Ryerson Sustainability Yearbook

2016 – 2017

Ryerson University

Facilities Management & Development

Academics

Operations

Engagement

About the yearbook

Ryerson University is committed to actively pursuing a more sustainable future for our campus and the world beyond its borders. Sustainability, one of the values defined in Ryerson's Academic Plan 2014–2019, means taking responsibility for a shared future with the broader community, and aiming to pursue environmental, social and economic sustainability through our programs, Scholarly Research and Creative (SRC) activity, policies, built environment and fiscally sound operations.

This yearbook highlights Ryerson's progress on a number of sustainability indicators (academics, operations and engagement) and focuses on environmental factors while recognizing their interconnectedness with social and economic dimensions.

Progress and Initiatives

A message from President Mohamed Lachemi

I am pleased to introduce the 2016–2017 Ryerson Sustainability Yearbook, and proud of the initiatives and teamwork presented in its pages. We share responsibility for the environment – it is a vital priority, not just for the university, but for us all – and that's why it is so impressive to see Ryerson offering an exemplary model.

The numbers alone are remarkable, the result of a strategic approach that is achieving impressive results, increasing benefits, and encouraging healthy and sustainable choices. The breadth of active involvement, across academic programs, research, operations, infrastructure, and community engagement gives me confidence that together, we at Ryerson are building a brighter future.

Sustainability is a roll-up-your-sleeves kind of collaboration at Ryerson, and the investment of talent, time and energy is yielding not only an increasingly abundant harvest of fruits and vegetables from our many gardens. But it is also yielding a growing awareness and a focus on the benefits of working together to enrich our lives in the most meaningful ways, with joy in every step of the journey.

Most of all, it is an ongoing challenge and opportunity. It is wonderful to anticipate the ingenious and measurable actions that will have an impact and make a difference, and for that I applaud the Sustainability Yearbook for inspiring and celebrating the effort.

Special thanks to Facilities Management and Development, Sustainability Matters and everyone who contributed both to the production of this excellent report, and the fantastic results and prospects that lay the groundwork for further progress and success.

Sincerely,

Mohamed Lachemi
President and Vice-Chancellor

Academics

Curriculum

As a society, our understanding of sustainability has started to shift from simply doing less harm, toward developing a better world. Accordingly, there is growing recognition of the huge opportunity academic institutions have to equip students with the skills and knowledge required to solve today's most pressing environmental, social and economic challenges.

Ryerson is empowering students with sustainability literacy relevant to their field of study by offering more than 340 undergraduate courses focused on or related to environmental and/or social sustainability. Offered across all six faculties, our courses, from disability issues to sustainable energy technologies, provide all students with opportunities to learn about sustainability.

340

undergraduate courses focused on or related to environmental and/or social sustainability.

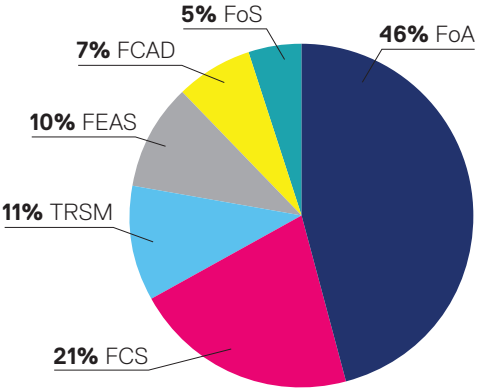
Sustainable undergraduate course offerings

198

focused on sustainability

144

related to sustainability



In Spring 2016, Ryerson University celebrated the first graduating class from the Environment and Urban Sustainability, BA (Honours) program!

Research

Along with curriculum, research is a core part of the university's mission and has the potential to address unmet sustainability-related challenges on and beyond campus. Here are just a few examples of the fantastic sustainability-related research happening at Ryerson:

Replacing car trips with cycling trips

A joint study by Ryerson's Transportation and Land Use Research (TransForm) Laboratory and the Toronto Centre for Active Transportation found that residents in the Greater Toronto and Hamilton Area (GTHA) take more than four million motor vehicle trips daily, which have a high potential to be shifted to bicycle trips.

Impacts of road salt on aquatic life

Two Ryerson professors, Claire Oswald of the Geography and Environmental Studies Department and Lynda McCarthy of the Chemistry and Biology Department, are examining how the seasonal application of chloride salts to roads in Ontario, and their consequent runoff into groundwater and streams, is impacting water quality and the abundance and diversity of aquatic organisms. As expected, the greater the urbanization and road density within a watershed, the higher the chloride concentrations measured in local streams and shallow groundwater.*

The future of renewable energy storage

With clean energy being produced more readily, the possibility of creating grid-scale solutions to produce, store and deliver this energy to consumers could be a not-so-distant reality. Bala Venkatesh, academic director of Ryerson's Centre for Urban Energy (CUE), has harnessed the desire to advance clean energy to create a vital new network supported by a $5 million partnership grant from the Natural Sciences and Engineering Research Council of Canada (NSERC). The NSERC Energy Storage Technology (NEST) Network aims to drive innovation of energy storage for renewables in Canada. The NEST Network will develop, test and ultimately commercialize new technologies such as lithium-ion batteries, flywheels, compressed air energy storage, thermal storage and other hybrid energy storage models.

Recreating sunlight with LEDs

Bryan Koivisto, a professor in the Chemistry and Biology Department, ran into an obstacle while designing next-generation photovoltaic technologies: "How can we test these technologies against degradation caused by the sun's rays?" Next-generation photovoltaics utilize a transparent, thin film with a light-absorbing dye to harness the energy of the sun. Koivisto is currently researching the lifespan of these dyes against sustained exposure to the sun in order to create more stable dyes. Since this research needed constant sunlight, the solution was to create a new solar-simulating light source based on LED technology.*

"The popularity of cycling in downtown Toronto is growing exponentially, but our findings indicate there are critical opportunities to improve both policy and practice to support cycling across the entire GTHA."

– **Raktim Mitra**
Professor, School of Urban and Regional Planning

* These articles originally appeared in *INNOVATION*, Ryerson University's research and innovation newsletter, in Issue 25 and Issue 20, respectively.

Operations

Climate change and energy

Each year, Ryerson measures the greenhouse gas (GHG) emissions produced directly and indirectly from our operations. This serves as a benchmark and helps us identify the best opportunities for further reducing emissions. We measure beyond the provincial requirement to cover scope one, two and three emissions. Ryerson also uses lifecycle-based emissions factors in the calculation so that a holistic understanding of our impact can be obtained.

Did you know?

Direct GHGs

Scope 1 emissions are from sources that are owned or controlled by Ryerson (e.g., emissions from Ryerson owned vehicles).

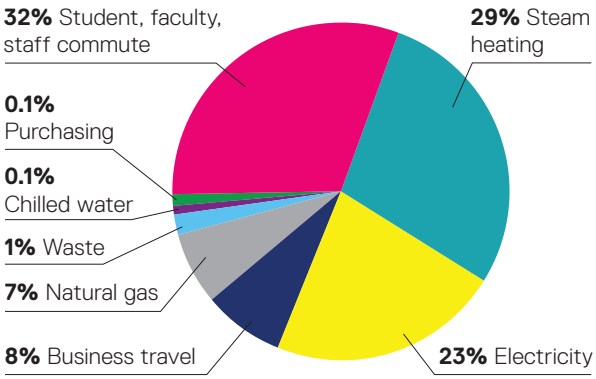
Energy indirect GHGs

Scope 2 emissions are from the consumption of purchased energy generated upstream (e.g., electricity generated off-campus but used by Ryerson).

Other indirect GHGs

Scope 3 emissions are a result of Ryerson operations but are not directly controlled by the university (e.g., emissions produced as Ryerson people commute to and from campus).

Carbon footprint summary



Total

7% Scope 1

41% Scope 2

52% Scope 3

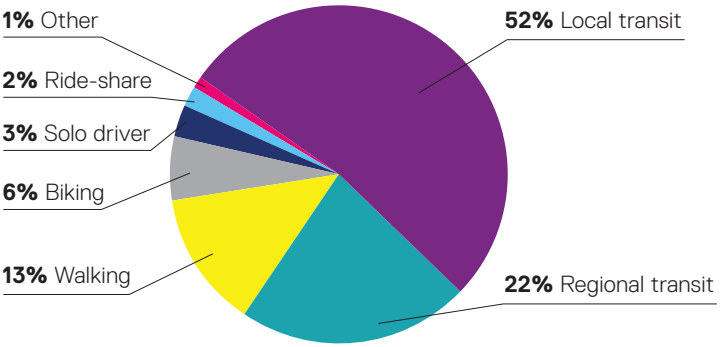
Fun fact:

In 2016, Sustainability Matters installed VendingMisers on all 50 of the cold beverage vending machines at Ryerson – these sensor-equipped devices will automatically shut down a machine when the surrounding area has been vacant for 15 minutes. This reduces the machine's energy consumption by 15%!

Transportation

Since Ryerson is centred in Canada's largest city, there are many sustainable commuting options to and from campus; and our students, faculty and staff are taking advantage of those options! In fact, in 2016, 94% of them chose low- or no-carbon options when commuting to and from Ryerson.

Mode of transportation (% of population)

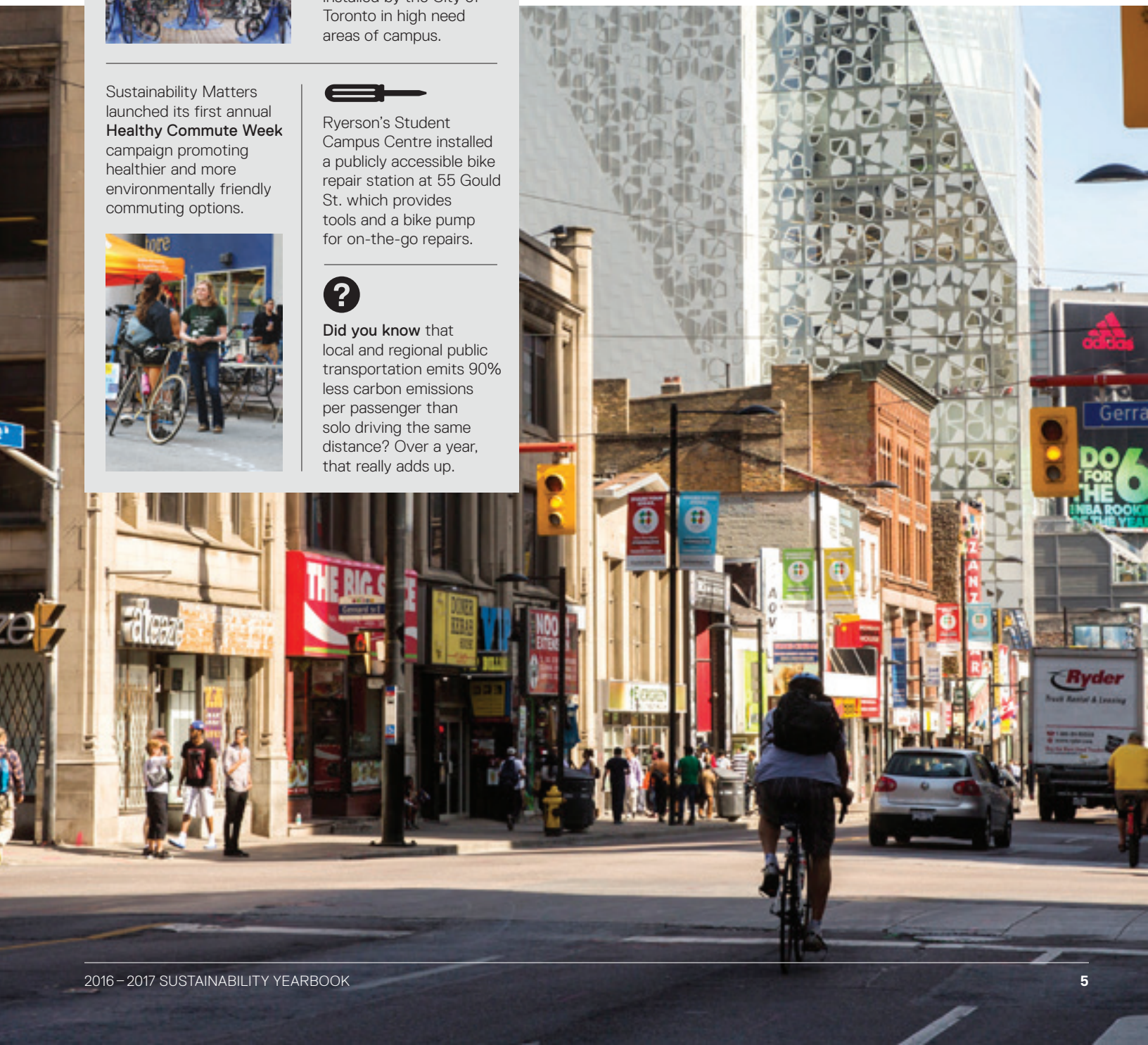


In the fall of 2016, there were more than **60 bike parking spots** installed by the City of Toronto in high need areas of campus.

Sustainability Matters launched its first annual **Healthy Commute Week** campaign promoting healthier and more environmentally friendly commuting options.

Ryerson's Student Campus Centre installed a publicly accessible bike repair station at 55 Gould St. which provides tools and a bike pump for on-the-go repairs.

Did you know that local and regional public transportation emits 90% less carbon emissions per passenger than solo driving the same distance? Over a year, that really adds up.



Waste

At Ryerson, carbon dioxide equivalent emissions from waste make up a small portion of our total carbon footprint, but nevertheless, we feel it's important to improve our collective waste behaviours. In addition to emissions, waste in landfills can cause contamination of soil and water as toxins accumulate and leach into the ground.

In 2015, Ryerson diverted more than

700 tonnes

from landfills, equal to approximately

2250 m^3

of space

Microbe Hub, a social enterprise out of Ryerson's Social Ventures Zone, collects organic waste from the Faculty of Arts and transports it to a lab for vermi-composting. In this process, worms eat the organic material and create castings, a nutrient-rich soil amendment.

Ryerson has numerous recycling programs that help divert materials from the landfill including:

- Batteries
- E-waste
- Scrap metal
- Shredding
- Ink and toner cartridges
- Corrugated cardboard
- Hazardous materials
- Office and common space recycling
- Compact fluorescent tubes
- Pens/markers/ writing instruments
- Textbooks
- Organic materials

Sustainability Matters started a waste monitoring program where trained student volunteers stood beside Service Hub bins and helped educate the community on where to place different waste items.

Fun fact:

Did you know that disposable coffee cups can be recycled through Ryerson's plastic/glass/ metal stream?

Grounds

Ryerson University is located in the heart of downtown Toronto where space is at a premium. Despite this, Ryerson has expanded its green space without taking up any more room on the ground. How so? By looking to the skies.

Ryerson Urban Farm

Ryerson is home to a quarter-acre rooftop farm. The Andrew and Valerie Pringle Environmental Green Roof is located atop the George Vari Engineering and Computing Centre. Originally built in 2004, the roof was converted into a food-producing pesticide-free and ecological rooftop farm. The project was completed in 2013 by Ryerson Urban Farm, a group which grew out of a student-led initiative to grow fresh food on campus.

The results of the 2016 growing season were even better than those of the first two harvests. The farm produced more than **4,500 kilograms of food** (up from 3,650 kilograms in 2015 and 2,350 in 2014) and hosted more than **1,200** visitors, for a total of more than **2,000** since the farm's creation. This engagement is facilitated via tours, workshops and volunteer events targeting Ryerson and the broader Toronto community.

4,500kg 2016 | **3,650kg** 2015 | **2,350kg** 2014

The food produced on the farm is distributed mainly through: a Community Supported Agriculture (CSA) program, Ryerson Food Services, and the Ryerson Farmers' Market.

Ryerson is building a second rooftop farm at the new Daphne Cockwell Health Sciences Complex at 288 Church St. scheduled to open in 2018. This rooftop farm will have additional space for gatherings, helping to facilitate more educational opportunities for Ryerson and Toronto community members.

Buildings

In February 2015, the doors opened to Ryerson's Student Learning Centre (SLC). In line with Ryerson's commitment to sustainability, the innovative SLC building received LEED Gold certification from the Canada Green Building Council. The certification recognizes the superior environmental functions relating to water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, innovation and design.

Among its many sustainabilty features, the SLC has blinds that rise and lower automatically to prevent heat buildup and improve natural lighting, as well as two green roofs.

Fun fact:

Ryerson is committed to receiving, at a minimum, LEED Silver certification for all new construction and major building renovations.

Engaging with both our own community and surrounding Toronto communities can amplify Ryerson's efforts to be a more sustainable institution. Together, we can make a difference!

Engagement

Certification program

To encourage and support students, faculty and staff to take on their own sustainability projects, Sustainability Matters developed the **RU: Sustainable Certification Program.** The idea behind the program is that sustainability cannot live in one department and that the greatest opportunity lies with our community of more than 40,000 students, faculty and staff. The program aims to get the whole campus community involved in driving change.

Some of their accomplishments include: reducing paper use by more than 160,000 sheets annually, developing a report on secure bike room best practices, promoting cycling as a means of commuting and more!

A variety of staff and student groups participated and were certified in 2015/2016 including:

- Faculty of Arts
- Creative Industries Course Union
- Financial Services
- 2015 Orientation Week
- Sustainable SURP
- Ryerson Social, Environmental & Economic Design (RSEED)
- RyeTAGA

Sustainability Matters

Sustainability Matters helped educate people about the importance of pollinators at Ryerson Urban Farm's fall harvest party.

Ryerson Farmers' Market

From May to October, Ryerson University hosts a weekly Farmers' Market in partnership with Appletree Markets, a Toronto-based non-profit organization that aims to build community and promote the fresh food movement by supporting rural farmers, local producers and artisans. The market is held in the heart of campus on our pedestrianized street and features fresh local Ontario products including fruits, vegetables, meat, fish, cheese, honey, maple syrup, prepared foods and more (including produce from Ryerson's rooftop farm). The market is a favorite with Ryerson students, faculty and staff but also the broader Toronto community.

From September to December 2016, the Ryerson Image Centre hosted *The Edge of the Earth – Climate Change in Photography and Video*. This exhibit featured recent and historic work from around the world, shedding light on the issue of climate change through powerful visual media.

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