



# ANNUAL SUSTAINABILITY REPORT

**2013-2014**



a place of mind  
THE UNIVERSITY OF BRITISH COLUMBIA

**sustainability**

# 2013/14 FAST FACTS



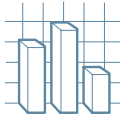
**14%**  
REDUCTION IN  
ABSOLUTE GHG  
EMISSIONS SINCE  
2007



**55%**  
REDUCTION IN WATER  
USE PER STUDENT  
SINCE 2000



**40+**  
SUSTAINABILITY  
RELATED ACADEMIC  
PROGRAMS



**50**  
GREEN BUILDING  
PROJECTS



STUDENT BEDS  
INCREASED TO  
**10,041**

**71%**



OF TRIPS BY SUSTAINABLE  
MODES OF TRANSPORT



**61%**  
OVERALL WASTE  
DIVERSION RATE



**5**  
OPERATIONAL  
LIVING LAB  
PROJECTS



**3,100**  
STUDENTS  
ENGAGED THROUGH  
SUSTAINABILITY  
IN RESIDENCE  
PROGRAMMING



**9+**  
NATIONAL AND  
INTERNATIONAL  
AWARDS



**896**  
STUDENTS, FACULTY AND  
STAFF INVOLVED IN 86  
SEEDS PROJECTS



**500+**  
SUSTAINABILITY  
RELATED COURSES



**40%**  
REDUCTION IN  
HAZARDOUS  
WASTE SINCE 2006

## VANCOUVER CAMPUS

## OKANAGAN CAMPUS



**23%**  
REDUCTION IN WATER  
USE PER STUDENT SINCE  
2007



ELECTRICITY SAVED  
ANNUALLY THROUGH  
FORTISBC POWERSENSE  
PROGRAM



**1,200**  
PEOPLE ENGAGED  
IN SUSTAINABILITY  
INITIATIVES



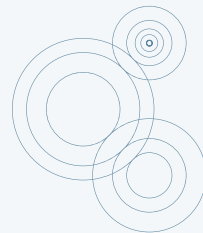
**57%**  
OF CAMPUS  
DISTRICT ENERGY  
SYSTEM HEAT  
SOURCED FROM  
RENEWABLE  
EARTH ENERGY



**\$263,000**  
GENERATED IN ENERGY  
REBATES AND GHG  
EMISSIONS REDUCTION  
INCENTIVES

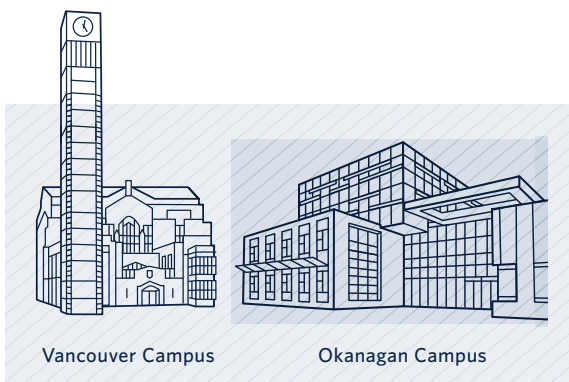


**8%**  
REDUCTION IN GHG  
EMISSIONS  
PER STUDENT SINCE 2007



## TABLE OF CONTENTS

|                                    |           |
|------------------------------------|-----------|
| MESSAGE FROM THE ASSOCIATE PROVOST | <b>1</b>  |
| INTRODUCTION                       | <b>3</b>  |
| TEACHING, LEARNING AND RESEARCH    | <b>4</b>  |
| CAMPUS AS A LIVING LAB             | <b>11</b> |
| OPERATIONS AND INFRASTRUCTURE      | <b>17</b> |
| COMMUNITY                          | <b>26</b> |
| COMMUNICATIONS AND ENGAGEMENT      | <b>30</b> |
| 2014/15 KEY PRIORITIES             | <b>37</b> |
| APPENDIX                           | <b>39</b> |

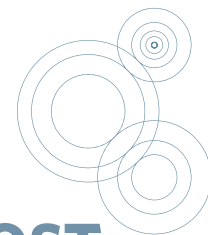


## ABOUT UBC

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 more than 58,000 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.



## MESSAGE FROM THE ASSOCIATE PROVOST



I am pleased to report our sustainability achievements for UBC Vancouver and Okanagan campuses during the 2013/2014 fiscal year.

Building on a tradition of excellence in sustainability, developed over the last 20 years, we made significant progress in meeting our ambitions and have embraced a significant academic and operational opportunity to continue being at the forefront of the sustainability transition.

We perform research that provides insights into and solutions to institutional challenges involved in achieving sustainability; we practice sustainability operationally at a scale of great interest to cities around the world; and we prepare students as a future generation of leaders with sustainability skills they can contribute to the larger world.

Delivering on our commitment to the academic mission, we continue to embed sustainability across the curriculum, and provide numerous applied research and leadership opportunities with on and off-campus programs that engage students, faculty and staff in researching solutions to sustainability challenges.

On the operational side, we made great progress in advancing our Vancouver Campus Climate Action Plan by achieving a 14 per cent reduction in greenhouse gas emissions (relative to 2007 levels) despite significant campus growth.

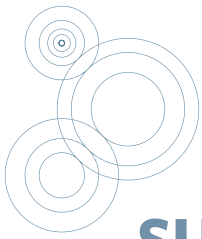
At UBC's Okanagan campus, we reduced reliance on natural gas for heating and associated emissions by sourcing 57 per cent of campus district energy from renewable ground source energy.

Finally, we laid a strong foundation for next generation sustainability by completing a comprehensive community engagement process to develop a 20-Year Sustainability Strategy for UBC's Vancouver campus.

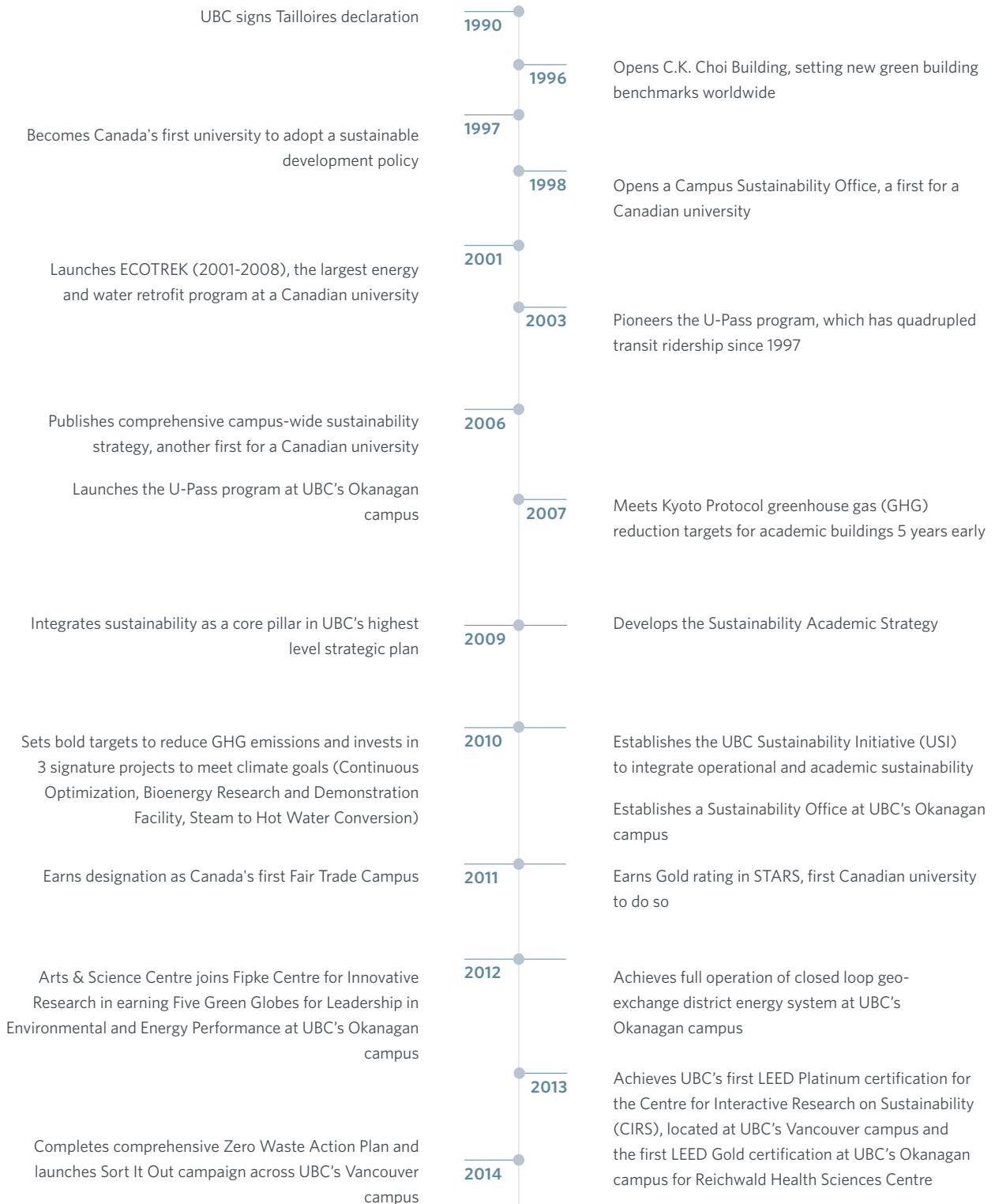
With most of the strategy work complete, we are in an excellent position to commence the 2014/2015 year with a renewed vision, shared understanding and a strong commitment to improving human and environmental wellbeing on campus while inspiring and enabling others to do so in the larger world.

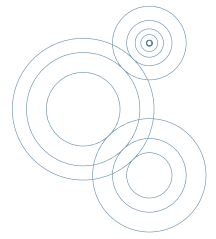
Dr. John Robinson  
Associate Provost, Sustainability





# SUSTAINABILITY MILESTONES



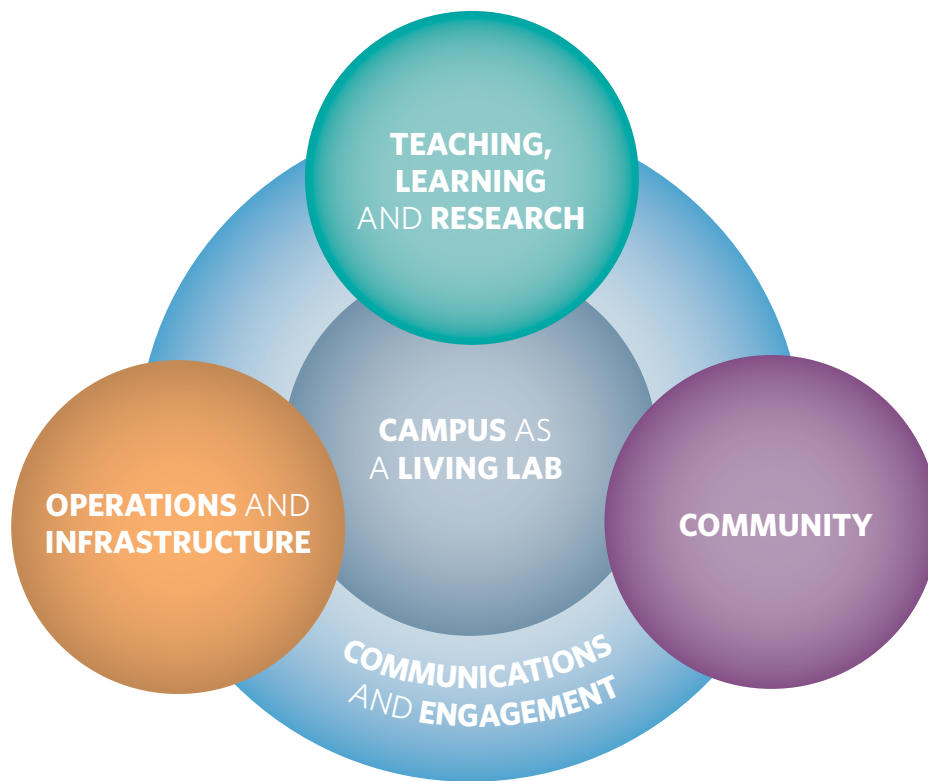


# INTRODUCTION

UBC's 2013/2014 Annual Sustainability Report provides an overview of our sustainability activities and aims to help foster continued dialogue that guides progress towards our sustainability aspirations.

Our approach is grounded in the integration of sustainability across teaching, learning and research, operations and infrastructure and community. We collaborate with private, public, NGO and community partners, and 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.



# TEACHING, LEARNING AND RESEARCH

UBC's sustainability ambitions go beyond the operational agenda and include a transformation of curriculum. We are working to support and extend sustainability courses and create learning pathways for undergraduate students. Our goal is for all students to have access to sustainability learning alongside their chosen degree program. We support our diverse sustainability research community by creating opportunities for connection and collaboration.







## OUR ACTIVITIES

### EMBEDDING SUSTAINABILITY IN COURSES AND PROGRAMS

We are working to embed sustainability across the curriculum to provide students with an opportunity to take a sustainability pathway regardless of their program. We provide resources to faculty members seeking to incorporate sustainability and track availability of sustainability courses.

### FOSTERING STUDENT LEADERSHIP

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, initiatives and other student involvement opportunities related to sustainability and share these through our comprehensive website and in-person engagement activities.

### BUILDING CAPACITY

We build the capacity of UBC's teaching community to deliver outstanding sustainability learning opportunities and continue to provide support to sustainability researchers through a variety of mechanisms, including the UBC Sustainability Initiative (USI) Research Fellowship program and the Sustainability Community of Practice.

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

— UBC Sustainability Academic Strategy, 2009

**500+**  
SUSTAINABILITY  
RELATED COURSES

**40+**  
SUSTAINABILITY RELATED  
ACADEMIC PROGRAMS

**50+**  
PH.D. THESES RELATED  
TO SUSTAINABILITY

TEACHING AND  
RESEARCH FELLOWSHIPS  
AWARDED ACROSS

**9** FACULTIES\*

\*2010-2013

# FEATURE HIGHLIGHT CURRICULUM TRANSFORMATION

## NEW COURSE PREPARES FUTURE SUSTAINABILITY LEADERS

Most university courses focus on a particular discipline, but in fact all disciplines overlap or are influenced by others. The new Science 220 course challenges students to consider interdisciplinary perspectives - from science and engineering, to economics and business, and the social sciences - in analyzing and proposing solutions to complex problems.

## A PATHWAY TO A MORE SUSTAINABLE DEGREE

In 2013, the Faculty of Science became the first faculty to develop a Sustainability Learning Pathway for their undergraduate students. A Sustainability Learning Pathway is a collection of sustainability-oriented courses and experiences that students pursue alongside their disciplinary major. Pathways may be integrated within existing programs, or offered as a separate entity such as a minor.

Faculty of Science's module includes 5 key components:

1. Introductory course
2. Suite of electives
3. Real world experience
4. Capstone course
5. Sustainability learning community

The pathway equips students with the following sustainability attributes:

Holistic Systems Thinking  
Sustainability Knowledge  
Awareness and Integration  
Acting for Positive Change

*For the first time at UBC, I didn't feel like I was in a course that's all about getting good grades, I felt like I was in a course to actually learn, and carry that knowledge forward for the rest of my life.*

SCIENCE 220 Student

*I've always been interested in sustainability, but thanks to this class I now know more about it, and how I can incorporate it into my future career in business.*

SCIENCE 220 Student

### EXAMPLE OF A SUSTAINABILITY LEARNING PATHWAY

|             |  |   |                                      |
|-------------|--|---|--------------------------------------|
| YEAR<br>1/2 | INTRODUCTORY COURSE<br>(for example, the new Science 220 course)           |   | SUSTAINABILITY LEARNING<br>COMMUNITY |
| YEAR<br>3/4 | SUSTAINABILITY ELECTIVES<br>(courses vetted for sustainability attributes) | REAL WORLD EXPERIENCE<br>(eg. SEEDs, Co-op) |                                      |
| YEAR<br>4   | CAPSTONE/LEADERSHIP COURSE   |   |                                      |

## 2013/2014 HIGHLIGHTS

The following are select highlights of UBC Sustainability Initiative (USI) Teaching, Learning, and Research activities:

| ACTIVITIES                                      | DESCRIPTION  | ACCOMPLISHMENTS  |
|---|--|--|
| <b>SUSTAINABILITY PATHWAYS</b>                  | Support faculties and departments in creating a suite of sustainability-oriented courses and experiences that students pursue alongside their disciplinary major | <ul style="list-style-type: none"> <li>The Faculty of Science ran its first year of SCIE 220, an introductory sustainability course open to students across the campus and taken at the beginning of a sustainability pathway</li> <li>Developed new Pathway Seed Grant program to fund curriculum development to be launched in fall 2014</li> </ul>  |
| <b>GREENEST CITY SCHOLARS PROGRAM</b>           | Provide UBC graduate students with applied work experience with the City of Vancouver  | <ul style="list-style-type: none"> <li>Provided 11 graduate students with applied work experience in sustainability</li> <li>Received matching program funding from the City of Vancouver allowing for program expansion in 2014</li> </ul>  |
| <b>USI FELLOWSHIP PROGRAM</b>                   | Enable faculty to contribute to the discussion to advance UBC's academic sustainability goals  | <ul style="list-style-type: none"> <li>Refined UBC's curriculum framework for sustainability education and engaged program directors around framework adoption</li> <li>Drafted concept papers on how to integrate sustainability into first year courses and form an interdisciplinary Student Learning Community as part of the sustainability pathways</li> </ul>   |
| <b>SPOTLIGHT GRANTS PROGRAM</b>                 | Encourage the insertion of sustainability content into large, introductory courses   | <ul style="list-style-type: none"> <li>Awarded grants to Chemistry 121, Geography 121, Psychology 101/102, and Applied Science 150</li> </ul>  |
| <b>SUSTAINABILITY EDUCATION RESOURCE CENTRE</b> | Provide student advising on academic and co-curricular opportunities   | <ul style="list-style-type: none"> <li>Provided advising services to undergraduate students, including participation in Celebrate Learning Week</li> <li>Communicated curricular and co-curricular opportunities to 600+ newsletter subscribers, including faculty and students</li> <li>Introduced sustainability content into programming designed for incoming first year students (Jump Start and Imagine UBC)</li> <li>Connected with over 95 academic advisors and engaged over 60 student groups</li> </ul> |
| <b>SUSTAINABILITY AMBASSADORS</b>               | Peer-to-peer program that seeks to foster student leadership and promote sustainability education  | <ul style="list-style-type: none"> <li>Conducted a series of workshops with students focusing on green event planning and peer-to-peer advising</li> <li>Organized and hosted annual Sustainability Fair, engaging over 400 attendees</li> <li>Doubled the team for 2014, following a 100 per cent increase in applications</li> </ul>   |
| <b>UBC READS SUSTAINABILITY</b>                 | Provide a forum for students across disciplines to discuss sustainability issues with globally recognized authors  | <ul style="list-style-type: none"> <li>Hosted two speaker events, including with Richard Heinberg, author of Snake Oil and Marc Anielski, author of Economics of Happiness</li> <li>Since program inception in 2010, earned 27,400+ views of lecture videos on YouTube</li> </ul>  |
| <b>ANNUAL COURSE CONSULTATION</b>               | Track progress of UBC's efforts to provide sustainability courses  | <ul style="list-style-type: none"> <li>Identified 509 courses with a focus on sustainability and/or sustainability content</li> </ul>  |



## FEATURE HIGHLIGHT APPLIED WORK EXPERIENCE

Through our Greenest City Scholars Program we sponsor graduate students to work on sustainability projects that help advance the City of Vancouver's Greenest City Action Plan. Open to graduate students from all academic disciplines, the program provides applied work experience and helps transfer knowledge into the community.

### PROJECT PROFILE

PUTTING METRO VANCOUVER'S TRANSIT NEEDS INTO PERSPECTIVE

Zak Bennett, a graduate student in the School of Community and Regional Planning, worked with the City of Vancouver over summer 2013 to explore how Metro Vancouver's transit compares with urban areas around the world.

Zak produced a literature review and developed metrics that enabled a comparison of Metro Vancouver's transit performance and needs with the performance and expansion of transit systems in peer cities worldwide. Using factors such as population, density, and transit ridership, as well as relevance and similarity to Metro Vancouver in politics, culture, and transit technology, Zak identified twelve cities for comparison.

Whilst the City of Vancouver doesn't own or operate the transit system, it plays a critical role in building transit-supportive streets and land use. Zak's work helped put Metro Vancouver's transit needs into context, and will assist the City's decisions around advocating new investments in transit capacity, and developing strategies to garner support for new transit investments.

**Sean Pander**, Assistant Director,  
Sustainability Group, City of Vancouver

*... the City is the biggest beneficiary of the program. We get fantastic projects from the scholars, and are always amazed at how informative and instrumental the research and projects are in helping us create and get going with something much, much larger....*

**11**  
GREENEST CITY  
INTERNSHIPS  
IN 2013/2014

**37**  
GREENEST CITY  
INTERNSHIPS OVER  
4 YEARS

**100%**  
OF 2013 GREENEST  
CITY SCHOLARS FELT  
THEY RECEIVED HIGH  
VALUE FROM THE  
PROGRAM

**2013 Greenest City Scholar**

*... I feel that the data I collected and research I conducted filled a knowledge gap. For this reason, I expect that it will help the City to make informed policy decisions in future years...*



FEATURE HIGHLIGHT  
COMMUNITY ENGAGED RESEARCH



**BUILDING HEALTHY AND SUSTAINABLE SCHOOL FOOD SYSTEMS**

Working closely with the Vancouver School Board (VSB), the Think & Eat Green @ School project connects students to the origins of their food and inspires change in what children eat, learn and do at school in relation to food, health, the environment and sustainability. The project highlights the significant impact that the food system as a whole has on greenhouse gas emissions and our ecological footprint.

400+ UBC undergraduate and graduate students were involved in 60 VSB classrooms. A total of 34 elementary and secondary schools received grants to carry out projects in areas of curriculum innovation, food policy and climate change adaptation, and school based food production, consumption, preparation and procurement. 100 teachers and food advocates participated in the third Think & Eat Green@School Summer Institute.

**400+**

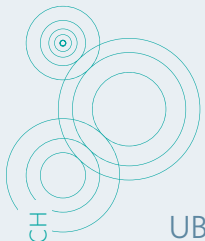
**UNDERGRADUATE AND GRADUATE STUDENTS ENGAGED**

**100**

**TEACHERS AND COMMUNITY PARTICIPANTS**

**34**

**ELEMENTARY AND SECONDARY SCHOOLS INVOLVED**



## UBC OKANAGAN ENABLING RESEARCH PARTNERSHIPS

The Okanagan Sustainability Institute is a research-focused, partnership-based and externally supported academic unit. With a growing network of partners in the interior region of British Columbia and with national and international links to similarly situated researchers and institutes, the Institute enables us to pursue inter-faculty, collaborative, interdisciplinary sustainability research and scholarly inquiry that generate transferable, scalable results and give rise to first-rate academic publications.

### OUTREACH AND COLLABORATION

As a knowledge broker, the Institute enables us to convene exchanges at the regional and international scale, engaging faculty, staff, students and industry, government and community partners, and facilitating five working groups related to topics such as water, urbanization and rurality. We also supported sustainability curriculum development in the Bachelor of Management program.

**10+** EXTERNAL PARTNERS

---

#### **LIFE CYCLE, WATER AND URBANIZATION WORKING GROUP**

- Collaborated with industry on engineering-based life cycle assessment and researched markets for recycling and reuse of green building materials.
- Prepared a toolkit on return on investment in green development and initiated development of a tool and techniques to manage building energy and GHG emissions, as well as water and energy sustainability assessment frameworks for mixed-use developments.

---

#### **OKANAGAN AESTHETIC WORKING GROUP**

- Launched Yellow Schoolhouse Project, a community-based art project that seeks to inspire conversation around development and aesthetic values, and engaged the community through workshops, performance, photo essay and interviews.

---

#### **GREEN ROOF WORKING GROUP**

- Conducted research that identified superior long-term performance of green roof systems in the context of runoff water quality in semi-arid environments.

---

#### **CULTURE CHANGE AND SOCIALLY SUSTAINABLE HEALTHCARE**

- Worked with community partners to develop new approaches to cultural change in support of healthy living
- Created a model “hub” for interaction between researchers and communities and hosted scenario building process with community partners to identify opportunities to reduce preventable chronic disease.

---

#### **CURRICULUM OF WELL-BEING WORKING GROUP**

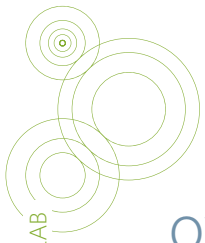
- Initiated the development of mixed methods approaches to understanding children’s wellbeing in communities and places as an element of social sustainability, in order to improve decision-making around built and natural development and social policies.



# CAMPUS AS A LIVING LAB

Our unique position as a university enables us to transform the campus into a societal test-bed for sustainability, in which we can design, implement and test sustainable solutions, and teach, study, and research those processes. Through collaborative research, experiential learning and industrial innovation, Campus as a Living Lab projects create the knowledge, skills and partnerships that move bold thinking from the classroom to the community. Our culture of innovation enables us to initiate new programs and projects that deliver academic, societal and technological advances.





## OVERVIEW

Campus as a Living Lab (CLL) Initiative provides teaching, learning and research opportunities for students, faculty and staff while meeting operational requirements. CLL is a key channel for brokering research partnerships with industry and other community partners, enabling access to research funding and accelerating knowledge translation.

In 2013, we operated five projects at UBC's Vancouver campus: Centre for Interactive Research on Sustainability, Bioenergy Research and Demonstration Facility, Continuous Optimization, Energy Storage System and Electric Vehicle Experiment. 39 projects in total were under active development.

Designated projects combine campus operations and administration (e.g. energy and water management, land use and ecosystem management, buildings and infrastructure, planning) with the education, research and outreach mandates of the university to enable:

- **EXPERIENTIAL LEARNING**
- **RESEARCH EXCELLENCE**
- **OPERATIONAL IMPACT**
- **AGENT OF CHANGE**

## GOVERNANCE AND COLLABORATION

A Steering Committee and Working Committee bring together diverse stakeholders across campus operations and academics. The Steering Committee is responsible for overall direction and decision-making, while the Working Committee is responsible for project evaluation and development. Through the participation of diverse stakeholders, we demonstrate our broad and deep commitment to sustainability.

*On a sustainable campus, the built environment, operational systems, research, scholarship, and education are linked as a "living laboratory" for sustainability. Users (such as students, faculty, and staff) have access to research, teaching, and learning opportunities on connections between environmental, social, and economic issues.*

— International Sustainable Campus Network (ISCN)-Global Universities Leaders Forum(GULF)

*Sustainable Campus Charter*

**39** ACTIVE PROJECTS

**5** OPERATIONAL PROJECTS

OPERATIONAL FUNDS LEVERAGED **4.1x** ON AVERAGE

**18** DEPARTMENTS

**5** FACULTIES

INVOLVED IN CLL PROJECTS



## FEATURE HIGHLIGHT RESEARCH EXCELLENCE

### **CENTRE FOR INTERACTIVE RESEARCH ON SUSTAINABILITY**

#### ACCELERATING SUSTAINABILITY RESEARCH

In 2013, the Centre for Interactive Research on Sustainability (CIRS) began operation as a research centre with a focus on sustainable building and urban development practices, from the work/live space through the neighbourhood scale.

A prime example of the living lab concept, CIRS enables us to conduct a range of research activities through which every aspect of the building is studied, including the interplay with and wellbeing of inhabitants. Projects are conducted through collaborative partnerships between CIRS researchers and industry, the public sector and civil society.

The CIRS building was our first Campus as a Living Lab demonstration project and one of four flagship projects. The building's robust network of sensors and controls facilitates performance tracking, reporting, continuous optimization protocols and collection of research data.

Buildings like CIRS - that embody the principles of regenerative, net-positive sustainability - are deeply transformative, catalyzing sustainability innovations and the establishment of higher sustainability goals.

Lessons learned from CIRS will help every new capital project on campus strive to achieve more aggressive sustainability goals than its predecessor and become a learning platform for continual improvement over time.

#### REGENERATIVE NEIGHBOURHOODS RESEARCH PROJECT

The Regenerative Neighbourhoods Project seeks to explore and catalyze the emergence of regenerative sustainability at the neighbourhood scale, building on the lessons being learned from the application of regenerative sustainability at the building scale in CIRS.

Through collaboration with local municipalities and design practitioners, academic researchers and students are examining key principles of regenerative sustainability to inform its application and practice at the neighbourhood scale.







## FEATURE HIGHLIGHT EXPERIENTIAL LEARNING

### SEEDS SUSTAINABILITY PROGRAM

ADVANCING SUSTAINABILITY THROUGH  
COLLABORATIVE RESEARCH

Over the past 14 years, the SEEDS (Social Ecological Economic Development Studies) Sustainability Program has created partnerships between students, faculty and staff to enable innovative sustainability projects at UBC. These student research projects engage the Campus as a Living Lab, and support the integration of academic and operational work on sustainability. Projects contribute to Zero Waste Action Plan, Climate Action Plan, Electrical Infrastructure Plan, and the Departmental Sustainability Frameworks. SEEDS facilitates collaborations across units on campus, develops career capital through experiential learning, and produces measurable results for campus operations.

*SEEDS provides diverse learning opportunities that enrich the work of faculty and staff while contributing to positive change on campus*

**Faculty Participant**

INTEGRATED INTO **36**  
COURSES

**896** STUDENTS,  
FACULTY & STAFF  
ENGAGED IN  
2013/14

**86**  
COMPLETED PROJECTS IN  
2013/14

**1,000+**  
RESEARCH  
REPORTS  
PUBLISHED ONLINE  
OVER 14 YEARS



### 2013/14 CAMPUS PROJECT HIGHLIGHTS

Waste Diversion for Special Olympics  
Canada 2014 Summer Games

Lighter Footprint Targets for the Alma  
Mater Society

Business Proposal to Recruit Women  
Working in Trades

Onsite Composting Facility for new  
Student Union Building

Enhancing Construction and  
Demolition Waste Tracking for  
Campus Capital Projects



## FEATURE HIGHLIGHT OPERATIONAL IMPACT

### **BIOENERGY RESEARCH AND DEMONSTRATION FACILITY**

Following the first full year of operation, the Bioenergy Research and Demonstration Facility enabled us to reduce Vancouver campus emissions by 9 per cent, producing enough renewable energy to supply 8 per cent of total campus energy, equivalent to heating 1,200 homes.

A partnership between UBC and two of the world's leading developers of green technology — Vancouver-based Nexterra Systems Corporation and GE Energy — the pioneering CLL project provides a platform for demonstrating renewable energy at the community scale, providing faculty, staff, students, and private sector partners the opportunity to study, test, teach and apply lessons learned at the facility.







## UBC OKANAGAN REGION AND CAMPUS AS A LIVING LAB

UBC's Okanagan campus recently renewed its participation in the Campus as Living Lab initiative. Our ad hoc committee identified and carried out three pilot projects that integrate sustainability research with campus operations. Projects focused on: the energetic performance of operational green roofs on campus buildings, landscaping of the 'Hangar' Fitness and Wellness Centre, integrating ecosystem function with maintenance ease, and optimization of campus water systems.

As a result of these projects, the conceptualization of the Campus as a Living Lab evolved and broadened to consider our campus not in isolation but as a node in a network of living lab opportunities throughout the Okanagan and British Columbia's Interior region.

Future CLL activities may occur in various organic ways, for example: campus-based action research on health promotion serving as one node of a broader, regional action research project.



Okanagan Xeriscape Association Executive Director Gwen Steele and Anthropology Associate Professor John Wagner worked with the campus architecture team to implement drought-resistant plants around a new fitness and wellness centre. The inaugural living lab project, set a sustainability precedent for UBC's Okanagan campus.



Rehan Sadiq and Kasun Hewage, engineering and biology researchers, lead the green roof working group and use our 10 experimental campus green roofs to collaborate with local, private-sector partner enCircle Design Build to investigate the quality of water running off a variety of types of green roofs.





# 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 recover cost savings, while leveraging our campus infrastructure and the built environment to demonstrate innovative sustainability solutions at the municipal scale.

# PERFORMANCE AT A GLANCE

## VANCOUVER CAMPUS

| GOAL   | TARGET*  | 2013/2014 ACHIEVEMENT  |
|--|--|--|
| <b>ENERGY AND EMISSIONS</b>  |  |  |
| Reduce greenhouse gas emissions  | Reduce emissions by: 33% by 2015, 67% by 2020, and 100% by 2050, compared to 2007 levels   | <ul style="list-style-type: none"> <li>14% absolute reduction since 2007</li> <li>26% reduction per FTE** student since 2007</li> <li>8% of campus energy generated from renewable biomass</li> </ul>                  |
| Be a net positive energy campus  |  |  |
| <b>WATER</b>   |  |  |
| Water Conservation Action Plan under development   | New targets under development  | <ul style="list-style-type: none"> <li>35% absolute reduction in water use since 2000</li> <li>55% reduction in water use per FTE student since 2000</li> </ul>  |
| <b>MATERIALS AND WASTE</b>   |  |  |
| Reduce waste disposal, helping UBC transform into a zero waste community                         | Increase overall diversion to 70% by 2016 and 80% by 2020<br><br>Achieve a steadily decreasing trend in operational waste disposed to landfill/incineration despite forecasted campus growth | <ul style="list-style-type: none"> <li>61% overall waste diversion rate</li> </ul>   |
| <b>GREEN BUILDINGS</b>   |  |  |
| Design, build and operate high-performance green buildings                                       | LEED/REAP*** Gold certification mandatory for all new buildings and major renovations  | <ul style="list-style-type: none"> <li>23 LEED registered and certified projects (8 certified, 15 registered)</li> <li>27 REAP registered and certified projects (20 certified, 7 registered)</li> </ul>               |
| <b>TRANSPORTATION</b>  |  |  |
| Reduce single occupancy vehicle trips and enable and promote sustainable modes of transportation | New Transportation Plan and specific targets under development   | <ul style="list-style-type: none"> <li>71% of trips by transit, carpool, cycling and walking</li> <li>13% decrease in SOV person trips since 1997</li> <li>312% increase in transit person trips since 1997</li> </ul> |
| <b>HOUSING AND AMENITIES</b>   |  |  |
| Increase housing choice and affordability on campus and provide quality amenities                | Aspire to provide housing to 50 per cent of full time students<br><br>Aspire to build up to 30 per cent of all new housing on campus as rental, subject to market demand                     | <ul style="list-style-type: none"> <li>10,041 student beds, providing capacity for 30% of 2010 full-time students</li> <li>25.8% of neighbourhood units are rental</li> <li>573 UBC-run child care spaces</li> </ul>   |

\* Targets apply to UBC's Vancouver campus.

\*\* Full-time equivalent.

\*\*\* Leadership in Energy and Environmental Design (LEED). Residential Environmental Assessment Program (REAP).

# OKANAGAN CAMPUS

## 2013/2014 ACHIEVEMENTS

### ENERGY AND EMISSIONS

8% reduction in emissions per FTE student since 2007\*  
57% of campus district energy system heat is sourced from renewable earth energy (ground-sourced aquifer)

\*Note, prior to 2010 emissions data is available for buildings only

### WATER

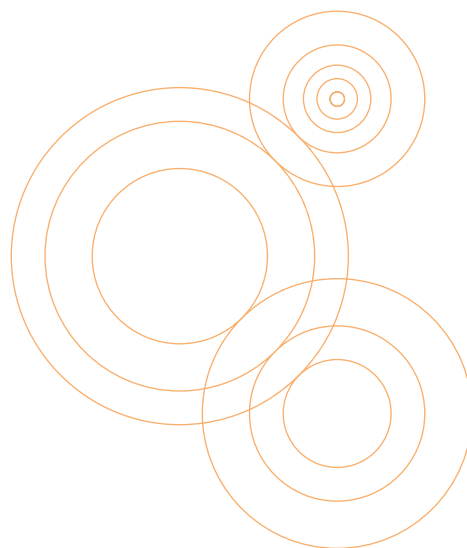
23% reduction in water use per FTE student since 2007 levels\*

### MATERIALS AND WASTE

28% overall waste diversion rate

### GREEN BUILDINGS

1 LEED certified  
1 REAP certified  
2 projects awarded Five Green Globes



UBC's Okanagan campus has undergone significant growth. Since 2007, the campus has realized a 90% increase in square meter floor space and an 81% increase in FTE students. This has resulted in an absolute increase in resource consumption. However, integrating sustainability best practices into new campus facilities and infrastructure has achieved relative performance improvements over conventional design.



## ENERGY AND EMISSIONS

As a rapidly growing, research-intensive campus, UBC is working on finding innovative ways to reduce energy and emissions. We made significant progress this past year towards achieving our ambitious greenhouse gas (GHG) reduction targets and implementing our award-winning Climate Action Plan, advancing energy efficiency and emissions reduction strategies across campus to achieve our sustainability goals while realizing cost savings.

### ENHANCING EXISTING AND NEW BUILDINGS

- Completed implementation of energy efficiency measures in 17 energy-intensive lab buildings as part of UBC's Building Tune Up program, which is optimizing performance of 70 buildings to reduce emissions by 10 per cent.
- Updated design standards with higher energy efficiency requirements for all new academic and residential buildings.

### GREENING OUR FLEET

- Finalized 5-year Green Fleet Action Plan and implemented criteria towards achieving E3 (Energy, Environment, Excellence) green fleet certification for UBC's central fleet of 240 vehicles.

### ADVANCING LOW-CARBON ENERGY SOURCES

- Increased production of renewable energy on campus through the Bioenergy Research and Demonstration Facility, reducing campus GHG emissions by 9 per cent.
- Completed half of the Academic District Energy System steam to hot water conversion project, including starting construction on a new Campus Energy Centre, which will replace the campus' aging steam plant (see feature).
- Completed feasibility studies and selected utility partner to develop and implement a Neighborhood District Energy System to provide low-carbon thermal energy for current and future residential neighborhoods.

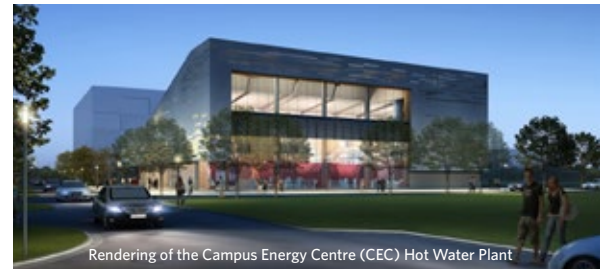
**14%**  
REDUCTION IN  
ABSOLUTE GHG  
EMISSIONS SINCE  
2007

**26%**  
REDUCTION IN GHG  
EMISSIONS PER  
STUDENT SINCE  
2007

### TARGET: REDUCE VANCOUVER CAMPUS GHG EMISSIONS

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

\*RELATIVE TO 2007 LEVELS



Rendering of the Campus Energy Centre (CEC) Hot Water Plant

### ACADEMIC DISTRICT ENERGY SYSTEM

On target for completion in 2016, the Academic District Energy System (ADES) steam to hot water conversion project will connect 130 buildings to the more efficient new district energy system, which will reduce emissions by 22 per cent and result in \$5.5 million a year in annualized cost savings and cost avoidance.

One of the largest steam to hot water conversions in North America, the ADES is one of UBC's signature initiatives to substantially reduce emissions while addressing deferred maintenance on the UBC Vancouver campus. This five year, \$88 million project will replace UBC's aging steam heating infrastructure with a modern hot water district energy system. It will also provide an enabling platform for UBC Campus as a Living Laboratory alternative energy sources and research and demonstration projects.

## WATER

Approximately three million cubic metres 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. We are committed to water conservation and seek to improve efficiency of infrastructure, promote sustainable behaviours, and identify innovative supply options and approaches to stormwater management.

### ADVANCING WATER CONSERVATION AND STORMWATER MANAGEMENT

- Completed a long-range Integrated Stormwater Management Plan to improve the handling of stormwater and rainwater run off on campus over the next decade.
- Continued developing our Water Conservation Action Plan in support of establishing a campus-wide closed loop water system at UBC.



**35%**  
REDUCTION IN  
ABSOLUTE WATER USE  
SINCE 2000

### ENHANCING EXISTING AND NEW BUILDINGS

- Continued retrofitting existing buildings to increase water efficiency in academic buildings, student housing and research labs to enhance water conservation.
- Added new water efficiency provisions in design guidelines to ensure all new institutional and residential buildings on campus will be built to higher water efficiency standards.

**55%**  
REDUCTION IN WATER  
USE PER STUDENT SINCE  
2000

### IMPROVING IRRIGATION SYSTEMS

- Developed a project to improve efficiency of campus irrigation systems to reduce water consumption and operating costs.

#### INCREASING WATER SAVINGS THROUGH DISTRICT ENERGY SYSTEM UPGRADES

In addition to saving energy and reducing GHG emissions, upgrading our Academic District Energy System from steam to hot water will also lead to increased water conservation and will save 136,000 cubic metres of water annually when completed, equivalent to saving 54 Olympic-sized swimming pools worth of water each year.

## MATERIALS AND WASTE

UBC currently sends over 3,000 tonnes of operational waste to the landfill each year. Building on our waste reduction and diversion achievements to date, we are working towards transforming UBC to a zero waste community. We are enhancing waste sorting infrastructure, communications and engagement across campus to increase waste diversion from the landfill and developing strategies to reduce waste generation on campus.

### ENHANCING WASTE DIVERSION

- Designed, tested, and began installation of new multi-stream indoor and outdoor recycling stations at high-traffic locations across campus.
- Conducted zero waste pilots and research studies to test new waste infrastructure, signage, and engagement strategies.
- Developed campus-wide Sort It Out communications and engagement strategy.
- Developed tools and guidelines to improve tracking of construction and demolition waste on campus.
- Reduced hazardous waste generation by 40 per cent compared to 2006 levels through source reduction and recycling programs.

### ADVANCING ZERO WASTE PLANS AND RESEARCH


- Completed comprehensive Zero Waste Action Plan, which outlines goals, targets, and actions for reducing waste generation and increasing waste diversion on campus.
- Advanced zero waste research and partnerships by working with Metro Vancouver to launch the BC Municipal Waste Research Collaborative.

**TARGET: INCREASE OVERALL WASTE DIVERSION TO 70% BY 2016  
80% BY 2020**



**ACHIEVE A STEADILY DECREASING TREND IN OPERATIONAL WASTE DISPOSED TO LANDFILL/INCINERATION DESPITE FORECASTED CAMPUS GROWTH.**

**61%**  
**OVERALL WASTE DIVERSION RATE**



**40%**  
**REDUCTION IN HAZARDOUS WASTE SINCE 2006**



#### ZERO WASTE ACTION PLAN

UBC's Zero Waste Action Plan identifies several new initiatives to achieve the 2016 waste diversion target. The plan will be implemented over the next three to five years and will help us meet or exceed what is required by regional waste management regulations, including the upcoming Metro Vancouver organics disposal ban in 2015.



## GREEN BUILDINGS

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

### OVERVIEW

In 2013, three academic building projects were certified through the Leadership in Energy and Environmental Design (LEED) rating system and three residential building projects were certified through the Residential Environmental Assessment Program (REAP), a UBC-specific green building rating system for residential construction.

UBC achieved our first LEED Platinum certification for the Centre for Interactive Research on Sustainability (CIRS) and LEED Gold for our Biosciences Renew and Chemistry Renew projects. UBC also achieved our first REAP Platinum certification for Sail, a 6-storey residential condominium project in Wesbrook Village.

UBC's Green Building Tours Program provided over 111 tours of CIRS, the Bioenergy Research and Demonstration Facility and UBC sustainability locations to over 1,500 students, practitioners, and visiting delegates from across campus and around the world.

**23** LEED PROJECTS  
(8 CERTIFIED, 15 REGISTERED)

**27** REAP PROJECTS  
(20 CERTIFIED, 7 REGISTERED)

**TARGET:**  
**ALL NEW CONSTRUCTION AND MAJOR RENOVATIONS MUST ACHIEVE LEED OR REAP GOLD**



#### CIRS BECOMES UBC'S FIRST LEED PLATINUM BUILDING

Designed to promote research and innovation in sustainability, CIRS is designed to reduce UBC's carbon emissions, utilize waste heat from a neighbouring building, and harvest rainwater as a source of potable water. Some of the ongoing research at CIRS measures how the indoor environment impacts behaviour, human health, and happiness.

## UBC OKANAGAN ACHIEVING SUSTAINABILITY PERFORMANCE

Our Okanagan campus' sustainability initiatives have been aligned to support key commitments of Place and Promise, UBC's strategic plan. Sustainability performance has been achieved through targeted efforts across four key areas - district energy, green buildings, resource conservation and campus community engagement.



### ENERGY AND EMISSIONS

UBC's Okanagan campus has developed and currently operates a district energy system that forms the basis of its energy and emissions reduction strategy. Demonstrating sustainable infrastructure and engineering design, the system sources renewable earth energy - aquifer groundwater - to heat and/or cool a mix of academic buildings totaling approximately 80,000 square metres.

Heating and cooling energy is transferred from the aquifer water loop into campus distribution piping on a separate closed loop. The closed loop provides energy sharing between buildings, heat recapture from data rooms, thermal storage and flexibility for future fuel switching.

Currently 57 per cent of campus district energy system heat is sourced from renewable earth energy that has significantly reduced the need for natural gas fired heating equipment and the generation of associated carbon emissions.

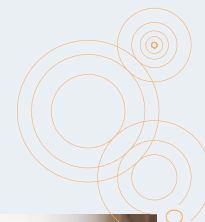


### GREEN BUILDINGS

New facilities at UBC's Okanagan campus have been designed to a minimum LEED or REAP Gold Standard and are built to operate at high performance levels. The final new building constructed during the first phase of the campus build out was the Reichwald Health Sciences Centre that achieved LEED Gold Certification in 2013. A Gold Winner at the Canadian Home Builders' Association of the Central Okanagan Tommie Awards, the facility was recognized for its sustainable construction, design features and technologies that conserve water, energy and reduce GHG emissions.

Our new Fitness and Wellness Centre, known as the 'The Hangar' due to its design reference to an aviation hangar, was completed in 2013. An addition to the existing campus gymnasium, this facility was built to LEED Gold equivalent standard. Connected to the district energy system it incorporates carbon capturing/storing properties of locally sourced and produced pine beetle timber.





## WATER

Our Okanagan campus is located in a semi-arid climate with the lowest per person water availability in Canada. Water conservation measures on campus are of significant importance and are incorporated into the planning and operation of campus facilities and land use management.

New and renovated facilities incorporate low flow appliances, fixtures and fittings to conserve water to meet water conservation of up to 40 per cent over conventional fixtures. Outdoor conservation is managed through a combination of native drought tolerant landscaping and a wireless irrigation management and monitoring system that irrigates based on ambient temperature, precipitation and wind speed.

Additionally, 100 per cent of storm water is diverted from the municipal system through campus bio-swale features, infiltration pits and an engineered storm water detention pond. The pond acts as a filtration system for campus water run-off and supports a wide range of ecosystem assets and biodiversity.



## MATERIALS AND WASTE

Reducing materials and waste generation on campus is a key area of focus in the development and operation of campus facilities and operational sustainability planning at the unit level. Materials and waste management strategies begin with actions to reduce source waste. The provision of signature recycling and composting programs, such as “your waste, your responsibility”, helps to encourage behaviour change to support responsible management and diversion of waste generated on campus.

These programs have been recently supplemented by the establishment of alternative waste and recycling infrastructure including seven solar-powered waste and recycling compactors which reduce our operational costs by up to 83 per cent and help cut transportation-related carbon emissions. Biennial waste audits are conducted to assess performance against waste diversion strategies.



# 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 achieve this goal we are providing diverse housing options for our students, faculty, staff and other residents that are in walking distance to shops, services, parks and public transportation options.





## HOUSING AND AMENITIES

UBC plays an important role in shaping campus community life by offering on-campus housing to students, faculty, and staff, and providing amenities such as recreation facilities, community centres, parks, open spaces, and child care within our neighbourhoods and academic lands. We are committed to increasing housing choice and affordability, and the provision of quality amenities. This commitment is driven by UBC's Vancouver campus vision to be a world-class community of scholars with a beautiful, functional, and sustainable campus.

### IMPROVING HOUSING AVAILABILITY AND AFFORDABILITY

- Continued implementation of UBC's Housing Action Plan, to support the long-term development of a thriving, diverse and sustainable community on the Vancouver campus.
- Added 600 student beds by completing Phase 1 of Ponderosa Commons, UBC's first of five mixed use student housing commons.
- Began construction on Phase 2 of Ponderosa Commons, which will add a further 513 student beds, retail services, student facilities and academic space.
- Introduced new Faculty Home Ownership Program to improve home ownership affordability options on the Point Grey campus for approved faculty members.

### PROVIDING HIGH QUALITY AMENITIES

- Expanded high quality amenities for UBC's residential community by completing a new community turf soccer field for University Hill Secondary School and residents and starting construction on a new community centre in Wesbrook Place, expected to be completed in 2015.

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

**INCREASED STUDENT BED  
 CAPACITY BY 600**

**10,041 TOTAL STUDENT BEDS**  
 (30% OF 2010  
 FULL TIME STUDENTS)



#### PONDEROSA COMMONS

We completed Phase 1 of Ponderosa Commons, UBC's first mixed use student housing commons, which offers a unique mix of living and academic space that redefines campus residence. Built around the concept of a vibrant residential hub, the new living quarters opened in Fall 2013, adding over 600 student beds and increasing the number of students housed at UBC's Vancouver campus to 10,041, giving it the largest student housing program in Canada. Phase 1 also includes UBC's first commuter student collegium, the Audain Art Centre gallery and studios, academic spaces, study areas, dining, fitness, and end-of-trip bicycle facilities and is targeting LEED Gold certification.





# TRANSPORTATION

As BC’s largest university, UBC is a regional destination for students, staff, faculty, student, alumni and citizens from communities across the region. Since 1997, UBC has been working to reduce automobile trips to and from campus and enable and promote sustainable modes of transportation. Our goal is to design, build and program for a safe and accessible walking, cycling and transit-oriented community.

## IMPROVING TRANSIT SERVICE AND ACCESS


- Continued work with key partners on promoting advancement of rapid transit connection along the Broadway corridor to UBC.
- Optimized a revised community shuttle route in conjunction with Translink to better connect key destinations on campus.
- Provided an average of 90 per cent of all eligible students with a universal transit pass.

## PROMOTING SUSTAINABLE TRANSPORTATION OPTIONS

- Collaborated with the University Neighborhoods Association to promote sustainable transportation choices through the Walk’n Roll to School Program.
- Won top honors in regional Bike to Work competition for fourth consecutive year.
- Launched new I Bike Here videos and campaign to promote cycling.
- Began construction on a new secure bike parking facility at the Engineering Design Centre, which will increase the number of free secure bike parking facilities across campus to 11.

## ADVANCING TRANSPORTATION PLANNING

- Updated UBC’s Transportation Plan, which outlines UBC’s comprehensive strategy to promote sustainable transportation options to and from campus.
- Continued enhancement of the public realm and implementation of the campus pedestrianization plan recognized with international award.

**71%**   
**OF TRIPS TO/FROM CAMPUS USE SUSTAINABLE MODES OF TRANSPORT**

**SINCE 1997:**  
 **13% DECREASE IN SOV TRIPS**  
 **312% INCREASE IN TRANSIT TRIPS**



## CAMPUS PEDESTRIANIZATION RECOGNIZED WITH INTERNATIONAL AWARD

UBC’s achievements in transforming the campus landscape to create a vibrant, animated, pedestrianized campus were recognized by the prestigious Honor Award for Excellence in Landscape Architecture from the Society for College and University Planning (SCUP) for the redesign of the outdoor public spaces along Main Mall as part of the Public Realm Plan. Where parking lots and roadways once were are now vibrant, bustling pedestrian corridors that promote walking, cycling, and interaction.

## FEATURE HIGHLIGHT FOOD AND BIODIVERSITY

### UBC FARM

The Centre for Sustainable Food Systems at UBC Farm aims to understand and fundamentally transform local and global food systems towards a more sustainable, food secure future. Through a wide range of interdisciplinary learning, research, food production and community engagement programs, the Centre acts as a living lab committed to finding solutions to food system sustainability challenges.

Over 60 UBC courses engage with the UBC Farm, totalling 2,500 students across 10 faculties each year. The farm's sustainably cultivated fields yield 60,000 pounds of food per year, sold at 3 farmers markets, a 100-member Community Supported Agriculture program, farm-to-institution practices and policy program, a farmer training sustainable agriculture practicum, 4 food and health indigenous initiatives, 3 children's environmental education programs, and 12 research projects which altogether annually engage a total of 60,000 visitors.

### UBC BOTANICAL GARDENS

The mission of the Garden is to assemble, curate and maintain a documented collection of temperate plants for the purposes of research, conservation, education, community outreach and public display.

As Canada's oldest continuously operated university-based botanical garden, we steward a living and growing repository that represents the plant biodiversity of selected native and international biomes. The total collection of approximately 120,000 plants represents some 6,000 taxa and includes major international collections of Magnolia, Acer (maples), Sorbus (mountain ash), Styracaceae (storax family) and Rhododendron.

A key part of our biodiversity collections, the Garden provides resources to researchers, students and the public that reach beyond its collections to provide a window onto the species, ecosystem and genetic diversity of the natural world.



### FARM TO HOSPITAL PROJECT

Hospital food does not have a good reputation. It is often frozen or pre-cooked, making it not only unappetizing, but it may also lack proper nutrition — something especially important for people recovering from an illness.

Patients in healthcare facilities are immunologically vulnerable, and it is essential to provide them with adequate nutrition to maximize healing and recovery. This concept is the driving force for an innovative farm-to-healthcare initiative at UBC.

The Centre for Sustainable Food Systems at UBC Farm embarked on a three-year project to introduce fresh local produce from the UBC Farm to patients at the UBC Hospital in September 2013. This initiative is the first of its kind in BC to date.

In partnership with multiple stakeholders, including UBC SEEDS, Vancity, Vancouver Coastal Health and Sodexo Canada, it is projected that the Farm will be an official supplier to provide fresh produce to the UBC Hospital by 2015/16.

# COMMUNICATIONS AND ENGAGEMENT



We believe that every member of the UBC community has a role in achieving our sustainability goals. We deliver communication and engagement programs that build awareness and enable individuals to exemplify sustainable practices and behaviours on and off campus and foster a culture of sustainability.



## CAMPUS ENGAGEMENT

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

### ENGAGEMENT STRATEGY

In 2013, we completed and began implementation of the Campus Sustainability Engagement Strategy to enhance resource conservation and to foster a culture of sustainability at UBC. The strategy supports and guides our engagement programs.

### SUSTAINABILITY IN RESIDENCE PROGRAM

Our fourth annual Aim to Sustain energy and water conservation competition engaged more than 3,100 first-year students to find innovative ways to save energy and water in Totem Park and Place Vanier student residences, with the winning house reducing energy consumption by 21 per cent.

Building on this success, the Sustainability in Residence Program launched an enhanced annual peer-to-peer sustainability outreach campaign to promote high impact resource conservation behaviours all year long. Led by students for students, this monthly outreach program incorporates fun sustainability-related activities for first year students to learn about how small changes in behaviour can have a big impact, directly engaging over 300 students each month.

### SUSTAINABILITY COORDINATOR PROGRAM IN OFFICES

The Sustainability Coordinator (SC) Program in offices continued to engage over 80 staff sustainability champions across campus who promote and implement sustainable practices in their respective departments. Now in it's 15th year, the SC Program completed the first ever external review and a three year strategic program plan. The plan's strategic directions include tactics to better measure the impact of the program's behaviour change initiatives, expanding program reach to every building on campus and to strengthen networking and professional development opportunities for staff sustainability champions.

**3,100**  
STUDENTS ENGAGED  
THROUGH SUSTAINABILITY  
IN RESIDENCE  
PROGRAMMING

**82** ACTIVE  
SUSTAINABILITY  
COORDINATORS

### OPERATIONAL SUSTAINABILITY STRATEGY

In 2013, UBC began development of an Operational Sustainability Strategy, which will outline UBC's strategic framework for improving the campus' operational sustainability performance. As part of this process, we began working with key operational departments, helping them identify strategic sustainability objectives and actions that will enable UBC to achieve our long-term campus wide targets in energy, climate, waste, and water. Department-level sustainability frameworks were completed for UBC Building Operations, Student Housing and Hospitality Services, Payment and Procurement Services and UBC Information Technology departments.

## FEATURE HIGHLIGHT GREEN LABS PROGRAM

As a research-intensive university with some 400 labs on campus, UBC consumes a significant amount of energy, water and materials for conducting world-class research. Our Green Labs Program aims to minimize the environmental impact of the University's research footprint by engaging the research community through quarterly e-newsletters, Lunch and Learn training events, online tools and Green Labs Fund.

In 2013, UBC launched the Sustainability Coordinator Program into labs to provide members of the UBC research community with further opportunities and resources to promote and implement sustainable practices.

### SHUT THE SASH AND SAVE

The third annual Shut the Sash energy conservation competition engaged over 200 researchers in three energy-intensive lab buildings to close fume hoods, resulting in an 81 per cent improvement in sash closures, saving 29,500 kWh of electricity and reducing emissions by 46 tonnes, equivalent to 27 round trip flights from Vancouver to St. John's Newfoundland. The competition is in partnership with BC Hydro's Workplace Conservation Awareness Program and Fortis BC.

**200**  
RESEARCHERS  
ENGAGED THROUGH  
SHUT THE SASH

**81%**  
IMPROVEMENT  
IN SASH CLOSURES

SAVED THE EQUIVALENT  
GHG EMISSIONS OF  
**27** ROUND TRIPS FROM  
VANCOUVER TO  
ST. JOHN'S, NFLD

# COMMUNITY ENGAGEMENT

## MEMORANDUMS OF UNDERSTANDING

### UBC-UNIVERSITY NEIGHBOURHOOD ASSOCIATION

#### SUPPORTING SUSTAINABLE NEIGHBOURHOODS

Our partnership with the University Neighbourhoods Association (UNA) continues to produce sustainable outcomes in areas such as community engagement, energy, water and waste reduction programs. The MOU Steering Committee met regularly throughout 2013 to advance sustainability projects and identify collaboration opportunities.

### UBC-CITY OF VANCOUVER

#### MOBILIZING KNOWLEDGE FOR THE GREENEST CITY

City of Vancouver (CoV) continued to leverage UBC sustainability research expertise while providing graduate-level students with professional development opportunities. The CoV-UBC MOU enables mutually beneficial collaboration and exchanges and supports the Greenest City aspirations through the Greenest City Scholars Program.

### UBC-BC HYDRO

#### COLLABORATING TO REDUCE ENERGY USE

In 2013, we completed the Community Energy and Emissions Plan, a joint initiative with BC Hydro and the UNA to reduce community energy consumption and greenhouse gas emissions. UBC and BC Hydro continued collaboration on energy conservation programs, including a program to “tune up” energy performance in over 60 academic buildings.

## SUSTAINABILITY COUNCILS

### REGIONAL SUSTAINABILITY COUNCIL

The Regional Sustainability Council provides guidance to the UBC Sustainability Initiative (USI) and helps us establish productive partnerships with diverse communities. The council is comprised of 20 leaders from UBC and the public, private and civil society sectors.

Council meetings in 2013 provided us with policy recommendations and input on strategic priorities. Further, we revamped the council to provide members with a forum to exchange experiences, knowledge and ideas.

### STUDENT SUSTAINABILITY COUNCIL

The Student Sustainability Council provides feedback to USI on sustainability-related issues and concerns pertaining to UBC students.

Twelve students participate on the council representing the Alma Mater Society (AMS), the Graduate Student Society (GSS) and a range of sustainability clubs. We convened the council twice and used the opportunities to obtain feedback on the 20-Year Sustainability Strategy and the conceptualization of a learning community for students taking sustainability courses.



## COMMUNICATIONS

### RIPPLE EFFECT

2013 marked the first year of this experiential and interactive campaign that led to increased awareness of UBC's sustainability leadership amongst our students.

We engaged students, faculty, staff and the community members from over 30 groups to collaborate together and showcase their sustainability work through in-person events and online channels. 7,300 attendees were reached through 20 in-person events, with over 20,000 touch-points in total, including through digital media.

- 65 per cent of those who experienced any element of the campaign felt that their knowledge of UBC sustainability initiatives has increased somewhat or greatly.
- 63 per cent of those who experience the campaign reported being somewhat or greatly inspired to become sustainable in their own lives.

### OVERALL COMMUNICATION HIGHLIGHTS

**9+**  
NATIONAL AND  
INTERNATIONAL AWARDS

**79,000**  
WEBSITE VISITS  
TO SUSTAIN.UBC.CA

**7,900**  
SOCIAL MEDIA  
FOLLOWERS



## UBC OKANAGAN

In 2013/14, we engaged over 1,200 students, staff and faculty at UBC's Okanagan campus through the Power of You Program and student residence behaviour change pilot, targeting energy conservation in offices and student residences.

### THE POWER OF YOU PROGRAM

"The Power of You" is a new engagement program developed by the Okanagan Sustainability Office in partnership with FortisBC PowerSense program, aimed at creating a shift in energy use on campus by raising awareness of energy conservation practices.

Developed to encourage voluntary energy conservation actions on the part of campus constituents, the program complements the Building Optimization Program for greater energy reduction and cost avoidance. Among its early achievements include a 32,000 kilowatt hour per year reduction in electricity use through the reduction of ceramic personal space heating devices on campus and a 2,323 kilowatt (11 per cent) reduction in electricity use during a one hour lights out challenge.



### STUDENT RESIDENCE COLD WATER WASHING PILOT

As a component of the Power of You Program, a student-focused behavior change pilot project engaged 200 students living in campus residences to reduce energy consumption and associated greenhouse gas emissions through the use of cold water settings for laundry washing. Behavior change strategies involved personal engagement, the use of social media and targeted education. The program's outcomes were evaluated by metering changes in the volume of hot water used for washing. The students achieved an overall reduction of hot water use for laundry by 27 per cent. It is anticipated that increased awareness will endure as the pilot outcomes and conservation philosophy are broadly shared.



## FEATURE HIGHLIGHT 20-YEAR SUSTAINABILITY STRATEGY

Beginning in fall of 2013, UBC began a comprehensive eight month process to develop a strategy for next generation sustainability at UBC's Vancouver campus, across teaching, learning, research, partnerships, operations and infrastructure, and the community.

In developing the strategy, we convened a Steering Committee chaired by the Associate Provost, Sustainability and comprised of 21 community members, including, students, faculty, staff, external partners, and the University Neighbourhoods Association and the Musqueam First Nation. The Steering Committee provided oversight on the engagement process, considered community feedback and drafted the strategy.

The process engaged over 2,000 people, both online and in-person. The strategy will be finalized in Fall of 2014.

**5,000** VISITS TO PROJECT  
WEBPAGE

**1,400** ONLINE SURVEY  
PARTICIPANTS

**800** IN-PERSON  
ENGAGEMENT POINTS

**5+** STUDENT, FACULTY, AND  
STAFF WORKSHOPS

**Sean Pander,** City of Vancouver

*I think it is really compelling and well structured. I especially love the regenerative theme and the three areas of focus are spot on for UBC.*

**Ann Murray,** Vancouver International Airport

*Consider this a whole hearted endorsement—I think this final product is well written and well presented.*

**Peter Robinson,** CEO David Suzuki Foundation

*I wanted to acknowledge that this is an excellent outcome to our months of deliberation!*

**Alex Bayne,** UBC Human Resources

*I have been on a number of strategy working groups and found this one refreshing and inspiring, both in the make-up of the committee and the community engagement work.*





# 2014/15 KEY PRIORITIES

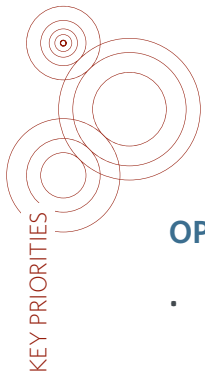
The following section provides an overview of our 2014/15 key priorities:

## TEACHING, LEARNING AND RESEARCH

- Provide grant and awards programs to faculty members, encouraging the development and implementation of sustainability learning pathways and insertion of sustainability into large first-year courses.
- Deliver programming that supports student sustainability involvement and leadership, through events, educational workshops and outreach activities, and provide sustainability-related support and resources.
- Provide students with an expanded range of experiential learning and professional development opportunities through a nexus of programs in partnerships with on-campus and external organizations.
- Expand OSI's role as regional knowledge broker, convening a Food Security Working Group and developing new research, scholarship and experiential learning partnerships with the City of Kelowna.

## CAMPUS AS A LIVING LAB

- Initiate the development of the Tall Wood Student Residence project, addressing a core University need for expanded on-campus student housing and providing a compelling Campus as a Living Lab opportunity for UBC researchers, students and local industry.
- Expand and diversify SEEDS collaborative research partnerships with faculties, schools and operational departments across campus, with an enhanced focus on social sustainability.
- Expand Okanagan Sustainability Institute (OSI) partnerships, engaging with BC's interior region as a Living Lab and exploring opportunities around healthy living and community development.
- Launch UBC Sustainability Revolving Fund pilot to provide financing for implementing energy efficiency and other sustainability projects on UBC's Vancouver campus that result in ongoing cost savings.



## OPERATIONS AND INFRASTRUCTURE

- Continue implementing energy conservation measures in all major buildings, complete final phases of Academic District Energy System steam to hot water conversion project, and optimize Bioenergy Research and Demonstration Facility to achieve 2015 GHG reduction targets. Continue development of Neighborhood District Energy System.
- Implement Zero Waste Action Plan, including continued rollout of multi-stream recycling stations across campus and launch of Sort It Out campus wide communications and engagement strategy.
- Continue developing Water Conservation Action Plan to enhance water conservation and efficiency.
- Introduce mandatory energy use targets for all new major campus building projects and update green building requirements for neighborhood developments.
- Continue work on the Okanagan Campus Master Plan update using a whole systems infrastructure approach to optimize sustainable development, resource-efficiency, and cost-effective design.

## COMMUNITY

- Finalize and gain approval for UBC's new Transportation Plan.
- Start construction on Orchard Commons, which will add more than 1,000 student beds, academic and office space, childcare spaces, and other amenities.
- Enhance Community Development initiatives that strengthen UBC's unique, vibrant, and sustainable community through delivery of community-focused events and neighborhood community programs, and by leveraging our public realm to create extraordinary campus experiences.
- Catalyze regional and interdisciplinary collaboration between UBC's Okanagan campus, Interior Health and others to evaluate and improve healthy living initiatives and enable prevention of chronic disease.

## COMMUNICATIONS AND ENGAGEMENT

- Support and advance the Wellbeing Initiative and social sustainability, at the Vancouver and Okanagan campuses working closely with partners.
- Obtain USI Steering Committee approval of the 20-Year Sustainability Strategy and develop a roadmap toward implementation.
- Develop a global network of innovative universities that are recognized as sustainability leaders, working with the Rocky Mountain Institute as a convener of the network.
- Identify and leverage additional opportunities for partnerships and participation in regional, national international forums, leading to an enhanced reputation.
- Implement priority actions in the Campus Sustainability Engagement Strategy at UBC's Vancouver campus, including launch of the Sustainability Coordinator Program in labs, a zero waste recycling competition in offices and new behaviour change prompts in student residences to enhance energy and water conservation.
- Continue engaging UBC's Okanagan campus community to reduce energy consumption, through programs such as Power of You.

# APPENDIX





## SUMMARY OF PERFORMANCE METRICS

|                               | METRICS <sup>1</sup>   | VANCOUVER CAMPUS                                    |   | OKANAGAN CAMPUS  |  |
|-------------------------------|--|---|---|--|--|
|                               |  | 2013/14 Performance                                 | Trend   | 2013/14 Performance                                    | Trend                                  |
| CONTEXT                       | Staff and Faculty Employees (FTE)  | 13,387  | ↑ 7% since 2007   | 1,048  | ↑ 66% since 2007                       |
|                               | Student Enrolment (FTE)  | 43,650  | ↑ 16% since 2007  | 7,402  | ↑ 81% since 2007                       |
|                               | Institutional Floor Space (m2)   | 1,431,593   | ↑ 11% since 2007  | 136,373  | ↑ 90% since 2007                       |
| LIVING LAB                    | Campus as a Living Lab Infrastructure Projects (#)   | 5   | N/A   | 3  | N/A                                    |
|                               | SEEDS <sup>2</sup> Participants (# of students, faculty, staff)  | 896   | ↑ 76% since 2012  | 75 students participated in sustainability projects    |  |
|                               | SEEDS Projects (#)   | 86  |   |  |  |
| SEEDS Research Reports (#)    | 194  |   |   |  |  |
| TEACHING, LEARNING & RESEARCH | Faculty Engaged in Sustainability Research (#, % of all faculty)   | 304 (14.5%) <sup>3</sup>                            | N/A   | N/A  |  |
|                               | Total Sustainability Courses (#)   | 509   | N/A   | 118  |  |
|                               | Greenest City Scholars (# of student academic internships with City of Vancouver)  | 11  | 37 internships offered in past 4 years                            | N/A  |  |
| OPERATIONS & INFRASTRUCTURE   | Absolute GHG Emissions (tCO <sub>2</sub> e)<br>Target: 33% reduction from 2007 levels by 2015  | 52,832  | ↓ 14% since 2007  | 3,629  | ↑ 66% since 2007 <sup>4</sup>          |
|                               | GHG Emissions per Student (tCO <sub>2</sub> e/ student FTE)  | 1.21  | ↓ 26% since 2007  | 0.49   | ↓ 8% since 2007                        |
|                               | Campus Energy Sources by GJ (%)  | Natural Gas: 50%<br>Electricity: 41%<br>Biomass: 8% | ↑ 8% of total campus energy now supplied by renewable biomass     | Natural Gas: 35%<br>Electricity: 65%<br>Propane: 0.03% | N/A                                    |
|                               | Absolute Water Use (m3)  | 3,052,050 m3  | ↓ 35% since 2000  | 164,688 m3   | ↑ 40% since 2007                       |
|                               | Water Use Intensity (m3/student FTE)   | 70  | ↓ 55% since 2000  | 22   | ↓ 23% since 2007                       |
|                               | Overall Waste Diversion Rate (%)<br>Target: Increase overall waste diversion rate to 70% by 2016 and 80% by 2020   | 61  | ↑ 2% since 2010   | 28   | N/A                                    |
|                               | Operational Waste Disposed (tonnes)<br>Target: Achieve a steadily decreasing trend in operational waste disposed to landfill/incineration despite forecasted campus growth | 3,297   | ↑ 6% from 2010 levels   | 905  | ↑ 100% since 2007 <sup>5</sup>         |
|                               | LEED <sup>6</sup> Projects (# of certified and registered building projects)   | 23 (8 certified, 15 registered)                     | ↑ 3 certifications awarded in 2013 (1 Platinum, 2 Gold)           | 1 certified  | ↑ 1 Gold certification awarded in 2013 |
|                               | REAP <sup>7</sup> Projects (# of certified and registered building projects)   | 27 (20 certified, 7 registered)                     | ↑ 3 certifications awarded in 2013 (1 Platinum, 1 Gold, 1 Silver) | 1 certified  | N/A                                    |
|                               | Target: All new construction and major renovations must achieve LEED or REAP Gold  |   |   |  |  |

<sup>1</sup> Targets apply for Vancouver Campus.

<sup>2</sup> Social Ecological Economic Development Studies (SEEDS) Program.

<sup>3</sup> 2010/2011 data.

<sup>4</sup> 2007 baseline includes buildings emissions only. 2013 data includes emissions from all in-scope sources and represents a 90% increase in floor space and 81% increase in student enrolment since 2007.

<sup>5</sup> Note 2013 data represents a 90% increase in floor space and 81% increase in student enrolment since 2007.

<sup>6</sup> Leadership in Energy and Environmental Design (LEED).

<sup>7</sup> Residential Environmental Assessment Program (REAP).

|                               | METRICS   | VANCOUVER CAMPUS   |   | OKANAGAN CAMPUS  |   |
|-------------------------------|---|--|---|--|---|
|                               |   | 2013/14 Performance  | Trend   | 2013/14 Performance  | Trend   |
| COMMUNITY                     | <b>Transportation Mode Share / Person Trips</b><br>(% of trips to/from campus by transit, carpool, cycling & walking)   | 71% of trips by sustainable modes<br><br>55% of trips by transit                             | ↓ 13% in SOV person trips since 1997<br><br>↑ 312% in transit person trips since 1997 | 54% of trips by sustainable modes<br><br>32% of trips by transit | ↑ 28% in SOV person trips since 2009<br><br>↑ 9% in transit person trips since 2009 |
|                               | <b>Student Beds</b><br>(# of beds, % of 2010 full time students)<br><b>Aspirational Target: Provide capacity to house up to 50% of full time students in 2010</b> | 10,041<br>(30% of 2010 full time students)   | ↑ 600 beds in 2013/14   | 1,676  | No new student beds added in 2013/14  |
|                               | <b>Rental units</b> (% of neighbourhood units that are rental)<br><b>Aspirational Target: Up to 30% of all new housing being built as rental</b>                  | 25.8% of neighbourhood units are rental  | ↑ 34% in rental housing on neighbourhood lands since 2012/13                          | N/A  |   |
|                               | <b>Child care</b> (# of UBC-run child care spaces)  | 573 child care spaces  | No new UBC-run spaces in 2013/14  | 36 child care spaces   | No new UBC-run spaces in 2013/14  |
| COMMUNICATIONS AND ENGAGEMENT | <b>STARS<sup>8</sup> Rating</b>   | Gold   |   | N/A  |   |
|                               | <b>Staff Sustainability Coordinators (#)</b>  | 82 Coordinators  |   | 30 Power of You volunteers                                       |   |
|                               | <b>Sustainability in Residence Student Engagement (#)</b>   | 3,100 students   |   | 200 students   |   |
|                               | <b>Lab Researchers Engaged</b> (# of participants; # of awards)   | 200 researchers engaged through Shut the Sash  |   | 3 Green Labs Fund grants awarded                                 |   |
|                               | <b>Sustainability Tours</b> (# of tours conducted, # of participants)   | 111 Green Building Tours<br>1,500 participants   |   | 7 Sustainability Walking Tours<br>179+ participants              |   |
|                               | <b>Digital Engagement</b> (#)   | 51,000 visitors and 79,000 visits to sustain.ubc.ca website<br>7,900+ social media followers |   | N/A  |   |

<sup>8</sup>Sustainability Tracking Assessment & Rating System (STARS)

## PHOTO CREDITS

Cover UBC Vancouver campus water feature  
Don Erhardt

pg 1 Martin Dee

pg 4 Don Erhardt

pg 6 Don Erhardt

pg 8 Martin Dee

pg 9 Provided by UBC Farm

pg 11 Hover Collective

pg 13 Don Erhardt

pg 14 Martin Dee

pg 15 Don Erhardt

pg 16, 24-25 UBC Okanagan photos

Principal photographer: Tim Swanky, Swanky Photographic

Contributor: Margo Yacheshyn, University Relations

pg 17 Hover Collective

pg 22 Don Erhardt

pg 23 Provided by UBC Public Affairs

pg 24 Provided by UBC Okanagan

pg 26 Don Erhardt

pg 27 Artist rendering

pg 28 Dean Gregory

pg 29 Provided by UBC Farm

pg 32 Martin Dee

pg 34 Don Erhardt



FOR UP-TO-DATE INFORMATION VISIT

[sustain.ubc.ca](http://sustain.ubc.ca)

[facebook.com/SustainUBC](https://facebook.com/SustainUBC)

[twitter.com/SustainUBC](https://twitter.com/SustainUBC)

[#RippleEffectUBC](https://twitter.com/SustainUBC)

LET US KNOW WHAT YOU THINK

[bit.ly/2013-14-Feedback](http://bit.ly/2013-14-Feedback)



a place of mind  
THE UNIVERSITY OF BRITISH COLUMBIA

**sustainability**