

UBC sustainability



UBC Sustainability Annual Report 2013

Vancouver Campus

2012/2013 Fiscal Year



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

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Letter from the President

On behalf of the University of British Columbia, it is my pleasure to present our 2012-13 UBC Sustainability Annual Report. This report highlights our achievements in both academic and operational sustainability practices and our commitment to integrate these efforts over the past fiscal year.

As a large, research-intensive university with considerable land, assets and utilities, UBC realizes it can take action in ways that others cannot by advancing debates, technologies, instruction, and discoveries that support a more sustainable future both on and off campus. We are committed to transforming the entire university into a living laboratory – a societal test-bed for sustainability where campus community members test, study, teach, apply and share lessons learned, and where sustainability technologies are created and policies developed. We are also building and strengthening our partnerships with private, public and civil society sector organizations to help us share and apply our knowledge beyond the campus, enabling the University to work in tandem with those partners as an agent of change to address pressing sustainability challenges.

Our achievements to date are built on more than 20 years of incorporating sustainability into campus operations, research, and teaching. Using the campus as a living laboratory, UBC is currently investing \$150 million in four major projects to meet our climate and sustainability goals: a Continuous Optimization program for 70 core academic and ancillary buildings; the Centre for Interactive Research on Sustainability; a Bioenergy Research and Demonstration Facility; and the conversion of our steam district energy system to hot water, one of the largest projects of its kind in North America.

We're proud of the great strides made this year towards achieving our sustainability goals; in 2012-13 alone we were recognized with 14 provincial, national and international awards for our leadership in sustainability. We will continue to challenge ourselves in ways that benefit our community members here at home and around the world. And we remain steadfast in our goal: to provide substantial momentum to a global push towards a more civil and sustainable society.



Stephen J. Toope
President and Vice-Chancellor
The University of British Columbia

Introduction



About UBC

The University of British Columbia (UBC), established in 1908, is one of Canada's leading research universities and is consistently ranked among the top 40 in the world. UBC is a public institution with a \$2 billion annual operating budget. In 2012-13, UBC received over \$519 million in research funding from all sources, supporting a total of 8,158 projects. More than 400 hectares in size, our Vancouver campus is located at the western tip of the Point Grey Peninsula in the City of Vancouver in British Columbia, Canada. The campus has been located on this site for most of its 100 year history on land that is traditional territory of the Musqueam people.

The Vancouver campus educates more than 49,000 undergraduate and graduate students each year in hundreds of academic programs offered through our 12 Faculties and 14 Schools. Our students come from around the world, representing 140 different countries. UBC is one of the largest employers in the Province of BC, employing over 13,000 staff and faculty FTEs, and has a significant economic impact on the region and Province as a hub of research and innovation. UBC also has a vibrant, sustainable, residential community, where over 19,000 students, faculty, staff, and other residents live, work and learn together.

University Governance

UBC's two major campuses are governed by a single Board of Governors, a President, and two Senates (one at each campus) whose activities are coordinated by a Council of Senates. UBC's Board of Governors is comprised of 21 members. By legislation, the Board is responsible for the management, administration and control of the property, revenue, business and affairs of the University, including the appointment of senior officials and faculty on the recommendation of the President. Under the terms of the British Columbia University Act, academic governance is vested in the Senate. Executive officers and management (including the President, Chancellor, Deputy Chancellor & Principal UBC Okanagan, seven Vice Presidents, and associated systems)

provide general supervision and direction of the business and academic work of the University, in accordance with, and to effectively implement, the strategic framework and oversight directions of the Board of Governors and the Senates.

About Sustainability at UBC

UBC has a [strong track record](#) in both academic and operational sustainability. In 1997, UBC was the first Canadian university to adopt a sustainable development policy and, a year later, to open a Campus Sustainability office. In 2007, we met our Kyoto targets for academic buildings—five years early and in spite of growing our building floor space by 35 percent and enrolment by 48 percent. In 2010, our [Climate Action Plan](#) committed the University to aggressive greenhouse gas emission reduction targets—33 percent by 2015, 67 percent by 2020, and 100 percent by 2050, compared to 2007 levels.

In 2009, UBC’s Strategic Plan, [Place and Promise](#) included sustainability as one of nine key commitments, embedding sustainability into the University’s strategic direction and committing UBC to explore and exemplify all aspects of economic, environmental and social sustainability.

In 2010, the [UBC Sustainability Initiative \(USI\)](#) was established and began its ground breaking work on deeply integrating UBC’s academic and operational efforts in sustainability across the campus. Under the USI umbrella, many UBC offices, committees and groups work collaboratively under two cross-cutting themes: campus as a living laboratory and the University as an agent of change.

UBC has produced [annual reports](#) on sustainability activities and performance metrics since 1998. The Sustainability Annual Report is presented to the Board of Governors, and key performance indicators are also included as part of UBC’s Place and Promise Reports, in addition to climate reports prepared for the Province as required under the Carbon Neutral Governmental Regulation. In 2011, UBC received [Canada’s first Gold rating in STARS](#) (Sustainability Tracking, Assessment & Rating System), a comprehensive university sustainability rating system.

About this Report

The 2013 UBC Sustainability Annual Report provides an overview of sustainability achievements and progress in academics, operations, communications, engagement, and integration at UBC’s Vancouver campus for fiscal year 2012-13. It also outlines strategic sustainability priorities in these areas for the next fiscal year and serves as our first ISCN-GULF Charter Report submitted to the [International Sustainable Campus Network](#).

For questions on this report, please contact:

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Part A: Summary Report

UBC Sustainability activities over the past year have contributed to the integration of academic and operational sustainability on campus and have led to progress on two UBC cross-cutting sustainability goals: i) to turn our campuses into living laboratories for sustainability; and ii) to consolidate UBC's role as an agent of change for sustainability in the community. The following are highlights of our achievements and a summary of UBC's sustainability goals, targets, and progress on our strategic priorities over the past 2012-13 fiscal year. Refer to the [Performance Report](#) for more detail on this year's achievements.

Achievement Highlights

Academic Sustainability

- The Teaching and Learning Office (TLO) continued to focus on UBC's curriculum evolution through the USI [Teaching and Learning Fellowship Program](#) and the Spotlight Program. Additionally, the TLO-supported departments across the University in their sustainability work, improving cross-Faculty communications and understanding.
- Our [Research Fellowships Program](#) helped build interdisciplinary sustainability research capacity on campus, and started to define a campus-wide sustainability assessment framework or "lens" for campus infrastructure and development projects.

Operational Sustainability

- September 2012 marked the official opening of UBC's [Bioenergy Research and Demonstration Facility](#), the first biomass gasification co-generation facility of its kind in the world. The pioneering \$34-million clean energy facility will eliminate 9 per cent of campus GHG emissions and generate enough clean electricity to power 1,500 homes.
- As part of the Academic District Energy System (ADES) Upgrades, we completed Phases 2 and 3 of one of the largest [steam to hot water conversions](#) in North America, installing 4.7 km of piping and connecting 18 buildings totalling 100,000 m² to the district energy system. When finished, the project will replace 14 km of aging steam piping infrastructure, and connect 800,000 m² of building floor space to reduce GHG emissions by 22 per cent and save \$5.5 million a year in operational and energy costs.
- As part of the Continuous Optimization "[Building Tune-Up](#)" program to enhance energy efficiency in over 70 buildings across campus to reduce GHG emissions by 10 per cent, implementation began on the 17 most energy-intensive laboratory buildings in Phase 1, totalling 198,000 m², and investigation began on over 50 more buildings in Phases 2 and 3.

- UBC and the [University Neighborhoods Association \(UNA\)](#) completed a [Community Energy & Emissions Plan \(CEEP\)](#) for the [UTown@UBC](#) residential community, which will complement the [Climate Action Plan](#) for the academic campus and outline strategies for a low-carbon future for UBC's residential community.
- UBC's [Housing Action Plan](#) for the Vancouver campus was approved in September 2012 by the UBC Board of Governors. Implementation of the plan has begun and will result in an increase in housing choice and affordability for faculty, staff, and students at UBC.

Integration, Communications and Engagement

- The [Campus as Living Laboratory \(CLL\)](#) initiative was expanded to include UBC mixed-use capital projects, including the Ponderosa Commons and the proposed Orchard Commons. The CLL also grew to include the deployment of [electric vehicle charging stations](#) on campus. The opportunity assessment process or "pipeline" was upgraded to include more rigorous cost-benefit and risk analyses of prospective partners and projects.
- In 2012, UBC's sustainability leadership was recognized with 14 provincial, national, and international [sustainability awards](#), including the Excellence in Integration Award from the International Sustainable Campuses Network, recognizing UBC's achievements in integrating operational and academic sustainability across campus, and APPA's inaugural Sustainability Award, recognizing UBC's comprehensive campus sustainability achievements.
- In 2012, UBC initiated the development of a Campus Sustainability Engagement Strategy, which will outline the University's approach for engaging campus community members to reduce energy use, GHG emissions, water, and waste generation.

Summary

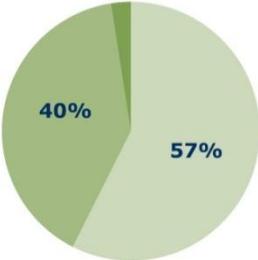
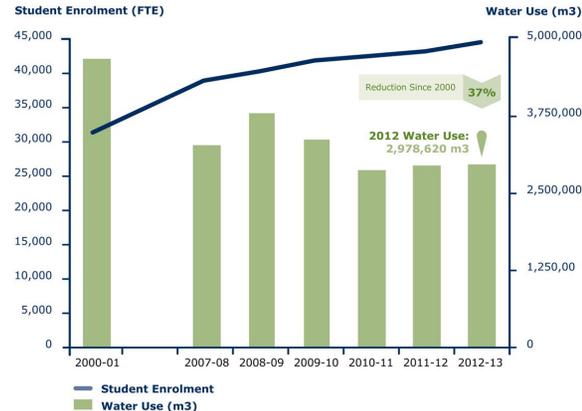
The following table provides a summary of UBC’s sustainability goals, targets and progress on our strategic priorities over the past year.

Goals & Targets	2012-13 Highlights	2012-13 Performance	Trends
Academic Sustainability			
<p>Teaching & Learning:</p> <p>Provide an overall framework for sustainability education at UBC.</p> <p>Build the capacity of UBC’s teaching community to deliver outstanding sustainability learning opportunities.</p> <p>Educate UBC students to be the next generation of sustainability leaders.</p> <p>Coordinate sustainability teaching and learning across UBC’s Vancouver campus.</p>	<p>Curriculum Changes</p> <ul style="list-style-type: none"> Revised the student sustainability attributes document Awarded four \$5,000 Spotlight Grants Developed a sustainability pathway in the Department of Biology curriculum <p>Engaging Students</p> <ul style="list-style-type: none"> Ongoing use of the Sustainability Education Resource Centre at CIRS Launched the Sustainability Ambassadors Peer Program 10 UBC graduate students participated in the UBC-City of Vancouver Greenest City Scholars program <p>Outreach & Communications</p> <ul style="list-style-type: none"> Delivered the UBC Sustainability Reads program Published the Sustainability Education Newsletter 	<p>Faculty engaged in sustainability research: 14.5% of total faculty (2011/12); 725 out of 5,000</p> <p>Sustainability focused courses: 139; 2% (of total courses)</p> <p>Sustainability related courses: 472; 7% (of total courses)</p> <p>These metrics are applicable to Teaching & Learning as well as Research & Partnerships</p>	<p>Research & Courses</p> <p>n/a (this is the first year this data was collected)</p>

Goals & Targets	2012-13 Highlights	2012-13 Performance	Trends
<p>Research & Partnerships:</p> <p>Leverage UBC’s research expertise to create interdisciplinary partnerships that contribute to the achievement of UBC’s and UBC partners’ sustainability objectives.</p> <p>Develop a sustainability "lens" to evaluate the sustainability attributes and performance of prospective projects on campus.</p> <p>Institutionalize the concept of a sustainability "gradient" to improve UBC’s overall sustainability performance relative to past or ongoing projects.</p>	<ul style="list-style-type: none"> Identified interdisciplinary sustainability research opportunities Continued interdisciplinary research in CIRS Awarded several grants for developing a sustainability assessment framework for the neighbourhood scale Began development of a UBC Sustainability Gradient Process with operational group decision makers 	See above	n/a (this is the first year this data was collected)

Operational Sustainability

<p>Energy & Emissions:</p> <p>Reduce greenhouse gas emissions and be a net positive energy campus.</p> <p><u>Target:</u> 33% reduction from 2007 levels by 2015</p>	<p>Buildings:</p> <ul style="list-style-type: none"> Continued the Building Tune-up program in over 70 buildings Opened new, more energy efficient University Data Centre Opened 2 new LEED Gold buildings on campus Updated design standards with new energy efficiency requirements <p>Operational Fleet & Travel:</p> <ul style="list-style-type: none"> Updated Fleet Plan for centrally managed fleet Registered for E3 certification 	<p>Absolute Campus GHG emissions: 60,715 tCO₂e</p> <p>GHG emissions per student: 1.42 tCO₂e/ student FTE</p>	<p>Absolute Campus GHG emissions</p> <table border="1"> <caption>Absolute Campus GHG emissions Data (2007-2012)</caption> <thead> <tr> <th>Year</th> <th>Absolute GHG Emissions (tCO₂e)</th> <th>Total Floor Space (m²)</th> <th>Student Enrolment</th> </tr> </thead> <tbody> <tr> <td>2007</td> <td>~55,000</td> <td>~1,300,000</td> <td>~14,000</td> </tr> <tr> <td>2008</td> <td>~58,000</td> <td>~1,350,000</td> <td>~14,500</td> </tr> <tr> <td>2009</td> <td>~55,000</td> <td>~1,350,000</td> <td>~14,500</td> </tr> <tr> <td>2010</td> <td>~52,000</td> <td>~1,350,000</td> <td>~14,500</td> </tr> <tr> <td>2011</td> <td>~65,000</td> <td>~1,400,000</td> <td>~15,000</td> </tr> <tr> <td>2012</td> <td>60,715</td> <td>~1,450,000</td> <td>~15,500</td> </tr> <tr> <td>2015 (Target)</td> <td>33% Reduction</td> <td>~1,500,000</td> <td>~16,000</td> </tr> </tbody> </table>	Year	Absolute GHG Emissions (tCO ₂ e)	Total Floor Space (m ²)	Student Enrolment	2007	~55,000	~1,300,000	~14,000	2008	~58,000	~1,350,000	~14,500	2009	~55,000	~1,350,000	~14,500	2010	~52,000	~1,350,000	~14,500	2011	~65,000	~1,400,000	~15,000	2012	60,715	~1,450,000	~15,500	2015 (Target)	33% Reduction	~1,500,000	~16,000
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Goals & Targets	2012-13 Highlights	2012-13 Performance	Trends
Water:	Energy Supply:	Campus Energy Sources by GJ: see chart	Campus Energy Sources by GJ (2012)
The goal & target are currently under development, as part of the Water Conservation Action Plan.	<ul style="list-style-type: none"> Purchased 5 electric-drive Smart cars and 2 e-bikes for central fleet Opened the new Bioenergy Research and Demonstration Facility Signed an agreement with FortisBC to purchase renewable natural gas Completed Phases 2 and 3 of the Academic District Energy System steam to hot water conversion project 	<p>Absolute water use: 2,978,620 m³</p> <p>Water use intensity: 69.5 m³/ student FTE</p>	
	<ul style="list-style-type: none"> Added new water efficiency provisions for residential construction Initiated replacement of once through cooling equipment in 3 water-intensive labs Completed a 5-year building retrofit and update schedule for student housing water fixtures 	Absolute Water Use	

Goals & Targets

Materials & Waste:

Reduce waste disposal, helping UBC transform into a zero waste community.

Target: [DRAFT]

Increase UBC’s overall waste diversion rate to 70 per cent by 2016.

2012-13 Highlights

Materials & Products Selection

- Launched UBC BuySmart
- Launched UBC Sustainable Food Guide
- Finalized the Green Cleaning Program

Waste Diversion

- Conducted Zero Waste pilot projects
- Reduced total hazardous waste generation by 8 per cent through the Green Research Program
- Developing the Sort it Out program

2012-13 Performance

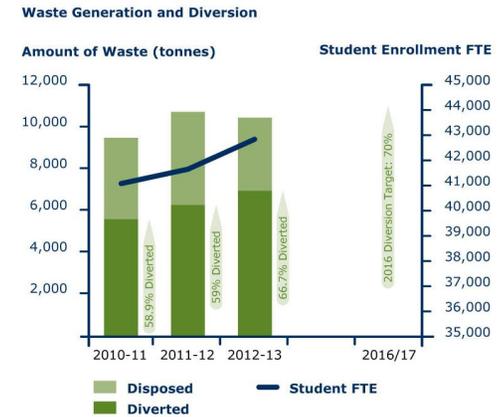
Total waste generated: 10,414 tonnes

Total waste generated per student: 0.24 tonnes/ student FTE

Overall diversion rate: 67%

Trends

Total Waste Generated & Diversion Rate



Commuting & Getting Around Campus:

Reduce automobile trips to and from campus and ensure UBC is a pedestrian and cycling friendly campus.

Target: New targets are currently under development as part of the new Transportation Plan.

Driving

- Removed 199 parking spaces
- Implemented traffic calming and safety improvement measures on 16th Ave

Transit

- Optimized a revised community shuttle route
- Continued to promote advancement of rapid transit to UBC
- 89% of all eligible students were issued a U-Pass

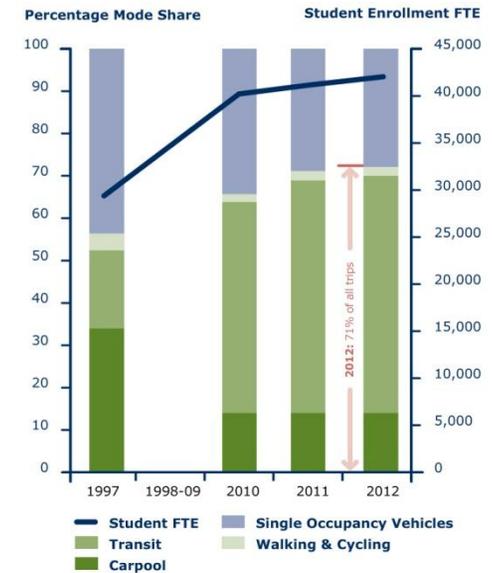
Walking & Cycling

- Opened the new Chemistry/Physics secure bike parking facility

Mode share:

71% of trips by SOV, transit, carpool, cycle & walking

Mode Share



Goals & Targets	2012-13 Highlights	2012-13 Performance	Trends
	<ul style="list-style-type: none"> Continued implementation of the campus pedestrianization plan Launched the UTown@UBC Walk'n Roll to School Program 		

Housing & Amenities	Housing	2012-13 Performance	Trends																		
<p>Increase housing choice and affordability on campus and provide quality amenities.</p> <p><u>Targets:</u> (aspirational maximums)</p> <p>Student Housing: Aspire to provide capacity to house up to 50% of full time students.</p> <p>Faculty & Staff Housing: Aspire to build up to 30 per cent of all new housing on campus as rental, subject to market demand.</p>	<p>Housing</p> <ul style="list-style-type: none"> Approved the Housing Action Plan and the Gage Precinct Plan Completed Phase 1 of Ponderosa Commons, adding 600 new student beds Initiated implementation of several Housing Action Plan actions <p>Amenities</p> <ul style="list-style-type: none"> New childcare facilities are under construction on campus, adding 41 more childcare spaces Completed 2 new parks and a children's play area in neighbourhoods Opened the first campus skatepark in North America Opened the newly relocated and expanded University Hill Secondary School 	<p>Student beds: 9,432 beds, providing capacity for 28% of 2010 full time students</p> <p>Rental units: 21.6% of neighbourhood units</p> <p>Amenity space: 44.3 m² per capita - academic and neighbourhood population combined</p> <p>Child care: 573 UBC-run child care spaces</p>	<p>Student Housing</p> <p>Student Beds (% of 2010 F/T Students)</p> <table border="1"> <caption>Student Beds (% of 2010 F/T Students)</caption> <thead> <tr> <th>Year</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>2010</td> <td>~25%</td> </tr> <tr> <td>2011</td> <td>~26%</td> </tr> <tr> <td>2012</td> <td>28%</td> </tr> <tr> <td>Aspirational Target</td> <td>50%</td> </tr> </tbody> </table> <p>Neighbourhood Housing</p> <p>Percentage of Neighbourhood Units</p> <table border="1"> <caption>Percentage of Neighbourhood Units</caption> <thead> <tr> <th>Year</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>2010</td> <td>~20%</td> </tr> <tr> <td>2011</td> <td>~19%</td> </tr> <tr> <td>2012</td> <td>21.6%</td> </tr> </tbody> </table>	Year	Percentage	2010	~25%	2011	~26%	2012	28%	Aspirational Target	50%	Year	Percentage	2010	~20%	2011	~19%	2012	21.6%
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Goals & Targets	2012-13 Highlights	2012-13 Performance	Trends
Communications & Engagement			
<p>Communications</p> <p>Extend understanding of UBC as a world leader in sustainability.</p> <p>Empower the UBC community to tell the University's sustainability stories.</p> <p>Link target audiences with sustainability resources and opportunities.</p>	<ul style="list-style-type: none"> • Recognized with 14 provincial, national and international awards • 48 feature stories appeared in local, national and international media outlets • Delivered 37 international, national and local presentations • Involved with the International Baccalaureate Summer Conference • Organized a 2-day Regenerative Neighborhoods Summit • Provided over 85 tours of CIRS, the BRDF and UBC sustainability locations • Created a visual identity for sustainability across the university • Upgraded the UBC Sustainability website 	Not applicable	Not applicable

Goals & Targets	2012-13 Highlights	2012-13 Performance	Trends																				
<p>Engagement Programs</p> <p>Foster a culture of sustainability across campus and encourage high impact resource conservation behaviours.</p> <ul style="list-style-type: none"> Ongoing development of Campus Sustainability Engagement Strategy Engaged more than 3,100 first year students in the 3rd annual Do it in the Dark competition Trained 13 new staff Sustainability Coordinators and awarded 6 departmental sustainability grants Engaged researchers in 3 energy-intensive lab buildings in the 3rd annual Shut the Sash competition Completed the 13th year of the SEEDS program 			<p>Campus Engagement Programs</p> <table border="1"> <thead> <tr> <th></th> <th>2009/10</th> <th>2010/11</th> <th>2011/12</th> <th>2012/13</th> </tr> </thead> <tbody> <tr> <td># of staff Sustainability Coordinators</td> <td>150</td> <td>150</td> <td>110</td> <td>80</td> </tr> <tr> <td># of SEEDS program participants (students, staff, faculty)</td> <td>627</td> <td>610</td> <td>503</td> <td>507</td> </tr> <tr> <td># of SEEDS program projects</td> <td></td> <td>80</td> <td></td> <td>74</td> </tr> </tbody> </table> <p>Note: The Methodology for tracking these numbers changed in 2012/13 and is more reliable than previous years.</p>		2009/10	2010/11	2011/12	2012/13	# of staff Sustainability Coordinators	150	150	110	80	# of SEEDS program participants (students, staff, faculty)	627	610	503	507	# of SEEDS program projects		80		74
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Integration			
<p>Integration</p> <p>Transform the campus into a living laboratory for sustainability to demonstrate at scale, replicable sustainable practices and technologies.</p> <p>Become a sustainability leader beyond the campus to facilitate dialogue and foster partnerships between the University, industry, government and NGOs.</p>	<ul style="list-style-type: none"> Grew the Campus as a Living Laboratory (CLL) initiative Consolidated a process for developing interdisciplinary research projects Moved several projects from the pilot phase into full implementation CLL initiative expanded a pipeline process to include more detailed net-benefit and risk analyses Expanded research projects through strategic partnerships with industry 	<p>Active CLL projects: 4</p> <p>Total capital expenses for CLL projects: \$76 million</p> <p>UBC capital expenses for CLL projects: \$20 million</p> <p>3rd party funding for CLL projects: \$56 million</p>	<p>Campus As A Living Lab Projects</p> <p>n/a (this is the first year this data was collected)</p>

Context (Vancouver Campus)

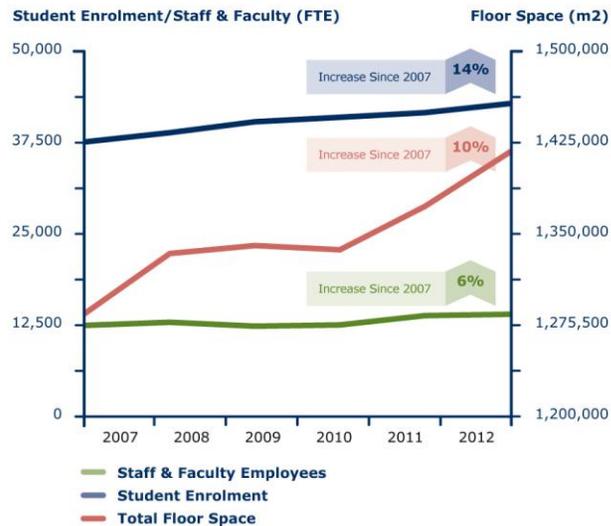
Student, Staff, Faculty & Floor Space

2012-13 Performance

Staff and faculty employees: 13,206 FTE

Student enrolment: 42,848 FTE

Floor space: 1,418,833 m²

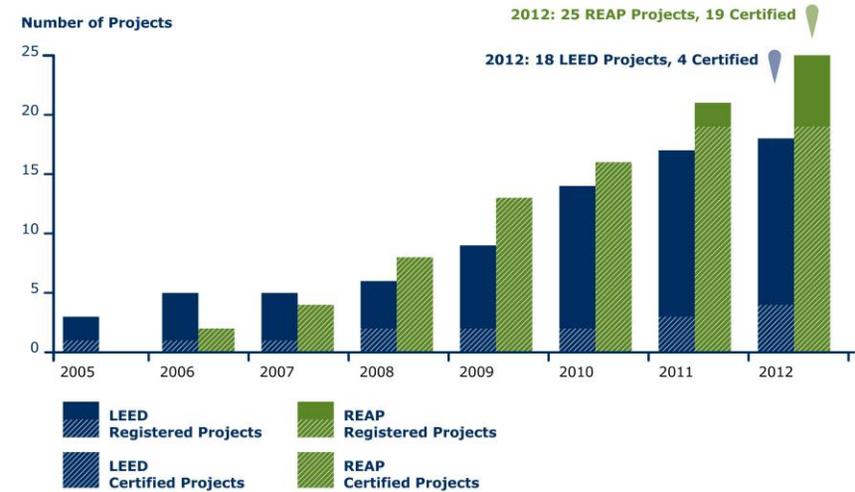


Green Buildings

2012 Performance

Total LEED¹ registered and certified projects: 18
(4 certified, all LEED Gold)

Total REAP² registered and certified projects: 25
(19 certified)



¹ Leadership in Energy and Environmental Design (LEED) is a comprehensive third-party green building rating system. All new construction and major renovations for institutional buildings at UBC must achieve a minimum of LEED Gold certification.

² The Residential Environmental Assessment Program (REAP) is a comprehensive, UBC-specific green building rating system for mandatory application to all residential construction on campus. All new residential buildings at UBC must achieve a minimum of REAP Gold certification.

Part B: Performance Report

1. Academic Sustainability

Teaching and Learning



UBC Greenest City Scholars 2012

Academic sustainability at UBC has been fostered and supported by the USI Teaching & Learning Office (TLO). The TLO works to leverage and build capacity to enhance sustainability learning opportunities for all UBC students. Key efforts to advance academic sustainability have focused on curriculum change, student engagement, and outreach and communication.

Goals:

- Provide an overall framework for sustainability education at UBC.
- Build the capacity of UBC's teaching community to deliver outstanding sustainability learning opportunities.
- Educate UBC students to be the next generation of sustainability leaders.
- Coordinate sustainability teaching and learning across UBC's Vancouver campus.

Beyond these specific goals, we also work to raise the profile of sustainability education through outreach and communication activities that target a broad UBC audience.

Key Achievements

Curriculum Changes

- Revising sustainability attributes for courses and programs:** Building on the innovative work of previous cohorts of interdisciplinary sustainability fellows, the six fellows of the 2012-13 [USI Teaching and Learning Fellowship Program](#) focused on revising the student [sustainability attributes](#) document. The attributes work suggests that students graduating with a sustainability background from UBC should have a firm grounding in, and be able to demonstrate, four key attributes, including Holism, Sustainability Knowledge, Awareness and Integration, and Acting for Positive Change. The revisions provide more concrete sustainability implementation examples so that instructors and administrators can more easily adopt the ideas into courses and programs.
- Continue making introductory sustainability learning opportunities available to students across the university:** Following an experiment with an introductory sustainability course, "SUST 101" which was offered in Spring 2012, the team began to explore a different approach with the potential to reach students in larger numbers and in all faculties: promoting the integration of short sustainability units/modules into existing large first year courses.
- Creating and refining existing UBC curriculum focused on, or related to, sustainability issues:** Through the [Spotlight Program](#), the USI distributed four grants of \$5,000 each to faculty members so that they may enhance the sustainability content or delivery of existing courses.
- Developing a sustainability pathway model:** The Department of Biology stepped forward to develop a sustainability pathway in their curriculum. As part of this project, the Faculty of Science created a new introductory course in sustainability, SCIE 220, which will be taught beginning in Fall 2013, as a model sustainability pathway. The goal is that the Biology pathway can become a template for a sustainability pathway model that can be applied in other departments within the Faculty of Science.
- Increasing the number of sustainability courses offered on campus:** We completed our annual review of all UBC courses and sent out sustainability course consultation emails to faculty in order to update our sustainability course inventory. The number of sustainability focused courses identified through this process is now 139, up from 96 last year, and sustainability related is 472, an increase from 289.

Engaging Students

- Connecting students with curricular and co-curricular sustainability education opportunities:** The [Sustainability Education Resource Centre](#) at CIRS continued to be a hub of student-centered sustainability activities and resources, enabling students to integrate sustainability into their lives. Through the [Greenest City Scholars](#) program, 10 UBC graduate students worked with the City of Vancouver to support Vancouver's Greenest City Goals,

providing their City mentors with research in priority areas. A web-based library of [Greenest City Scholar Project Reports](#) was also created to share research outcomes.

- **Creating student peer to peer sustainability leadership and collaboration opportunities:** Our [Sustainability Ambassadors Peer Program](#) launched in September 2012, training and supporting 10 undergraduate students who act as ambassadors to network with other peer groups, develop and deliver events promoting sustainability education, and help departments at UBC with their sustainability efforts. The Teaching and Learning Office also held networking events for the more than 30 sustainability-related student groups, clubs, and associations on campus to help provide opportunities for collaboration.

Outreach and Communications

- **Engaging the campus community on sustainability education:** Throughout the year, UBC held workshops, lunches, and talks for faculty members, staff, students and the general community to encourage awareness of, and discussion about, sustainability education. We worked with campus partners to deliver the popular [UBC Reads Sustainability](#) program, which featured leading authors such as Ozzie Zehner and Sandor Katz to engage staff and the UBC community in campus-wide discussions on sustainability. UBC also continued to publish the [Sustainability Education Newsletter](#), providing the campus community with sustainability-related information and opportunities.

Research & Partnerships



Centre for Interactive Research on Sustainability (CIRS). Credit: Martin Dee

The Research and Partnerships Office (RPO) helps build interdisciplinary sustainability research capacity on campus. The RPO organizes the Research Fellowships program which helps guide the advancement of sustainability research on UBC's Vancouver campus. The RPO also helps facilitate private, public and NGO sector partnerships that are critical to many of the research projects.

Goals:

- Leverage UBC's research expertise to create interdisciplinary partnerships with communities, corporations, NGOs and government agencies that contribute to the achievement of UBC's and UBC partners' sustainability objectives.
- Develop a sustainability "lens" to evaluate the sustainability attributes and performance of prospective Campus as Living Lab (CLL) and other capital and infrastructure projects on campus.
- Institutionalize the concept of a sustainability "gradient" to improve UBC's overall sustainability performance relative to past or ongoing projects.

Key Achievements

- Building interdisciplinary sustainability research opportunities:** July 2012 marked the second year of the [Research Fellowships Program](#). The 2012-13 Fellows focused significant effort on identifying interdisciplinary sustainability research opportunities and on building bridges with faculties and research institutes on campus to increase cross-cutting research collaborations on campus.
- Advancing innovative research at CIRS:** A host of interdisciplinary research projects initiatives from the faculties of Applied Science, Science, Forestry, the Sauder School of Business and Psychology are underway at UBC's [Centre for Interactive Research on Sustainability \(CIRS\)](#), including engineering and non-engineering building performance and assessment projects studying and documenting the modeled and actual performance of CIRS.
- Developing a sustainability "lens" for decision making:** There exists a growing need for a sustainability assessment framework or "lens" to support UBC's infrastructure and campus development decision-making process. To this end, UBC was awarded a grant from the Bullitt Foundation in March 2012 to kick-start a process of studying how to scale up the sustainability innovations of UBC's most advanced buildings on campus (e.g. CIRS) to the neighborhood development arena. A second grant has been requested and if approved will be processed in the fall of 2013.
- Establishing a UBC sustainability "gradient" process:** UBC is also institutionalizing the practice of continuously improving sustainability performance by establishing a feedback loop that documents lessons learned and provides input into the process of improving design and development guidelines on campus. This initiative is now being co-developed with the Operational Management Group.

Performance Metrics

Metrics	2011/12	2012/13
% Faculty engaged in sustainability research		14.5% faculty (2011/12)
Sustainability focused courses (number and %)	96 courses; 1.7% of total courses	139 courses; 2.1% of total courses
Sustainability related courses (number and %)	289 courses; 4.7% of total courses	472 courses; 7.1% of total courses

Roughly one in seven faculty members are currently engaged in research projects that address sustainability issues. This is a growing area of research interest at UBC; we can expect future numbers to reflect this fact. We have also seen an increase in the number of sustainability focused and related courses offered.

2. Operational Sustainability

Energy & Emissions



UBC's Bioenergy Research and Demonstration Facility opened September 2012. Credit: Don Erhardt

UBC is a rapidly growing, research-intensive campus and is faced with the challenge of meeting increasing demand for energy while reducing greenhouse gas (GHG) emissions and effectively managing the need for energy. Solving this problem is achieved by both energy conservation and improvements in energy efficiency and is driven by the urgent need to mitigate the effects of energy consumption on climate change.

Goal: Reduce greenhouse gas emissions and be a net positive energy campus.

Target: Reduce greenhouse gas emissions by 33 per cent from 2007 levels by 2015.

- Objectives:**
- **Buildings:** Design, commission, operate and maintain liveable, low carbon buildings that minimize energy demand, maximize energy efficiency and achieve the lowest life cycle cost.
 - **Transportation³:** Build, enhance and support sustainable transportation options for commuting, business travel, and on-campus movement.
 - **Energy Supply:** Reduce vulnerability and risks to energy markets and climate change.

³ Only achievements related to operational fleet and business travel activities are reported in this section. See the Commuting and Getting Around Campus section for achievements related to commuting activities.

Key Achievements

Policies and Plans

- This year marked the third year of implementing our award-winning [Climate Action Plan \(CAP\)](#), which outlines ambitious targets and strategies to reduce campus GHG emissions in the areas of development and infrastructure, energy supply and management, fleet, commuting, business travel, procurement, and food. The notable progress we've made in every area is detailed and accessible in the full [Climate Action Plan Annual Report](#).
- Complementing the CAP, the [Community Energy and Emissions Plan](#) outlines strategies for a low carbon future for UBC's residential community. The CEEP was completed this year in partnership with the [University Neighbourhoods Association \(UNA\)](#) and will be presented to the UNA Board in September 2013 for approval.

Buildings

- **Updating and regulating building design standards for new buildings:** UBC developed enhanced energy performance requirements for major renovations and new academic buildings projects and integrated new energy efficiency requirements into our [Residential Environmental Assessment Program \(REAP\)](#) to enhance energy performance of all new residential building projects. The newly opened [Earth Sciences Building](#) and [Pharmaceutical Sciences Building](#) demonstrate this commitment to energy efficiency. These state-of-the-art learning and research facilities, both designed to [LEED Gold](#) standards, will save nearly 2.4 GWh of energy per year compared to conventional design and were enabled by over \$700,000 in energy conservation incentives from BC Hydro.
- **Tuning up our existing buildings to optimize performance:** We are continuing to implement our ["Building Tune Up"](#) program to enhance energy efficiency in over 70 buildings across campus to reduce emissions in core buildings by 10 per cent compared to 2007 levels. In 2012, implementation began on 17 laboratory buildings and investigation began on over 50 additional buildings. We're also working to improve energy efficiency in our energy-intensive lab buildings through our lab re-commissioning program.
- **Advancing Green IT solutions:** UBC's new [University Data Centre](#), located in the new Pharmaceutical Sciences Building, opened in November 2012 and is 150 per cent more efficient than the existing data centre. Other achievements this year include our continued server and desktop virtualisation efforts and data storage consolidation project, which will also reduce power utilization.

Operational Fleet & Travel⁴

- **Greening our fleet:** UBC Building Operations has been working to improve the efficiency of its fleet of over 240 vehicles. Achievements include registering for the Canada-wide and comprehensive E3 (Energy, Environment, Excellence) Fleet Program, updating the campus Fleet Plan to outline new vehicle efficiency and emissions reduction targets, and working on

⁴ See the [Commuting and Getting Around Campus](#) section for other achievements related to transportation.

resizing and retiring inefficient vehicles. UBC also installed new [electric vehicle charging stations](#) on campus, enabled through the Provincial Community Charging Infrastructure Fund.

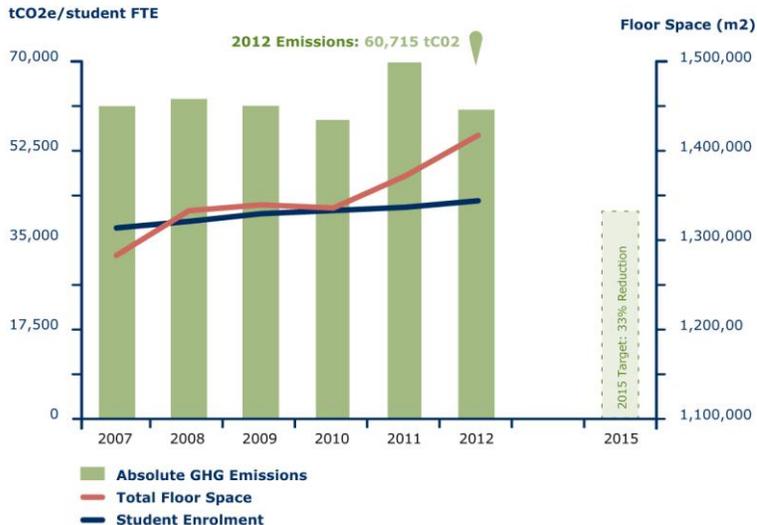
- **Changing how people and goods move around on campus:** We're working with key suppliers to decrease and consolidate deliveries of goods on campus to reduce travel-related emissions and increase efficiencies. We're also investing in video and web conferencing software to help reduce business travel-related emissions.

Energy Supply

- **Investing in low carbon, renewable, and alternative energy sources:** September 2012 marked the official opening of the [Bioenergy Research and Demonstration Facility \(BRDF\)](#), the first biomass cogeneration facility of its kind in the world. The pioneering \$34-million clean energy facility will eliminate 9 per cent of campus GHG emissions and generate enough clean electricity to power 1,500 homes. The facility will also provide faculty, staff, students and private sector partners the opportunity to study, test, teach and apply lessons learned at the facility. In 2013, UBC made a further investment in renewable energy by signing a contract with FortisBC to purchase 20,000 GJ of [renewable natural gas \(RNG\)](#) each year to displace the use of conventional natural gas.
- **Investing in innovative and efficient energy generation and distribution projects:** As part of the Academic District Energy System upgrades, UBC completed Phases 2 and 3 of one of the largest [steam to hot water conversions](#) in North America, installing a total of 4.7 km of piping and converting 18 buildings totalling 100,000 m² to the district energy system. When finished, the project will replace 14 km of aging steam system piping infrastructure, and connect 800,000 m² of building floor space to reduce emissions by 22 per cent and save \$5.5 million a year in operational and energy costs.

Performance Metrics

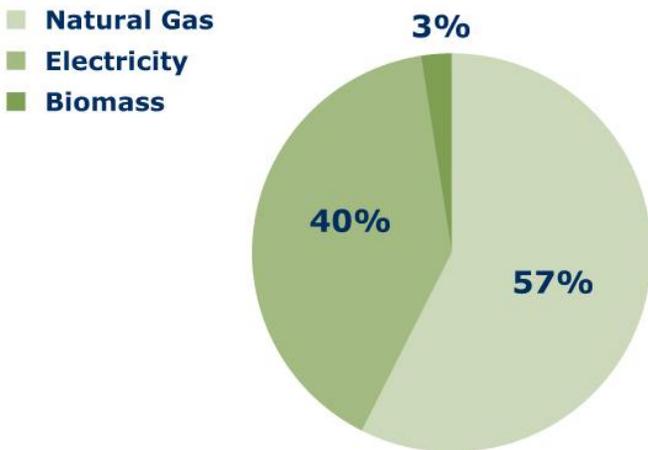
Absolute GHG Emissions



Vancouver campus emissions decreased 0.6 per cent from 2007 to 2012, despite a 10 per cent increase in building floor space and a 14 per cent increase in student enrolment. The three core projects outlined in our [Climate Action Plan](#), once completed, will together achieve UBC’s greenhouse gas (GHG) reduction targets.

Campus Energy Sources, by GJ (2012)

Campus Energy Sources, by GJ (2012)



The majority of UBC’s energy supply is from natural gas and clean hydroelectric power. Once UBC’s Bioenergy Research and Demonstration Facility is running at full capacity, it is expected to supply 7 per cent of campus energy from biomass.

Water



Credit: Martin Dee

As a growing campus, our demand for water continues to increase; however, we're committed to water conservation and treating it as a precious resource to be used and managed wisely. Faced with this challenge, we're finding ways to reduce our water use, which involves making improvements to our building and water infrastructure, encouraging water efficient behaviours by students, faculty and staff, exploring opportunities for water reuse, and other innovative supply options.

Goal, Target and Objectives

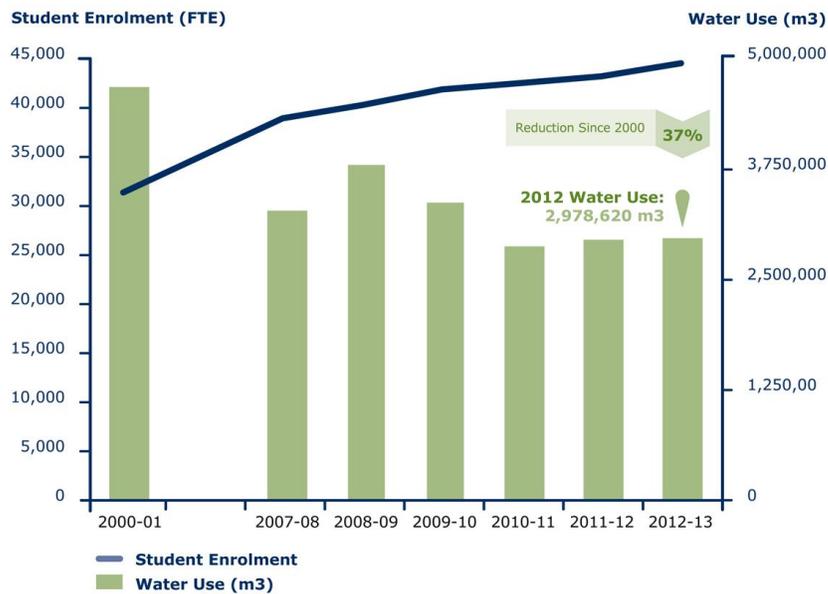
The goal, target and objectives are currently under development, as part of the [Water Conservation Action Plan](#).

Key Achievements

- UBC is developing a [Water Conservation Action Plan](#) to build on our water conservation achievements to date and guide our water management activities in the future. Successes over the past year in reducing water use include upgrades to our Academic District Energy System (ADES) from [steam to hot water](#), which will save 136,000 m³ of water annually when completed, equivalent to saving 54 Olympic-sized swimming pools worth of water each year.
- We're also working to reduce water usage in labs that use potable water for once-through cooling by investigating retrofit solutions. A retrofit project of our Geosciences (old Earth and Ocean Sciences) Building was approved this year and will involve replacing old cooling equipment with higher efficiency equipment. Similarly, Student Housing and Hospitality Services (SHHS) completed their five-year Building Retrofit and Upgrade Schedule with recommendations from Campus Sustainability for more efficient fixtures and equipment.

Performance Metrics

Absolute Water Use



UBC has made significant progress in reducing the amount of water used on campus despite significant campus growth. The upcoming Water Conservation Action Plan will set new targets and identify additional opportunities to reduce water use on campus.

Materials & Waste



UBC Sort it Out campaign logo.

UBC aspires to be a 'zero-waste' campus – a guiding principle that involves reducing or avoiding the consumption of goods and materials and treating unwanted products and materials as resources that can be used again. Zero waste also means reductions in GHG emissions and other environmental impacts associated with waste management such as land impacts, groundwater pollution from landfills, or air emissions from incineration. We can approach zero waste by changing what we purchase and improving how we manage the waste we produce.

Goal: Reduce waste disposal, helping UBC transform into a zero waste community.

Target: [DRAFT] Increase UBC's overall waste diversion rate to 70 per cent by 2016.

- Objectives:**
- **Materials & Products Selection:** Purchase materials and products that are low carbon, energy efficient, non-toxic, reusable, renewable, and/or recyclable.
 - **Waste Reduction & Reuse:** Reduce generation of waste materials.
 - **Waste Diversion:** Increase diversion of recyclable and compostable materials from disposal.

Key Achievements

Policies and Plans

- Building on our waste reduction and diversion achievements to date, UBC's [Zero Waste Action Plan](#) is currently being developed to define goals, targets, and key actions that will transform us into a zero waste community. The plan will be finalized in 2014 and implemented over the next three to five years.

Materials & Products Selection

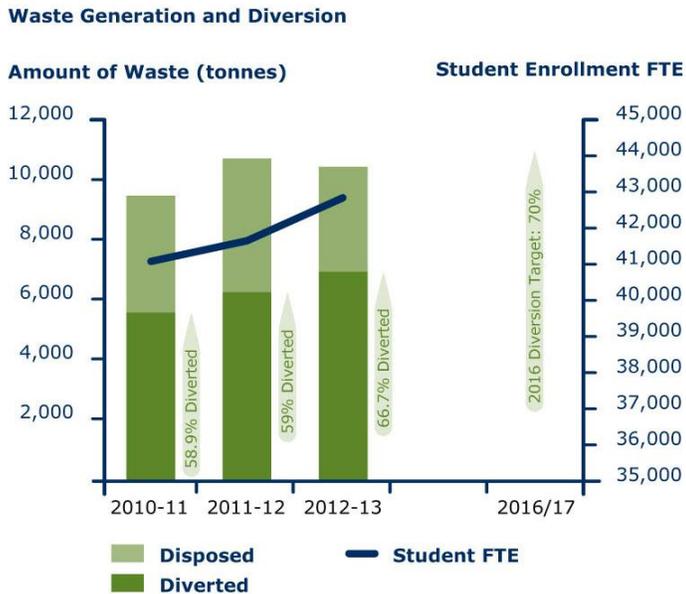
- **Prioritizing sustainable purchasing:** [UBC BuySmart](#) was launched this year and is a resource for staff and faculty members to purchase goods and services through preferred and pre-qualified suppliers who align with UBC's Supplier Code of Conduct and who provide Sustainability Scorecards. Other sustainable purchasing achievements we've made this year include negotiating a [new paper supply contract](#) with improved pricing for 50 per cent recycled content paper. We also launched the [UBC Sustainable Campus Food Guide](#) and the first [UBC Fair Trade Week](#). UBC's Building Operations finalized the [Green Cleaning Program](#) and all buildings serviced by Custodial Services now have portion controlled, Green Seal certified chemical dispensing units. Finally, a Tap Water Working Group was formed this year to raise awareness of, and increase access to, free tap water on campus to reduce bottled water consumption.

Waste Diversion

- **Improving our waste sorting, recycling, and food scraps collection infrastructure:** This year we conducted Zero Waste pilot projects around sorting food scraps. The pilots identified barriers to sorting food scraps both in student residences and offices on campus and tested out different engagement and communication methods to get more people sorting their waste out properly. We started several more pilots in summer 2013, including designing and testing new waste sorting stations for both indoor and outdoor public areas, as well as waste infrastructure changes in student residences and offices on campus. In 2012 UBC's total hazardous waste generation was reduced by almost seven tonnes (8 per cent) through waste minimization efforts led through the [Green Research Program](#). Participation in all available labs recycling programs resulted in additional waste reduction of approximately 15.6 tonnes.
- **Informing people that it's easier now to reduce and divert waste:** As of April 2013, we've been developing our [Sort it Out](#) campaign, which includes signage, print materials, digital messaging strategies, and stakeholder engagement opportunities to get the word out there about all of our improved waste, recycling, and food-sorting infrastructure. The full campaign will be launched in 2014.

Performance Metrics

Waste Generation and Diversion Rate



In 2012-13 the amount of garbage disposed decreased significantly, despite an increase in student population. Upon completion, the Zero Waste Action Plan will identify several new initiatives to achieve the 2016 diversion target and reduce waste generation going forward. Note: This is a draft target.

Commuting & Getting Around Campus



Buchanan Tower Secure Bike Parking Facility. Credit: Adam Cooper

As a large campus, the transportation choices we make have a significant impact on the environment and campus community. Enabling people to choose active modes of transportation such as walking, cycling and transit as their preferred transportation options not only reduces environmental impacts but also improves health and quality of life. UBC is committed to developing an automobile restrained campus that encourages more trips by transit, cycling and walking both to and from our campus, and within our neighbourhoods and academic lands.

Goal: Reduce automobile trips to and from campus and ensure UBC is a pedestrian and cycling friendly campus.

Target: New targets are currently under development as part of the new Transportation Plan.

Objectives:

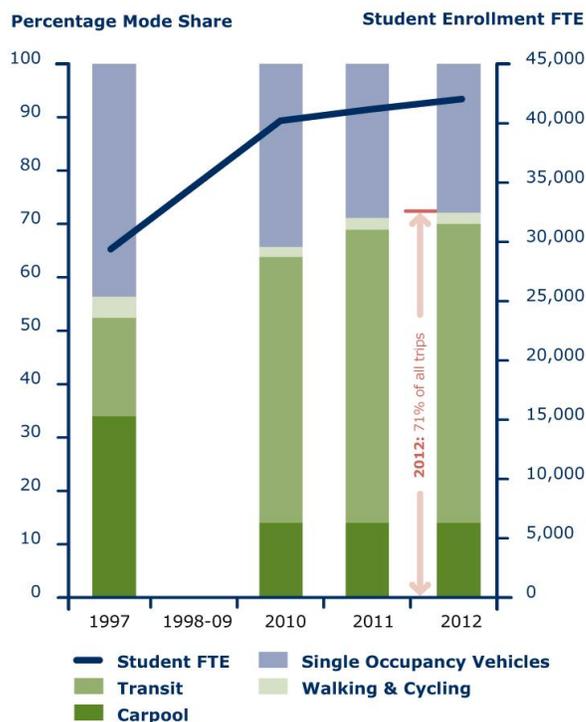
- Design, build and program for a safe and accessible walking, cycling and transit-oriented community.

Key Achievements

- Getting people out of their cars:** Be it through the removal of 199 parking spaces this year, traffic calming or improved safety improvement measures, we continue to steer people towards more sustainable commuting options rather than driving.
- Improving transit service and access:** This year, we optimized a [revised community shuttle route](#) in conjunction with Translink to better connect key destinations on campus, with implementation planned for December 2013. We continued work with key partners on promoting advancement of rapid transit connection along the Broadway corridor to UBC. And we've provided eligible students with access to a universal transit pass for services across Metro Vancouver. In 2012, an average of 89 per cent of all eligible students were issued a U-Pass, for a total of 345,769 monthly U-Passes distributed.
- Prioritizing getting people walking and cycling:** UBC continues to implement our campus pedestrianization plan and promote sustainable transportation choices through programs such as the new UTown@UBC's [Walk'n Roll to School Program](#) and the annual [Bike to Work Week](#), which UBC continues to earn top honours in. We're also continuing to upgrade our end-of-trip facilities by opening the new Chemistry/Physics [secure bike parking facility](#), bringing the total number of secure bike parking spaces to 648 across campus.

Key Performance Metrics

Mode Share



Since 1997, we have grown transit ridership by 298 per cent while reducing single occupancy trips by 15 per cent. More people now take transit than all other modes combined to get to and from UBC.

Housing & Amenities



Utown@UBC

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.

Goal: Increase housing choice and affordability on campus and provide quality amenities.

Target⁵:

- **Student Housing:** Aspire to provide capacity to house up to 50 per cent of full time students.⁶
- **Faculty & Staff Housing:** Aspire to build up to 30 per cent of all new housing on campus as rental, subject to market demand.

Objectives:

- **Housing:** Expand housing supply and diversity and address affordability concerns on UBC campus for faculty, staff, and students.
- **Amenities:** Deliver a high standard of community amenities for campus residents and users.

⁵ These are aspirational maximums that are not time-bound.

⁶ The targeted number of beds is calculated using the number of full time students in 2010.

Key Achievements

Policies and Plans

- UBC's [Housing Action Plan](#) for the Vancouver campus was approved by the Board of Governors in September 2012. Implementation of the plan has already begun and will result in an increase in housing choice and affordability for faculty, staff, and students at UBC. The Gage Precinct Plan was also approved by the Board of Governors in spring 2012, which includes academic and transit facilities as well as 12-month student housing.

Housing

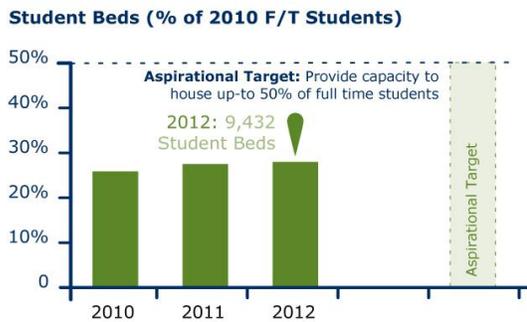
- **Committed to expanding the supply and diversity of student housing on campus, addressing affordability concerns, and improving community building in housing:** Phase 1 of UBC's first mixed use student housing commons, Ponderosa Commons, will be completed in winter 2013. It will provide more than 600 new student beds on campus and is the first of five planned Commons developments on UBC's Vancouver campus.
- **Creating affordable rental and ownership options for faculty and staff:** We're expanding rental housing supply and implementing policies and programs that make renting or owning at UBC more feasible for faculty and staff. In 2013, several [Housing Action Plan](#) implementation action items were initiated that are now complete or near completion. Also, in 2012, 106 rental units were under construction on East Campus and 174 staff/faculty/student rental housing units were under construction in Chancellor Place.

Amenities

- **Providing high quality amenities for UBC's residential community:** For staff, residents, and students with families, UBC is currently working to expand childcare options by adding and planning for an additional 41 childcare spaces throughout campus. In terms of green space, we also completed several parks in 2012, including Nobel Park in Wesbrook Place neighbourhood and East Campus Park. A new children's play area in Chancellor Place neighbourhood was completed in 2012 and a new field and community centre park will be completed in 2013. UBC also opened the first [campus skatepark](#) in North America in spring 2013. Finally, the newly relocated and expanded University Hill Secondary School in Wesbrook Place neighbourhood opened its doors in early 2013, providing learning space for up to 1,000 grade 9 – 12 students.

Key Performance Metrics

Student Housing⁷



Neighbourhood Housing⁸



In 2012 we saw an increase in both the number of student beds on academic lands and rental housing on neighbourhood lands. There was a 9 per cent increase student beds and 15 per cent increase rental units in the neighbourhoods since 2010. The Ponderosa Commons Phase 1 will add approximately 432 new beds at the Vancouver Campus in September 2013 and 173 by December 2013.

⁸ The neighbourhood rental units reported exclude student housing.

3. Communications & Engagement

Communications



UBC receives the 2012 ISCN Excellence in Integration Award. Photo credit: ISCN.

We continue to expand and increase our communications efforts to elevate and amplify the UBC sustainability story across campus and beyond. Our various communications and engagement efforts aim to inspire and inform internal and external audiences and to share and celebrate our sustainability achievements.

Goals:

- Extend understanding of UBC as a world leader in sustainability.
- Empower the UBC community to tell the University's sustainability stories.
- Link target audiences with sustainability resources and opportunities.

Key Achievements

Brand Building and Online Presence

- **Creating a new visual identity:** A new UBC Sustainability visual identity was created as an easy way for people to recognize who we are and what we're doing in terms of sustainability efforts on campus and beyond. Critical to success in all areas was collaboration between the USI and other campus academic and operational units, including Campus + Community Planning, Building Operations and the Community Learning Initiative as well as faculties such as Arts, Applied Science, and Land and Food Systems.
- **Advancing the sustainability conversation through social media:** Social media successes included an active [Twitter account](#) (reaching 5400+ followers) and [Facebook page](#) (targeted at students) and a [UBC Sustainability video channel](#) featuring the new ["Conversations in Sustainability" video](#) (1,200+ views) and the award-winning [CIRS video](#) (11,000+ views).
- **Upgrading the sustain.ubc.ca website:** UBC undertook three projects that significantly upgraded the [UBC Sustainability website](#): an information architecture overhaul; a redesign that optimized the site for mobile and tablet device viewing and introduced the new UBC Sustainability visual identity; and the introduction of a sustainability dashboard that shows UBC's progress in over a dozen sustainability related areas.

Awards

- **Celebrating achievements through external recognition:** UBC's sustainability efforts and people were recognized with 14 provincial, national and international [awards](#). These awards celebrate UBC's commitment to sustainability scholarship, its outstanding leadership and excellence in the integration of operational and academic efforts, green building innovations and design, and energy management. Three awards are of particular note: the [International Sustainable Campus Network Excellence Award in Integration](#); the APPA: Leadership in Educational Facilities Sustainability Award; and the [AASHE Campus Sustainability Case Study Award](#) recognizing achievements in implementing UBC's Climate Action Plan.

Media Coverage

- **Sharing the sustainability story through media channels:** Forty-eight feature stories appeared in local, national and international media outlets including the New York Times, Forbes.com, Global Television, The Globe and Mail, Canadian Geographic, Australia Radio International, Radio Canada International, Vancouver Sun, Business in Vancouver and more. Stories highlighted the breadth and depth of UBC's sustainability efforts, the [Bioenergy Research & Demonstration Facility](#), [CIRS](#) (both the building and the research program), [UBC's green buildings](#) and district heating.

Public Relations Activities

- **Sharing information through presentations and conferences:** Members from across UBC's sustainability team delivered 37 international, national and local presentations. A sampling includes events at the University of Cambridge, Oxford University, the University of Toronto and Modern Green in Beijing, the Start an Evolution: London Celebration, TEDx Stanley Park and the Vancouver School Board's first annual sustainability conference.
- **Increasing awareness and engagement through public events:** The USI was involved in three major events in 2012-13: the opening of the [Bioenergy Research and Demonstration Facility](#); the International Baccalaureate Summer Conference; and the 2-day Regenerative Neighborhoods Summit that brought 75 leaders in architecture, engineering, design, community engagement and local government to UBC. In addition, the USI hosted three campus-focused Lunch 'n Learn events addressing the Living Building Challenge, construction materials toxicity and integrated building design.
- **Showcasing sustainable building innovations through public tours:** We provided over 85 tours of [CIRS](#), the [Bioenergy Research and Demonstration Facility](#) and UBC sustainability locations to assorted dignitaries and interest groups. This is in addition to over 46 tours provided by the [Campus Sustainability Green Building Tour Program](#).

Engagement Programs



2012 Do It in the Dark Competition Booth. Credit: Douglas Matthews

At UBC, we believe that every person has a role in achieving the campus' sustainability goals. UBC continues to make significant investments into infrastructure changes to reduce energy consumption, GHG emissions, water consumption and waste generation. To complement these efforts and make further progress on our goals, we deliver award-winning [engagement programs](#) to build awareness and enable individuals to exemplify sustainable practices and behaviours on campus.

Goal: Foster a culture of sustainability across campus and encourage high-impact resource conservation behaviours.

Objectives:

- **Student Residences, Offices, and Labs:** Promote, enable and reinforce high impact sustainability behaviours and practices in student residences, offices and labs.
- **UBC SEEDS Program:** Support partnerships between staff, faculty, and students on accredited research projects that explore ways to reduce energy consumption, GHG emissions, water consumption and waste generation in campus operations.

Key Achievements

Policies & Plans

UBC is developing a Campus Sustainability Engagement Strategy, which will outline the university's approach for engaging campus community members to help reduce energy use, GHG emissions, water, and waste generation. The Strategy, which will be completed in 2013, defines priority engagement programs to encourage high-impact resource conservation behaviours in student residences, offices, and labs and provides recommendations for fostering a culture of sustainability across campus.

Engagement Programs in Residences, Offices and Labs

- Developing and delivering sustainability programming in student residences:** The [Sustainability in Residence](#) program, now in its 10th year, continued to mobilize students to reduce water, waste, and energy consumption in residences and to build a culture of sustainability by training and supporting 27 Residence Sustainability Committee members. And our third annual [Do it in the Dark](#) energy and water conservation competition engaged more than 3,100 first-year student participants to find innovative ways to save energy and water in Totem Park and Place Vanier student residences.
- Delivering tools, resources, and programs to engage a network of staff sustainability champions across campus:** The [Sustainability Coordinator \(SC\) Program](#) completed its 14th year of programming, providing information, tools and resources to over 80 staff Sustainability Coordinators who help promote and implement sustainability in their departments. In 2012, we welcomed 13 new coordinators into the program, awarded 6 sustainability grants through the [Xerox Sustainability Fund](#), and completed an [Office Certification Pilot Program](#). The SC Program is now undergoing the first-ever external review to help guide its future and strategic direction and to help outline key priorities for program improvement and expansion over the next three years.
- Developing and implementing programs for lab users that promote sustainable practices in the research environment:** UBC's [Green Research Program](#) facilitates the sustainable reduction of the University's research footprint through training, consultation, and recycling and recovery programs. In 2012, we continued to educate students, staff and faculty about green research practices and hazardous waste reduction through quarterly [Green Research Newsletters](#) and Lunch and Learns. To promote energy conservation in labs, the third annual [Shut the Sash](#) competition engaged researchers in three energy-intensive lab buildings to close fume hoods, resulting in an 82 per cent improvement in sash closures, saving the equivalent amount of electricity of 32 homes.

UBC SEEDS Program

- Continuing to enhance the reach and impact of the UBC SEEDS Program:** UBC's [SEEDS \(Social Ecological Economic Development Studies\) Program](#) completed its 13th year of programming, bringing students, staff and faculty together to work as a team on accredited individual, group or class research projects that apply the [Campus as a Living Lab](#) concept to address campus sustainability challenges. In 2012-13, SEEDS engaged over 500 students, staff, and faculty, resulting in 74 projects and 119 student reports related to campus operational sustainability topics such as building operations, waste, water, transportation, energy, land, food, climate, community, and finance. The outcomes of many of these reports will be implemented or will affect decision-making around sustainability on campus. SEEDS is also currently undergoing the first-ever external review to help guide the future strategic direction of the program and outline key priorities for the next three years.

Key Performance Metrics

Campus Engagement Programs

Metrics ⁹	2009/10	2010/11	2011/12	2012/13
Sustainability Coordinators # of staff Sustainability Coordinators	151	149	119	80
Seeds Participants Number of SEEDS program participants (students, staff, faculty)	593	565	588	507
Number of SEEDS program projects	62	71	70	74

We are continually improving our methods for measuring the impact of engagement programs. In future years, we plan to go beyond tracking participation and update these metrics with program outcome measures.

⁹ Note: The methodology for tracking the number of Sustainability Coordinators and the SEEDS program has changed over time. In 2013, a new methodology was defined which will bring more reliability to these metrics for future years.

4. Integration



UBC President Toope and City of Vancouver Mayor Robertson sign a memorandum of agreement as UBC scholars look on.

UBC is integrating academic and operational sustainability as the underpinning of permanent positive change toward sustainability on the campus and beyond. The integration of operational and academic sustainability at UBC has catalyzed the development of an aggressive portfolio of programs and activities that aim to transform UBC into a test-bed for sustainability and an agent of change in the wider community.

Goals:

- Transform the campus into a living laboratory for sustainability to demonstrate at scale, replicable sustainable practices and technologies.
- Become a sustainability leader beyond the campus to facilitate dialogue and foster partnerships between the University, industry, government and NGOs.

Key Achievements

Campus as Living Laboratory

Under the [Campus as Living Laboratory \(CLL\)](#) initiative the whole 400-hectare, 400-plus-building Vancouver campus is seen as a living laboratory for sustainability in which to demonstrate in partnership with other organizations and at a scale that is useful for replication, operational innovations that catalyze the development of new knowledge and new applications, systems and technologies, for the purpose of advancing the sustainability goals of UBC and its community and industrial partners.

Under the CLL umbrella managed by the Strategic Partnerships Office (SPO), UBC has consolidated a process for developing interdisciplinary research projects that leverage operational requirements and that, in addition to leading to substantive partnership opportunities with industry and other community partners, including direct and in-kind funding contributions, provide teaching, learning and research opportunities for students, faculty and staff. During fiscal year 2012-13, several research projects involving leading-edge industrial partners in the areas of biomass gasification and co-generation, electrochemical storage systems and electric vehicles moved from the pilot phase into full implementation.

As part of the CLL initiative, a partner selection process or “pipeline” was expanded to include more detailed net-benefit and risk analyses. This provides certainty and a fair and predictable evaluative process for solicited and unsolicited proposals from industry and other community partners. To support the project assessment and evaluation process, and to coordinate the involvement of faculty and grad students in CLL projects, the SPO works with a CLL Working Group and a CLL Steering Committee, which meet regularly.

Strategic partnerships with industry resulted in expanded research projects, including:

- **Bioenergy Research and Demonstration Facility:** Research is being conducted at UBC’s newly opened [Bioenergy Research and Demonstration Facility \(BRDF\)](#) in partnership with Nexterra Power Systems, GE and Jenbacher. Researchers from the Institute for Resources, Environment and Sustainability, the Clean Energy Research Centre, the Centre for Interactive Research on Sustainability, the faculty of Applied Science and the Sauder School of Business are implementing several biomass gasification and co-generation research projects that are leveraging funding from federal and provincial research grants for the benefit of undergraduate and graduate UBC students.
- **Electrochemical Energy Storage System:** Innovative electrochemical storage systems were deployed to reduce UBC’s reliance on diesel backup generators and conventional UPS technologies and to “operationalize” smart grid applications on campus. In partnership with local success stories Corvus Energy and Alpha Technologies, the initial phase of this project included the installation of Corvus Energy lithium ion batteries and Alpha Systems power electronics equipment in the NCE, Kaiser and BRDF buildings. UBC researchers have full access to the technologies deployed to study their performance, energy savings, as well as financial and environmental impact implications.

- **Electric Vehicle Charging Stations:** UBC deployed 20 [electric vehicle charging stations](#) on campus in several locations, including at the University Services Building where Building Operations and UBC Utilities staff will be able to recharge their campus service vehicles. Other locations include the Thunderbird Parkade (for staff, students and visitors) and the Kaiser Building (for academic research). In partnership with BC Hydro, the BC Government and other BC universities, a research project to study renewable energy integration with EVs has been designed that involves leveraging the data from UBC's infrastructure to catalyze research on the sustainable energy systems of the future.
- **Campus "Commons" Projects:** The University has launched a series of housing hubs or commons projects in the academic campus that integrate student housing, academic functions, community amenities and retail as a means revitalizing and increasing density in the Vancouver campus. As part of the [CLL process](#) these projects are being studied for the deployment of sustainable systems and technologies in partnership with industry. The Ponderosa Commons project for example under construction includes an innovative building envelope design that significantly increases its insulating value resulting in large energy demand and energy use savings for the University.

Agent of Change: Community Partnerships

In 2010 UBC negotiated memoranda of understanding with BC Hydro, the City of Vancouver and the National Research Council. In late 2011, a memorandum of understanding between UBC and the University Neighborhoods Association was established. The following provides an update on these strategic partnerships:

- **UBC-BC Hydro MOU:** Current joint initiatives include the [UTown@UBC Community Energy and Emissions Plan \(CEEP\)](#), for which an initial report is underway, a [Continuous Optimization](#) program on campus that includes the retro-commissioning and calibration of heating, ventilation and air-conditioning systems and building automation systems in over 70 of UBC's core academic buildings, as well as conservation behavior initiatives such as community engagement workshops held at the BC Hydro Theatre in the [CIRS](#) building.
- **UBC-City of Vancouver MOU:** Following the successful implementation of the UBC-COV [Greenest City Scholars Program](#), which has been in effect since the summer of 2010 and supports the City's [2020 Greenest City](#) planning and implementation process, a series of workshops on district energy opportunities with other Greater Vancouver municipalities has been co-chaired by UBC and the City with the purpose of sharing lessons associated with the planning, design and implementation of sustainable district energy systems in the Greater Vancouver area.
- **UBC-NRC MOU:** Unfortunately, the ongoing reorganization of the [National Research Council \(NRC\)](#) at the national level has resulted in a reduced ability to engage in mutually beneficial projects. It is not yet known what the full scope of the NRC restructuring will encompass so this is an area where significant potential exists to redefine the partnership during fiscal year 2013-14.

- **UBC-UNA MOU:** In this MOU with the [University Neighborhoods Association \(UNA\)](#), the main areas of collaboration include community outreach and engagement, energy efficiency, water conservation, and solid waste reduction programs. A Steering Committee comprised of the UNA, Campus + Community Planning and UBC Sustainability Initiative members meets regularly to assess progress on the noted areas of common interest. The first joint projects being deployed include the expansion of the organics recycling program and the incorporation of lifecycle assessment (LCA) methodologies to minimize the environmental impacts of the new Wesbrook Community Centre in the Wesbrook neighborhood in the South Campus.

5. Future Priorities

The following are UBC's strategic sustainability priorities for academic and operational sustainability, communications and engagement activities as well as integration for the 2013-14 fiscal year.

Academic Sustainability

Teaching and Learning

- The Teaching and Learning Office (TLO) will update its teaching and learning goals and explore how it can **increase the integration of sustainability research and teaching** within USI programming.
- Related to curriculum work, energy will be focused on the idea of **inserting sustainability content into first-year courses** to work with departments across different faculties to explore the possibilities for this model. The TLO will explore if connections exist between this work and funded Flexible Learning projects.
- As more departments move forward **to implement pathways in their curriculum** the TLO will work with them and support them, encouraging cross-university cooperation and sharing of experiences and resources.
- The TLO will also continue to foster student leadership in sustainability by supporting every student to become involved in sustainability education via formal and informal learning pathways. In the **Sustainability Ambassadors program**, the TLO will pilot an increased level of student volunteer hours in the Sustainability Education Resource Centre in order to facilitate peer mentoring around sustainability education and involvement.

Social Sustainability

- UBC will conduct a campus-wide exploration about **social sustainability**, involving a workshop on social sustainability. This will also be a major theme explored throughout the 20-Year Sustainability Strategy process. Social sustainability will also be addressed in the fall campus-wide sustainability communications campaign "The Ripple Effect".

Research and Partnerships

- The Research and Partnerships Fellows will establish more **formal faculty engagement programs** to increase the number of interdisciplinary sustainability research projects that are developed at UBC to leverage Tri-council funding and to increase participation by private, public and NGO partners, campus infrastructure operators, and students in CLL projects.
- Work will continue to **consolidate the CIRS research program** as one of UBC's centres of excellence in sustainability research and Canada's leading applied research on sustainable buildings and community scale sustainable systems. This process will continue and be

supported by the myriad of well-funded innovative sustainability research projects underway at CIRS and the leading work that is taking place to establish a sustainability assessment framework (e.g. sustainability “lens”) for UBC campus infrastructure and development projects.

Operational Sustainability

- UBC will complete **sustainability frameworks**, which include performance metrics for major operational units on campus, including Building Operations, Student Housing and Hospitality Services, Payment & Procurement Services, and UBC IT. These frameworks define each unit’s three-year priorities for achieving UBC’s sustainability targets.
- The **Continuous Optimization “Building Tune-Up” program** will continue to be deployed from 2013-2017, optimizing performance in over 70 buildings to reduce energy consumption and GHG emissions in core buildings by 10 per cent. Implementation of energy conservation measures already underway in over 198,000 m² of energy-intensive lab buildings in Phase 1 will be completed in 2013. Implementation in 25 academic and administrative buildings in Phase 2 will begin in 2013, followed by 27 buildings in Phase 3 in 2015.
- Phases 4 through 9 of the **steam to hot water conversion** will continue in conjunction with upgrades to the Public Realm. In 2013, Phase 4 design will be completed and construction will begin on the Campus Energy Centre. Phase 5 conversion will begin on an additional 25 buildings totaling 117,000 m² and Phases 6 through 9 will begin design.
- UBC’s **Bioenergy Research and Demonstration Facility** will continue to optimize both thermal and cogeneration modes and provide a platform for research with academic and industry partners.
- UBC’s **Zero Waste Action Plan** will be finalized in 2014 and will define goals, targets, and key actions that will transform us into a zero waste community. The plan will identify initiatives to increase waste diversion and will result in changes to waste infrastructure and improvements in waste sorting communications and engagement.
- UBC will complete a **Water Conservation Action Plan**, which will outline actions, strategies and targets to realize our vision of advancing ambitious water conservation and efficiency while fostering closed-loop solutions.
- As part of the implementation of the **UTown@UBC Community Energy and Emissions Plan (CEEP)**, UBC will be selecting a private district energy developer to complete the final stage of feasibility analysis for a **neighbourhood district energy system**.

Communications and Engagement

- From November 4 to 15, 2013, the Vancouver campus will come alive with pop-up events as part of the **#RippleEffectUBC campaign**, hosted by partners across campus and designed

to increase student's awareness of and pride in UBC's sustainability efforts. The events will be supported by online resources, social media, campus-wide signage and more.

- UBC will begin the **20-year Sustainability Strategy Consultation Process**. This six-month process, launching in November 2013, will engage the UBC community in developing a long-term vision and strategy for sustainability at UBC and will include engagement activities designed to leverage the diversity of experience and expertise of the UBC community.
- Continuing on the UBC Sustainability visual identity and messaging work that began in 2012, efforts will focus on further developing, implementing and championing adoption of a consistent, compelling **visual identity for UBC Sustainability** across the campus. In addition, the USI will work with Communications and Marketing to develop supporting messaging that tells the breadth and depth of the UBC sustainability story.
- UBC will implement the recommendations of the **Campus Sustainability Engagement Strategy** process to enhance programming in our signature engagement programs to engage campus community members to help reduce energy use, GHG emissions, water, and waste generation. The Strategy will focus on high-impact resource conservation behaviors in student residences, offices, and labs.

Integration

- UBC will continue to work on developing a **more integrated approach to Community Partnership activities** to continue to connect more directly the ongoing very active work on Campus as Living Lab (CLL) projects with the work envisaged under UBC's MOUs with the City of Vancouver, BC Hydro, the National Research Council, the University Neighborhoods Association (UNA), and with research and teaching activities. UBC will also aim to **develop a strategic partnership with at least one NGO** and prospective partners have been identified.
- UBC will also work on moving to integrate the Teaching and Learning Office and the Research and Partnerships Office to **develop a more integrated approach to academic sustainability**. Discussion will begin with some of the key sustainability-related research centre and programs about **developing a more integrated approach to sustainability research** on campus.
- UBC also plans to **integrate the social sustainability program into the Campus as Living Lab** process and develop living lab project focussed on social sustainability issues. This will include plans to **work with the UBC Community Learning Initiative** to better coordinate off-campus and on-campus co-curricular and for-credit community service learning.

Appendix A: Detailed Operational Achievements

Energy & Emissions	
Priorities	2012/13 Achievements
<i>Policies & Plans</i>	<ul style="list-style-type: none"> • Climate Action Plan: UBC continued to implement our Climate Action Plan (CAP), which outlines the strategies to reduce campus GHG emissions in the areas of development and infrastructure, energy supply and management, fleet, commuting, business travel, procurement and food. Of the 113 actions and sub-actions identified in the plan, 79 are complete, in progress or ongoing, 14 are under development, and a further 20 are longer-term goals that have not yet been started or were re-evaluated and removed. The full 2012 implementation report is available online. • Community Energy & Emissions Plan: UBC and the University Neighbourhoods Association (UNA) completed a draft Community Energy & Emissions Plan (CEEP) for the UTown@UBC community, which will be going to the UNA board for approval in September 2013. This plan complements the CAP by providing strategies for a low carbon future for UBC’s residential community.
Buildings	
<i>Building Design and Commissioning:</i> Continue to update and regulate building design standards and enhance the design process.	<ul style="list-style-type: none"> • LEED Implementation Guide: Revised UBC’s Leadership in Energy and Environmental Design (LEED) Implementation Guide to reflect the new LEED Canada Building Design + Construction 2009 standards. • Residential Environmental Assessment Program: New energy efficiency requirements and energy intensity targets were integrated into the updated version of UBC’s Residential Environmental Assessment Program (REAP), which will set new standards for energy efficiency for all new residential construction on campus. • New Construction: Opened the Earth Sciences Building and Pharmaceutical Sciences Building, state-of-the-art learning and research facilities both designed to LEED Gold standards. The two buildings’ innovative energy efficiency features are estimated to save nearly 2.4 GWh of energy per year compared to conventional design and were enabled by over \$700,000 in energy conservation incentives from BC Hydro. ESB, the largest panelized wood building and the largest application of cross laminated timber in North America, was built with BC-sourced wood that sequesters about 2,600 tons of CO₂. Energy use in Pharmaceutical Sciences is greatly reduced by heat recovery from the new data centre housed in the basement.
<i>Building Systems Performance:</i> Continue to optimize performance of building systems.	<ul style="list-style-type: none"> • Continuous Optimization: Continued to implement the “Building Tune Up” retro-commissioning program to enhance energy efficiency in over 70 buildings across campus to reduce emissions in core buildings by 10 per cent. In 2012, implementation began on the 17 energy-intensive laboratory buildings included in Phase 1 totalling 198,000 m², and investigation began on over 50 more buildings in Phase 2 and 3 buildings. • Lab Re-commissioning: Completed lab renovation pilot project to inform a campus-wide lab re-commissioning program to improve lab performance and reduce energy consumption.

Energy & Emissions	
Priorities	2012/13 Achievements
<p><i>Green IT:</i> Implement initiatives that reduce energy demand associated with the operation of IT infrastructure and equipment.</p>	<ul style="list-style-type: none"> • Data Centre Modernization and Consolidation: Opened the University Data Centre (UDC) in the new Pharmaceutical Sciences Building in November 2012. It consolidates university-wide computing infrastructure and features energy-efficient design and leading-edge cooling technologies to reduce power utilization. The new UDC is approximately 150 per cent more efficient than the existing Klink Data Centre. • Server and Desktop Virtualization: Continued to virtualize servers and desktops across campus. As the virtual network grows, we consolidate our servers and will increase the energy efficiency of our IT infrastructure and equipment. Over 2100 servers have been virtualized to date – 98 per cent of centrally-managed servers on campus. 400 virtual desktops were rolled out in 2012, bringing the total number of virtual desktops in use to 1200. • Storage Consolidation: UBC IT began a data storage consolidation project, which will reduce the number of storage controllers and resulting power utilization for storage by 25 per cent by the end of 2013, while maintaining current capacity and accounting for growth across the University.
Operational Fleet & Travel	
<p><i>Campus Fleet:</i> Purchase, maintain and operate fuel efficient, low emissions and alternatively powered vehicles.</p>	<ul style="list-style-type: none"> • Fleet Plan: Building Operations is updating the campus Fleet Management Plan with new targets for increasing vehicle efficiencies and reducing fleet emissions. The Plan will be complete by 2013. • E3 Certification: UBC registered as a participating member in the E3 (Energy, Environment, Excellence) Fleet program in 2012, a Canada-wide program and comprehensive rating system that helps public and private sector organizations “green up” their vehicle fleets. UBC is targeting E3 Silver Certification by 2013. • Fleet Management Program: Building Operations began working with Automotive Resources International (ARI), which will help analyze which vehicles should be replaced to maximize the efficiency of the fleet. This has resulted in right-sizing and retiring inefficient vehicles, standardizing the fleet, and prioritizing purchase of fuel efficient vehicles. • Alternative Fuels: Building Operations is greening its fleet with the purchase of five electric-drive Smart cars and two Stromer electric bicycles with trailers for trades staff who travel around campus without heavy loads. UBC has a total of 21 electric or hybrid vehicles in all departments, or 5 per cent of the campus fleet. Through the Provincial Community Charging Infrastructure Fund, UBC is installing 18 electric vehicle charging stations on campus.
<p><i>Delivery of Goods:</i> Improve trip planning and use of low emission transportation by suppliers.</p>	<ul style="list-style-type: none"> • Consolidating Deliveries: UBC is working with vendors to decrease and consolidate deliveries via UBC’s Sustainability Scorecard and in new RFPs. In 2012 a new contract with Weber replaced a number of different suppliers and consolidated purchases, resulting in fewer suppliers coming to campus. As part of the new preferred paper supplier contract, UBC negotiated delivery from 5 days per week to only 3 days per week.
<p><i>Business Travel:</i> Provide business travel options to travel less, travel smart and travel green.</p>	<ul style="list-style-type: none"> • Video and web conferencing: Now have campus-wide licenses for “Blue Jeans” and “Blackboard Collaborate” video-conferencing and web-conferencing software, which will be actively promoted in 2013/14 to encourage staff to reduce business travel.

Energy & Emissions	
Priorities	2012/13 Achievements
Energy Supply	
<p><i>Energy Sources:</i> Invest in low carbon, renewable and alternative energy.</p>	<ul style="list-style-type: none"> • Bioenergy Research and Demonstration Facility: September 2012 marked the official opening of UBC Vancouver's Bioenergy Research and Demonstration Facility, the first biomass cogeneration facility of its kind in the world. The pioneering \$34-million clean energy facility will eliminate 9 per cent of campus GHG emissions and generate enough clean electricity to power 1,500 homes. The facility will also provide faculty, staff, students and private sector partners the opportunity to study, test, teach and apply lessons learned at the facility. • Renewable Natural Gas: UBC has signed a contract with FortisBC to purchase 20,000 GJ of renewable natural gas each year. This will displace the use of conventional natural gas with a renewable source of energy.
<p><i>Energy Generation & Distribution:</i> Invest in innovative supply-side energy efficiency projects.</p>	<ul style="list-style-type: none"> • Academic District Energy System (ADES) Upgrades: Completed Phases 2 and 3 of one of the largest steam to hot water conversions in North America, installing a total of 4.7km of piping and converting 18 buildings totalling 100,000m² to the district energy system. When finished, the project will replace 14km of aging steam system piping infrastructure, and connect 750,000m² of building floor space to reduce emissions by 22 per cent and save \$5.5 million a year in operational and energy costs.

Water	
Priorities	2012/13 Achievements
<p><i>Policies & Plans</i></p>	<ul style="list-style-type: none"> • Water Conservation Action Plan: UBC is developing a Water Conservation Action Plan to build on our water conservation achievements to date and guide the University's water management activities in the future. The Plan will outline actions, strategies and targets to realize our vision of advancing ambitious water conservation and efficiency while fostering closed-loop solutions. • Residential Environmental Assessment Program (REAP): New water efficiency provisions were integrated into the updated version of REAP. UBC's residential green building rating system, which will set new standards for water efficiency for all new residential construction on campus.
Progress Update on Key Water Initiatives	
<p>Priorities currently under development as part of the Water Conservation Action Plan.</p>	<ul style="list-style-type: none"> • Academic District Energy System (ADES) Upgrades: Upgrading UBC's district energy system from steam to hot water will save 136,000 m³ of water annually when completed, the equivalent of saving 54 Olympic-sized swimming pools worth of water each year. The new hot water piping system is a closed loop with leak detection systems to prevent water loss, which will increase water use efficiency. • Once-Through Cooling: UBC is working to reduce water usage in labs by investigating retrofit solutions in three major lab buildings where laboratory equipment uses potable water for once-through cooling. A retrofit project of the Geosciences (old Earth and Ocean Sciences) Building was approved, which will involve replacing old cooling equipment with higher efficiency equipment, which will reduce cooling water consumption by about 60 per cent or 1,600 m³ per year. UBC also completed a cost-benefit study of a cooling system retrofit project for the Brimacombe Building, which is now in the design stages, with potential water savings of about 40,000 m³ per year.

Water	
Priorities	2012/13 Achievements
	<ul style="list-style-type: none"> Student Housing: Student Housing and Hospitality Services (SHHS) completed a 5-Year Building Retrofit and Upgrade Schedule, which includes water efficiency upgrades. Water fixture upgrades were made in several major residences, which include improvements in water efficiency. As part of the retrofit planning process, Campus Sustainability developed water fixture efficiency recommendations for student housing renovations to assist in the selection of efficient equipment and fixtures.

Materials & Waste	
Priorities	2012/13 Achievements
<i>Policies & Plans</i>	<ul style="list-style-type: none"> Zero Waste Action Plan: UBC is developing a comprehensive Zero Waste Action Plan which defines goals and targets as well as key actions to meet a vision of transforming UBC's Vancouver campus into a zero waste community. Key topics outlined in the plan include: sustainable purchasing, reuse of goods, recycling and food scraps collection infrastructure, campus-wide communications and engagement, construction & demolition waste, and performance monitoring. The plan will be finalized in 2014 and implemented over the next 3-5 years.

Materials & Products Selection	
<i>Sustainable Purchasing: Implement sustainable purchasing initiatives that target both operational and academic activities.</i>	<ul style="list-style-type: none"> UBCBuySmart: Launched in October 2012, UBCBuySmart is a resource for staff and faculty members to purchase goods and services through preferred and pre-qualified suppliers who align with UBC's Supplier Code of Conduct and who provide Sustainability Scorecards. Anyone on campus will now be able to benefit from campus wide contracts and can find them all in one location, including sustainable partners identified by a leaf icon. Recycled Paper Content: In 2012, 97 per cent of paper purchases through UBC's preferred supplier contained 30 per cent post-consumer recycled content or better. UBC negotiated more competitive pricing for 50 per cent recycled content paper, which will be the new standard offering under the new paper supply contract with Office Max Grand & Toy. Food Procurement: Launched the UBC Sustainable Campus Food Guide, to promote greater awareness of sustainable food options on campus and participation in sustainable food systems. Launched the first UBC Fair Trade Week in 2012, with social marketing tactics and materials. UBC Food Services and AMS now both offer 100 per cent Ocean Wise certified seafood and Triple O's is now the first franchise on campus to switch to serving only fair trade coffee, putting it in line with all UBC Food Services outlets. Green Housekeeping: UBC Building Operations finalized the Green Housekeeping Program model that encompasses a number of comprehensive green cleaning/housekeeping initiatives, which are being incorporated into the everyday operations of Custodial Services. All buildings serviced by Custodial Services now have portion controlled, Green Seal certified, chemical dispensing units. Bottled Water: Tap Water Working Group was formed to provide recommendations and an action plan to raise awareness of and increase access to free tap water on campus, informed by a tap water drinking inventory and social marketing plan for sustainable water consumption completed through the UBC SEEDS Program.

Materials & Waste	
Priorities	2012/13 Achievements
Waste Diversion	
<p><i>Waste Sorting Infrastructure:</i> Enhance and expand recycling and food scraps collection infrastructure to increase convenience and ease of use.</p>	<ul style="list-style-type: none"> • Zero Waste Pilots: Conducted food scraps sorting pilots in Walter Gage Residences, Buchanan Tower and the General Services and Administration Building. The pilots identified barriers to sorting food scraps both in student residences and offices on campus and tested out different engagement and communications methods to promote sorting food scraps. In mid-2013, several new pilot projects including student residences will commence that build on the results of this work and will test effectiveness of improved recycling infrastructure and increased convenience. New 4-stream Waste Sorting Stations were also designed and sourced for piloting in several major buildings starting in April 2013. • Hazardous Waste Reduction: Continued to operate comprehensive Green Research Program. At UBC Vancouver campus the total hazardous (chemical and biological) waste generation was reduced by almost 7 tonnes (8 per cent) in 2012. Participation in all available recycling programs (solvents, chemicals, oil, paint, batteries, silver, lab plastic) resulted in an additional waste reduction of approximately 15.6 tonnes. • Styrofoam Recycling: Continued to operate the Styrofoam Reduction and Recycling program, recycling 1,133 bags of Styrofoam from 18 campus buildings with an estimated total volume of 124,630 L diverted from the landfill. • Soft Plastic Recycling Pilot: Five buildings on-campus are participating in a Soft Plastic Recycling Pilot program which started in September 2012. Approximately 5,250 L of soft plastics have been diverted from the landfill through this program.
<p><i>Communications & Engagement:</i> Implement a campus-wide communications and engagement program, in concert with the improved infrastructure.</p>	<ul style="list-style-type: none"> • Zero Waste Communications Plan: Began developing our Sort it Out campaign, which includes signage, print materials, digital messaging strategies, and stakeholder engagement opportunities to promote our improved waste, recycling, and food-sorting infrastructure. Communications materials are also in development and will incorporate research conducted by UBC's Department of Psychology on the effective use of icons on sorting signage. Began developing a toolkit to promote zero waste events on campus. The full campaign will be launched in 2014.

Commuting & Getting Around Campus	
Priorities	2012/13 Achievements
<p><i>Driving:</i> Continue to build and support an automobile-restrained campus.</p>	<ul style="list-style-type: none"> • Reducing Parking Spaces: The 2010 Vancouver Campus Plan limits institutional surface parking on campus. In 2012, approximately 199 spaces were removed or reduced from the commuter parking supply, bringing the total number reduced since 1997 to 2,339. • Traffic Calming Measures: Implementation of traffic calming and safety improvement measures on the 16th Avenue corridor, including conversion of a signalized intersection at East Mall to a roundabout.
<p><i>Transit:</i> Improve transit service and access.</p>	<ul style="list-style-type: none"> • Community Shuttle: Optimized a revised community shuttle route in conjunction with TransLink to better connect key destinations on campus, with implementation planned for Dec 2013. • Rapid Transit: Continued work with key partners on promoting advancement of rapid transit connection along Broadway corridor to UBC.

Commuting & Getting Around Campus	
Priorities	2012/13 Achievements
	<ul style="list-style-type: none"> • U-Pass BC Program: Provided eligible UBC students access to a universal transit pass for services across Metro Vancouver. In 2012, an average of 89 per cent of all eligible students were issued a U-Pass, for a total of 345,769 monthly U-Passes distributed.
<p><i>Walking & Cycling:</i> Enhance pedestrian and cycling access and infrastructure on campus.</p>	<ul style="list-style-type: none"> • Secure Bike Parking: Opened the new Chemistry/ Physics secure bike parking facility in September 2012, bringing the total number of secure bike parking facilities on campus to 10. The new facility adds an additional 58 secure bike parking spaces for a total of 648 across the campus. • Pedestrianization: Continued implementation of campus pedestrianization plan to restrict vehicular access and create a pedestrian priority zone in the academic core. • Bike to Work Week: Supported spring and fall Bike to Work Week. UBC won both Best Workplace (1000+ employees) and Best in Higher Education categories, riding 10,156 kms in total. • Walk and Roll: Launched the UTown@UBC Walk'n Roll to School Program in partnership with the UNA, aimed at encouraging walking and cycling and promoting a safe and walkable community.

Housing & Amenities	
Priorities	2012/13 Achievements
<p><i>Policies & Plans</i></p>	<ul style="list-style-type: none"> • Housing Action Plan: In September 2012 UBC's Housing Action Plan (HAP) for the Vancouver Campus was approved by the UBC Board of Governors. Implementation of the plan has begun and will result in an increase in housing choice and affordability for faculty, staff and students at UBC. Full details on the policies included in the HAP are available online. • Gage Precinct Plan: In spring 2012 the Gage Precinct Plan for the Gage South and Environs Area was approved by the UBC Board of Governors. The Precinct Plan for Gage South includes academic and transit facilities as well as 12 month student housing.
Housing	
<p><i>Student Housing:</i> Expand supply and diversity of student housing, address affordability concerns, and improve community building in housing.</p>	<ul style="list-style-type: none"> • Ponderosa Commons: Phase 1 of UBC's first mixed use student housing commons will be completed in winter 2013. It will provide over 600 new student beds on campus. Ponderosa Commons is the first of 5 planned Commons developments on UBC campus. Central to the design of these mixed-use developments is the inclusion of an outdoor commons where socializing and other activities can take place.
<p><i>Faculty and Staff Housing:</i> Expand rental housing supply and implement policies and programs for affordable rental housing and faculty home ownership on campus.</p>	<ul style="list-style-type: none"> • Housing Policies & Programs: In 2013, several Housing Action Plan implementation action items were initiated that are now complete or near completion. This includes the development of a set of policies for the faculty home ownership program; policies and lease agreements addressing occupancy requirements; revisions to the applicant eligibility period for the Housing Assistance Program; developing a proposal for non-profit rental housing pilot project for Board review and approval; defining method for establishing restricted rental rates; and exploring management interface options for faculty/staff housing options.

Housing & Amenities	
Priorities	2012/13 Achievements
	<ul style="list-style-type: none"> • Rental Housing: In 2012, 106 rental units were under construction on East Campus and 174 staff/faculty/student rental housing units were under construction in Chancellor Place.
<p><i>Amenities:</i> Provide high quality amenities to UBC's residential community that meet the standards of delivery established in UBC's Land Use Plan.</p>	<ul style="list-style-type: none"> • Childcare: UBC is currently working to expand childcare options. Adding to the 573 current childcare spaces available, an additional 16 childcare spaces are currently under construction in the new Student Union Building (SUB) and 25 spaces are under construction in the East Campus Lot 4 (EC4) residential development and will be available in 2014. Another 50 spaces are part of the design program for the Wesbrook Community Center development, scheduled for completion in late 2014. • Parks and Green Space: Completed several parks in 2012 to enhance green space, including Nobel Park in Wesbrook Place neighbourhood and East Campus Park. A new children's play area in Chancellor Place neighbourhood was completed in 2012. The field and community center park south of the new University Hill Secondary School and Wesbrook Community Centre will be completed in 2013. • UBC Skatepark: UBC opened the first campus skatepark in North America in spring 2013, completed in partnership with the University Neighbourhoods Association (UNA). Located near Thunderbird Parkade, the skatepark completes a block of recreation infrastructure, including the Doug Mitchell Thunderbird Sports Centre and UBC Tennis Centre, and serves both the residential and academic community. • Secondary School: The newly relocated and expanded University Hill Secondary School in Wesbrook Place neighbourhood opened its doors in early 2013, providing learning space for up to 1,000 Grade 9-12 students.

Engagement Programs	
Priorities	2012/13 Achievements
<p><i>Policies & Plans</i></p>	<ul style="list-style-type: none"> • Campus Sustainability Engagement Strategy: UBC is developing a strategy that outlines an approach for engaging the Vancouver campus' community members (student, staff, and faculty) to help achieve reductions in energy use, greenhouse gas emissions, water and waste generation. The Strategy defines priority engagement programs to encourage high impact resource conservation behaviours in student residences, offices and labs. It also provides recommendations for fostering a culture of sustainability across campus. The Strategy will be completed in 2013.
Engagement Programs in Residences, Offices & Labs	
<p><i>Students in Residences:</i> Develop and deliver sustainability programming in Student Residences.</p>	<ul style="list-style-type: none"> • Do It In the Dark: Engaged over 3,100 first year students in UBC's Totem Park and Place Vanier residences in the third annual Do It in the Dark energy and water conservation competition.

Engagement Programs	
Priorities	2012/13 Achievements
<p><i>Offices:</i> Expand and enhance the reach and impact of the Sustainability Coordinator Program.</p>	<ul style="list-style-type: none"> • Sustainability Coordinator Program: The Sustainability Coordinator (SC) Program completed its 14th year of programming, engaging a network of over 80 staff with opportunities and resources to promote and implement sustainable practices in their unit and help us advance a culture of sustainability across campus. In 2012, we welcomed 13 new coordinators into the program, awarded 6 sustainability grants through the Xerox Sustainability Fund, and completed an Office Certification Pilot Program. The SC Program is now undergoing the first-ever external review to help guide its future and strategic direction. • SC Program Evaluation: The SC Program is undergoing the first ever external review to help guide the future and strategic direction of the program and to help outline key priorities for program improvement and expansion over the next three years.
<p><i>Labs:</i> Develop and implement a program for lab users that promotes sustainable practices in the research environment.</p>	<ul style="list-style-type: none"> • Shut the Sash: Campus Sustainability partnered with BC Hydro and FortisBC in Shut the Sash, an energy-saving and education campaign focusing on fume hoods in three energy intensive lab buildings. Over the six weeks of the competition, monitors recorded an 82 percent improvement in sash closures. As a result, the labs saved the equivalent amount of electricity consumed by 32 homes. • Green Research Program: Continued to operate comprehensive Green Research Program. Distributed 3 issues of the Green Research newsletter and held 2 Green Research events educating students, staff and faculty about green research practices and hazardous waste reduction.
UBC SEEDS Program	
<p>Expand and enhance the reach and impact of the UBC SEEDS Program.</p>	<ul style="list-style-type: none"> • UBC SEEDS Program: The SEEDS (Social, Ecological, Economic, Development Studies) program engaged over 500 student, staff and faculty participants in the 2012/13 academic year, resulting in over 74 projects and 119 student reports related to campus operational sustainability topics. The outcomes of many of these reports will be implemented or affect the decision-making of staff related to sustainability at UBC. • UBC SEEDS Program Evaluation: The UBC SEEDS Program is undergoing the first-ever external review to help guide the future and strategic direction of the program and to help outline key priorities for program improvement and expansion over the next three years.

Appendix B: ISCN Reporting Requirements

UBC is a signatory to [ISCN-GULF Sustainable Campus Charter](#). We are committed to implementing the Charter's three principles, setting sustainability targets, and reporting regularly to the ISCN on our progress. The following provides a summary of UBC's Management Approach for meeting the ISCN-GULF Charter Principles along with a supporting table that outlines how UBC's sustainability priorities, as reported in the UBC Sustainability Annual Report, correspond to the ISCN Principles. Refer to the Summary Report section for UBC's 2012-13 achievements and performance.

Principle 1 – Sustainability Performance of Buildings on Campus

Principle 1: To demonstrate respect for nature and society, sustainability considerations should be an integral part of planning, construction, renovation, and operation of buildings on campus.

Building Design & Commissioning

Campus + Community Planning (C+CP) provides regulatory administration for the design and construction of the building on UBC's campus lands. The design of new buildings and major renovations of University-owned institutional buildings is led by Infrastructure Development. Campus Sustainability (CS), Building Operations and Student Housing & Hospitality Services (SHHS) also play key roles. Our green building policies and guidelines for University-owned institutional buildings are included as part of UBC's [Technical Guidelines](#) and [UBC Vancouver Campus Plan Design Guidelines](#). UBC also has a [Residential Environmental Assessment Program \(REAP\)](#) which are guidelines for residential developments at UBC. The green building policies and guidelines are revised on an as needed basis to ensure continual improvement in green building design and construction.

Building Systems Performance

UBC institutional buildings are maintained and operated by Building Operations and student residences are managed by SHHS. Both units are committed to optimizing the performance of building systems on campus. This includes implementing operations and controls strategies, mechanical and water system upgrades and repairs along with preventative maintenance. CS provides advisory support to these units by assisting with the planning and piloting of new initiatives.

Green IT

UBC IT is implementing initiatives that reduce energy demand associated with the operation of IT infrastructure and equipment, identifying ways to promote purchasing of environmentally preferable products as well as reduce paper consumption and e-waste. CS provides advisory support to UBC IT by assisting with the planning of new sustainability initiatives and leading efforts to promote sustainable purchasing of computers and power management.

Materials & Waste

The purchasing of materials and products on campus is not centralized. Payment & Procurement Services (PPS) provides expertise and advice when purchasing goods and services to the campus community. PPS with the support of CS are currently identifying ways to increase purchasing of materials and products that are low carbon, energy efficient, non-toxic, reusable, renewable and/or recyclable. UBC's waste collection is managed by Building Operations. CS works closely with Building Operations and SHHS in planning new sustainability initiatives. The mandate and direction for taking action on what UBC purchases and how we manage waste on campus is defined in UBC's draft [Zero Waste Action Plan](#), which will be completed in 2014.

Engagement Programs

UBC delivers award-winning engagement programs to build awareness and enable individuals to exemplify sustainable practices and behaviours on campus. Key programs include: [Sustainability Ambassadors](#), [Sustainability Coordinator Program](#), [Sustainability in Residence](#), [Green Research Program](#) and the [UBC SEEDS Program](#). CS, SHHS, Risk Management Services and PPS play key roles in implementing these programs. UBC is developing a Campus Sustainability Engagement Strategy that will inform how our engagement programs can encourage high-impact resource conservation behaviours which will be completed in 2013.

Principle 2 – Campus Wide Master Planning and Target Setting

Principle 2: To ensure long-term sustainable campus development, campus-wide master planning and target-setting should include environmental and social goals.

Master Planning

C+CP provides the regulatory structure for buildings, infrastructure and spaces on campus lands. UBC's Strategic Plan, [Place and Promise: The UBC Plan](#), together with the [Vancouver Campus Plan](#), [UBC Land Use Plan](#), [Public Realm Plan](#), guide the physical planning of UBC Vancouver and provide the foundation for developing and evaluating proposed physical changes, and help shape the University's form, character, and landscape. UBC's [Development and Building Regulations](#) provide a municipal-like regulatory structure for the development of institutional and non-institutional lands at UBC Vancouver. The [UBC Development Handbook](#) establishes regulations that support the [UBC Vancouver Campus' Neighbourhood Plans](#) by balancing public objectives and development interests.

Energy & Emissions

In 2010, UBC announced our [Climate Action Plan](#), committing the University to aggressive reduction targets for campus-wide greenhouse gas (GHG) emissions – by 33 per cent reduction by 2015, 67 per cent by 2020, and 100 percent reduction by 2050, compared to 2007 levels. Several operating units are responsible for implementing the plan. UBC is investing \$117 million in three major projects that will achieve our target of reducing GHG emissions by 33 per cent by 2015:

- Converting the district heating system from [steam to hot water](#) will reduce emissions by 22 per cent.
- Optimizing academic building performance and improving behaviour change programs through the [Building Tune-Up program](#) will reduce emissions by 10 per cent.
- Generating clean heat and electricity through the [Bioenergy Research and Demonstration Facility](#) will reduce emissions by 9 per cent.

To track progress towards achieving our GHG targets, CS produces an annual [Climate Action Plan Report](#) which includes a detailed GHG inventory. UBC is also developing a [Community Energy and Emissions Plan](#) to identify solutions to reduce emissions from UBC’s residential community.

UBC’s Energy Management Plan is designed to maintain energy savings and identify further electricity and natural gas conservation opportunities and efficiencies. CS and Building Operations update the university’s Energy Management Plan on an annual basis. This plan reviews the current status of energy use and operating costs, sets targets, assess the opportunities, and identifies priority energy conservation initiatives.

Transportation

Transportation Planning works to reduce automobile trips to and from UBC, by promoting more sustainable modes of transportation including transit, carpooling, walking and cycling. The [Strategic Transportation Plan \(STP\)](#) is the guiding document for transportation objectives and initiatives on campus. Moving forward, the updated Transportation Plan (to be complete in 2014) will replace the Strategic Transportation Plan. UBC’s Strategic Transportation Plan in turn informs the development of other transportation related plans, policies and projects.

Principle 3 – Integration of Facilities, Research, and Education

Principle 3: To align the organization’s core mission with sustainable development, facilities, research, and education should be linked to create a “living laboratory” for sustainability.

UBC Sustainability Initiative

UBC has committed, at the corporate level, to the deep integration of our operational and academic efforts in sustainability. The [UBC Sustainability Initiative \(USI\)](#), established in 2010, is the University’s agent in this innovation. USI fosters partnerships and collaborations that extend

beyond traditional boundaries of disciplines, sectors and geographies to address the critical issues of our time. The initiative's work is carried out under two cross-cutting themes: [campus as a living laboratory](#) and the University as an [agent of change](#).

The USI is led by the Associate Provost, Sustainability for the UBC Vancouver campus, and reports directly to a Steering Committee composed of UBC's Vice President Finance, Resources and Operations; Vice President Research and International; Provost and Vice President Academic; Dean, Faculty of Applied Science; Dean, Faculty of Science; and a student representative.

The USI is comprised of four groups:

- A central office that oversees all USI efforts including communications and engagement activities and the work of the Centre for Interactive Research on Sustainability.
- A [Teaching & Learning](#) Office that works to leverage and build capacity to enhance sustainability learning opportunities for all UBC students.
- A Research & Partnerships Office responsible, in part, for the Centre for Interactive Research on Sustainability [research](#) program and [partnerships](#).
- A Communications and Community Engagement Office responsible for catalyzing communications and community engagement activities for UBC in the sustainability arena.

The USI is supported by four advisory groups, representing staff, students, faculty and the external community respectively:

- An Operational Management Group comprised of senior administrators from Campus + Community Planning, Infrastructure Development, Building Operations, Payment & Procurement Services, Student Housing & Hospitality Services, and Risk Management Services who come together to address sustainability.
- A [Student Advisory Council](#), with representatives from the undergraduate and graduate student societies, and several of the key sustainability-oriented student groups.
- The six USI Teaching and Learning Fellows and three Research and Partnership Fellows form an informal advisory group on faculty issues.
- A [Regional Sustainability Council](#), consisting of 21 sustainability champions and representatives from private, public and NGO sector organization in the external community.

Within Campus + Community Planning, [Campus Sustainability](#) works closely with the USI, and coordinates UBC's numerous operational sustainability initiatives. USI and Campus Sustainability are co-located in the CIRS building, which provides a central hub on the Vancouver campus to engage with the campus community and facilitate operational sustainability learning and practice.

UBC Sustainability Priorities and ISCN Charter Alignment

The table below illustrates how UBC’s sustainability priorities, as organized in the UBC Sustainability Annual Report, correspond to the [ISCN Charter Principles](#). Refer to the Summary Report section for the corresponding details on the 2012-13 achievements and performance.

Priorities	ISCN Charter Principles		
	1) Buildings	2) Planning & Targets	3) Integration
Energy & Emissions			
Buildings	♦	♦	♦
Operational Fleet & Travel		♦	♦
Energy Supply	♦	♦	♦
Water			
The priorities for water are currently under development, as part of the Water Conservation Action Plan.	♦	♦	♦
Materials & Waste			
Materials & Product Selection	♦	♦	♦
Waste Reduction & Reuse	♦	♦	♦
Waste Diversion	♦	♦	♦
Commuting & Getting Around Campus			
Driving		♦	
Transit		♦	♦
Walking & Cycling		♦	♦
Housing & Amenities			
Housing	♦	♦	♦
Amenities	♦	♦	
Engagement			
Engagement Programs	♦		
UBC SEEDS Program	♦	♦	♦
Integration			
Campus as a Living Lab	♦	♦	♦
Community Partnerships			♦