94 Calls to Action. Many of the Calls to Action focus on the need for sustained public education and dialogue, including youth engagement, about the history of residential schools, Treaties, and Indigenous rights, as well as the historical and contemporary contributions of Indigenous peoples to Canadian society.

In addition, as part of UWinnipeg's approach to reconciliation, we recognize the central role of language as the carrier of culture, tradition and knowledge. The University is offering Ojibwe and Cree credit courses, and through the Wii Chiiwaakanak Learning Centre, we have 44 free Indigenous language classes for neighborhood residents.

4 SUSTAINABILITY EDUCATION AND KNOWLEDGE MOBILIZATION

4.1 Sustainability Education

The University continues to offer a number of sustainability courses across many disciplines. Some key achievements from the Academics section of the 2019 STARS Report included:

- 11.7% of courses offered are either sustainability-focused or sustainability-related, according to AASHE's definitions.
- 21 academic departments offer at least one sustainability course.
- Both undergraduate and graduate students can receive degrees that are explicitly focused on sustainability.

FY2018 marked the completion of our updated course inventory. Following the progress of the Academic Working Group in FY2017, the Campus Sustainability Office hired contract employee Vanathy Kandeepan to pursue any outstanding course syllabi and sort courses by sustainability rating. In February 2019, the CSO hosted a faculty syllabus review lunch to get feedback on sustainability ratings from subject experts and encourage discussion among faculty of sustainability topics.

The CSO would also like to recognize some of the fantastic sustainability teaching that occurred in FY2019:

In May 2018, professors Janis Thiessen, Kimberley Moore, and Kent Davies offered HIST-3504, Manitoba Food History.

Working in partnership with the UW Oral History Centre and the Sir William Stephenson Library, students learned about food history, research ethics, workplace safety, oral history, audio recording, interview processing, podcasting, and ArcGIS Story Mapping. They then boarded the Manitoba Food History Truck, conducting interviews with Manitobans who cooked samples of food that was meaningful to them. Students then archived those interviews and turned them into podcast episodes and story maps. The Truck also receives significant support from Diversity Food Services.

Fig. 10. Students prepare meals on the Manitoba Food Truck for HIST 3504.

2018 also marked the 7th year the Forest Ecosystems Field Course (BIOL 4451) was offered. This three week hands-on course provides an overview of forest ecology field skills. Topics include field and laboratory exercises in boreal and urban forestry, tree and plant identification, classification of forest types, and environmental impact assessment. This course

earned the University credit for STARS AC-5, Immersive Experience in Sustainability.

4.2 Experiential and Work-Integrated Learning

Sustainability learning, community engagement, and experiential learning go hand-in hand. Our STARS findings indicate:

- The University serves as a living laboratory for sustainability learning across many disciplines, serving as a research setting for topics from energy and climate change to health and wellbeing.
- 20% of PACE (Professional, Applied, and Continuing Education) courses address sustainability topics.

Coops, internships, and other experiential opportunities continue to flourish here on campus. Below, we describe some notable efforts:

International Development Studies has been providing students with hands-on experience through their practicum program for over 15 years. This program allows students to integrate their academic learning in settings of supervised 'field' experiences. The practicum involves volunteer work with a relevant local or international agency, exposing students to real-world work settings where they will experience new cultural, social and economic situations. Students integrate theory with practice through seminar participation and academic assignments. These students grapple with a variety of topics that are often explicitly environmentally focused. From September to December 2018, IDS practicum participant Sarah Chan worked in Chiangmai, Thailand with ECHO Asia. Sarah was able to work with the organization’s agricultural support branch, geared towards reducing hunger and providing skills in sustainable farm practices, including seed banks.

Development continued for the Langside Learning Garden, a collaborative project between UW professors Leanne Block, Judith Harris, Alan Diduck, and Rafael Otfinowski and the Spence Neighborhood Association. Over the next 3-5 years,

this property at 373 Langside will be a site to pilot sustainable gardening practices and offer educational events, research projects, classes and workshops, and celebrations for the Spence and University community. Once finished, there will be seating, pathways, signage, and gardens. The gardens will provide a place to relax, learn, grow plants and food, as well as interact with birds, pollinators and other creatures. The community will be planting the garden together.

4.3 Sustainability Research

UW faculty continue to promote and pursue sustainability research. The 2018 STARS report indicates that:

- 15% (n=42) of UW faculty are pursuing sustainability research
- Sustainability research is conducted across 15 departments
- The UW library provides ongoing staff support in sustainability topics

The University is also proud of the accomplishments of the Prairie Climate Centre (PCC), a research and communications institute based in the Richardson College. Over the past year, the PCC has seen considerable growth in its activities, fundraising, and staffing complement. Dr. Nora Casson was appointed a new co-director, along with Drs. Mauro and Blair. The PCC also has five research associates, three research technicians, two postdocs, and one Masters student who have collectively contributed to the academic and research goals of the University. The PCC has developed extensive networks and outreach activities across municipalities, provinces, and the entire country through its innovative research and communication programs. Major highlights over the past year that contribute to UW's Integrated Academic and Research Plan (IARP) include: 1) launch of the *Climate Atlas of Canada* with Ministers McKenna (Environment and Climate Change Canada) and Squires (Sustainable Development, Province of Manitoba); 2) launch of the film *Beyond Climate* with David Suzuki; 3) Indigenous Knowledge and Participatory Video projects; 4) collaborations with professional organizations and

various communities; 5) student and professional training opportunities; and 6) knowledge mobilization. The PCC has had a significant media impact; between April 2018 and October 2018 our projects received over 171 million+ “potential views” across print, broadcast, and social media with an “ad value equivalency” of over $1.75 million. Perhaps not surprisingly, the PCC is increasingly recognized as a leading climate change research organization and is showcasing UW’s important research and academic contributions regionally, nationally and internationally.

5 ENGAGING OUR COMMUNITY AND NURTURING CHANGE-MAKERS

Building on the success of our contact database in FY2017, the CSO has moved forward with separate staff, faculty, and student engagement initiatives in FY2018. We also continue to provide reach the campus community at large with our monthly newsletter and cross-campus events like the Commuter Challenge and Thrive week. Tables 3 and 4 provide the first results of our engagement tracking efforts, which we hope to report year-over-year in the future.

Table 3. Staff, faculty, and student participation in CSO-hosted events in FY2018.

Student participants	Staff participants	Faculty participants
250	48	30

Table 4. Monthly CSO newsletter statistics from FY2018.

Newsletters mailed	% of recipients who opened newsletter	% openers who followed an embedded link
13400	51	29

5.1 Student Engagement

This year was a successful one for student engagement, marked especially by the establishment of Eco Team UWinnipeg. Here, we will describe this student initiative and some of our other successful student outreach events of FY2018.

Eco Team UWinnipeg

In late September, the CSO invited our volunteer base, student groups, and mailing list subscribers to a visioning session for student engagement around sustainability. This lunch included background on our mandate for student engagement set out in the 2017 Sustainability Strategy, after which students were asked to share their interests and ideas for following through on this mandate. Students homed in on two major initiatives they would like to pursue: climate justice and waste reduction. Over the following months, the CSO worked with students to establish Eco Team UWinnipeg, a group that provides targeted outreach around the University's sustainability objectives and engages with large-scale environmental challenges through education and activism. Their work has included tabling, recruitment, and waste outreach, including the first "Bin Blitz" on April 4, 2019. For this event, the Eco Team occupied the Riddell Cafeteria for the duration of the lunch period, educating their peers on recycling protocols, University waste diversion goals, and waste reduction options. The CSO is excited to work with these students in the coming year and appreciates the time and effort they have put into forming this student group.

Figure 12 Students of Eco Team UWinnipeg conduct waste outreach.

THRIVE Week

The CSO and Eco Team volunteers participated for a second year in Thrive Week, the University's week devoted to mental health awareness. The "Where's Your Greenspace?" activity allowed students and other campus community members to learn about the mental health benefits of spending time in natural spaces and to share their favorite green spaces in the city on a large map. The CSO later converted this to an online resource. We also partnered with the Mental Health and Wellness Peer Educators for a day to offer "What Bin Does It Go In?," an interactive station where participants are asked to place common waste items in the correct bin.

Peg City Climate Jam

The Eco Team also participated in the planning and execution of the first Peg City Climate Jam, a day-long forum exploring the urgency of climate change and the transformative solutions emerging in Winnipeg's communities. Topics included food systems resilience, Indigenous participation in the climate change movement, and a just transition to a zero-emissions economy. Hosted in the Richardson College for the Environment, this event was attended by over 150 community members, including dozens of students and local community members. Although the CSO was not able to host Grass Routes, an annual sustainability festival held in collaboration with the UWSA, this year, we found that the Climate Jam attracted a wide audience and served many of the same goals: to help the campus and broader community connect, collaborate, plan and take action on environmental issues. We hope to continue this tradition of mid-winter, large scale events in the coming year.

5.2 Staff Engagement

The CSO's Green Office Program (GOP) continues to be our primary program to reach staff across campus and work with departments to improve their environmental performance. This year CSO staff compiled an improved Green Office

Program website and resource guide, launched in September at our Green Office Program Orientation Lunch. The improved GOP has a two-pronged approach for engagement: for those generally interested in sustainability topics, we provide quarterly workshops run by subject experts; this year, we offered two workshops between September and March: Fair Trade Lunch and Learn and Buy Less, Trade More, Fix Often, hosted in collaboration with Fair Trade Manitoba and the Green Action Centre, respectively. For those who want a more active role, we offer the option to become a GOP Representative. These individuals meet with a CSO staff member to conduct a Green Office Walkthrough, and set yearly goals for their office based on our newly developed GOP Checklist. They then work with CSO staff to achieve these goals. Six GOP representatives have currently signed up to work with us, and we look forward to growing the program in the coming fiscal year. Achievements include composting at PACE graduations and gardening workshop collaboration between Urban and Inner City Studies and the Langside Learning Garden.

5.3 Faculty Engagement

The 2018-2019 academic year marked the beginning of a more formal alignment between the CSO, the Academic Working Group on Sustainability (AWG), and the Richardson College for the Environment (RCFE). Overall, these groups are interested in coordinating and streamlining their efforts to increase the profile of sustainability teaching, research, and service within and beyond campus, and this past year we piloted a number of initiatives to increase campus collaboration and integration.

With input from the AWG, the CSO and RCFE began campus educational and research programming and launched a speaker series designed to attract students, staff, faculty and the larger community interested in environment and sustainability. This speaker series allows participants to share knowledge, experiences, and discuss ideas for collaborative, interdisciplinary research and teaching that engage networks on and off campus. This pilot year allowed us to test the type of topics and timing of events that were of most interest to campus colleagues. This informed our longer-term objective of establishing a “community of practice” that formally aligns sustainability focused research and academic

efforts on campus. It is also that would be complimentary to roster of benchmarked sustainability courses on campus (previous section).

To launch this new partnership, the CSO and RCFE, with support from the AWG, hosted a mix-and-mingle event on September 18, 2018, called “Growing a Collaborative Environment: Sustainability Education and Research at UWinnipeg.” Dr. Annette Trimbee opened the event, with additional speeches by Dr. Mauro (RCFE) and Joe Wasylycia-Leis (CSO) to set the context for the collaboration and steps moving forward. The event was attended by over 30 people and led to discussions amongst students, staff, and faculty about sustainability efforts on campus.

The RCFE and CSO held three additional events, “Halloween with the Batprof” (October 28, 2018) featuring Dr. Craig Willis; Climate Change and Our Common Future (November 1, 2018) featuring Drs. David Suzuki and Ian Mauro; and “Winter Climate Change” (January 30, 2019) featuring Dr. Nora Casson. For each of these events, there was substantial participation from both the campus and larger community, as well as extensive media interest that resulted in print, broadcast and social media coverage of UWinnipeg’s educational and research efforts regarding sustainability. In total, roughly 140 people participated in these events, including forty faculty members.

See also Sustainability Education for more information about the work of the AWG on the sustainable course inventory.

Given the success of this pilot year, we hope to have the AWG act as an advisory board to the RCFE, which will create a formal and integrated management structure for sustainability education and research efforts on campus.

6 CONCLUSION

The Campus Sustainability Office would like to thank you for taking the time to read our Annual Performance Report. We appreciate all of the individuals and departments at UWinnipeg who are dedicated to improving our institution's social and environmental impact, and to all campus community members who support this work by making sustainable choices every day.

FY2018 brought new challenges to our sustainability management work, but it also was a year of improvements and successes. Budget constraints and uncertainty around government funding are limiting our ability to reduce emissions by investing in new technology on a large scale, and we must navigate this reality to meet our ambitious reductions targets. That said, projects like the biomass boilers and the Rec Plex solar array demonstrate that it is possible to transform the University's energy systems.

FY2018 was also a breakthrough year in student, staff and faculty engagement. Eco Team UWinnipeg, the Green Office Program, and collaborations between the CSO and the Richardson College are producing exciting opportunities for knowledge mobilization and environmental leadership development. We are looking forward to expanding these programs and connecting them through a holistic framework for enhancing sustainability education and supporting students aiming to become sustainability change-makers.

If you have any questions or ideas related to campus sustainability, or you would like to be involved with our Office's work, please contact us at sustainability@uwinnipeg.ca.

APPENDIX A: PROGRESS ON STRATEGIC OBJECTIVES

Goal 1: Exceed Canada's Commitment Under the Paris Accord		
Target 1	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Achieve a 50% reduction of scope 1 & scope 2 GHG emissions compared to a 1990 baseline by 2020 and achieve 0 emissions by 2035.	- Emissions fell by 11% in 2018 thanks to system upgrades, efficiency improvements and the biomass heating system coming online, - Fluctuations in utility rates remain an issue, making it hard to commit to maintaining or increasing hydro consumption. Further, provincial and federal policies and climate plans have yet to yield programs that would bring investment in energy projects on campus.	- The CSO and Facilities will continue looking for funding partners and government programs that can support energy infrastructure projects. - Facilities will complete a feasibility study to evaluate options for transforming our heating systems. This will include a look at how we can install a district heating system that shares energy more efficiently.

Goal 1: Exceed Canada's Commitment Under the Paris Accord		
Target 2	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Aim for 5% of total energy use on campus to be derived from unconventional renewable energy sources (solar, geothermal, wind, sustainable biomass) by 2025.	- In, November of 2018 our new 200 kilowatt biomass heating system started operating. The unit is expected to get the University half way to its renewable energy target. - The Facilities team secured funding from Manitoba Hydro for a 178,000 watt solar panel system on the roof of the RecPlex.	- Installation of the Rec Plex solar array began in April 2019 and the system will be online later this year. It will help UWinnipeg achieve its renewable energy goals but will not impact our emissions as it will serve as a substitute for hydroelectricity.

Goal 1: Exceed Canada's Commitment Under the Paris Accord		
Target 3	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Establish baseline for key scope 3 (ex. Air travel) by 2017 and report annually; set a reduction target by 2018.	- Published new Sustainable Purchasing Guidelines and updated Purchasing Procedures. These documents outline new requirements for purchasing socially and environmentally preferable goods and call for stricter reporting.	- Data resulting from new purchasing reporting practices will allow us to identify our Scope 3 baseline and set a realistic reduction target.

Goal 2: Cultivate principled relationships with people on and off campus and with ecosystems near and far		
Target 1	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Aim to align facilities management to reflect the equivalent of LEED Operations & Maintenance standards by 2021; integrate reporting metrics from LEED O&M into annual reporting; achieve full alignment and reporting capacity by 2021.	- CSO, Facilities and other stakeholder departments overhauled/created several University operating procedures and guidelines that now include specific standards and criteria reflecting the best practices of third party rating systems like LEED Operations and Management. These establish specific targets in each of our core environmental performance categories.	- The CSO will train staff on the new procedures and guidelines that pertain to their areas, emphasizing new reporting practices.

Goal 2: Cultivate principled relationships with people on and off campus and with ecosystems near and far		
Target 2	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Ensure that all new buildings and major renovations are built to the highest possible standards appropriate to the given project and context. By July 2017, draw on LEED, LivingBuilding, Passive House, and Green Globes to develop (a) transparent decision-making criteria that will be used to determine the most appropriate approach for a given project (b) a publicly available internal sustainability project checklist (c) standard template sustainability RFP requirements for all projects. Report on projects annually.	- The University's Capital Construction and Renovation Procedures now require that all new construction and renovation projects over 10,000 feet be built to a LEED Silver standard or better. - The RFP process now includes a questionnaire for assessing social and environmental sustainability criteria of proposals.	- The Campus Sustainability Coordinator, Executive Director of Facilities, Director of Purchasing, and Planning & Support Project Manager will work together to develop a sustainability project checklist. - We will also evaluate the effectiveness of the RFP questionnaire and make adjustments to the process as needed.

Goal 2: Cultivate principled relationships with people on and off campus and with ecosystems near and far		
Target 3	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Publish sustainability requirements and standards for environmentally and/or socially preferable purchased goods as well as detailed sustainability-related scoring requirements for RFPs on the Purchasing Services website by the end of December 2017 for use by all the University staff making purchasing decisions. Ensure requirements reflect metrics that support the University's Indigenization goals.	- Published new Sustainable Purchasing Guidelines and updated Purchasing Procedures that outline new requirements for purchasing socially and environmentally preferable goods/services and call for stricter reporting. - RFP process now includes a sustainability questionnaire; getting vendors to fill it out has been challenging as the questions are not always relevant.	- The CSO and Purchasing will develop an in-person training with the goal of reaching all staff who make purchasing decisions. This may also include a module for Nexus.

Goal 2: Cultivate principled relationships with people on and off campus and with ecosystems near and far		
Target 4	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Establish reporting fields in financial software to track: (a) The percentage of all goods purchased that are environmentally and/or socially preferable; and (b) the average sustainability-related RFP scores of awarded contracts by the end of FY2017. Establish baseline data in 2018 and set targets by 2019.	- Reporting software now contains dropdown menus for many sustainable purchasing standards. However, people using the software do not all know about these new fields or how to use them	- Make improvements to our financial software so sustainability standards can be selected more easily. - We also need to develop a system for tracking small purchases, perhaps incorporating a sustainability criteria section into the existing purchasing forms.

Goal 2: Cultivate principled relationships with people on and off campus and with ecosystems near and far		
Target 5	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Support campus food services as they continue to achieve the highest standards as measured by the foremost standards of sustainability in the campus food service industry, currently LEAF and/or STARS.	- The CSO worked with Diversity to complete the dining services section of our 2018 STARS application. This resulted in Diversity being ranked as one of the top most sustainable campus food service providers in North America.	- The CSO will work to publicize Diversity's successes and provide support and communications around new initiatives like the greenhouse food project.

Goal 2: Cultivate principled relationships with people on and off campus and with ecosystems near and far		
Target 6	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Work in partnership with the University Foundation to evaluate alignment between the over-arching purpose of the University, its policies and strategic directions and Foundation investment policies by the end of 2017. Provide ongoing support to the Pension Board of Trustees in their efforts to ensure that pension options for staff are similarly aligned.	- The Campus Sustainability Coordinator, Senior Advisor for Research and Sustainability, Vice-President Finance and Administration, and the President of the Foundation worked together to complete an evaluation statement.	- Publish the evaluation statement on the CSO and Foundation websites - Promote green fund options to staff and donors.

Goal 2: Cultivate principled relationships with people on and off campus and with ecosystems near and far		
Target 7	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Begin an ongoing institutional learning process with Indigenous elders and traditional knowledge keepers, to develop an implementation framework for the United Nations Declaration on the Rights of Indigenous Peoples as it applies to the University and its activities and to continually integrate Indigenous knowledge and ways of knowing into our sustainability efforts. Complete framework by the end of 2018 and report on ongoing learning activities and outcomes annually in the annual Sustainability Performance report.	- Vacancies in the Indigenous Affairs department (including the VP) have prevented the CSO from working on this target in a collaborative way.	- The CSO will establish a working relationship with the University's incoming VP of Indigenous Affairs. - Engage stakeholders from Indigenous Affairs and elsewhere, convene exploratory meetings; identify reps for the Sustainability Council and individuals who can lead the development of this framework.

Goal 2: Cultivate principled relationships with people on and off campus and with ecosystems near and far		
Target 8	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Link to the work of existing University bodies addressing human rights, equity, wellness, and accessibility for students, staff and faculty and include a summary of progress in the annual sustainability planning and reporting process by 2017. Building on the experience of the Sustainability Office in setting goals and measuring progress, work with the responsible offices for each of the aforementioned areas to establish and report ongoing data improvement processes to aid in evaluation and planning related to work in these areas, and include appropriate data in the annual sustainability performance report as it becomes available.	- The CSO met with the new Chief Human Resources officer, and secured commitment to work together on tracking EDI-related sustainability indicators.	- Convene planning meetings with Human Rights and Diversity Office and other stakeholders for improving reporting on social sustainability indicators - Establish a set of indicators relating to University bodies addressing human rights, equity, wellness, and accessibility and include a section about these in the 2019 Annual Report.

Goal 3: Develop and deliver curriculum, student services, and programming that deepen student knowledge about sustainability and that help motivate thoughtful leadership and action		
Target 1	**Progress and Challenges in 2018**	**Key Objectives for 2019**
In collaboration with those responsible for implementing sustainability action on campus, generate, publish and promote a list of campus-based sustainability related student project and research opportunities annually. Support work to include these projects in coursework through efforts such as the establishment of the Campus Sustainability Course as a standing course in the University course catalogue and the launch of the Sustainability & Corporate Responsibility Certificate program at PACE.	- The CSO and Facilities team began designing sustainability-related research projects in 2018. - There is limited capacity to mentor and support students in these projects - The Campus Sustainability Course was not taught because enrollment in the class was too low.	- The CSO will circulate a survey to all faculty and staff which aims to identify sustainability-related research projects. We will also work with other campus stakeholders like Diversity to develop projects. We will then promote these to students in a variety of ways. - The CSO, Academic Working Group on Sustainability, and the Principal of the Richardson College for the Environment will develop a proposal for a sustainability micro-credential to be offered at UW. Such a certificate would incentivize the creation of sustainability research projects and experiential/service based learning opportunities on and off campus.

Goal 3: Develop and deliver curriculum, student services, and programming that deepen student knowledge about sustainability and that help motivate thoughtful leadership and action		
Target 2	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Undertake a research project in 2017 using appreciative inquiry to better understand the learning process, learning outcomes and interests of students who act and lead. In 2018, apply findings to develop a framework and action plan for growing leaders and continually engaging students who are actively working towards positive impacts on campus and in their communities.	- The CSO met with faculty who participated in early discussions about this project in order gain a better understanding of it. We also met with the practicum director at Menno Simons in order to have this project listed as an option for a student work placements. - The CSO applied to the University's Experiential Learning Fund with the hopes of using these resources to compensate students and our own staff working on the project. Our application was not successful and so finding capacity for this study remains a challenge. - The CSO also established the Eco Team UWinnipeg in 2018, a student environmental leadership group which can potentially be incorporated into the study.	- The CSO will continue to talk to faculty about the best way forward with this research and will recruit students for the project (which also helps us achieve Goal 3, Target 1). - We will develop a project plan and timeline.

Goal 3: Develop and deliver curriculum, student services, and programming that deepen student knowledge about sustainability and that help motivate thoughtful leadership and action		
Target 3	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Create a framework for linking academic advising, career services, experiential learning, and on-campus leadership development opportunities to better support students wishing to understand how to make the biggest difference possible both on campus and in their future careers. Complete framework by the end of 2017 for implementation through 2021. Report on implementation progress in the annual Sustainability Performance report.	- In 2017, the CSO developed a proposal for a leadership engagement framework that was presented to the Sustainability Council and approved. It combines the frameworks called for in Goal 3, Target 1 and Target 2, and Goal 4, Target 2. - In 2018, the CSO conducted a review of best practices on student outreach from other universities. - Through the creation of Eco Team UWinnipeg, we're testing out models of student engagement that will be incorporated into the final framework. - A major challenge is finding the capacity to work on the creation of new frameworks and programs when most office resources go toward maintaining existing sustainability initiatives.	- The CSO will finish the leadership engagement framework document and publish it on their website by August, 2019; This document will contain the frameworks called for in Goal 3, Targets 1 and Target 2, and Goal 4, Target 2. It will guide the student engagement and leadership development at UWinnipeg, as well as associated reporting.

Goal 3: Develop and deliver curriculum, student services, and programming that deepen student knowledge about sustainability and that help motivate thoughtful leadership and action		
Target 4	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Support an ongoing "community of practice" with an interest in enhancing sustainability education on campus, e.g., organizing workshops, developing peer-to-peer exchange, further integrating sustainability throughout the curriculum and identifying support resources for faculty and staff.	- The CSO convened two meetings with the AWG in 2018, and gained consensus on having the body work more closely with the Richardson College. - The CSO and RCFE, with support from the AWG, hosted an event for faculty called "Growing a Collaborative Environment: Sustainability Education and Research at UWinnipeg." The aim was explore ways for faculty and other campus stakeholders to work together on research and education - These bodies also hosted 3 other topic specific knowledge sharing events for faculty, students, staff, and community members.	- The CSO will help the AWG recruit more members to the working group, and support the group as it works to host more events for interdisciplinary discussion on sustainability - The CSO, AWG and Richardson College will explore the possibly of establishing a sustainability certificate or micro-credential. This would offer students an additional designation beyond their major, and provide a framework for holistic sustainability education. Creating such a certificate would be a collaborative effort that would also connect to the work establishing a community of practice for sustainability education and research on campus.

Goal 3: Develop and deliver curriculum, student services, and programming that deepen student knowledge about sustainability and that help motivate thoughtful leadership and action		
Target 5	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Develop the mechanisms required to track how many students graduate from the University having taken at least one sustainability-focused course, as well as to track which and how many sustainability courses all students are taking, by 2019.	- With external funding, the CSO hired an intern to complete the updated course inventory, building off the work of the AWG. Between December 2018 and March 2019 she reviewed 189 courses from 28 departments, identifying 37 sustainability-focused and 69 sustainability-related courses currently on offer at UWinnipeg. - The inventyory was submitted as part of our 2018 STARS application and is now published on the CSO website.	- In 2019, the CSO will work with the Registrar's Office to establish a system for tracking enrollment in these courses. With more accurate data on sustainability course enrolment, UWinnipeg can improve its ranking in STARS reporting categories. This data will also help the AWG understand the intersection between sustainability and academic excellence at the UW and will provide a benchmark that the AWG, CSO, and RCFE can use to promote and incentivize academic courses and programs offering sustainability content.

Goal 4: Mobilize evidence & research to address local and global sustainability challenges		
Target 1	**Progress and Challenges in 2018**	**Key Objectives for 2019**
In partnership with the Research Office, develop metrics related to research knowledge mobilization consistent with the Integrated Academic and Research Plan by 2018.	- A full assessment of University sustainability research was completed for the STARS report.	- The CSO will engage the research office and other stakeholders, and work with them to develop metrics

Goal 4: Mobilize evidence & research to address local and global sustainability challenges		
Target 2	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Develop and publish a sustainability outreach & engagement plan for internal and external engagement by the end of October 2017, and implement it through to 2021.	- In 2017, the CSO developed a proposal for a leadership engagement framework that was presented to the Sustainability Council and approved. It combines the frameworks called for in Goal 3, Target 1 and Target 2, and Goal 4, Target 2. - In 2018, the CSO conducted a review of best practices on student outreach from other universities. - Through the creation of Eco Team UWinnipeg, we're testing out models of student engagement that will be incorporated into the final framework.	- The CSO will finish the leadership engagement framework document and publish it on their website by August, 2019; This document will contain the frameworks called for in Goal 3, Targets 1 and Target 2, and Goal 4, Target 2. It will guide the student engagement and leadership development at UWinnipeg, as well as associated reporting.

Goal 4: Mobilize evidence & research to address local and global sustainability challenges		
Target 3	**Progress and Challenges in 2018**	**Key Objectives for 2019**
Engage faculty, staff and students with relevant expertise to develop workshops and courses that support campus community members in better understanding how their day-to-day work on campus relates to, and can impact positively or negatively on, key sustainability issues. By 2020, have 75% of non-faculty staff complete at least one sustainability-related workshop per year. Develop targets for students and faculty as part of a sustainability outreach and engagement plan.	- The CSO began tracking a range of engagement mechanisms for staff, faculty and student engagement that are connected to the framework. - In 2018, The CSO revised and re-launched the Green Office Program. It now contains updated content, and a systematic approach to assessing and improving office-level sustainability practices. - The CSO also offered a series of educational workshops for staff in 2018 that covered a range of sustainability topics	- The CSO will work to recruit more Green Office Program leads while improving our approach to engagement and assessment. - We are developing a more robust series of events for engaging staff on sustainability, and re-introducing annual trainings for Bee Clean staff

APPENDIX B: SUSTAINABILITY RESEARCH AT UWINNIPEG

Research Project	Research Lead	Department
Smart Cities: Visions of the Future	Sylvie Albert	Business Administration
1. Phytochemical Studies on Medicinally Important Plants	Athar Ata	Chemistry
Determination of nitrogen content of roots, stems and leaves of tomato plants under contrasting nitrogen availability treatments	Germán Avila-Sakar	Biology
Trade Policies and International Cooperation on Mitigation of Transboundary Pollutants	Soham Baksi	Economics
Co-operatives in rural and remote communities in Canada's North	Simon Berge	Business Administration
Enhancement of Manitoba Hydro's physically-based inflow and flood forecasting capabilities through code optimization and parellel execution	Christopher Bidinosti	Physics
Teleconnections and summer severe weather in the Canadian Prairies Provinces	Jacqueline Binyamin	Geography
Climate Atlas of Canada	Danny Blair	Geography
Langside Learning Garden- Spence Neighbourhood Gardeners	Lee Anne Block	Education
Video documentary on Dead Horse Creek, MB	William Buhay	Geography
Canada Research Chair in Human-Environment Interactions	Ryan Bullock	Environmental Studies
Historical Development and Current Policies in Canadian Agriculture: A Macroeconomic Analysis and Micro Longitudinal Data	Wenbiao Cai	Economics
Spatial and temporal variability of nitrogen cycling in forests	Nora Casson	Geography

Research Project	Research Lead	Department
Culture, Resiliency, and Prosperity: Transitioning from Food Security to Food Sovereignty and the role of Relocation and Migration on Traditional and Market-based Food Consumption	Jaime Cidro	Anthropology
Estimating the Relationship Between Cardiovascular Health and the Use of Neurodegenerative Pharmaceuticals	Luc Clair	Economics
Evaluating experiential learning programs to support biodiversity conservation in urban gardens	Alan Diduck	Environmental Studies
Sustainable Supply Chain Management: an Empirical Study	Kamel Fantazy	Business Administration
Understanding the legitimacy gap: Re-conceptualizing meaningful engagement in environmental assessment	Patricia Fitzpatrick	Geography
Winnipeg VegFest	Jason Hannan	Rhetoric, Writing and Communications
Various projects on freshwater fish (elevated carbon dioxide) and wood frogs (bitumin exposure)	Caleb Hasler	Biology
High Performance computing framework for GCM-driven climate simulation with the routing model WATROUTE	Christopher Henry	ACS
Therapeutic Steroids from Canola Oil Waste	Paul Holloway	Biology
Effects of microplastic exposure on Medaka	Judith Huebner	Biology
Remediation of toxic metal contaminated soils using organic and inorganic amendments	Srimathie Indraratne	Environmental Studies
THE IMPACT OF OIL PRODUCTION ON TRADITIONAL LIVELIHOOD: THE CASE OF FANTI PEOPLE IN SHAMA IN THE WESTERN REGION OF GHANA	Kwabena Kesseh	MA student - Indigenous Governance
Phosphorus release from alkaline soils to floodwater under simulated spring snowmelt conditions	Darshani Kumaragamage	Environmental Studies
Research Project	**Research Lead**	**Department**

Greening the organic chemistry laboratory: A comparison of microwave-assisted and classical nucleophilic aromatic substitution reactions	Devin Latimer	Chemistry
City E-Government as an Enabler of Sustainable Communities	Hanuv Mann	Business Administration
Innovative Climate Change Storytelling	Ian Mauro	Geography
Bringing Indigenous Worldviews into Policy and Legislation on Traditional Knowledge and Biodiversity	Gabriel Nemoga	Indigenous Studies
Wa Ni Ska Tan: a cross-regional research alliance on the implications of hydro development for environments and Indigenous communities in Northern Canada	Melanie O'Gorman	Economics
Impacts of cattle grazing on the proliferation of foxtail barley in wet meadow rangelands	Rafael Otfinowski	Biology
1) Assisted migration field experiment, and 2) Forest community composition and climate change	Andrew Park	Biology
Mergers in Nonrenewable Resource Oligopolies and Environmental Policies	Amrita Ray Chaudhuri	Economics
Social Learning for Community Resilience and Indigenous Food Security: Case Studies from Manitoba	Shailesh Shukla	Indigenous Studies
Using geoindicators to prioritize regional wetland locations for flood attenuation in Manitoba's Red River Basin	Joni Storie	Geography
Deep learning convolutional neural network to classify satellite images of Manitoba in terms of its land-use/land-cover (LULC) for GeoManitoba	Christopher Storie	Geography
Multicentury reconstruction of streamflow for the Abitibi River basin and estimation of future climate changes impacts	Jacques Tardif	Biology/Environmental Studies
Pilot Project to Assess Methodology for Identifying Brood Trees for Prioritized Rapid Removal for Dutch Elm Disease	Richard Westwood	Environmental Studies
Individuals, energetics and infectious disease	Craig Willis	Biology
Elucidation and predication of fate, speciation, and transformation processes for polar contaminants of emerging concern in wastewater-impacted environments	Charles Wong	Chemistry/Environmental Studies