



ANNUAL SUSTAINABILITY REPORT

2015-2016



THE UNIVERSITY OF BRITISH COLUMBIA
sustainability

2015/16 FAST FACTS



30%
REDUCTION IN
ABSOLUTE GHG
EMISSIONS SINCE 2007



59%
REDUCTION IN WATER
USE PER STUDENT
SINCE 2000



57
SUSTAINABILITY
RELATED ACADEMIC
PROGRAMS



58
GREEN BUILDING
PROJECTS



STUDENT BEDS
INCREASED TO
10,543

70% 
OF TRIPS BY SUSTAINABLE
MODES OF TRANSPORT



67%
OVERALL WASTE
DIVERSION RATE



3,100
STUDENTS
ENGAGED THROUGH
SUSTAINABILITY
IN RESIDENCE
PROGRAMMING



647
SUSTAINABILITY
RELATED COURSES



109
SUSTAINABILITY
COORDINATORS IN
OFFICES AND LABS



591
STUDENTS, FACULTY AND
STAFF INVOLVED IN 100
SEEDS PROJECTS

VANCOUVER CAMPUS OKANAGAN CAMPUS



19%
REDUCTION IN WATER
USE PER STUDENT SINCE
2007

51%



OF TRIPS BY SUSTAINABLE
MODES OF TRANSPORT



26%
OVERALL WASTE
DIVERSION RATE









34%
REDUCTION IN GHG
EMISSIONS
PER STUDENT SINCE 2007



9%
REDUCTION IN ABSOLUTE
GHG EMISSIONS
SINCE 2010

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ABOUT UBC

The University of British Columbia (UBC) is a global centre for research and teaching, consistently ranked among the top 40 universities in the world.

Our two main campuses—the Vancouver campus and the Okanagan campus—attract and educate nearly 60,000 students from 140 countries and employ over 15,000 staff and faculty.

UBC's Vancouver campus is home to a vibrant, sustainable residential community, where some 20,000 students, faculty, staff and other residents live, work and learn together. UBC's Okanagan campus, which has nearly doubled in size since 2007, is home to 1,700 students.

UBC's Vancouver and Okanagan campuses are located, respectively, on the traditional unceded territories of the Musqueam and Okanagan peoples.

MILESTONES ^{*} 1st in Canada

1990

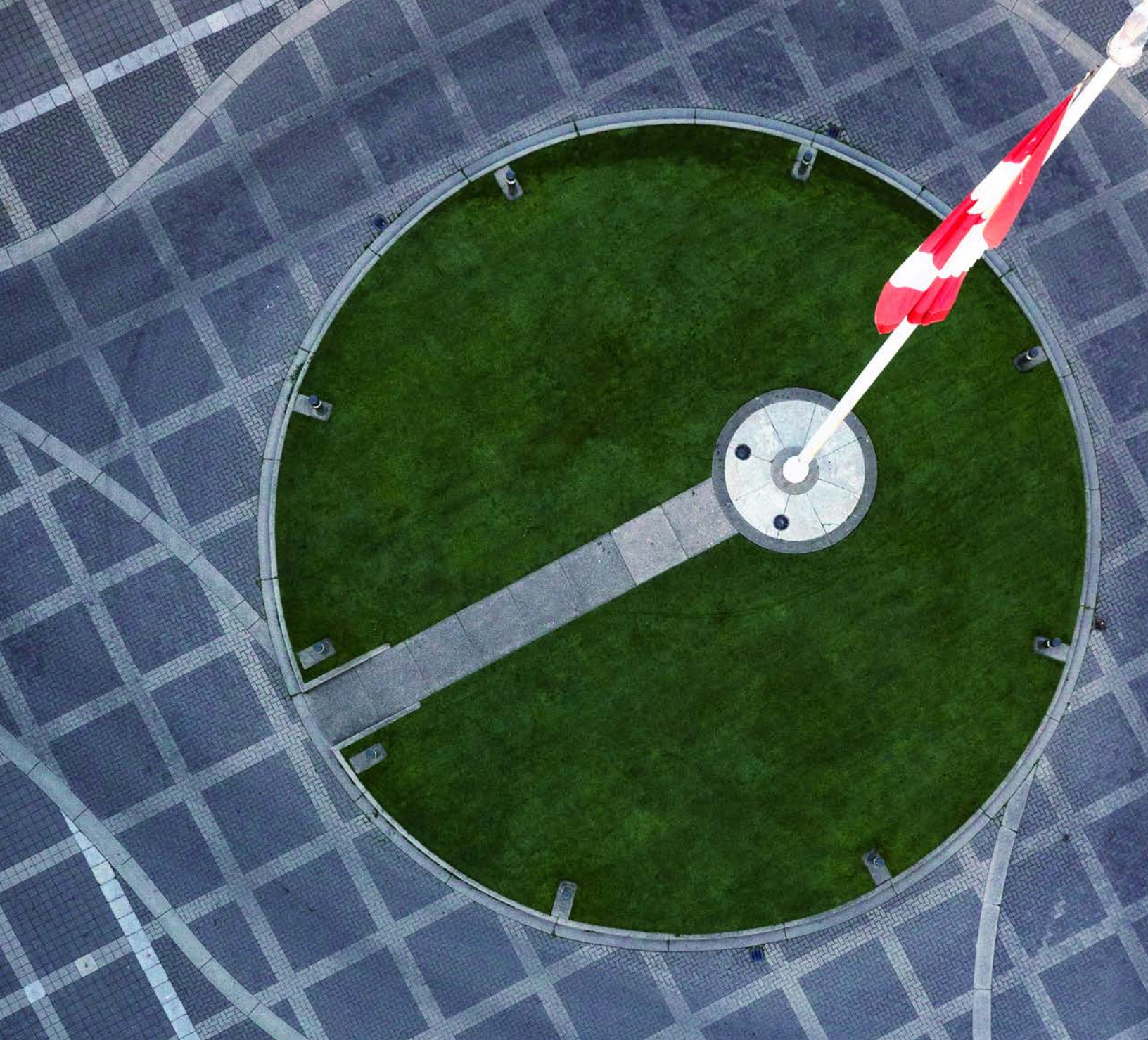
- 1990** UBC signs Tailloires declaration. Globally commits to sustainability.
- 1996** Opens C.K. Choi Building, setting new green building benchmarks worldwide.
Dr. William Rees and graduate student Mathis Wackernagel develop ecological footprint concept.
- 1997** ***Adopts a Sustainable Development Policy.**
- 1998** ***Opens a Campus Sustainability Office.**

2000

- 2001** Launches ECOTREK (2001-2008), the largest energy and water retrofit program at a Canadian university.
- 2003** Pioneers the U-Pass program, quadrupling transit ridership since 1997.
- 2006** ***Publishes comprehensive campus-wide sustainability strategy.**
- 2007** Meets Kyoto Protocol greenhouse gas reduction targets 5 years early.
John Robinson shares Nobel Peace Prize as one of Lead Authors of the Intergovernmental Panel for Climate Change report.
- 2009** Develops the Sustainability Academic Strategy.
Integrates sustainability as a core pillar in UBC's strategic plan.

2010

- 2010** Sets bold targets to reduce GHG emissions and invests in signature projects to meet climate goals.
Establishes the UBC Sustainability Initiative (USI) to integrate operational and academic sustainability.
- 2011** ***Earns Gold rating in STARS, a university sustainability rating system.**
***Earns designation as Fair Trade Campus.**
- 2014** **Develops 20-year Sustainability Strategy to advance regenerative sustainability.**
- 2015** Signs MoU with Metro Vancouver.
Earns second Gold rating in STARS.
- 2016** On-track to Achieve a 33% reduction in GHG emissions from 2007 levels.



SUSTAINABILITY
RECOGNITION



GLOBAL
NETWORKS



The achievements at UBC serve as model for cities and urban regions around the world, demonstrating that major shifts towards sustainability are possible.

James Tansey
Executive Director
UBC Sustainability Initiative

*We need to think scientifically about sustainability, but also **with passion and a deep commitment.***

Dr. Kai Chan
Institute of Resources, Environment and Sustainability

*The Greenest City Scholars program is one example of what makes Vancouver **an innovative leader** among green initiatives in the country.*

Sadhu Johnson
City Manager, City of Vancouver

*Our **most significant achievement was the 30 per cent reduction in greenhouse gases below 2007 levels** on the Vancouver campus, despite a 16 per cent increase in floor space and 22 per cent increase in student enrollment.*

John Madden
Director, Sustainability and Engineering
Campus and Community Planning

*The Greenest City Scholars Program provides UBC graduate students with **applied learning experiences** that will enrich their **future careers.***

Martha Piper
Interim President, The University of British Columbia

***It was inspiring** to be able to work with so many people who care about sustainability issues.*

Matthew Madsen
Bachelor of Science, 2017

*It's great to have these **links between UBC and Musqueam.** The UBC Sustainability Scholars program, this wellbeing project...it's **really important for the relationship.***

Jessica Carson
Researcher and Planner, Musqueam First Nation

WELCOME TO UBC SUSTAINABILITY

Dear friends,

In 2015, we celebrated UBC's 100th birthday, and with that over 20 years of sustainability commitment and achievement.

As we reflect on our history, we also look to the future. It is expected that by 2100, 80 per cent of the world's population will live in cities. Many of our biggest challenges, including climate change, will need to be solved in urban centres around the globe.

As a university, we have been presented with a clear and urgent opportunity to leverage our expertise to catalyze a sustainable transformation of communities and cities in order to address grand challenges of our time.

Our efforts and successes already have a direct application to urban sustainability, including building and energy innovation, behaviour change, and wellbeing.

The task now is to focus our intellectual capital on creating a regenerative campus and generating long-term solutions so that current and future generations can live in complete communities that are happier, healthier, and more sustainable.

Already, UBC faculty members, in partnership with the Pacific Institute for Climate Solutions (PICS), are working to explore opportunities around the development of low-or-zero emission pathways for sustainable air, land and domestic marine transportation, evaluate community energy solutions and identify policy pathways toward ultra energy efficiency buildings for British Columbia.

Our Greenest City Scholars are gaining applied skills while also supporting City of Vancouver efforts around issues such as autonomous vehicles, ride-sharing, and renewable energy.

This report provides an opportunity to share such successes, track progress made and manage change towards advancing sustainability on and off campus.

UBC's sustainability efforts continue to earn recognition. In 2015, we obtained our second consecutive STARS Gold rating from the Association for Advancement of Sustainability in Higher Education (AASHE) and another consecutive Canada's Greenest Employer Award.

We also have a responsibility to ensure our students leave as responsible global citizens. To ensure their success, we provide on and off-campus opportunities for students to develop applied skills and make a positive impact in the community.

Our new partnership with the Metro Vancouver Regional District will provide graduate students with applied experience through the new Sustainable Region Scholars program, expanding on our existing MoUs with BC Hydro and the City of Vancouver.

Across operations, our focused efforts on renewable energy and demand side energy conservation have reduced emissions at our Vancouver and Okanagan campuses by 28 per cent relative to 2007 levels, despite rapid campus growth. UBC is a carbon neutral university and these success have in turn decreased our carbon offsets by \$2.5 million from 2007 levels.

Finally, we know that the wellbeing of people and the planet is inter-dependent. Building on our campus wellbeing and community development efforts, UBC advanced the wellbeing agenda internationally by co-hosting the International Conference for Health Promoting Universities and Colleges, ultimately leading to the development of the International Okanagan Charter for Health Promoting Universities and Colleges.

Moving forward, we will explore, innovate and collaborate with our partners to develop the most sustainable university campus in the world and seek to inspire others to do the same.



Dr. James Tansey
Executive Director
UBC Sustainability Initiative



Michael White
Associate Vice-President
Campus and Community Planning



Rob Einarson
Associate Vice-President
Finance & Operations, Okanagan

INTRODUCTION

Our Annual Sustainability Report provides an overview of our sustainability activities and highlights the achievements that have led to the recognition that UBC is a global leader and a model for campus and for the cities of the future.

Our approach is grounded in the integration of sustainability across teaching, learning and research, operations and infrastructure and community. Sustainability is a core pillar of UBC's Strategic Plan, Place and Promise.

To advance our efforts, we collaborate with private, public, NGO and community partners to use our campuses and their operational, educational and research capabilities as societal test beds to study, teach, apply and share lessons learned, technologies created and policies developed.

As an agent of change, we leverage our communication and community engagement programs to provide opportunities for collaboration to exchange knowledge and learn together how we can foster sustainability in the larger world.

A young man with dark, curly hair and glasses, wearing a bright yellow jacket and a black backpack, is looking intently at a moss-covered tree trunk. He is holding a clipboard with a spiral notebook and a pen. The background is a lush, green forest with mossy tree trunks and foliage. The title 'TEACHING, LEARNING AND RESEARCH' is overlaid in large, white, bold letters, flanked by teal geometric shapes.

TEACHING, LEARNING AND RESEARCH

Across the university, UBC faculty are teaching and studying sustainability through hundreds of courses, programs and projects, creating diverse sustainability learning opportunities for our students. Our goal is for all undergraduate students to have access to sustainability learning alongside their chosen degree program and we provide focused support to faculty members who are working to develop these curriculum pathways. Beyond the classroom, we help our students access the myriad opportunities to get involved in sustainability.

OUR ACTIVITIES

SUSTAINABILITY LEARNING PATHWAYS

We support faculty to develop and revise curriculum so that all students will have the option to incorporate sustainability into their undergraduate academic experience.

FOSTERING STUDENT INVOLVEMENT

Through programs such as paid sustainability internships, on-campus experiential learning projects, student engagement and advising services, we are enabling undergraduate and graduate students to address critical societal needs and impact change.

FACILITATING COLLABORATION

We gather information from across campus on courses, research, initiatives and other involvement opportunities related to sustainability and share these through our comprehensive website and in-person engagement activities.

647
SUSTAINABILITY
RELATED COURSES

57
SUSTAINABILITY RELATED
ACADEMIC PROGRAMS

423
FACULTY ENGAGED IN
SUSTAINABILITY RESEARCH

Each student, regardless of their degree program, should have access to an education in sustainability via a “sustainability learning pathway”.

20-year Sustainability Strategy

FACULTY ENGAGEMENT

The UBC Sustainability Initiative (USI) works to engage UBC's academic community in sustainability. The following are highlights from the 2015/2016 Teaching, Learning and Research activities:

ACTIVITIES	DESCRIPTION	ACCOMPLISHMENTS
SUSTAINABILITY LEARNING PATHWAYS	Support faculties and departments in creating a suite of sustainability-oriented courses and experiences so that every undergraduate student at UBC can pursue a sustainability education.	<p>Second year Sustainability Learning Pathway grants (2nd of 2 years) were distributed to faculty members developing sustainability curriculum in Applied Science (Engineering), Arts (Geography), and Science (Earth, Ocean and Atmospheric Science).</p> <p>New Sustainability Learning Pathway grants (1st of 2 years) were distributed to faculty members in the Sauder School of Business and Arts (Sociology).</p> <p>Worked with curriculum developers to create themed course clusters for the pathways from UBC's large offering of sustainability courses.</p>
ANNUAL COURSE CONSULTATION	Consult with UBC Vancouver faculty to identify sustainability courses and to identify faculty with sustainability research interests.	<p>Identified 647 sustainability-oriented courses across all faculties and 423 faculty members who are engaged in sustainability research.</p> <p>All UBC faculties now provide courses with sustainability content.</p>
FELLOWSHIPS	Enable faculty to contribute to the discussion to advance UBC's academic sustainability goals.	Through the fellows program, awarded six fellowships and supported regular, interdisciplinary discussions involving faculty members implementing sustainability curriculum changes in their courses and programs.



SPOTLIGHT SUSAN NESBIT, SUSTAINABILITY FELLOWS CHAIR

"The teaching fellows program offers a stimulating environment enabling educators with different ways of thinking and doing to compare teaching practices, share teaching and learning ideas, and collaborate on valuable sustainability education projects. My home faculty and department have benefited greatly from my involvement in the program."

Dr. Nesbit, a Professor of Teaching, is a cited leader in sustainability education and has designed several courses to introduce students to sustainability concepts and community service learning in an engineering context. She was an inaugural USI teaching fellow at UBC (2010-2011), and chaired the 2014-2015 cohort of the USI's teaching fellows.

WHAT INSPIRED YOU TO DEVELOP THIS COURSE?

There are a surprising number of cases where public policy and normal social practices are strongly at odds with sustainability objectives. In fact, most people don't realize the extent to which this is true, how to spot these systemic, ecologically doomed policies, or what they might do about them.

This course is intended to enable students to be effective ambassadors for ecology and sustainability - even if they do not go on to graduate school or science-related professions.

HOW DO YOU SEE STUDENTS BENEFITING FROM THIS COURSE?

In their first few years of their undergraduate degrees, students learn the foundations of many different disciplines but do not make connections to crucial social issues. As the foundations themselves don't seem applicable to most students, many promptly forget most of what they learned.

ENVR 430 is about making those connections in the context of group projects on pressing real-world problems.

The course teaches students crucial ideas from the social sciences about individual behaviour, social practice, and institutional change. With these tools, ENVR 430 equips students to identify policies that don't make sense ecologically, and to articulate a strategy for change.

Their ability to think critically about these ideas and recognize situations in their daily lives is reflected through their "ecology ambassador journals", which by the end of the semester contained some extraordinarily impressive reflections on what they learned and how they intend to take that forward.

HOW DO YOU SEE SCIENCE EDUCATION HELPING ADVANCE SUSTAINABILITY?

Most people seem to think that science matters for sustainability primarily as fodder for technological innovation. That's just wrong. Ecological and social sciences are crucial for identifying policies and practices that will work, and those that are doomed to fail.

We need to be passionate about the application of science. In countless cases, unsupportable scientific ideas are promoted by special interests, or well-accepted ideas are obfuscated, in order to maintain the status quo that benefits entrenched industries. This is deeply unjust.

SUSTAINABILITY COURSE LEARNING HOLISTICALLY



Professor Kai Chan, from the Institute for Resources, Environment and Sustainability, shares how his new course seeks to instill a sense of deep personal commitment in students to applying their understanding of science as ambassadors for ecology and sustainability.

*It's so easy to become cynical but the reality is that **science and sustainability need champions.***

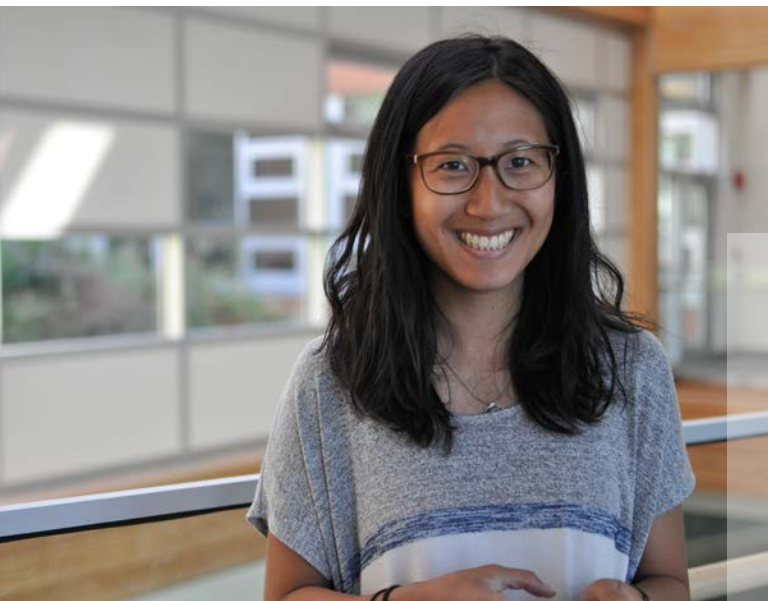
STUDENT ENGAGEMENT

ACTIVITIES	DESCRIPTION	ACCOMPLISHMENTS
SCHOLARS PROGRAM	Provide UBC graduate students with applied work experience with both on and off campus sustainability partners.	<p>Engaged 53 graduate students in applied work experience with both on and off campus sustainability partners.</p> <p>Projects undertaken with 10 external partners and 8 on-campus departments.</p> <p>More than doubled the number of Sustainability Scholar projects available to students.</p> <p>Largest Greenest City Scholar cohort to date.</p>
SUSTAINABILITY EDUCATION RESOURCE CENTRE	Provide student advising on academic and co-curricular opportunities.	<p>Introduced sustainability content in to programming designed for student leaders across campus.</p> <p>Built relationships with over 95 academic advisors and program managers and engaged over 60 student groups.</p>
SUSTAINABILITY AMBASSADORS	Foster student leadership and promote sustainability education through peer-to-peer education.	<p>Organized and hosted the annual Sustainability Fair, engaging over 1000 attendees.</p> <p>Developed and hosted the Eating Sustainably for Wellbeing event in collaboration with Wellbeing at UBC to promote healthy and sustainable eating habits and raised over \$400 for the AMS food bank.</p> <p>Hosted a Sustainability Research Symposium, profiling UBC sustainability research. Developed and hosted a panel on Green Buildings and the "Big One" with over 80 participants.</p>
UBC READS SUSTAINABILITY	Provide a forum for students across disciplines to discuss sustainability issues with globally recognized authors.	<p>Hosted two high impact globally recognized speakers on topics of food sustainability and climate change.</p> <p>Raj Patel author of <i>The Value of Nothing</i> and <i>Stuffed and Starved</i>; Naomi Klein author of <i>This Changes Everything</i>.</p> <p>Successfully partnered with other organizations on and off campus and raised over \$19,000 in sponsorships.</p> <p>Since program inception in 2010, recorded lecture videos earned 37,100+ views on YouTube.</p>
UBC SUSTAINABILITY NEWS	A bi-monthly newsletter that features current events, courses and updates on sustainability teaching, learning and research at UBC.	<p>Communicated curricular and co-curricular opportunities to 1800+ newsletter subscribers, including faculty and students.</p> <p>Newsletter success reflected through a higher than standard open rate (40 per cent).</p>
SUSTAINABILITY STUDENT COUNCIL	Provide feedback to specific projects, programs and initiatives related to sustainability at UBC.	<p>Brought together executive reps of 18 student led campus groups to create the largest and most diverse council to date.</p> <p>Council met three times per term to provide meaningful feedback to UBC staff on a wide range of projects.</p>

STUDENT PERSPECTIVE

LEARNING IN THE FIELD

Amy Luo (BA, 2016), a UBC Sustainability Initiative Work Learn student and participant in Instructor Dr. Siobhán McPhee's Geography 379b Field School at Williams Lake, reflects on working with remote communities to advance sustainability.



GEO 379B ADDS FIELD SCHOOL COMPONENT, AND AN APPLIED PROJECT, TO ENRICH CLASSROOM LEARNING. WHAT WAS YOUR PROJECT ON?

My group worked with the Cariboo Friendship Society, a non-profit organization that provides social support services to the Williams Lake community.

Our project focused on the over-representation of Aboriginal children in the federal child welfare system. Through research we found an overwhelming amount of literature and statistics supporting our hypothesis that links the current situation to the colonial legacy of residential schools.

WHAT MADE THE COURSE STAND OUT?

Working with a community partner was great. It gave us an idea of what it is like to go out into the real world and work with real people on real issues. It helped me understand what I might face as part of my future career.

The smaller class size encouraged discussion and participation in class, while the project brought us together as a group and allowed us to learn from each other.

Williams Lake has a large Aboriginal population and long history. One of the members of my group was of Aboriginal descent and offered unique perspectives which were invaluable to project success.

WHAT WAS THE BIGGEST TAKE AWAY FOR YOU?

After speaking with residential school survivors and hearing the stories of many Aboriginal people here in British Columbia, I feel both more informed and more comfortable to discuss this topic and share what I learned with others.

The easiest and most helpful thing anyone can do is just to listen to their stories and inform yourself.



2015/2016 PROGRAM OUTCOMES

591 STUDENTS,
FACULTY & STAFF
ENGAGED

39
COURSES ENGAGED
THROUGH THE PROGRAM

103
APPLIED RESEARCH PROJECTS
MANAGED

1300 RESEARCH
REPORTS
PUBLISHED ONLINE
OVER 15 YEARS

ENGAGED LEARNING

OPENING DOORS TO APPLIED LEARNING

SEEDS SUSTAINABILITY PROGRAM

"SEEDS was the key that opened the door for me," says Dr. Marie-Claude Fortin, a lecturer in UBC's Faculty of Land and Food Systems (LFS). "I was thrilled when offered to teach a course where I was guaranteed to have a campus partner for my students to work with on an applied project."

Integrating classroom learning with real-life experiences is at the core of UBC's SEEDS Sustainability Program. It is also at the heart of the course Fortin teaches, Land, Food, and Community III (LFS 450).

"The course is project based and looks at food systems on campus," explains Fortin. "The campus is a wonderful place for this sort of applied study as students have an insider knowledge of campus."

Students taking LFS 450 in Winter Term 2016 chose from a number of projects. "One group studied the cost barriers to students of accessing food from the UBC Farm. Another examined Seedlings Café's sustainable business practices. A third focused on the AMS Food Bank and the issue of hunger amongst students."

"SEEDS takes an active role by checking in with students, offering help if needed, and providing project background before and during the course. Students also get the opportunity to publish their work online."

SEEDS goes beyond the usual classroom experience where, "you can certainly pass on knowledge. But you need to go beyond that to study the inner workings of sustainable systems," says Fortin.

"To see the students doing that is very rewarding for me. And through my students, there is a bit of me in each of the projects. It is a way for me to have an impact on operations at UBC."

ABOUT THE PROGRAM

The SEEDS (Social Ecological Economic Development Studies) Sustainability Program enables innovative and impactful sustainability research projects by creating partnerships between students, faculty and staff.

In 2015, the program was awarded the AASHE Sustainability Award for best Campus Sustainability Case Study for an institution with more than 10,000 students. The awards are the most prestigious honour AASHE (Association for the Advancement of Sustainability in Higher Education) bestows upon organizations and individuals for their achievements in Campus Sustainability.

RESEARCH

ADVANCING WOOD BUILDING INNOVATION

The Brock Commons Tallwood House on UBC's Vancouver campus is one of the tallest wood buildings in the world.

Angelique Pilon, Research Manager, with the Centre for Interactive Research on Sustainability (CIRS), explains what makes this project unique, how it helps influence innovation and advance sustainability.

WHAT IS BROCK COMMONS?

Brock Commons Tallwood House is a residence for about four hundred students with amenities for the campus community. The building is an 18-storey hybrid mass-timber high-rise. It has a concrete foundation and cores, and a structure composed of engineered wood products.

HOW WILL THIS PROJECT INFLUENCE INNOVATION?

Brock Commons is demonstrating the viability of using engineered wood products in high-rise structures. As such, it will become a precedent for other tall wood buildings.

CIRS is documenting and sharing information with researchers, students, design professionals, government officials and others in the building industry in Canada and around the world.

As Brock Commons is being delivered by a team of local firms, trades and suppliers, it is increasing the level of knowledge and experience in mass-timber design, construction and manufacturing in British Columbia.

WHAT ARE SOME OF THE SUSTAINABILITY BENEFITS OF BUILDING WITH WOOD?

Benefits include the use of prefabricated elements which reduces on-site construction waste and speeds up construction timelines. Moreover, carbon is stored within the wood products of the building structure.

The amount of carbon stored is calculated to be 1,753 metric tons of CO₂ which, in addition to 679 metric tons of avoided CO₂ emissions, is equivalent to taking 511 cars off the road for a year.





*"It was **inspiring** to be able to work with so many people who care about sustainability issues.*

Winning the challenge was a bonus."

Matthew Madsen
BSc, 2017

STUDENT ENGAGEMENT

IGNITING ENGAGEMENT IN BIKE TO WORK WEEK

The inaugural Sustainability Challenge launched in September 2015 with funding from the UBC Centennial Fund. The competition engaged interdisciplinary teams of students to develop solutions across four priority areas: the Eco-to-Go Program, Bike to Work Week, Zero Waste, and Wellbeing and Physical Activity. The winning team, pictured above, took top prize for their project Ignite the Rider Inside.

Krista Falkner, Campus and Community Planning Transportation Engineer, and Shiloh Bouvette, Manager of Community Programs and Outreach, reflect on their experience as project commissioners in the Sustainability Challenge.

WHAT INSPIRED THIS PROJECT?

We had been hearing anecdotally that students weren't very familiar with the goals of Bike to Work Week. We also had concerns that our outreach wasn't attracting those who were new or undecided about biking to campus, so we wanted recommendations from the student perspective on what our tactical shortcomings were in terms of outreach and engagement.

IDEAS WERE GENERATED. WHAT'S NEXT?

We already followed through on the team's suggestion to engage faculty members in spreading the word through the classes they teach. We found faculty members to be really receptive. We are confident that we will be able to effectively implement the suite of the proposed tactics.

WHAT SET THE WINNING TEAM APART?

The winning team's proposal stood out because they took the time to really understand the challenges and then addressed them specifically and creatively. We were impressed by the fact that they had already done some work in order to demonstrate that their idea was scalable and ready for implementation.

NEW DEGREE

MANAGING URBAN FORESTS

Stephen Sheppard, Program Director for the new Bachelor of Urban Forestry, shares his experience on launching a new four year undergraduate degree and why it is needed now, more than ever.

WHAT ARE SOME OF THE CHALLENGES YOU HOPE TO ADDRESS WITH THIS NEW DEGREE?

The challenges we face are just getting bigger. There are huge threats to urban forests in the form of climate change and also from development pressures. Both threaten our quality of life.

Cities across the world, from Vancouver to Beijing, are all facing problems. There is an urgency to protect urban eco-systems and the tree canopy that will protect us in a warmer future. We've seen damage from forest fires, flash floods, and drought, for example. We need greener planning to keep our neighbourhoods cool, resilient, attractive, and safe.

HOW IS URBAN FORESTRY CONNECTED TO SUSTAINABILITY?

The two are inseparable – it is hard to be a sustainable community without a healthy urban forest. We define urban forests broadly, not just trees downtown, but also the peri-urban, the watershed. We think about where our water supply comes from, where biodiversity comes from; cities can't function without a network of large and small green spaces in and around the city.

HOW DOES THIS PROGRAM PREPARE STUDENTS TO ADDRESS SUSTAINABILITY ISSUES?

We aim to graduate students who can communicate and engage with the people who live in cities. Unlike traditional forestry, the trees are right next to the people, so to manage and plan the trees, you have to engage with people at a much closer scale.

It's an opportunity to have a big impact on sustainability right where people live, respecting their values, but in some cases helping them change their minds on issues such as the value of trees, and how to take care of them. There is a huge opportunity to develop a better awareness of sustainability right at the street level.



*360 degree
photosphere of
a debris flow
retention structure
on the Sea to Sky
Highway.*

TEACHING INNOVATION THE FUTURE IS VIRTUAL

Loch Brown, Instructor in the Department of Geography, received a Teaching Learning and Education Fund grant to enhance curriculum in the Environment and Sustainability program. We connected with him to learn about how Virtual Reality (VR) is changing the teaching and learning experience for students.

VR SEEMS TO BE GETTING REAL. HOW IS IT CHANGING STUDENTS' LEARNING EXPERIENCE?

Virtual Field Trips are an educational tool that students, and professors, can use to apply theoretical concepts in a field setting. For example, we have our Natural Hazards Field Trip for the Sea to Sky Region in British Columbia. It is an augmented reality field trip. Using VR helps us overcome the lack of resources to place students in actual field settings.

HOW IS VR BENEFITING TEACHERS AND STUDENTS?

We are really excited about using VR for field trips for three reasons. 1) Spatial dimensions: students can be out in one location, then put their Google Cardboard headset on and be

“transplanted” to a completely different place. This allows us to explore common connections across, for example, urban green spaces, while also overcoming accessibility issues.

2) Temporal benefits: We can go and record sites, including those we know are going to change in the future. We can then go back every year, in-person, and later watch a video to see the change. Field trips will have 360 photos, immersive 3D environments and will engage users through multiple technologies, enhancing place-based learning.

3) Scale: imagine if you could a whole water system, recorded through drone photography, or a fly through of the canyon geomorphology. From up close, these landscapes don't look like much. However, when you “zoom” out, it becomes very obvious and exciting. VR enables us to transcend issues of scale, while allowing us to layer scales over each other. For example, we can look at housing affordability, commercial lease prices, densification, and other data while immersed in one place.



Kshamta Hunter, Manager, Sustainability Student Engagement and Sustainability Ambassadors.

Sustainability Ambassadors:



STUDENT ENGAGEMENT 2015/2016

A peer leadership program.



Sustainability Fair at the Nest



OPERATIONS AND INFRASTRUCTURE

As a large, research-intensive university, with considerable land, assets and utilities, we are in the unique position to use our campuses as test beds for sustainability. We are working to enhance the efficiency of our operations, reduce our environmental impact, and achieve cost savings, while leveraging our campus infrastructure and the built environment to demonstrate innovative sustainability solutions at the municipal scale.

HOW DOES YOUR ROLE SUPPORT CLIMATE ACTION AT UBC?

My role is to direct the work of Sustainability and Engineering in developing a plan that sets UBC on a course to achieve deep reductions in greenhouse gas emissions. We develop and deliver policies and programs that help us move toward our aggressive Climate Action target of 67 per cent reduction below 2007 levels by 2020.

WHAT ARE YOU PARTICULARLY PROUD OF?

The most significant achievement was the 30 per cent reduction in greenhouse gases below 2007 levels on the Vancouver campus, despite a 16 per cent increase in floor space and 22 per cent increase in student enrollment.

The reductions in greenhouse gases were largely attributed to the steam to hot water conversion project (District Energy), displacement of natural gas through the Bio-energy Research and Demonstration Facility and optimizing academic building performance through the Building Tune-Up Program.

We are projecting to reach 33 per cent GHG reduction by the end of 2016 which will be a huge milestone for the university.

WHAT'S NEXT FOR CLIMATE ACTION AT UBC?

Our next initiative will assess alternatives to what UBC is using for energy on the Vancouver campus.

We are looking at biomass and renewable natural gas as low carbon alternatives to natural gas, which is what we currently use primarily. Moving to one or both of these energy alternatives has the potential to greatly reduce our GHG emissions. This assessment will be presented to Board of Governors next spring.

We are already starting to implement a number of actions that reduce greenhouse gas emissions through behavior change initiatives, including: the green labs program, launching of a new green office program, and working with students in residences to reduce their energy and emissions footprint.

We are also very excited to launch a new Green Building Planning process to address energy and emissions across UBC's portfolio of new and existing buildings.

CLIMATE ACTION

CUTTING EMISSIONS, MEETING CLIMATE ACTION GOALS

John Madden, Director of Sustainability and Engineering with Campus and Community Planning, reflects on UBC's progress to meeting UBC's climate action target of reducing emissions by 33 per cent by 2015, and 67 per cent by 2020.



ENERGY AND EMISSIONS

As a rapidly growing, research-intensive campus, UBC is finding innovative ways to reduce energy and emissions. We've made significant strides towards achieving our ambitious greenhouse gas (GHG) reduction targets and continue to update and implement our award-winning Climate Action Plan and advance energy conservation and emissions reduction strategies across campus to achieve our sustainability goals while realizing cost savings.

ENHANCING EXISTING AND NEW BUILDINGS

- Reduced emissions by over 7 per cent from 2007 levels through energy conservation in buildings.
- Finished installation of a Heat Recovery Chiller in Life Sciences, reducing 500 tCO₂e annually.
- Continued to roll out our Building Tune-up program to re-commission over 70 buildings on campus, in partnership with BC Hydro.

ADVANCING LOW-CARBON ENERGY SOURCES

- Completed 90 per cent of the Academic District Energy System steam to hot water conversion project, replacing 14 km of aging steam piping and connecting 100 buildings to the more efficient hot water district energy system.
- Began operation of the new 45 megawatt thermal high-efficiency Campus Energy Centre, which will replace the campus' aging steam plant.
- Completed the third full year of operation of our Bioenergy Research and Demonstration Facility, generating heat from renewable biomass and reducing campus emissions by 14 per cent.

CLIMATE ACTION PLAN UPDATE

- Developed the first phase of the Climate Action Plan 2020, setting Demand Side Management targets and actions for 2020 and beyond.

GREENING OUR FLEET

- Reduced emissions of our fleet by integrating alternative fuel infrastructure, including biofuel, electric vehicle charging stations, and a CNG fueling station.

TARGET: REDUCE VANCOUVER CAMPUS GHG EMISSIONS

33% BY 2015
67% BY 2020
100% BY 2050*

***RELATIVE TO 2007 LEVELS**



NEW CAMPUS ENERGY CENTRE IMPROVES ENERGY EFFICIENCY, REDUCES EMISSIONS

In 2015, UBC Energy and Water Services began operation of the new 45 megawatt Campus Energy Centre, the primary thermal energy source for UBC's new hot water district energy system.

The new hot water district energy system replaced the campus' 90 year old steam system and improves energy efficiency by over 24 per cent through high-efficiency boilers and heat recovery.

When combined with the new hot water district energy system the Campus Energy Centre reduces the Vancouver campus' carbon emissions by 22 per cent.

CAMPUS ENGAGEMENT

Our signature engagement programs enable students, staff, faculty and residents to positively contribute to UBC's sustainability goals, exemplify sustainable practices and behaviours on campus, and help achieve UBC's ambitious sustainability plans.

70
**SUSTAINABILITY
COORDINATORS IN
OFFICES**

39
**SUSTAINABILITY
COORDINATORS IN LABS**



4,000 PEOPLE, ONE SMALL BAG OF GARBAGE

Once the barbecues were put away, tables cleared, chairs folded and 4,000 staff went back to their offices, only one small, desk bin-sized bag of garbage was left. The rest of the waste from UBC's annual Welcome Back Staff BBQ—200 kg—was sorted into compost and recycling. Since 2011, UBC's Sustainability Coordinators Program has partnered with Ceremonies and Events to recruit and train a team of staff volunteers to minimize waste at the annual event.

SUSTAINABILITY IN RESIDENCE

The Sustainability in Residence Program continued to engage students through an interactive and peer led monthly sustainability engagement programming. The program promotes sustainable lifestyle choices that first year students can easily integrate into their day-to-day lives and support UBC's high level plans and targets for sustainability engagement, climate action, greenhouse gas emissions reduction, water conservation and zero waste. To facilitate collaborations across departments and units, a Working Group was convened and met on a monthly basis.

GREEN OFFICES

The Sustainability Coordinator Program for Offices continued to engage a network of 70 staff sustainability champions across campus, providing tools, training and resources to enable staff to implement sustainable practices in their respective departments. Key initiatives in 2015/16 included developing programs and tools to enhance energy conservation and reduce paper use on campus, advance sustainable purchasing, and update our online Sustainability Coordinator Toolkits with key resources for implementing sustainable practices across campus.

564
**PARTICIPANTS
CYCLED**

51,573KM
DURING BIKE TO WORK WEEK

112

**RESEARCHERS ENGAGED THROUGH
LAB ENERGY CHALLENGE**

6,780

KWH ELECTRICITY SAVINGS

109

**ENERGY CONSERVATION ACTIVITIES
IN LABS COMPLETED**

GREEN LABS

UBC's Green Labs Program minimizes the environmental impact of UBC's research footprint by promoting innovative solutions that reduce energy and water use, and solid and hazardous waste. In 2015, the Green Labs Program engaged hundreds of researchers through the delivery of quarterly events, educational tours and training opportunities, and through the Green Labs Fund, which supports sustainability initiatives in labs.

In 2015, UBC partnered with BC Hydro to conduct an energy conservation pilot study on ultra-low temperature (ULT) freezers, which each consume as much energy as a single family home. With approximately one thousand freezers across campus, freezers alone account for up to six per cent of total campus energy use.

The Sustainability Coordinator program in Labs now has 39 volunteer Coordinators who promote sustainable practices in research labs across campus.

LAB ENERGY CHALLENGE

112 researchers from 18 teams across 11 buildings competed in the inaugural 2016 Lab Energy Challenge, a fun competition for researchers to tune up their labs and conserve energy. Over the month long competition, lab teams worked together to complete as many energy conservation activities as possible, with a focus on freezer management and lab equipment. After a tight race, the winners were lab teams from the Centre for Comparative Medicine, Microbiology & Immunology/ Zoology, Wood Science, and the Centre for Blood Research. The competition was held in partnership with BC Hydro's Workplace Conservation Awareness Program.

DID YOU KNOW?

Laboratory spaces use 10 times more energy than other types of spaces on campus.



SUSTAINABLE HOUSING

CREATING AN EXCEPTIONAL AND SUSTAINABLE RESIDENTIAL ENVIRONMENT

David Kiloh, Director, Facilities and Building Services, explains.

Acadia Park High Rise, part of our student family residence community, was due for a major upgrade. This child-friendly residence promotes healthy families through community activities and programs. An assessment revealed that we were faced with a choice: demolish or renovate.

We chose the latter for social, environmental and financial sustainability reasons. It was quicker, less disruptive, maintained community integrity, and was comparative in cost to a new build but resulted in larger units. Also, a massive volume of waste was diverted from the landfill.

ACADIA HIGH RISE ENHANCEMENTS

- New ground floor social space with kitchen, designed for family and children's gatherings.
- Two larger and improved communal meeting room spaces for staff-programmed events and resident bookings for meetings, group projects, study, etc.
- Enhanced study spaces on the penthouse floor with inspiring views, accessible to all resident students.
- Four new studio suites, enabling more students to live in residence.
- 100 one-bedroom units refurbished and enlarged by enclosing balconies.
- 48 of the larger one-bedroom units re-designed to provide a small study/nursery.
- LED light fixtures, high-efficiency boiler, low flush plumbing features, and building envelop upgrade for better thermal performance and comfort.

*"Our Acadia Park Highrise building had served us well for 45 years. This renewal means UBC can offer an **exceptional student family residential environment** for the foreseeable future, and it was achieved in a way that supports all three facets of sustainability."*

*David Kiloh
Director, Facilities and Building Services*



MATERIALS AND WASTE

UBC continues to implement the comprehensive Zero Waste Action Plan which includes targets to divert waste from the landfill and reduce waste generation. With the rollout of new indoor recycling stations across the academic campus nearly complete, efforts are now shifting to updating outdoor recycling infrastructure, updating the food scraps collection and processing systems, and implementing strategies to reduce waste generation.

IMPROVING WASTE DIVERSION

- Completed rollout of multi-stream recycling stations including food scraps in academic buildings, with a total of over 700 stations now in place.
- Completed key updates to recycling facilities in Student Housing.
- Continued implementation of the Sort it Out communications and engagement strategy to increase the ability of campus users to sort their waste using the new recycling station infrastructure.
- Treated on-site or recycled nearly 50 per cent of hazardous waste generated.

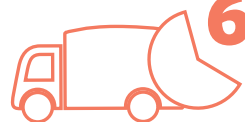
REDUCING WASTE THROUGH RESEARCH

- Through UBC SEEDS projects and collaborations with UBC researchers, developed and tested multiple tools and interventions to increase waste diversion, including an online waste sorting game.
- Continued to take a leadership role in waste-related research in BC, through the Metro Vancouver Waste Research Collaborative and other external research collaborations.

EVERYONE CAN PLAY A PART

Play a part in achieving zero waste by correctly sorting your waste; take it to the next level by volunteering at a zero waste event.

sustain.ubc.ca/sortitout



67%
**OVERALL WASTE
DIVERSION RATE**

700
**NEW RECYCLING STATIONS
IMPLEMENTED SINCE 2013**



ZERO WASTE FOR CLIMATE ACTION

While UBC's main source of greenhouse gas (GHG) emissions is natural gas needed to heat buildings, recycling and keeping food scraps out of the landfill also reduces GHGs. Organic materials disposed in the landfill produce methane, a potent greenhouse gas, some of which escapes into the atmosphere. Also, manufacturing many products such as aluminum cans from recycled materials instead of new materials greatly reduces the product's GHG emissions.

With the help of a graduate student, UBC worked with the City of Vancouver to develop a software tool that helps to estimate the GHG reductions resulting from reducing and diverting waste. 27

WATER

Approximately three billion litres of potable water are consumed at UBC a year – enough to fill 1,200 Olympic-sized swimming pools – for building operations, research, residential and irrigation purposes. Despite continued campus growth, we have steadily decreased water consumption through infrastructure improvements and improving water efficiency in existing and new buildings.



38%
REDUCTION IN
ABSOLUTE WATER
USE SINCE 2000



WATER CONSERVATION AND INNOVATION

In early 2016, with the help of specialized in-house Building Operations expertise, UBC's Energy Planning and Innovation (EPI) team executed a project to convert 12 environmental chambers in the Forest Sciences Centre from open-loop water cooling to a closed-loop heat recovery system. The heat recovery loop removes the waste heat from the chambers, keeping the research at the required constant temperature, while making the heat available for re-use in other parts of the building. At the same time, this eliminates the use of domestic cold water for cooling, saving 42 million litres of water per year and \$32,500 in water costs.

ADVANCING WATER CONSERVATION

- Completed the majority of the Academic District Energy System steam to hot water conversion project, which is expected to result in 136 million litres of water savings per year by the 2017-18 fiscal year.
- Upgraded campus irrigation systems with 70 rain sensors to reduce irrigation water consumption, expected to result in over 4 million litres of water savings in 2016.
- Demonstrated a reduction in water use of 30 per cent during regional water restrictions in the summer of 2015.
- Continued to audit existing buildings for water conservation opportunities, and implemented retrofits such as updating old urinals, which is expected to save 53 million litres per year in water consumption.

ENHANCING EXISTING AND NEW BUILDINGS

- Installed a stormwater detention tank to deal with runoff from the diesel transit loop attached to the new Aquatic Centre.
- Continued implementation of the integrated stormwater management plan and actively promote sustainable best practices for stormwater management as well as planning for more natural systems in future development areas.

DID YOU KNOW?

*A study in 2011 estimated that **24 per cent of all water** purchased by UBC was consumed by academic laboratories and research facilities.*

GREEN BUILDINGS

With nearly 400 institutional and residential buildings on campus, operating our buildings is the largest component of UBC's environmental and carbon footprint. We currently operate the largest portfolio of green buildings at a Canadian university and are working to improve green building design and performance and promote regenerative development.

ENHANCING GREEN BUILDING DESIGN

- Completed building energy studies to help develop UBC's first Green Building Plan in 2016-2017.
- Introduced new bird friendly building design guidelines to help reduce bird fatalities caused by collisions with window glass.
- Improved technical guidelines to enhance building envelopes on campus and create more efficiency.

GREEN BUILDING CERTIFICATIONS

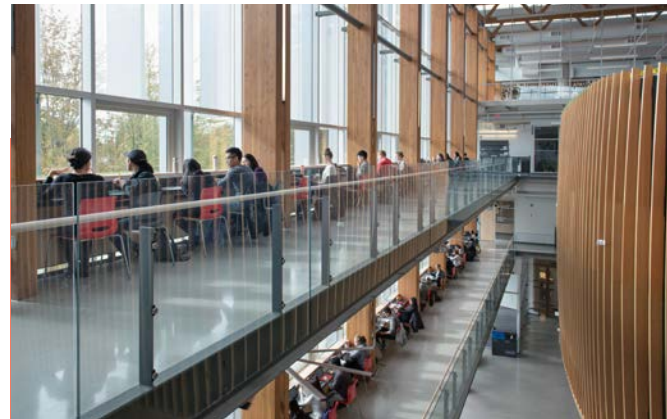
- In 2015 construction activity continued, an additional 10 LEED registered buildings were under construction and 3 REAP registered buildings were being built in the neighbourhoods.

29 LEED PROJECTS
(10 CERTIFIED, 19 REGISTERED)

37 REAP PROJECTS
(24 CERTIFIED, 6 REGISTERED)

TARGET

**ALL NEW CONSTRUCTION
AND MAJOR RENOVATIONS
MUST ACHIEVE LEED OR REAP
GOLD AND ACHIEVE ENERGY
REDUCTION TARGETS.**



THE NEST: A HOME FOR STUDENTS

Sustainability is central at the AMS Nest. The goal is LEED Platinum Certification (the highest Green Building rating in North America). The AMS Nest incorporates over 100 Social, Environmental, and Economic Studies (SEEDS) student-led sustainability projects. Sustainability highlights in the building include solar-powered heating and cooling systems, in-vessel composting facilities, storm water management retention, and a roof-top garden.

UBC OKANAGAN

UBC's Okanagan campus continues to develop strategies and implement initiatives that advance sustainability. Integrating a whole systems approach into future campus planning has led to the establishment of the campus' 2050 Whole Systems Goals and Infrastructure Plan that support a net-positive campus through energy conservation, water management, waste recovery, and enhancement and restoration of campus ecology and biodiversity.

ADVANCING LONG-TERM, SUSTAINABLE CAMPUS PLANNING

- Supported the implementation of the 2015 Okanagan Campus Plan, a 20-year planning framework for academic and research activities, student housing, and associated campus services and infrastructure. The plan guides management of future campus growth in support of the University's strategic plan and academic mission.
- Initiated the development of supporting frameworks, including the Whole Systems Infrastructure Plan and the Integrated Rainwater Management Plan.
- Updated building design guidelines.

CREATING A RESILIENT CAMPUS

- Developed the Whole Systems Infrastructure Plan (WSIP), an implementation framework of the Campus Plan (2015), which provides a long term roadmap and five year implementation plan for future infrastructure needs and environmental stewardship for sustainable campus growth, community well-being and ecological resilience.

2050 WHOLE SYSTEMS PERFORMANCE GOALS

ACHIEVE NET
POSITIVE
PERFORMANCE
IN OPERATIONAL
ENERGY AND
CARBON

SUPPORT LOW
EMBODIED
CARBON IN FUTURE
DEVELOPMENTS

ACHIEVE 100%
DIVERSION OF
STORMWATER
FROM MUNICIPAL
SYSTEMS

STRIVE TOWARDS
FULL WASTE
RECOVERY/REUSE

OPTIMIZE WATER
QUALITY, SUPPLY
AND SECURITY

ENHANCE AND/OR
RESTORE THE SITE'S
ECOLOGY

ENERGY AND EMISSIONS

Rapid growth and development of the UBC Okanagan campus has occurred in parallel with the establishment of greenhouse gas (GHG) reduction targets set by the Province of British Columbia. In response, UBC Okanagan continues to strive to achieve sustainable energy performance from buildings—the primary source of the campus’ energy consumption and emissions portfolio— leading to the development of emission reduction strategies and the implementation of innovative building infrastructure and occupant engagement programs across campus.

REDUCING ENERGY DEMAND

- Carbon Neutral Capital Program and routine capital funding of over \$85,000 enabled the campus to strategically focus on building demand-side energy reduction through re-commissioning and continued optimization of academic facilities.
- Completed implementation of energy conservation measures in remaining legacy buildings through the final phase of the UBC Okanagan/FortisBC partnered Building Optimization Program.
- Completed lighting retrofits in Purcell residences, anticipating a 78 per cent reduction in electricity consumption related to common-space lighting.

IMPROVING BUILDING PERFORMANCE

- Through UBC system-wide whole systems infrastructure planning exercise identified early implementation opportunities to improve building performance.

9%
REDUCTION
ABSOLUTE
GHG EMISSION
SINCE 2010

34%
REDUCTION GHG
EMISSIONS PER
STUDENT FTE
SINCE 2007

DID YOU KNOW?

A District Energy System is an energy distribution system which derives a portion of its energy from renewable aquifer-sourced ground water, which is then utilized to heat and cool the academic buildings on campus.



DISTRICT ENERGY SYSTEM

2015 represented the final year of the Building Optimization Program, a three-year program developed in partnership with UBC and FortisBC to implement energy conservation measures in five legacy academic facilities across campus.

In 2015, the Building Optimization Program saved the campus more than \$150,000 in cumulative annual utility costs in a 0.7 year payback period – the equivalent of a 140 per cent return on investment.

CAMPUS ENGAGEMENT

Our signature engagement programs enable students, staff, faculty and residents to positively contribute to UBC's sustainability goals, exemplify sustainable practices and behaviours on campus, and help achieve UBC's ambitious sustainability plans.

ENGAGEMENT AT WORK

- In response to Power of You campaigns, a key operations department facilitated a staff-led audit which resulted in the powering down of more than 7,000 lights and 250 projectors and monitors, in addition to the closing of more than 1,500 windows at night—all contributing to campus-wide energy and emission savings.

ENGAGEMENT IN THE CLASSROOM

- UBC Engineering students initiated a capstone project featuring a Campus Renewable Energy Biomass Feasibility Project. The biomass project is intended to inform a key recommendation within the Whole Systems Infrastructure Plan, which identifies future conversion of campus energy systems to biomass once an optimal District Energy load is achieved.
- A capstone project undertaken by engineering students included a Storm Water Catchment Project to provide background information for the campus' emergent Integrated Storm Water Management Plan.

ENGAGEMENT ACROSS CAMPUS

- Deployed "Power of You Recycle Your Coffee Cup" campaign which targeted reduction in use of single-use coffee cups on campus.
- Incorporated a "Be Sustainable" event into the PurNiKal Classic*, encouraging participants to apply sustainable behaviours such as using a reusable container or mug at the cafeteria and cleaning up the environment by picking up garbage or recycling in order to accumulate points.

**The PurNiKal Classic is an initiative developed by Resident Advisors to encourage social engagement and build comradery within four residences.*



MATERIALS AND WASTE

UBC's Okanagan campus continues to reduce its operational waste to landfill and improve its waste diversion rate compared to 2014. Additionally, despite an 81 per cent increase in student FTE since 2007, the campus demonstrated a modest absolute reduction of operational waste to landfill per student below 2007 baseline.

WORKING TOWARDS FULL WASTE RECOVERY/REUSE

- Continued to develop and deploy waste management strategies at a departmental level targeting the reduction of source waste from vendors.
- Increased campus' BigBelly recycling station fleet by five sets. Paired recycling and waste receptacles— now twelve in total—are located throughout the campus' exterior core and reduce operational costs and emissions related to waste management.
- Future projects anticipated from the development and implantation of scaled-up Behaviour Change and Environmental Stewardship Plan in 2016/17.



**26% OVERALL WASTE
DIVERSION RATE**

4% OVER 2010 BASELINE

2050 WHOLE SYSTEMS PERFORMANCE GOAL STRIVE TOWARDS FULL WASTE RECOVERY/REUSE



THE POWER OF YOU

A student-led waste reduction pilot aided in the expansion of recycling capabilities and the establishment of a composting program within one residence— full implementation to all residences is anticipated in 2016.

PROPER SORTING IS KEY

A waste sorting awareness campaign was initialized to educate the campus on what is accepted in the campus' recycling program, promoting proper sorting - starting with single-use coffee cups. This material was targeted in response to the Okanagan campus' 2014 bi-annual waste audit which reported opportunities to improve waste diversion compliance.

WATER

UBC Okanagan's building operations, research, residences and irrigation requirements led to the consumption of over 172,000 m³ of water in 2015. Although regional precipitation levels increased slightly over the previous year, the environmental impacts of intense rainfall and water scarcity remain at the forefront of the future campus development and water management planning. Future strategies are currently under development to support the implementation of the completed Whole Systems Infrastructure Plan.

2050 WHOLE SYSTEMS PERFORMANCE GOALS

OPTIMIZE WATER QUALITY, SUPPLY AND SECURITY

ACHIEVE 100% DIVERSION OF STORMWATER FROM MUNICIPAL SYSTEMS

ENHANCE AND/OR RESTORE THE SITE'S ECOLOGY



STORM WATER RETENTION

The storm water retention pond is an engineering feature designed to capture and divert rain water from the municipal storm water system. The pond has evolved to support a healthy, bio-diverse ecosystem hosting a rich plant life, turtles, birds and small animals.

ADVANCING SUSTAINABLE WATER MANAGEMENT

- Conducted improvements to building water efficiencies through routine maintenance and upgrades to water fixtures at the end of life and where renovations were completed.
- Continued to incorporate native, drought tolerant species of vegetation into the campus landscape.
- Began phase two of the three-year irrigation improvement project that anticipates significant improvements to irrigation efficiency, water conservation and associated costs.
- Conducted area management work around the retention pond to ensure efficient diversion and capture of campus rain water from the municipal storm water system is maintained. Implemented precautions to reduce area disturbance of naturally formed wet lands, which support the campus' ecosystem and developing biodiversity.
- Initialized development of Integrated Storm Water Management Plan which will aid in the mitigation of risk associated with climate change and support the campus' ecological landscape and biodiversity goals, a key recommendation identified to within the Whole Systems Infrastructure Plan.

24%
REDUCTION OF
WATER USE PER
SQUARE METER
SINCE 2007

19%
REDUCTION OF
WATER USE PER
STUDENT FTE SINCE
2007



COMMUNITY

Our goal is to create a model of a vibrant, complete, sustainable community at an urban neighbourhood scale, where people can live, work and learn together. To support this goal, we are providing diverse housing options, promoting and enabling sustainable transportation choices, developing and delivering community programs, and advancing policy and planning work to enhance both social and environmental wellbeing.

COMMUNITY DEVELOPMENT

Over 20,000 students, faculty, staff and residents call the UBC Point Grey Campus home. A wealth of dynamic community programs and activities designed to leverage campus landscapes, public spaces and cultural and athletic assets help to foster our community's health, happiness and wellbeing. Our goal of creating a vibrant and sustainable work-live-learn community at an urban neighbourhood scale comes to life each and every day at UBC.

21

FREE BIKE CLINICS WERE OFFERED AT 6 DIFFERENT CAMPUS LOCATIONS

27

COMMUNITY GRANTS FUNDED



ENHANCING CAMPUS EXPERIENCES

This year, UBC completed construction and enhancement of two public spaces at the heart of the campus, Money and Raymond M.C. Lee Square and University Commons, both located near UBC's new Alumni Centre.

The new space was used to kick-off UBC's Centennial celebration by recreating the famous 1922 "UBC" Great Trek photograph that captured student efforts to collect some 56,000 signatures in support of building the university at the Point Grey site. This time, the photograph marked UBC's 100th milestone.

Throughout the year, the space is used to host food truck festivals, Storm the Wall sporting event, and other festivities which bring our community together to learn, socialize and celebrate!

CONNECTING OUR COMMUNITY

- Collaborated with over 30 internal and external campus partners to deliver community programming that promotes health, wellbeing and physical activity, arts and culture, community involvement, youth leadership and sustainability.
- Awarded 27 UTown@UBC Community Grant projects that funded community-led projects focused on increasing social vibrancy and connectedness on campus. Special grants were also awarded to help promote wellbeing initiatives by students and community-led celebrations of the UBC Centennial.
- Provided close to 900 residents with a UTown@UBC Community Services Card, connecting them to discounted access to UBC's world-class cultural and recreational amenities.

CREATING EXTRAORDINARY EXPERIENCES

- Brought together UBC community members through fun and vibrant events including a sold-out Centennial Harvest Feast, a 1000-person outdoor dinner; Arts Night Out, a evening of free performances and exhibits at UBC's world class arts and culture venues; and Chef Challenge, a culinary competition featuring local and sustainably sourced food.
- Facilitated and supported hundreds of community and student-led projects to enhance campus and bring life to public spaces on campus through grant funding, SEEDS program collaboration and improving access to space booking tools and information.



RIPPLE EFFECT UBC



The third annual Ripple Effect Campaign brought sustainability to life across campus, with three Ripple Wave Events and 23 Ripple Lab Events.

From touring the inside of the temporary energy system, to 'Loving Their Leftovers', to embracing reusable mugs, or digging deep into a day-long waste audit of the UBC Nest, students from across campus made a Ripple and joined a Wave of sustainability.

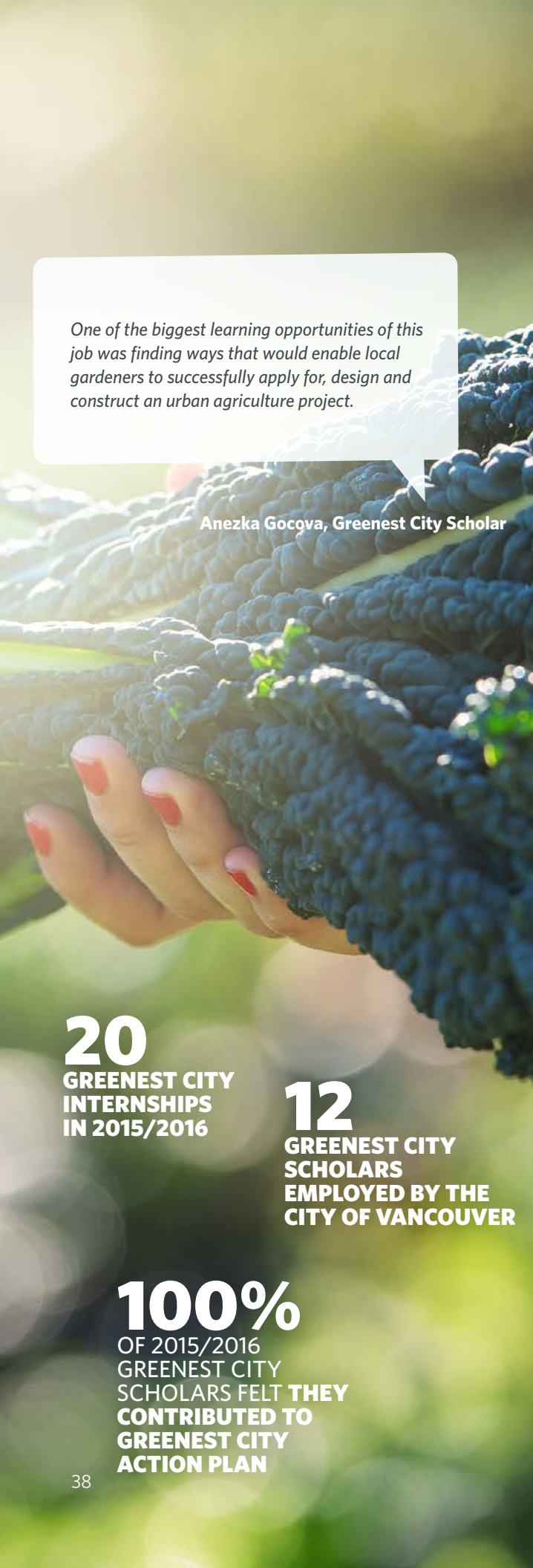
1,016

PEOPLE ENGAGED IN
A RIPPLE LAB

1,270

PEOPLE ENGAGED IN
A WAVE EVENT





One of the biggest learning opportunities of this job was finding ways that would enable local gardeners to successfully apply for, design and construct an urban agriculture project.

Anezka Gocova, Greenest City Scholar

INTERNSHIPS

BUILDING NEIGHBOURHOOD FOOD RESILIENCY

Anezka Gocova, a Master of Landscape Architecture student with the School of Architecture and Landscape Architecture, reflects on her experience of working with the City of Vancouver and the Vancouver Parks Board to support urban agriculture efforts.

WHAT CITY EFFORTS DID THIS PROJECT SUPPORT?

This project directly helped support City of Vancouver's Greenest City Action Plan which aims to increase city-wide and neighbourhood food assets by a minimum of 50% over 2010 levels.

HOW DID THIS PROJECT CONTRIBUTE TO URBAN AGRICULTURE?

The global food system is already witnessing the negative consequences of climate change and drought.

Urban agriculture has been identified as one approach that cities can utilize to empower residents to address food security concerns, and build stronger communities while doing it.

I helped develop the start-to-finish Urban Agriculture Gardening Guide, intended to get Vancouverites growing thus helping expand Vancouver's neighbourhood food resiliency.

The guide provides information about how to apply for, fund and design an urban garden.

HOW DID THIS EXPERIENCE COMPLEMENT YOUR EDUCATION?

The experience helped me learn how best to communicate with the public and provided me an opportunity to work on identifying and implementing strategies to make community resources more accessible.

20
GREENEST CITY
INTERNSHIPS
IN 2015/2016

12
GREENEST CITY
SCHOLARS
EMPLOYED BY THE
CITY OF VANCOUVER

100%
OF 2015/2016
GREENEST CITY
SCHOLARS FELT THEY
CONTRIBUTED TO
GREENEST CITY
ACTION PLAN



COMMUNITY ENGAGEMENT UBC LEARNING EXCHANGE

Kathleen Leahy, Director of UBC Learning Exchange explains how using an Asset Based Community Development (ABCD) approach, a strategy for sustainable community-driven development, the project leveraged assets that are already found in the community to mobilize individuals, associations, and institutions to come together to drive local growth.

Perspective & Strength: Changing the Discourse about Vancouver's Downtown Eastside (DTES) through Improved Student Orientations project recognizes the strengths and gifts of the DTES community by providing UBC faculty, staff, and students, and DTES community partners with improved toolkit of materials for students to learn about this unique community.

THE DISCOURSE ABOUT VANCOUVER'S DTES CAN BE ONE-SIDED, FOCUSING ON DESPAIR AND HOPELESSNESS. HOW DID THIS PROJECT TRY TO CHANGE THE NARRATIVE?

The project used an Asset Based Community Development (ABCD) approach, a strategy that focuses on strengths rather than weaknesses, and recognizes that local residents are experts on their own community.

Local residents co-created the toolkit, which UBC faculty/staff and staff at community organizations can use with students learning about the DTES. Resources include a workshop on boundaries, a guide for interviewing community partners, self-directed tours, factsheets, and a video series featuring more balanced reflections and experiences from local residents.

Involving local residents in creating the materials has led to far more powerful messages about the strengths of the DTES. We were overwhelmed by the interest of local residents in participating. Our response was to proceed in a collaborative and consultative way, taking the time needed, as quality will have more impact than a rushed deliverable.

WHAT ARE YOU PROUD OF?

The project has strengthened the Learning Exchange's orientation of students and support to faculty and community partners. It's being supported by the Equity Enhancement Fund for a second year to further expand and evaluate how the materials are shifting the discourse. The passion and strength of local residents is formidable, as is the curiosity of students to learn about it.

HOUSING AND AMENITIES

UBC is building a vibrant community by providing campus housing options to students, faculty, staff and residents, and by developing recreation facilities, community centres, parks, open spaces, and child care within our neighbourhoods and academic spaces. We are committed to increasing housing choice and growing campus amenities, driven by UBC's vision to be a world-class community of scholars with beautiful, functional, and sustainable campuses.

10,543

**TOTAL STUDENT BEDS
(30% OF 2010
FULL TIME STUDENTS)**

ASPIRATIONAL TARGET: PROVIDE
CAPACITY TO HOUSE UP TO 50% OF 2010
FULL TIME STUDENTS



WESBROOK PLACE COMMUNITY CENTRE

The new Wesbrook Place Community Centre opened in October 2015. This 30,000 square foot building provides a fitness centre, dance studio, music rooms, cooking classes and beautiful wood-enclosed gymnasium. The Wesbrook Place Community Centre is an important amenity for UBC neighbourhood residents, students, staff and faculty, and for UBC's neighbours. Built to LEED-Gold equivalents, the building uses the latest wood technology.

IMPROVING HOUSING AVAILABILITY & AFFORDABILITY

- Completed Ponderosa Commons Phase 2, adding 513 student beds, retail services, student facilities and academic space; continued to work towards increasing the number of child care spaces on both academic and neighbourhood lands.
- Connected the first Wesbrook Place residential buildings to UBC's new Neighbourhood District Energy System (NDES). The NDES system is designed to capture waste heat from the TRIUMF research facility to provide heat and domestic hot water.
- Started development of the innovative Brock Commons. This 18-storey student housing project – known as the 'tall wood building' – will house 408 upper year and graduate students. The building is comprised of 17 storeys of mass wood construction above one storey of base concrete and is expected to be completed in September 2017 (see page 16).
- Started development of 'Central' along University Boulevard. This mixed-use rental project will be the first housing in the heart of campus for people who work or study at UBC. At completion in mid-2017 it will include 98 rental units and ground floor retail services.
- Continued construction on the new Aquatic Centre, scheduled for completion in November 2016.

DID YOU KNOW?

Waste heat from the Save-on-Foods grocery store in the Wesbrook Village heats the Granite Terrace apartments above?

STUDENT LEADERSHIP

AMS SUSTAINABILITY

Before the AMS Student Nest was completed in 2015, AMS Sustainability developed the concept for a Student Life and Sustainability Center (SLSC). Kasha Foster, AMS Sustainability Manager tells us what to expect.

WHAT IS THE SLSC?

The SLSC aims to help students develop leadership skills by supporting their events and projects with tangible and intangible resources, ranging from stationary and printing to skill-based support. AMS clubs and constituencies will be able to rent dishware, serving utensils, and other items that can be used to ensure that hosted events are zero waste events.

The space will also be the new central location for the Mugshare program that was initiated by Common Energy, in collaboration with student groups such as Seedlings, Sprouts, and Agora Café.

WHAT ARE THE SUSTAINABILITY BENEFITS?

Within the space, we have a new digital dashboard that serves as an education and outreach mechanism for the AMS. We hope it will encourage sustainable behaviour choices by providing occupants feedback on the building's water and energy use, as well as information about the building's sustainability features.

By engaging the occupants of the building through the Dashboard, we hope that our efforts help reduce the ecological footprint of both within the building, and outside, as students pass on newly gained knowledge to others.

WHAT'S NEXT?

In the coming year, we are hoping to engage more student groups in projects surrounding the Digital Dashboard. The SLSC will be a hub of sustainability outreach and education in the Nest, and will provide students with an inviting space to engage with sustainability.

*THE SLSC WILL BE A HUB OF
**SUSTAINABILITY OUTREACH AND
EDUCATION** IN THE NEST.*

Kasha Foster, AMS Sustainability Manager



TRANSPORTATION

As province's largest university, UBC is a regional destination for students, staff, faculty, student, alumni and citizens from communities across the region. UBC is focused on reducing automobile trips to and from campus by adding new infrastructure or making improvements to existing infrastructure that encourages our campus community to choose more sustainable travel modes.

SINCE 1997

13% **DECREASE IN SINGLE OCCUPANCY VEHICLE TRIPS DESPITE 55% INCREASE IN CAMPUS POPULATION**

279% **INCREASE IN TRANSIT TRIPS**



WALK 'N ROLL TO SCHOOL PROGRAM

UBC has a growing community with two elementary schools and one high school. It was observed that very few children were walking or biking to school and instead were being driven. To encourage families to choose safe, active and sustainable transportation the Walk 'n Roll to School program was initiated.

Since its implementation it has grown every year with well over 1,000 trips to school logged during the walk 'n roll to school weeks. As a result of its success, the community has continued to support the program throughout the whole school year.

ADVANCING SUSTAINABLE TRANSPORTATION

- UBC is dedicated to supporting more sustainable travel mode options. There are a number of electric vehicle charging stations at the Vancouver and Okanagan campuses. We are also exploring opportunities to provide electric charging stations for electric bikes in secure bike facilities.
- Key card access and cameras were installed to improve security in bike cages located within parkades.
- More bike lockers were purchased and installed on campus, which are the most popular form of secure bike parking on campus.
- Continued work with key partners on the rapid transit connection along the Broadway corridor to UBC.
- Ongoing implementation of the Campus Transportation Plan at the Vancouver Campus.
- Planning at Okanagan campus for a new transit exchange, a new access road, new pedestrian/cyclist connections and a new public realm project that will restrict vehicles from passing through the heart of the campus.

70%   
OF TRIPS TO/FROM CAMPUS USE SUSTAINABLE MODES OF TRANSPORT

SUSTAINABILITY INNOVATION

REACHING FOR STARS

In 2015, UBC received its second consecutive 'gold star' and the highest rating among Canadian universities in the most recent Sustainability Tracking, Assessment & Rating System (STARS).

Developed by the Association for the Advancement of Sustainability in Higher Education (AASHE), STARS is the most recognized framework in the world for publicly reporting information related to a college or university's sustainability performance.

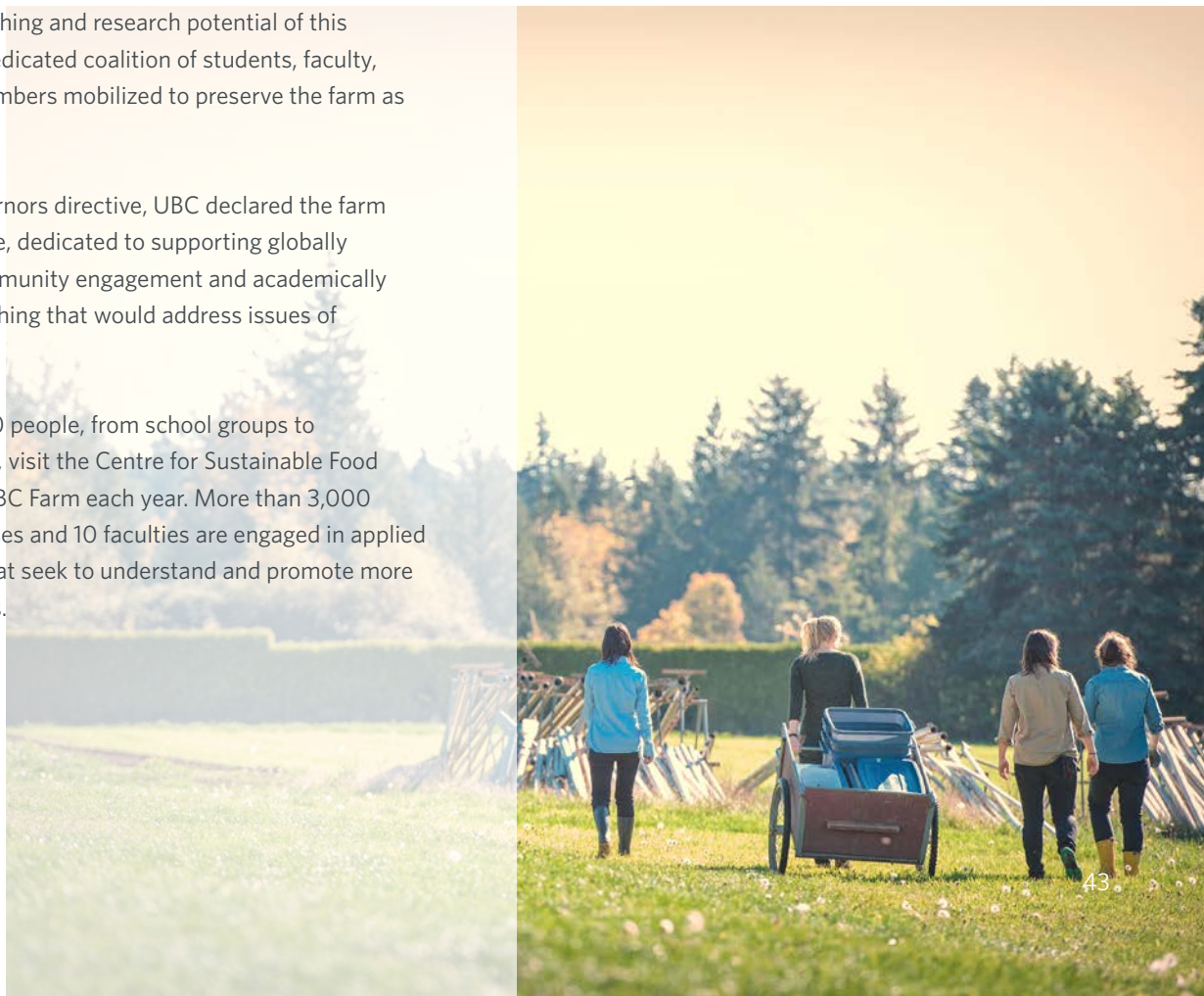
Among the universities with an enrollment of more than 30,000 students, UBC rated second-highest overall in the STARS assessment, receiving full additional "innovation credits" for four exemplary projects that exceed even the highest STARS criteria.

Of those four exemplary projects, the UBC Farm, evolved from a place of great uncertainty. In 2008, the future of the UBC Farm was precarious.

Aware of the unique teaching and research potential of this veritable "living lab", a dedicated coalition of students, faculty, staff and community members mobilized to preserve the farm as academic green space.

In its 2011 Board of Governors directive, UBC declared the farm a "Green Academic" zone, dedicated to supporting globally significant research, community engagement and academically rigorous land-based teaching that would address issues of sustainability.

Today, more than 60,000 people, from school groups to international delegations, visit the Centre for Sustainable Food Systems (CSFS) at the UBC Farm each year. More than 3,000 students across 60 courses and 10 faculties are engaged in applied research and teaching that seek to understand and promote more sustainable food systems.



INTERNSHIPS AND ENGAGEMENT

čłhi:yaʔəstəl' tə čłx^wəlməx^w

NEIGHBOURS WORKING TOGETHER

UBC Sustainability Scholar, Aaron Lao worked with the Musqueam First Nation (Musqueam) to identify principles for collaboration and engagement between the University of British Columbia (UBC) and the Musqueam First Nation around sustainability and wellbeing. Aaron shares his internships experience.

"IT'S GREAT TO HAVE THESE LINKS BETWEEN UBC AND MUSQUEAM. THE UBC SUSTAINABILITY SCHOLARS PROGRAM, THIS WELLBEING PROJECT...IT'S REALLY IMPORTANT FOR THE RELATIONSHIP."

Jessica Carson
Researcher and Planner
Musqueam First Nation

WHAT'S THE CONNECTION BETWEEN UBC AND THE MUSQUEAM?

UBC's Vancouver campus is located on the unceded, traditional territory of the Musqueam First Nation. Today, about half of approximately 1,300 Musqueam members live in the main Musqueam village, located adjacent to the southeastern portion of the University Endowment Lands.

Engagement between the university and the Musqueam community has developed over several decades with a long-standing relationship between the Musqueam and the Museum of Anthropology.

WHAT ARE SOME EXAMPLES OF SUCCESSFUL COLLABORATION?

There are a number of programs demonstrating the power of collaboration. Bridge Through Sport, Musqueam 101 and the Musqueam language programs are examples of a successful cross community collaboration.

Another notable example is the Indigenous Community planning specialization at the School for Community and Regional Planning, which emerged in response to concerns surrounding the lack of Indigenous voices in planning

HOW DOES THIS PROJECT AIM TO SUPPORT MORE MEANINGFUL ENGAGEMENT?

For UBC community members, the report draws attention to designing a proposal effectively, making connections respectfully, and the importance of building meaningful and lasting relationships.

For Musqueam community members, the report offers strategies for navigating the university, including advice on how to find the right person for collaboration and how to reach out and make the connection.

Overall, the report identifies six core principles: mutual benefit, timeliness, meaningful collaboration, listening & open communication, acknowledgment of history, and awareness of capacity.

Ultimately, we all have a role to play in building a strong relationship between UBC and Musqueam, if not by direct collaboration, by education and awareness.



WELLBEING

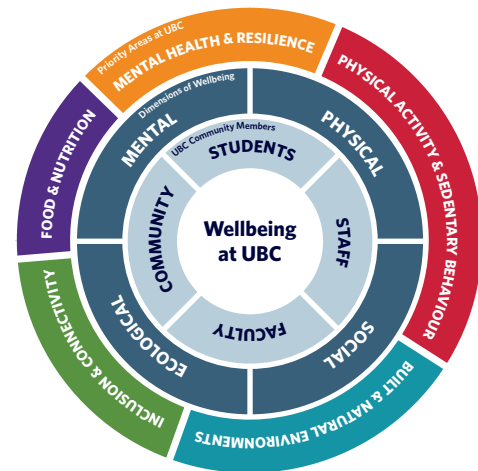
Wellbeing is essential to achieving our full potential in teaching, learning, research and engagement; creating healthier, happier, and more sustainable communities at UBC and beyond. Evidence tells us that people who are well are more able to engage in deep learning, are more likely to be retained and have a stronger sense of community. Wellbeing at UBC was created to help facilitate a cultural shift where wellbeing is valued as a deeply held commitment by the university. By focusing on human and ecological wellbeing in a holistic and regenerative way, UBC can help set up graduates, faculty and staff for long-term success.

FACILITATING CHANGE GLOBALLY

- Hosted the 2015 International Conference of Health Promoting Universities and Colleges, and leveraged the resulting international charter that weaves together health, wellbeing and sustainability to inform UBC's approach to wellbeing.
- Supported charter development in collaboration with participants from 45 countries and helped shape two Calls to Action:
 1. Embed health into all aspects of campus culture, across the administration, operations and academic mandates; and,
 2. lead health promotion action and collaboration locally and globally.

WELLBEING IN ACTION

- Undertook development of plans, frameworks and new initiatives for five wellbeing priority areas (see outer circle in image to right) across both Vancouver and Okanagan campuses.
- Engaged faculties to integrate wellbeing into their strategic planning, unit cultures and workplace and classroom settings.
- Supported student, staff and faculty led engagement initiatives that champion wellbeing, including the Okanagan Campus Trails Project, BodyWorks, Early Alert and Walkabout.
- Embedded wellbeing throughout strategic plans and documents including the Student Mental Health Strategy, the 20-Year Sustainability Strategy, and the Vancouver and Okanagan Campus Master Plans.



A UNIVERSITY PRIORITY: LEADING WELLBEING CHANGE

UBC's whole community approach embeds wellbeing across the university at all levels to inform decision-making and our daily activities. A Steering Committee comprised of senior academic, student, and administrative leadership from across both campuses ensures that wellbeing is embedded as a strategic priority across the institution.

A Strategic Support Team comprised of individuals from key administrative units supports faculties, student bodies, and administrative units that are championing wellbeing. Individual community members also contribute initiatives, ideas, and research projects to further the vision of wellbeing as a strategic priority.

Wellbeing at UBC is a banner under which conversations take place, collaboration is increased and new learning emerges.

2016/17 KEY PRIORITIES

The following are highlights of our 2016/2017 fiscal year priorities. We will continue to implement our strategies and plans in order to meet our targets.

TEACHING, LEARNING AND RESEARCH

- Leverage and highlight UBC's academic sustainability excellence and strengthen the alignment between the campus sustainability initiatives and research faculty.
- Provide grant and awards programs to faculty members, encouraging the development and implementation of sustainability learning pathways.
- Support student sustainability involvement and leadership, through internships, professional development and involvement opportunities, and resources.
- Build on the USI teaching and learning program, explore the development of a professional accreditation in sustainability management and position CIRS building as the nexus for sustainability teaching and research on the campus.

OPERATIONS AND INFRASTRUCTURE

- Begin implementing Phase 1 of the Climate Action Plan 2020, and complete phase 2 (energy supply analysis and recommendations).
- Develop UBC's first Green Building Plan and update UBC's LEED implementation guide.
- Update waste and recycling infrastructure, improve food scraps collection program and emphasize communications and engagement in student housing and in reducing waste generation.
- Complete development of the Water Action Plan and the associated targets, including updating of water efficiency requirements for new construction.
- Continue implementation of key priorities outlined within the UBC Okanagan Campus Plan and deployment of the UBC Okanagan Whole Systems Infrastructure Plan.
- Develop an integrated rain-water management plan for UBC Okanagan that defines strategies and measures to manage 100 per cent of rain water on site.
- Continue to implement UBC Transportation Plan with an emphasis on improved pedestrian and cycling facilities across campus.

COMMUNITY

- Explore opportunities that improve bike security at the Point Grey campus to increase the number of cyclists commuting to campus.
- Advance planning work for the Point Grey campus Westbrook Mall redesign and, in early 2016, open the new temporary transit exchange.
- Across housing and amenities efforts, complete the new world-class Aquatic Centre and continue mixed use rental of University Boulevard housing for the UBC community.
- Continued delivery of community programs to enhance campus experience and work towards increasing child care spaces on both academic and neighbourhood lands.
- Continue implementation of priorities within the UBC Okanagan Campus Plan, including an update to UBC Okanagan's Design Guidelines and completed redevelopment of University Way.
- Advance construction of the John Hindle Drive extension beginning, which includes the new campus access road Upper Campus Way.
- Initiate design process for the new transit exchange and a new cyclist facility that will connect the campus to southeast Kelowna initiate improvements to public realm space.

COMMUNICATIONS AND ENGAGEMENT

- Leverage UBC's unique leadership position to be a catalyst for transformational change at a community and municipal scale.
- Prepare to host the 2017 International Sustainable Campus Network conference, a global forum for advancing sustainability in higher education.
- Using the Calls to Action and Principles in the Okanagan Charter, support efforts to build towards an environment of wellbeing as a deeply held value.
- Enhance sustainability engagement programs in offices and labs to increase resource conservation and build a culture of sustainability in support of achieving ambitious resource conservation targets.
- UBC Okanagan to host 2016 Association for the Advancement of Sustainability in Higher Education (AASHE), Sustainability Officer's Retreat, in support of AASHE's mission to inspire and catalyze higher education to lead the global sustainability transformation.
- Supporting the implementation of the UBC Okanagan Whole Systems Infrastructure Plan— the campus will complete and implement a new three-year Behaviour Change Energy and Environmental Stewardship Plan, broadening the focus to include energy, waste and water conservation actions, as well as measures to support campus ecology and biodiversity.

PERFORMANCE DATA

METRICS ¹	VANCOUVER CAMPUS			OKANAGAN CAMPUS		
	2015/2016	TREND	BASELINE	2015/2016	TREND	BASELINE
CONTEXT						
Staff and Faculty Employees (FTE)	12,183	-2.2%	2007	1,033	+63%	2007
Student Enrollment (FTE)	46,183	+23%	2007	7,403	+81%	2007
Institutional Floor Space (m ²)	1,487,899	+16%	2007	137,604	+91%	2007
TEACHING, LEARNING AND RESEARCH						
SEEDS ² Participants (# of students, faculty, staff)	591	+17%	● 2012/13		N/A	
SEEDS Projects (#)	103	+39%	● 2012/13		N/A	
SEEDS Research Reports (#)	139				N/A	
Faculty Engaged in Sustainability Research (#, % of all faculty)	423 (20.7%)	N/A			N/A	
Total Sustainability Courses (#)	647	N/A		167	N/A	
Greenest City Scholars (# of internships with City of Vancouver)	20	+100%	● 2012/13		N/A	
OPERATIONS AND INFRASTRUCTURE						
Absolute Offsettable GHG Emissions (tCO ₂ e) Target: 33% reduction from 2007 levels by 2015; 67% by 2020.	42,846	-30%	● 2007	2,599	+19%	● 2007 ³
GHG Emissions per Student (tCO ₂ e/student FTE)	0.93	-43%	● 2007	0.35	-34%	● 2007
GHG Emissions per Floorspace (tCO ₂ e/m ²)	0.0288	-39%	● 2007	0.019	-38%	● 2007
Campus Energy Sources by GJ (%)						
Natural gas	45%	-28.1%	● 2007	31%		
Electricity	42%			69%		
Biomass (Vancouver) / Propane (Okanagan)	10%		N/A	0.05%		N/A
Renewable Natural Gas	4%					
Absolute Energy Use (GJ)	1,735,544	+1%	● 2007	147,382	+87%	● 2007
Energy Use Intensity (GJ/m ²)	1.28	-4%	● 2007	1.07	-2%	● 2007
Absolute Water Use (m ³)	2,890,089	-38%	● 2000	172,622	+46%	● 2007
Water Use Intensity (m ³ /student FTE)	62.6	-59%	● 2000	23	-19%	● 2007
Overall Waste Diversion Rate (%) Target: Increase overall waste diversion rate to 70% by 2016 and 80% by 2020	66.6	+7.6%	● 2010	26	+4%	● 2010
Operational Waste Disposed (tonnes) Target: Achieve a decreasing trend in operational waste disposed to landfill/incineration despite forecasted campus growth	3,188	+2%	● 2010	817	+16%	● 2010
LEED ⁴ Projects (# of certified and registered building projects)	26 (10 certified, 16 registered)	+1 LEED Gold registered		1 Certified	No new certifications.	
REAP ⁵ Projects (# of certified and registered building projects) Target: All new construction and major renovations must achieve LEED or REAP Gold	32 (24 certified, 8 registered)	+4 REAP Gold registered		1 Certified		

METRICS¹	VANCOUVER CAMPUS				OKANAGAN CAMPUS			
	2015/2016	TREND		BASELINE		2015/2016	TREND	BASELINE
COMMUNITY AND ENGAGEMENT								
Transportation Mode Share / Person Trips								
% of trips to/from campus by transit, carpool, cycling & walking	70	-13% in SOV person trips	●	1997	51*	+28% in SOV person trips	●	2009
% of trips to/from campus by transit	52	+279% in transit person trips	●	1997	32	+9% in transit person trips	●	2009
Student Beds (# of beds,% of 2010 full time students) Aspirational Target: Provide capacity to house up to 50% of full time students in 2010	10,543 (32%)	+5%	●	2014/2015	1,676	No new spaces added		2012
Faculty and Staff Housing (total units)	665	+12%	●					
Child care (# of UBC-run child care spaces)	742	+1.6%	●		36	No new spaces added		
STARS⁷ Rating	Gold							
Sustainability Coordinators Program (# of coordinators, Vancouver Campus)	70 in offices 39 in labs	N/A		23		N/A		
Power of You Program (# of volunteers, Okanagan Campus)								
Sustainability in Residence Program (#)	3,100	N/A				N/A		
Sustainability Tours								
# of tours conducted	139				4			
# of participants	2,346				38			
Digital Engagement								
# of Pageviews on sustain.ubc.ca / Visits on sustain.ok.ubc.ca	196,324	+14%	●		9,359	+25%	●	
# of Facebook Likes (UBC Sustainability)	2,092	+50%	●					
# of Twitter Followers (@SustainUBC)	9,350	+11%	●					
Newsletter Subscribers (UBC Sustainability News)	1,870	+240%	●					

- On track/continued progress made.
- Monitor/explore opportunities for improvement.
- Attention required/advance progress.

¹Targets apply for Vancouver Campus.

² Social Ecological Economic Development Studies (SEEDS) Program.

³ 2007 baseline includes buildings' emissions only. 2015 data represents emissions from all in-scope sources (buildings, fleet, paper, fugitive emissions) and accounts for an 91% increase in floor space and 81% increase in student enrollment since 2007.

⁴ Leadership in Energy and Environmental Design (LEED).

⁵ Residential Environmental Assessment Program (REAP).

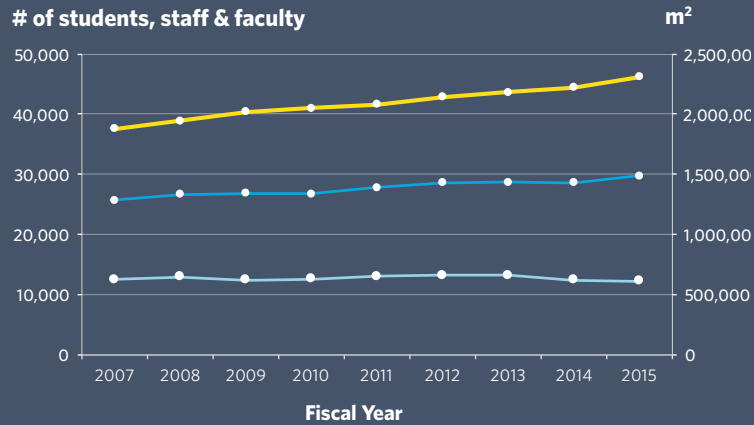
⁶ Updated data for UBC Okanagan not available at time of publication.

⁷ Sustainability Tracking Assessment & Rating System (STARS) administered by the Associations for Advancement of Sustainability in Higher Education (AASHE).

VANCOUVER CAMPUS TREND DATA

CONTEXT DATA

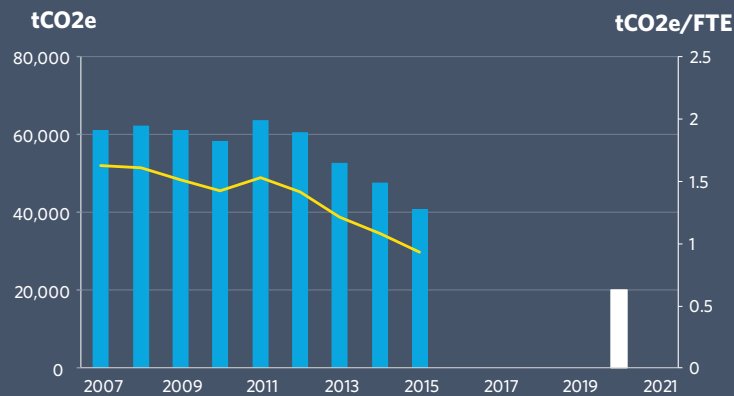
of students, staff & faculty



UBC's Vancouver campus has made progress towards our sustainability goals amid continued growth. Since 2007, student enrollment has increased by 23 per cent and floor space has increased by 16 per cent.

■ Student Enrolment (FTE)
■ Total Floor Space (m²)
■ FTE Staff and Faculty

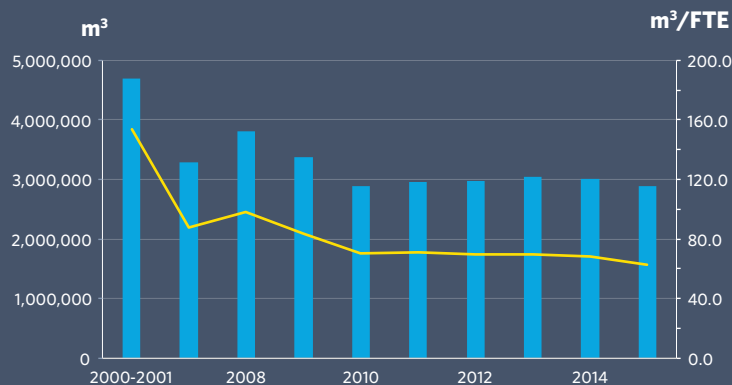
GHG EMISSIONS



Since 2007, Vancouver campus absolute GHG emissions have decreased by 30 per cent despite significant growth. UBC is on track to meet its 33 per cent emission-reduction target in 2016. Per capita, emissions have decreased 43 per cent per FTE student.

■ Absolute GHG Emissions (tCO2)
■ GHG Emissions per Student FTE (tCO2/FTE)
■ 2020 GHG Reduction Target

WATER USE

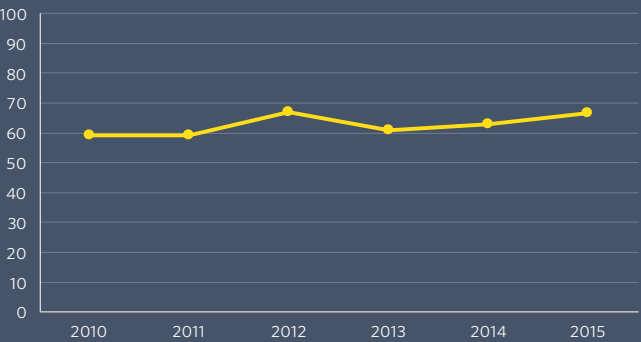


UBC Vancouver has reduced the total amount of water used on campus by 38 per cent since 2000, despite significant campus growth. Per capita, UBC Vancouver has achieved a 55 per cent reduction in water consumption per FTE student since 2000.

■ Absolute Water Use (m³)
■ Water Use Per Student (m³/FTE)

WASTE DIVERSION

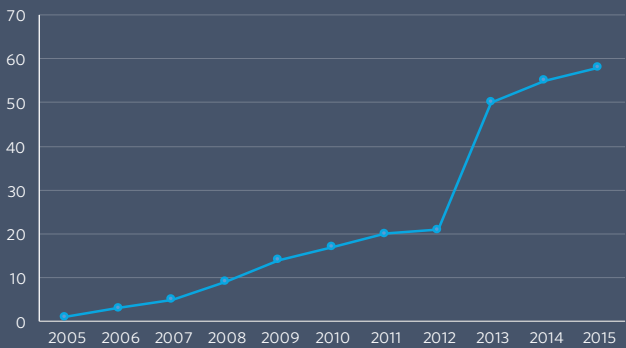
% waste diversion



In 2015/16 UBC Vancouver diverted 67 per cent of overall waste from the landfill. The Zero Waste Action Plan for UBC’s Vancouver campus outlines steps to reduce waste generation and increase waste diversion to meet the target of 70 per cent diversion by 2016 and 80 per cent by 2020.

GREEN BUILDINGS

of buildings



As of 2015/16, UBC had a total of 58 green buildings, including 26 LEED registered and certified academic green building projects and 32 REAP registered and certified residential green building projects on campus.

ENERGY SOURCES



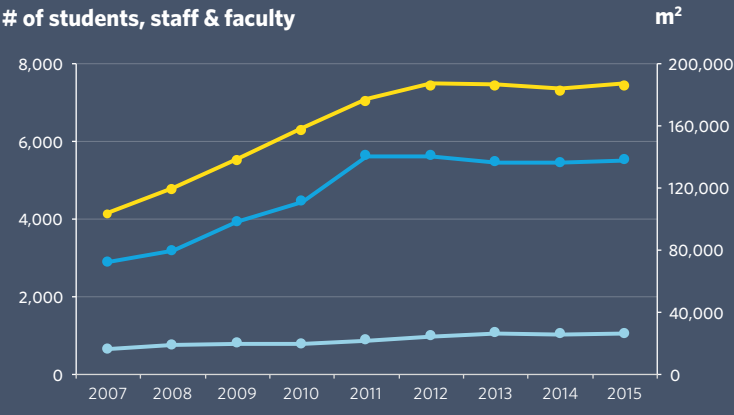
The majority of UBC Vancouver’s energy supply is from natural gas and clean hydroelectric power. UBC’s Bioenergy Research and Demonstration Facility supplies 10 per cent of campus energy from renewable biomass. 4 per cent of campus energy is generated using renewable natural gas.

- Natural Gas (% of campus total)
- Electricity (% of campus total)
- Biomass (% of campus total)
- RNG (% of campus total)

OKANAGAN CAMPUS TREND DATA

CONTEXT DATA

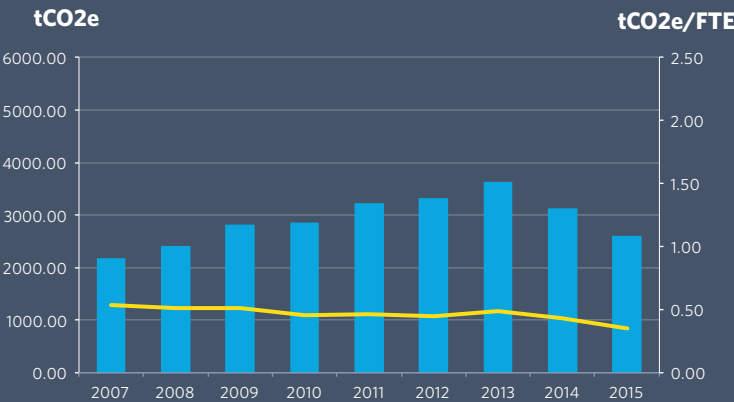
of students, staff & faculty



UBC’s Okanagan campus has nearly doubled in size in recent years but has achieved relative sustainability performance. Since 2007, student enrolment has increased by 81 per cent, floor space has increased by 91 per cent, and staff and faculty employees have increased by 63 per cent.

- Student Enrolment (FTE)
- FTE Staff and Faculty
- Total Floor Space (m2)

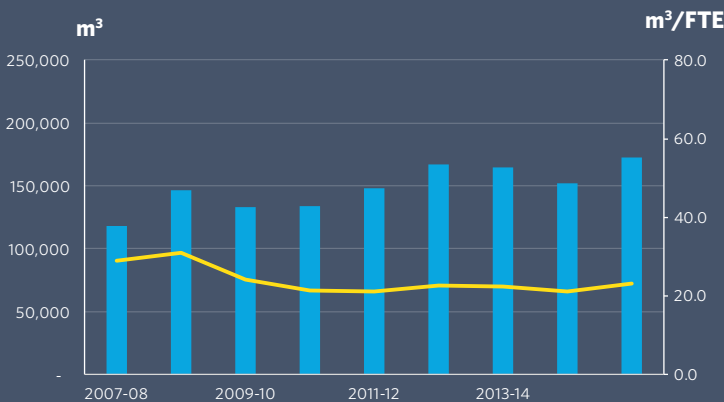
GHG EMISSIONS



Despite a 19 per cent absolute increase in Okanagan campus GHG emissions due to intensive growth in floor space and enrollment, in 2015/16 relative emissions decreased by 34 per cent per FTE student compared to 2007 levels.**

- Absolute GHG Emissions (tCO2)
- GHG Emissions per Student FTE (tCO2/FTE)

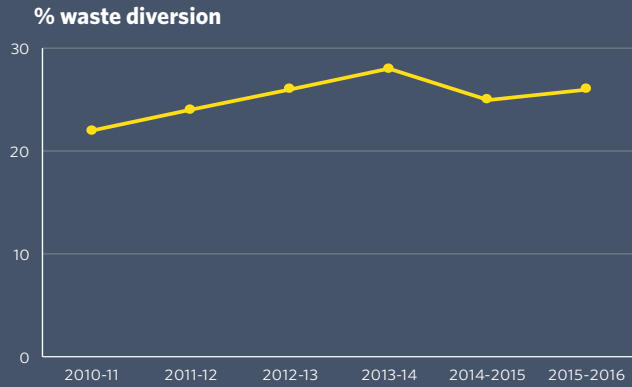
WATER USE



Despite an absolute increase in Okanagan campus water use due to intensive growth, in 2013/14 per capita water consumption decreased by 19 per cent per FTE student compared to 2007 levels.

- Absolute Water Use (m3)
- Water Use Per Student (m3/FTE)

WASTE DIVERSION



In 2015/16, UBC Okanagan increase waste diversion by 4 per cent to divert 26 per cent of overall waste from the land fill.

ENERGY SOURCES



The majority of UBC Okanagan's energy supply is from clean hydroelectric power and natural gas.

Natural Gas (% of campus total)
Electricity (% of campus total)

PHOTO CREDITS

Cover page, p. 5, 30 Hover Collective

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P. 30, 31, 33, 34 UBC Okanagan Campus

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