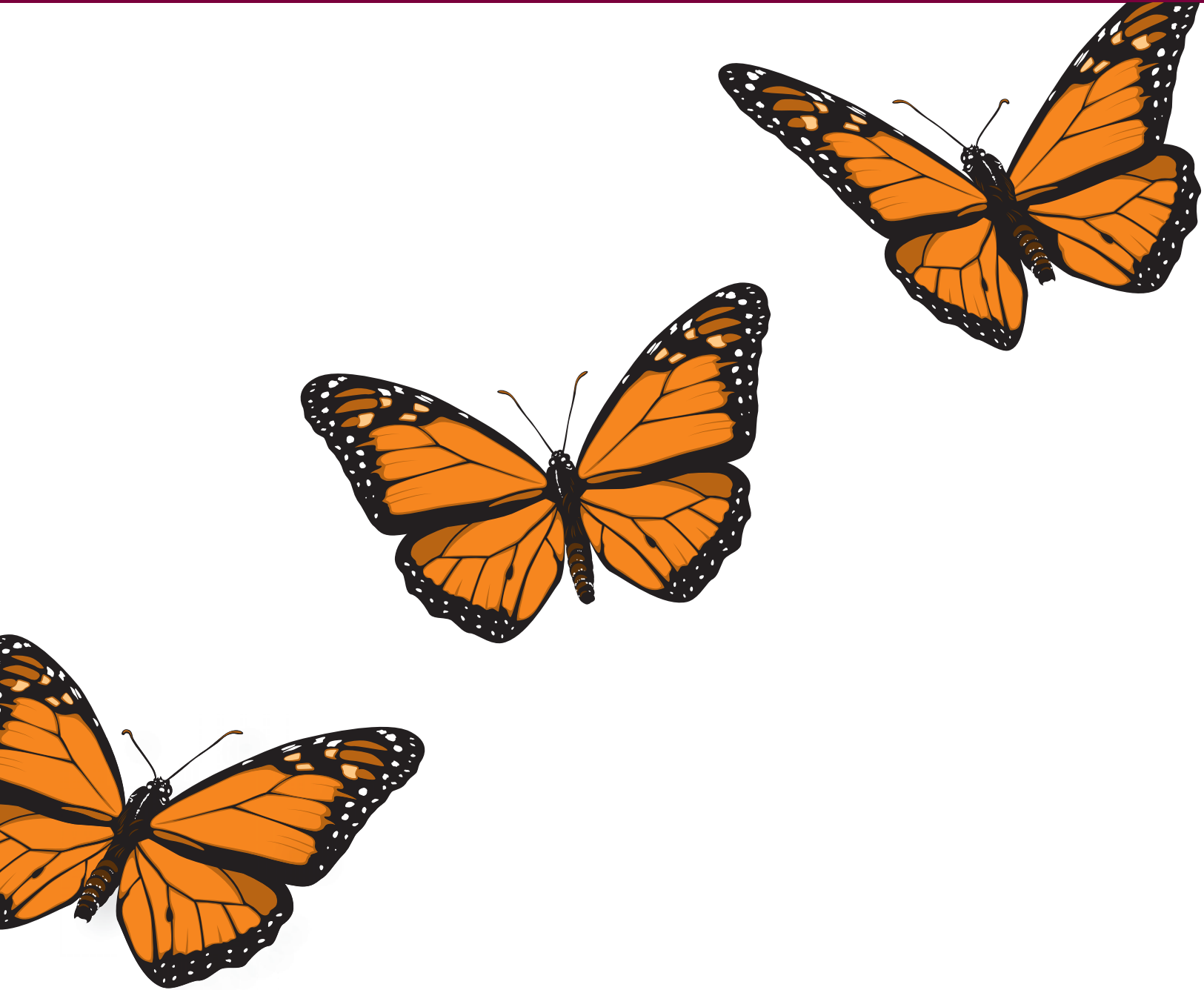


Sustainability Annual Report | 2012





Sustainability Annual Report | 2012

President's Message

McMaster University remains committed to ensuring a sustainable campus and community. Over the course of the year, this commitment has been demonstrated in a variety of different ways through 24 different initiatives and projects.

As you read this annual report on Sustainability, I encourage you to reflect on the active roles played by students, faculty and staff, as well as on the many important activities currently underway on our campus.

The initiatives highlighted in this report are the result of collaboration between many departments, groups and individuals. The success of the partnerships is evident in the range of initiatives completed this year, all of which have included student involvement and 18 of which have been directly led by students.

Our approach involves promoting a culture of sustainability across the campus and into the classroom. This includes the development of a new course: Sustainability 2A03 – The Sustainable Future Project. Here, members from each Faculty worked in collaboration to develop McMaster's first course specifically focused on sustainability, building reciprocal

relationships between students, community members and McMaster University.

Featuring a strong focus on experiential learning, students will take part in research both on campus and within the community and will have the opportunity to apply their classroom knowledge in a practical way. Concepts of sustainability will be experienced and understood at the local level, which will then be applied to the broader international level.

Encouraging a culture of sustainability both at McMaster and within the community has been and will remain an important area of focus for the University. I encourage individual and collective engagement as we continue on our journey towards sustainability.



A handwritten signature in black ink, which appears to read 'Patrick Deane'.

Patrick Deane
President and Vice-Chancellor

Mission Statement:

McMaster University will apply its immense potential and use its creative and innovative campus community to advance sustainable operations and growth. McMaster is helping to shape the minds and values of a new generation of leaders and decision makers by integrating an environmentally, socially and economically sustainable consciousness into all aspects of the university life cycle through innovation, communication, community engagement and implementation.

Guiding Principles:

- Identify and establish sustainable objectives and goals
- Provide a framework for developing sustainable procedures and initiatives
- Communicate awareness to all stakeholders
- Involve, engage and collaborate with all stakeholders
- Develop a university-wide culture of sustainability
- Educate for sustainable community participation
- Respond to concerns raised by stakeholders
- Conduct all initiatives in a transparent and sustainable manner
- Measure and report annually on the indicators to track progress toward improved sustainability

Areas of Focus:

The Office of Sustainability operates with seven areas of focus outlined in this report. The areas of focus are:

- Education
- Energy
- Green Space
- Health & Wellbeing
- Transportation
- Waste
- Water



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CLIMATE CHANGE EDUCATION AND COMMUNITY ENGAGEMENT



■ Overview

Collaboration between McMaster's Centre for Climate Change and the McMaster University Office of Sustainability was formed in January 2012 with the goal of working with Hamilton secondary schools to identify opportunities for joint teaching and learning by focusing on sharing knowledge of climate change and sustainability.

■ Objectives

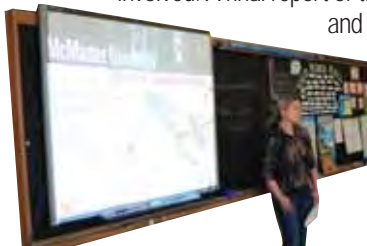
- 1 Engage with the local community
- 2 Educate youth about climate change and postsecondary education
- 3 Provide opportunities for multidisciplinary experiential learning opportunities for undergraduate and graduate students
- 4 Encourage the concept of knowledge interpretation both internally and within the community to increase awareness and understanding of topics of sustainability

■ Reporting

Facilitated by a student intern, Jung Lee, a program was developed which satisfies educational requirements set by the Province of Ontario. Jung identified high school courses which included topics of sustainability and climate change, and he worked with teachers from interested schools to develop a program that would provide mutual benefit to the students, the teachers and to McMaster.

Jung collaborated with two sustainability student interns, Brittany Staboon and Lucy Ambroszkiewicz, who were working on campus sustainability initiatives related to tree preservation from invasive species and permeable paving, respectively. Together they began preparation of a group presentation. With the goal of providing linkages between classroom knowledge of climate change and real-world sustainability initiatives, Jung also contacted Masters students studying climate change for their insight into related research being conducted at the graduate level. Robert Hendricks, Janelle Trant and Michelle Kula volunteered to present along with Jung, Lucy and Brittany to provide information from the graduate perspective.

In total, two presentations were given at two secondary schools in Hamilton. To gauge the program's success, Jung conducted follow-up surveys with the teachers, which confirm that the presentations were highly beneficial to all parties involved. A final report of the entire process has been prepared by Jung and includes areas for next steps if this program is to continue. The full report can be found on McMaster's Office of Sustainability website.



*Brittany Staboon,
Sustainability student intern.*

■ **Collaborators:** Sustainability and climate change student intern, Jung Lee, was the key facilitator of this initiative with the help of Sustainability interns Lucy Ambroszkiewicz, and Brittany Staboon, and Graduate Student volunteers Michelle Kula, Janelle Trant and Robert Hendricks. Collaboration from secondary school educators, Tania Gibson from Parkside High School, and Richard Mossuto from Sir John A. Macdonald, provided an invaluable resource in creating an effective and mutually beneficial program. Jung's academic supervisor, Dr. Altaf Arain, as well as non-academic supervisors, Dave Heidebrecht, Climate Change Outreach Coordinator, and Kate Whalen, Senior Manager University Sustainability, helped guide the experiential learning process.

AMBASSADOR PROGRAM EXPANSION



■ Overview

Embarking on the fourth year of the Sustainability Ambassador Program, the ambassador members have identified the timely opportunity to conduct a re-evaluation of both the purpose and responsibilities of the group. Determining the frequency of meetings, level of support required and option for the group to play a larger role in the implementation of campus sustainability initiatives were items identified to be included in the evaluation.

■ Objectives

- 1 Increase opportunity for student, faculty and staff engagement
- 2 Ensure a value-added component is upheld as the Sustainability Ambassador Program continues to develop

■ Reporting

To facilitate the expansion of the program, Sustainability Ambassador meetings have increased from once every three months to once every two months. The Ambassadors have also expanded their role to take on one of the McMaster Sustainability initiatives. The group chose to work on Waste Free Events, an initiative that can be found on page 25 of this report.

To support the initiative, the Ambassadors helped advise the Office of Sustainability and MACgreen on the creation of a best practise guide for hosting waste free events, which can be found on the Office of Sustainability website. Five hundred dishes have also been secured and donated to MACgreen to help facilitate the development and expansion of a dish lending program to encourage the use of china, rather than disposable alternatives, therefore providing opportunities to host waste free events at a reasonable cost.

The Ambassadors have taken a greater role in the promotion and communication of campus events, such as the McMaster Composting Program and Clean Air Commute. The Ambassadors sent e-mails and posted information about the installation of the central composting bin in the McMaster University Student Centre and encouraged its use. During the Clean Air Commute event challenge week, they encouraged people in their area to register. One Ambassador in particular, Andrew Pettit, encouraged 126 individuals, out of McMaster's total of 625 participants, to take part in the challenge. As a result, Andrew won the Clean Air Commute Spirit Award, which is a prize awarded by Smart Commute to one employee from all 123 participating workplaces. All of the Ambassadors played a major role in McMaster winning this event challenge.

■ **Collaborators:** Sustainability Ambassadors from across campus: John Popham, Lori Moulden, Kelly Smith, Maggie Woo, Judy Major-Girardin, Andrew Pettit, Stacey Gabitous, Angelo DiLettera, Amy Bartholomew, Lucy Djelalian, Carlos Figueira, Maureen Padden, Nathaniel Knopp, Leigh Laidlaw, Karin Middleton, Jeff Chuchman, Courtney Livesey, Michelle Poirier, Krista Madsen, Melanie Garaffa, Dale Askey, Scott MacDonald, Sam Minniti, Mark Stewart, Nicole Knibb, David Campbell, Milica Pavlica, Lou Cafazzo, Krista Paolini and Eva Bodrozc.

EMPLOYEE SUSTAINABILITY EDUCATION



■ Overview

Providing information on sustainability to faculty and staff members of the University, especially as the topic relates to initiatives already implemented and underway, as well as providing information about how to get involved is important to effectively develop a campus-wide culture of sustainability.

■ Objectives

- 1 Increase awareness of sustainability to McMaster faculty and staff
- 2 Provide opportunity to increase faculty and staff engagement in sustainability initiatives

■ Reporting

Through working with various academic and administrative departments on campus, information about sustainability has been disseminated in a variety of forms to help communicate advancements towards sustainability at McMaster and within the community. The McMaster Institute for Environment and Health (MIEH) and a visiting faculty member from Ohio University, Michele Morrone, working under a Fulbright Scholarship, worked collaboratively to host an environmental literacy workshop. The free, one-day workshop took place on campus and was open to faculty members from all disciplines. Themes of social, economic and environmental sustainability were included with a focus on strategies for incorporating environmental themes into existing academic courses.

Participation in Graduate Student Day, hosted jointly through the McMaster Centre for Leadership in Learning and the School of Graduate Studies, provided opportunity to present and meet new graduate students, many of whom are also Teaching Assistants.



Including information in the McMaster New Hire Package has been made possible through working with Human Resources Services. Starting in the fall of 2012, all new hires will receive information about campus sustainability including information on the McMaster waste and recycling program, sustainable transportation options and related contact information.

■ **Collaborators:** Facilitation of the environmental literacy workshop was a joint initiative between The McMaster Institute for Environment and Health (MIEH) and Michele Morrone, Associate Professor and Director of Environmental Studies, Ohio University. Graduate Day was supported by the Centre for Leadership in Learning and School of Graduate Studies. Human Resources Services assisted in identifying information that would support sustainability education to new McMaster employees.

UTILITIES DASHBOARD



■ Overview

McMaster continues to expand the breadth and depth of reporting on its use of resources. This presents the opportunity to develop an electronic tool that will assist in both the active management of usage and ability to communicate this information to all members of the campus community.

■ Objectives

- 1 Measure and report resource usage in real-time
- 2 Actively manage resources used
- 3 Provide information to employees and students

■ Reporting

Supported by the department of Facility Services, McMaster student, Roy Xing, created a customized electronic reporting tool to track and manage McMaster's consumption of energy, transportation fuel and waste. Utilizing an electronic energy metering and software management system developed for McMaster by Schneider Electric, Roy developed additional components that enable McMaster to upload monthly waste reports and fuel logs for easy tracking and management. Carbon factors were integrated into each component template, which corresponded to the specific item's impact on generation of CO₂e.*

In addition, Roy developed a user-friendly dashboard display, which enables the presentation of custom reports in an easy-to-understand format using charts and graphs. Communicating this information to building occupants through displays on electronic information screens located in many buildings across campus provides opportunities to lower energy consumption through education, as well as opportunities for events such as energy reduction challenges in buildings. The leading benefit of this system is that it supports active management of McMaster's consumption of energy, waste and transportation fuel, which is required for ensuring progress milestones to achieve annual reduction targets.

*CO₂e is a unit of measurement used to account for other greenhouse gases—such as methane and nitrous oxides—that contribute to climate change. It converts those gases to “equivalent carbon dioxide,” and is often used to offer a single metric that can be used for all greenhouse gases.
Reference: <http://www.350.org/en/understanding-350#14>

■ **Collaborators:** Roy Xing worked with the Department of Facility Services to lead this initiative: Mohamed Attalla, AVP; Al Paskevicius, Manager; Joe Emberson, Chief Operating Engineer. Support was also provided by Schneider Electric and the Office of Sustainability.

CLIMATE ACTION PLAN



■ Overview

In 2009, McMaster prepared its first Climate Action Plan (CAP), which included goals for reduction around energy, waste and transportation. The first year targeted for reductions was 2011. An evaluation of the status of each metric will take place to determine if McMaster has met its defined goals. Following the amendment to the CAP, the committee will reconvene to review the initial goals, adjust if needed and assist in defining new initiatives that could be implemented to achieve future goals.

■ Objectives

- 1 Report on the McMaster CAP
- 2 Generate a list of potential initiatives to achieve reductions
- 3 Set new targets for carbon reductions

■ Reporting

In reviewing McMaster's energy, waste and transportation fuel usage since 2010 compared to CAP targets for reduction, the following results have been obtained:

Energy: A goal was set to reduce at least 3% campus-wide electricity use on a per capita basis. Final data showed that the goal had been achieved through a decrease of 3.49%. Some of the initiatives that helped McMaster achieve this goal were the improvement of campus fume hoods, central plant upgrades and installation of occupancy sensors.

Waste: The CAP committee established a goal to reduce total waste generated on campus by 10%. Based on Ministry-approved waste audits, a reduction of 45% was achieved. This reduction was accomplished through initiatives such as Electronics collection events, expansion of the McMaster composting program, increased infrastructure and educational programs targeted at waste reduction and diversion.

Transportation: A goal was set to achieve a 10% reduction in fuel usage, mainly through use of alternative fuels. While the proposed alternative fuel model was not implemented as planned, McMaster maintained a low level of fuel usage, despite a per capita growth of 7% of campus population. The maintained use of fuel, despite population increase, was a result of replacing inefficient vehicles with more fuel efficient models and ensuring the correct size of vehicle was used for each purpose. In addition, a number of initiatives to support sustainable commuter travel have been implemented including installation of 20 new bike racks, introduction of the Flex Pass, a flexible parking permit that is intended to promote sustainable modes of travel more often, and events such as Bike to Work and/or School Day.

■ **Collaborators:** Many stakeholders from across campus collaborated on this initiative, including Security and Parking Services, Facility Services, student interns working on related projects, as well as all members of the campus community who took part by recycling, choosing more sustainable options such as packing a lunch, riding their bike and turning off their computers at the end of each day.

SUSTAINABLE PRINTING INITIATIVE



■ Overview

To reduce the need for individual desktop printers for students, faculty and staff, McMaster has introduced a fleet of multifunctional print devices. Encouraging the use and adoption of these devices is important to achieve the anticipated energy reductions possible through this initiative.

■ Objectives

- 1 Encourage use of fleet printers through community consultation, education and communication
- 2 Provide programs that support recycling of desktop printers

■ Reporting

This initiative was developed and implemented by fourth-year student and Sustainability intern, Melissa Gallina. By way of an online survey, Melissa asked students about their views on the current printing program at McMaster, as well as their perspectives on what could be done by the University to improve the process while encouraging sustainable printing. In follow-up to the online survey, the next stage of the project was to conduct a student focus group to obtain more detailed response and generate discussion that would further assist in creating a list of recommendations for improvement.

Findings showed that improvements with respect to communication and access to information should be made top priority. As a result, information was centralized and updated on both the PrintSmart and McMaster University Library website. A list of printing “How To’s”, outlining various printing tasks such as how to print multiple pages per sheet, were created for both PC and Mac operating systems and posted online. Communication pieces were developed, such as library computer monitor backgrounds, which outline information about printing on campus. In addition, scrap paper bins were placed by central printers to be used in the creation of the MACgreen Used but Not Bruised notebook program. Next steps include providing this information on an accessible touch-screen computer in the lobby of Mills Memorial Library.



Melissa Gallina, Sustainability student intern.

■ **Collaborators:** Melissa Gallina was the key facilitator of this project with support from academic supervisor, Dr. Ulrich Riller, Professor; and non-academic supervisor, Kate Whalen, Senior Manager, University Sustainability. Key collaborators include Anne Pottier, Associate University Librarian; Library Services from McMaster University Libraries; Geoff Woods, owner of Vendacopy Services Ltd.; and Bill Wares, Project Manager, Sharp Electronics of Canada; Media Production Services team; the MSU’s MACgreen and the School of Geography and Earth Sciences.

PERMEABLE PAVING EXPANSION



■ Overview

McMaster will be installing 20 new bike racks in the spring of 2012, which will each require an appropriate surface on which to place and bolt the racks. Rather than use an impermeable surface, such as asphalt or concrete, permeable paving will be piloted to determine its effectiveness as a base for campus bike racks.

■ Objectives

- 1 Preserve campus green space
- 2 Support the use of permeable surfaces where appropriate
- 3 Educate regarding the impact of green space as it relates to social, environmental and economical sustainability

■ Reporting

In the winter of 2012, a survey of all campus bike rack locations was conducted by Sustainability student intern, Lucy Ambrosziewicz. The number of bike racks, current type of surface of installation and location were noted. This information, along with a photograph of each location, was used to create an updated inventory of bike racks. With the goal of generating interest in cycling through awareness of current locations, an online, interactive Google Map was developed from the inventory.

Based on feedback obtained through community consultation, which included an online poll for the placement of campus bike racks as well as in-person interviews, plans for the addition of 20 new bike racks were completed and approved for installation in spring 2012.



Working in collaboration with Security and Parking Services and Facility Services, three locations destined for new racks were designated as appropriate locations for the implementation of permeable paving. One section of permeable paving will be in-filled with gravel while the other has a low-maintenance vegetative

ground cover. In addition, a third location will use reclaimed paving stones, rather than concrete, which will be installed in spring 2013. A report outlining the social, environmental and economic costs and benefits has been prepared and can be found on the Office of Sustainability website.

■ **Collaborators:** Lucy Ambroszkiewicz facilitated the planning and implementation of this initiative with guidance and support from her academic and non-academic supervisors, Dr. Maung Min-oo, Professor, Mathematics and Statistics, and Kate Whalen, Senior Manager, University Sustainability. Special mention goes to Carlos Figueira, Director, Facility Services, and Terry Sullivan, Director, Security and Parking Services for supporting this initiative throughout by providing the funding necessary to implement this project as well as expert knowledge to guide the implementation of this initiative. Additional support was provided by Omar Saif from the Office of Sustainability.

ASH TREE PRESERVATION AND LANDSCAPE MANAGEMENT



■ Overview

The Emerald Ash Borer (EAB) is an invasive beetle that has inhabited much of Southern Ontario, including the Royal Botanical Gardens that surround McMaster. The University campus also has a large number of Ash trees, which are at risk for future infestation of the EAB. Therefore, this initiative aims to maintain McMaster's Ash trees by preventing the spread of EAB.

■ Objectives

- 1 Preserve trees where possible
- 2 Maintain existing green space
- 3 Mitigate risk associated with dying trees

■ Reporting

Ash tree maintenance and protection was the main focus of this project. Through the Canadian Food Inspection Agency (CFIA), Brittany Staboon, Sustainability student intern, was trained on Ash tree identification as well as detection of EAB infestation. With these practical skills, Brittany created an inventory of all Ash trees located on the McMaster central campus, which includes each tree's relative age, EAB infestation status and Global Positioning System (GPS) coordinates. Based on the collected data, Brittany developed an Ash tree maintenance plan for Facility Services, along with associated costs of proposed actions for infestation management. As a result, over 20 trees on campus have been treated for EAB. In addition, Brittany worked with the McMaster Centre for Climate Change to develop a presentation that linked her research with the Province of Ontario Grade 11 curriculum requirements relating to climate change (see p. 4).



McMaster University, Main Campus.

The goal was to stress the importance of trees and their role in mitigating climate change by sequestering CO₂. At a more integrated level, this project tied research and education with the theme of sustainability within agriculture.

■ **Collaborators:** Special thanks go to the following individuals and groups who supported Brittany in her research and helped bring this initiative to life: Dr. Jim Quinn, Professor of Biology, Brittany's academic supervisor; Kate Whalen, Senior Manager of University Sustainability acted as Brittany's non-academic supervisor; Dave Heidebrecht, Outreach Coordinator, McMaster Centre for Climate Change; Wayne Terryberry, McMaster Outdoor Recreation Coordinator and Chair of the McMaster Cootes to Escarpment Committee; Carlos Figueira, Director of Facility Services; as well as many other members of McMaster's Grounds Department; Allison Barr, Canadian Food Inspection Agency; and Omar Saif, McMaster Office of Sustainability Assistant.

McMASTER STUDENT UNION GREEN ROOF INITIATIVE



■ Overview

Urban green space provides health and wellbeing benefits to community members while also maximizing usable space within an urban landscape. The McMaster Students Union (MSU) Green Roof Initiative aims to create a green space on the third floor balcony of the McMaster University Student Centre (MUSC). Community consultation was conducted in order to determine what McMaster students, faculty and staff would like to see incorporated into the green roof space. Results from the consultation will be used in the planning of the space, ensuring the final design incorporates components that align with the vision put forth by members of the McMaster community.

■ Objectives

- 1 Educate students, faculty and staff on best practices related to urban green space
- 2 Engage the McMaster community through an online survey to provide feedback on their vision for the MSU Green Roof Initiative
- 3 Provide a Report of Recommendations to the MSU based on community feedback

■ Reporting

During the 2012 MSU Presidential Election, Siobhan Stewart, MSU President, incorporated the Green Roof Initiative as one of her platform points and received tremendous support from voters. To further develop this initiative, Melanie Fox-Chen, Sustainability student intern, has worked with Siobhan to conduct community consultation on the project. Melanie researched best practices of urban green space initiatives within Canada. Her research was used to develop a report on the *Five Best Practices on Urban Green Space*, as well as providing the basis for the creation of a survey to obtain feedback from the McMaster community about green roof features. The survey consisted of eight questions relating to five key areas; use of space, food production, plants, seating and community involvement. The survey was posted on July 11, 2012 and preliminary results were gathered on July 27, 2012 to provide sufficient opportunity for community feedback, the survey was continued until September 21st, 2012. Key findings from the survey show that 66.9 % of participants would use the green roof for relaxing and would appreciate a calm, soothing environment. Of the respondents, 62.0 % would like plants native to Southern Ontario to be incorporated into the green roof and 77.8 % of participants would like edible plants to be grown on the roof. Data indicates that shade and multiple person seating options are important and also shows that many survey participants would be interested in volunteering for the MSU Green Roof Initiative. When asked for their preference related to smoking in the space, 91.9% of participants would like this area to be non-smoking. Feedback from the survey has been integrated into the *MSU Green Roof Initiative: a report of recommendations*. All related documents can be found on the Office of Sustainability website.

■ **Collaborators:** MSU President, Siobhan Stewart is the principal facilitator of the Green Roof Initiative and provided support to Melanie Fox-Chen to design and implement the consultation process. In addition, a number of staff from MUSC Administration, the MSU and McMaster University Facility Services provided valuable assistance throughout the process. Academic supervisor, Maureen Padden, Associate Professor from the School of Geography and Earth Sciences provided Melanie with support throughout the course. Non-academic supervisor from the McMaster Office of Sustainability, Katie Ferguson, Experiential Education & Research Development Manager mentored Melanie throughout her learning process to achieve her objectives.

McMASTER TEACHING & COMMUNITY GARDEN (PHASE I)



■ Overview

Incorporating a food-producing garden on the McMaster main campus provides the opportunity to offer a venue for teaching, learning, community engagement and local production of food.

■ Objectives

- 1 Provide an opportunity for teaching and learning
- 2 Offer a venue to support community engagement
- 3 Facilitate the production of local food

■ Reporting

In the winter of 2012, Emily Taylor and Julianne Bagg, two students enrolled in the McMaster Integrated Science (iSci) Program, undertook the planning and facilitation of the McMaster Teaching & Community Garden (MTCG).

Julianne worked with a number of campus stakeholders to create a detailed budget and anticipated costs to establish and operate the garden. In addition, she wrote and applied for a total of six grants to fund the initial and ongoing costs of implementing the garden. To date, a total of \$16,500 has been awarded to the MTCG as a result of these efforts.

Emily engaged with a number of groups, departments and individuals to establish strong connections to ensure long-term success of the garden. An important aspect of this project is the engagement of the McMaster community and local communities within the city of Hamilton. The integration of the MTCG into the structure and operations of the McMaster Students Union (MSU) has been an important component of this initiative, and this integration will continue to be investigated throughout fall 2012. In addition, relationships with MSU groups, such as Mac Farmstand and Mac Bread Bin, have been established to have further on-campus connections and involvements with the garden. Hospitality Services, particularly Bridges Café, has been involved in the planning process through providing ideas for plant choices and advice. The garden has also been designed to provide a resource for academic learning through collaboration with the iSci Program and other departments within the University.

See p. 14 for more information on the garden's implementation.

■ **Collaborators:** Emily and Julianne collaborated on the planning and facilitation of writing and coordinating all grant applications as well as establishing the implementation plan for the short-term as well as long-term integration into the University structure. Emily and Julianne were assisted by academic supervisor Dr. Chad Harvey, Teaching Professor, Honours Integrated Science (iSci) Program, and non-academic supervisor, Kate Whalen, Senior Manager, University Sustainability. Support from Carlos Figueira, Director, Facility Services; Katie Ferguson, Outgoing VP Administration, MSU; David Campbell, Incoming VP Administration, MSU; and Leigh Laidlaw, Head Chef, Bridges Café, has also been received throughout this project.

McMASTER TEACHING & COMMUNITY GARDEN (PHASE II)



■ Overview

See McMaster Teaching & Community Garden (Phase I) on page 13 for Overview, Objectives and more information on the initial phase of this initiative.



■ Reporting

Throughout the spring and summer of 2012, Sustainability student intern Mike Lee took on the role of finalizing plans and facilitating the physical implementation of the McMaster Teaching & Community Garden (MTCG), which is an extension of the work done previously by Integrated Science (iSci) students, Emily Taylor and Julianne Bagg.

Mike began meeting with the project team, involved in Phase I, in spring 2012 to transition into the role of facilitating the physical implementation of the proposed garden plan and utilizing the obtained funding. The design was finalized with help from Facility Services, and collaboration with various groups and individuals internal and external to the University, resulting in completion of the garden in mid-June. Substantial support in the design, installation, ongoing maintenance as well as offering guidance and direction throughout was provided by the Facility Services Grounds team. The first formal event took place on July 10th with volunteers consisting of students, faculty and staff coming together to help plant the garden.

During the summer and fall, produce from the garden has been sold at Mac Farmstand, donated to Mac Bread Bin and made available for public picking. As of October 1st, over 20kg of produce has been sold or donated, and more than 20 students, faculty and staff have been directly engaged in volunteering with the garden.

The MTCG webpage, which can be found on the Office of Sustainability website, has been created to provide information about the garden. It is equipped with an online booking system and calendar to help facilitate easy scheduling of the garden space for academic course involvement, public participation, campus tours, workshops and events.

An official launch event, the Garden Festival, took place on September 20th, 2012. This event included a speech from Dr. Patrick Deane, President and Vice-Chancellor of McMaster University, as well as live music from a local band, displays from local artists and food from local sources, including recipes using produce from the garden. The reception and excitement for the garden, from the McMaster community, was overwhelming.

■ **Collaborators:** Mike Lee was the key lead on the implementation of the MTCG with support from the following: academic supervisor Dr. Maureen Padden, Associate Professor, School of Geography & Earth Sciences; placement supervisors Kate Whalen, Senior Manager, University Sustainability and Katie Ferguson, Manager, Experiential Education and Research Development; Zeinab Rahal, Sustainability Assistant; Facility Services Grounds Department including Carlos Figueira, Director, and Luke Vlatkovic, Gardener, Grounds Department; Dr. Chad Harvey, Assistant Professor, Honours Integrated Science (iSci) Program and Dept. of Biology; Julianne Bagg and Emily Taylor, iSci student interns; Alvand Mohtashami, Mac Farmstand Director, MSU; Gillian England-Mason, Mac Bread Bin Director, MSU. Additional support from: David Campbell, VP Administration, MSU, as well as the countless number of community members who helped weed the garden, provide input and feedback and purchased food from Mac Farmstand. Funding support for the garden was obtained through grants from Scotts Canada, the McMaster Student Life Enhancement Fund, Academic Science Fund, and Private Donation.

OPEN STREETS HAMILTON: McMASTER EDITION



■ Overview

As part of McMaster's 125th birthday celebration, a number of events are being planned over the course of the 2012 calendar year. One of these events includes McMaster University, in partnership with Open Streets Hamilton, inviting the community to McMaster and Westdale to explore, learn and play. This event was the first expansion of Open Streets Hamilton beyond James St North. Open Streets Hamilton is a community-based partnership dedicated to promoting active, healthy, and inclusive lifestyles by temporarily transforming streets into a shared space for everyone to experience. The inaugural McMaster Edition celebrates McMaster's 125 year history and the 82 years that Hamilton has been its home (McMaster University, 2012).

■ Objectives

- 1 Provide a venue for community collaboration
- 2 Encourage sustainable living
- 3 Celebrate the 125th birthday of McMaster University

■ Reporting

The Open Streets event truly highlights healthy, active living. There are many examples included in the McMaster Edition event programming such as kayaking in the campus pool, hosted by Athletics and Recreation. Other examples include nordic walking and zumba classes, which took place in the street.

Karin Gordon, Sustainability student intern, represented the Office of Sustainability on the McMaster Open Streets Planning Committee. Karin's main role was to attend committee meetings to provide a perspective on sustainability. She helped promote and encourage individuals, groups and organizations, both internal and external to the University, to register and take part in the event.

Sustainable event plans included: incorporating water bottle refilling stations throughout the event, which Hospitality Services offered to provide free of charge; water bottle give-aways, courtesy of BFI; as well as the placement of frequent waste, recycling and compost stations throughout the event. The event is host to a number of vendors promoting sustainable initiatives, including MACycle, MACgreen & Mac Farmstand, Niagara E-Waste, CASA Relief International, Ontario Public Interest Research Group (OPIRG), Royal Botanical Gardens, and RecycleMe@Mac. Hamilton's 350.org led bike trips between the McMaster and James St. N. locations of the event to promote use of the waterfront trail as a means for sustainable transportation.

■ **Collaborators:** This event was lead by Committee Chairs, Mary Koziol, Assistant to the President, Special Community Initiatives, Beth MacKay, Event Coordinator, Office of the President and Anne-Marie Middel, Associate Director of Alumni Advancement. Committee members include: Al Legault, MSU Campus Events; Debbie Marinoff-Shupe, Athletics & Recreation; Adam Kuhn, Student Success Centre; Cathy O'Donnell, Security Services; Kathryn Wrong; Open Streets Hamilton (Coordinator); Matthew Sweet, Open Streets Hamilton (Treasurer); Rose Lukosius, Community Member (Ainslie-Wood North); Erika Richter, MSU Student Community Support Network; Ira Rosen, Ainslie-Wood Westdale Community Association; Chris Hurley, EOHSS; Tim Potocic - Community Member (Westdale South), Supercrawl Director; Karin Gordon, Office of Sustainability, Intern; Pamela Penny, Community Member (Dundas); Marie-Louise Kellton, Westdale Village BIA representative; Mohammed Attalla - Facility Services

■ **Support** for Karin Gordon's internship portion was also provided by: Carlos Figuerla, Director, Facility Services; Mark Johnson, Sales Manager, BFI Canada Inc; Albert Ng, Director and Larry Marsh, Catering Manager, Hospitality Services; Karin's academic supervisor, Dr. Brain Baetz, Director of Engineering and Society and non-academic supervisor Katie Ferguson, Manager, Experiential Education and Research Development.

CARPOOL WEEK 2012



■ Overview

Carpooling is one of the many transportation options that McMaster promotes to encourage sustainable modes of travel as well as flexibility to students, faculty and staff to get to and from campus. Each year, Smart Commute, a division of Metrolinx, hosts a carpooling promotion event to encourage employees and students at their member locations to try this commuting option. Prize incentives and event promotions are used to encourage students and staff to use the Smart Commute online ride-matching service, CarpoolZone, to find a match. Further incentives are provided that support those who find that carpooling is right for them to make a commitment to carpool on a regular basis.

■ Objectives

- 1 Promote carpooling as a sustainable transportation option
- 2 Increase the number of McMaster CarpoolZone users
- 3 Increase the number of carpoolers on campus

■ Reporting

Sustainability student intern, Sabah Ahmed, worked with Smart Commute, Security and Parking Services and the Office of Sustainability to plan and facilitate Carpool Week for McMaster. To guide program planning for this event and to define a measure of success, target goals were set for both numbers of CarpoolZone users as well as number of registered active carpoolers. Carpool Week 2012 was held during the week of February 6th to 10th. Additional events leading up to Carpool Week, as well as a closing celebration, helped contribute to the overall success of this event. Students, faculty and staff were further encouraged to take part through prize incentives provided with generous support from both Security and Parking Services and Smart Commute.

Prize incentives provided by Security and Parking Services included:

- Free parking on main campus for those who carpoled during February 6th-10th
- Entry into a draw for one of two chances to win an Apple iPad 3
- Invitation to a Carpooler Appreciation Day Lunch for all registered carpoolers



Prize Incentives provided by Smart Commute included:

- Tim Hortons gift cards for the first 50 registrants
- Entry into a draw for half-price parking for one year
- Entry into a draw for a Kobo E-reader
- Entry into a draw for a \$50 Chapters gift card

McMaster was successful in reaching both target goals by increasing its number of CarpoolZone users from 209 to 336 and the number of active carpoolers from 17 to 34. Targets were exceeded by 50% and 88% respectively.

Sabah Ahmed, Sustainability student intern, and carpool partner Yousaf Malik.

■ **Collaborators:** Sabah Ahmed was the main facilitator of this initiative. Academic Supervisor, Maureen Padden, Assistant Professor, School of Geography and Earth Sciences, and non-academic supervisor, Kate Whalen, Senior Manager, University Sustainability, helped guide Sabah in her experiential learning project. Tremendous support was provided by McMaster Security and Parking Services along with Smart Commute and MSU's MACgreen.

FLEX PASS

Flex Pass



■ Overview

Implemented by Security and Parking Services in 2010, the Flex Pass was initially developed for students, faculty and staff from the Ron Joyce Centre (RJC) in Burlington to park on the McMaster main campus when required. The Flex Pass is a ten-ticket, re-loadable parking pass that can be used in most lots on campus. For the fair-weather cyclist, the walker who occasionally runs errands on their way home, or for anyone who drives to campus less than ten times per month, the Flex Pass provides a more affordable and sustainable option to purchasing a monthly permit. Therefore, to create an economic incentive and promote the use of more sustainable modes of travel when possible, the Flex Pass could be expanded to all students, faculty and staff of McMaster. A survey to obtain community feedback will support program enhancement by providing a better understanding of the overall impact on the modal choices of commuters at McMaster.

■ Objectives

- 1 Encourage the use of alternatives to single-occupancy vehicles
- 2 Provide an economic incentive to take a sustainable mode of travel, rather than purchasing a monthly parking permit for a single-occupancy vehicle

■ Reporting

Karin Gordon, Sustainability student intern, recently worked in collaboration with McMaster Security and Parking Services to expand the original RJC Flex Pass to all students, faculty and staff of McMaster. Karin developed a promotional campaign including communications, posters and event displays to advertise this new initiative. To obtain feedback and support program enhancement, Karin developed a survey available to all members of the McMaster community to gather information on current transportation choices and views towards the McMaster Flex Pass program. The survey was approved by the McMaster Research and Ethics Board (MREB) in October 2012 and was released to the McMaster community. The survey has been broadly communicated through various avenues and is planned to be presented at number of upcoming events, including the McMaster Campus Sustainability Day celebration and the Association for Commuter Transportation (ACT) 2012 Sustainable Mobility Summit.



■ **Collaborators:** Karin Gordon led the expansion of the Flex Pass program in collaboration with McMaster Security and Parking Services - Terry Sullivan, Director; Sandra Singh, Supervisor and Anum Afzal, Administrative Supervisor; as well as the entire Security and Parking Services team, were instrumental to the successful program development, promotion and implementation. Support was also provided by academic supervisor, Dr. Brian Baetz, Director of the Engineering and Society Program, and non-academic supervisor, Katie Ferguson, Manager, Experiential Education and Research Development of the Office of Sustainability. Karen Szala-Meneok, Senior Ethics Advisor, assisted with survey development and provided support and guidance throughout the MREB application process. Zeinab Rahal, Assistant, Office of Sustainability and Kate Whalen, Senior Manager, University Sustainability provided advice and support throughout.

CAN-BIKE



■ Overview

The Canadian Cycling Association CAN-BIKE program is a series of courses that provide education on utilitarian and recreational cycling with a focus on cycling safety. The program provides a nationally standardized set of courses that can be taught through a variety of organizations by CAN-BIKE instructors who are both nationally certified and highly skilled cyclists (canbike.net). Offering CAN-BIKE courses from an on-campus location will encourage cycling as a viable commuting option and will educate for safe cycling at McMaster and within the broader community.

■ Objectives

- 1 Educate for safe cycling
- 2 Encourage cycling as a viable mode of transportation

■ Reporting

Sustainability student intern, Karin Gordon, worked in collaboration with three CAN-BIKE certified instructors and in consultation with students, faculty and staff to develop a proposed program for providing cycling education to internal and external members of the community from an on-campus location. In collaboration with the Department of Athletics and Recreation, McMaster will host a pilot CAN-BIKE course in the fall of 2012. This course will include a follow-up survey of participants to provide feedback on future direction for CAN-BIKE course offerings at McMaster.



■ **Collaborators:** Karin Gordon led this initiative in collaboration with CAN-BIKE instructors: Abram Bergen, Larry Strung and Eritia Smit; Debbie Marinoff-Shupe, Manager, Recreation Services, and Heidi O'Brien, Instructional Program Coordinator from the Department of Athletics and Recreation; and with support from her academic supervisor, Dr. Brian Baetz, Director of Engineering and Society and non-academic supervisor, Katie Ferguson, Manager, Experiential Education and Research Development. Zeinab Rahal, Assistant, Office of Sustainability and Kate Whalen, Senior Manager, University Sustainability provided advice and support throughout.

LONG-TERM BIKE RACK RECOMMENDATION PLAN



■ Overview

McMaster has an ever-increasing cycling population. To support and promote cycling as a convenient and enjoyable mode of transportation, the number of bicycle parking spaces must be expanded each year. Long-term* consideration of bike rack placement is important for planning as well as to support community consultation on where racks should be placed. McMaster is anticipating the placement of 10-20 new racks each year, starting in the spring of 2012. The current long-term recommendation plan will be updated with community input to guide the annual process for determining rack placement at McMaster.

■ Objectives

- 1 Engage employees and students in providing feedback on planning for future placement of bike racks
- 2 Prepare a long-term recommendation plan to guide the annual process for community consultation and rack placement

■ Reporting

The creation of the new long-term bike rack recommendation plan was undertaken by 4th year Sustainability student intern Janine Wong. Janine prepared an online survey that asked questions pertaining to commuting behavior, thoughts on bike rack placement and style of rack. With assistance from members of the University community, the survey was distributed campus-wide and received a total of 727 responses from students, faculty and staff. Highlights from the survey show that in a typical week, 34% of respondents ride their bike to campus every day. While 60% of respondents cycle only in fair weather, 32% of the respondents report cycling in the winter and 39% cycle in the rain. Some of the top-cited locations for more racks include the McMaster University Student Centre and David Braley Athletic Centre. Additional findings show that 63% of respondents feel that incorporating more secure

bike racks is important, 62% would like bike racks close to buildings and 28% say covered bike racks are important. Findings from the bike rack survey have been analyzed and used to create the long-term bike rack recommendation plan.



Janine Wong, Sustainability student intern.

■ **Collaborators:** Janine Wong was the key facilitator of this initiative. Academic supervisor, Marvin Gunderman, technical coordinator from Department of Biology, and non-academic supervisor, Kate Whalen, Senior Manager, University Sustainability, assisted in guiding Janine in her experiential learning process as well as the implementation of this initiative. Major collaborators who provided additional support and assistance include: Director of Carlos Figueira, Facility Services, and Terry Sullivan, Director of Security and Parking Services; MSU's MACycle; Daryl Bender, Project Manager, Alternative Transportation for the City of Hamilton; Steve Molloy, Project Manager, Environmental and Sustainable Infrastructure for the City of Hamilton; as well as those groups and individuals who helped with survey distribution and all students, faculty and staff who provided their valuable feedback. *Long-term refers to a 5-year time frame.

WASTE REDUCTION AND DIVERSION: A STUDY OF THE IMPACT OF INFRASTRUCTURE AND EDUCATION



PAPER, NEWSPAPER AND CARDBOARD



GLASS, CANS, MILK CARTONS & PLASTICS



EVERYTHING ELSE GOES IN THIS ONE

■ Overview

Providing sufficient infrastructure to support proper waste disposal and recycling is an important first step to increasing waste diversion rates at McMaster. Ensuring that students, faculty and staff are equipped with the knowledge of the waste and recycling program is also a necessary component to ensure that McMaster can achieve a high diversion of waste to recycling.

■ Objectives

- 1 Increase diversion of waste through infrastructure improvements and education
- 2 Study the impact of infrastructure and education on waste diversion rates

■ Reporting

Catherine Lau, Sustainability student intern, took the opportunity to impact waste and recycling rates in two of McMaster's campus buildings, Togo Salmon Hall (TSH) and Chester New Hall (CNH), which at the commencement of her internship were not outfitted with central waste and recycling bins. These two buildings provided an opportunity to study the impact of infrastructure and education on waste diversion rates, while improving the working environments for students, faculty and staff who work and learn in those areas.

In January of 2012, Catherine worked with building occupants and Facility Services to install 33 centralized waste and recycling bins in both buildings. The objectives of providing a central location for waste and recycling disposal are to provide the opportunity to properly sort waste and recycling into the appropriate bins as well as to help eliminate food and beverage waste in desk-side bins. In addition to providing improved infrastructure, educational resources were provided to building occupants. These resources included an online presentation describing the McMaster waste and recycling program as well as a laminated poster describing which items should be placed into each available bin.

Waste and recycling rates were monitored on a monthly basis between January and March and showed a steady rise in recycling rates, which can be attributed to the improved infrastructure and education. Catherine's full report and presentation can be found on the Office of Sustainability website.
Catherine Lau, Sustainability student intern.



■ **Collaborators:** Catherine Lau was the main facilitator of this initiative. Academic Supervisor, Maureen Padden, Assistant Professor, School of Geography and Earth Sciences, and non-academic supervisor, Kate Whalen, Senior Manager, University Sustainability, helped guide Catherine in her experiential learning project. Support from Carlos Figueira, Director, Facility Services; Janice Flynn, Service Manager, Custodial Services, and many other members of the Facility Services team were integral to ensuring all infrastructure was installed on time and in the appropriate location. Judy Major Girardin, Associate Professor in the School of the Arts, was integral in helping to distribute information and the link to the online presentation. Support from building occupants of CNH and TSH was integral to the success of this initiative.

ELECTRONICS RECYCLING PROGRAM EXPANSION



■ Overview

Removal of old, inefficient and/or underutilized electronics helps to decrease unnecessary energy usage on campus. To promote the removal of these devices in a responsible manner, collection events are held twice annually at McMaster. To date, collections have been focused on Information Technology equipment. To further expand on the list of items that are accepted through this program, McMaster is working with its electronics hauling and recycling partner to continually increase the list of acceptable items.

■ Objectives

- 1 Increase waste diversion on campus
- 2 Expand the list of items that are accepted in the McMaster electronics recycling program
- 3 Promote and educate for responsible recycling of electronic waste

■ Reporting

Facilitated by a student intern, Jung Lee, a program was developed starting in 2012 for which McMaster worked with Niagara E Waste, MIDA Inc and through the Ontario Electronic Stewardship Program to expand the list of accepted items for collection and recycling. Hair dryers, kettles, toaster ovens and other “white good” items are now accepted in the McMaster electronics recycling program. The expanded list has been posted on the Office of Sustainability website.

In addition to the twice-annual Electronics Collection, Reuse and Recycle events, McMaster has also worked with Niagara E Waste to supply collection cages at 23 campus building loading dock areas to support the ongoing collection and recycling of these items.



Between January and October 2012, McMaster has collected and recycled over 15,000 lbs of electronic material. Not only has this material been kept out of landfill, but its recycling has saved more than \$900 of waste disposal costs and generated over \$1,000 in revenue that has been reinvested in other campus sustainability initiatives.

■ **Collaborators:** Facility Services, Niagara E Waste, Mida Inc and the Office of Sustainability have worked in collaboration to establish, implement and continually develop this program. Support from individuals, groups and departments on campus have made it possible to continue to host successful collection events and expand the overall program at McMaster.

WRITTEN WORK SUBMISSION GUIDELINES



■ Overview

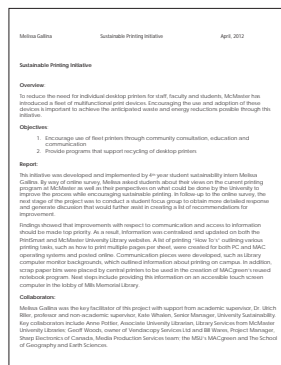
The administration of an online survey and facilitation of round-table discussions, which were conducted with the goal of obtaining a better understanding of student views on the process for printing in University libraries, have revealed that students have an interest in understanding the logic behind current written work submission guidelines. Students surveyed noted that many academic courses require written work to be submitted in hard-copy form, along with style guidelines that include being printed on a single side of the page and double line spacing, with one-inch margins. Respondents felt that these standards could be changed to support the more sustainable use of paper, energy and toner.

■ Objectives

- 1 Obtain an understanding of logic behind written work submission guidelines
- 2 Prepare a hierarchy of written work submission guidelines that meet the needs of faculty and support sustainable use of resources

■ Reporting

In follow-up to Melissa Gallina's initial Sustainability internship study, which focused on improving the printing process on campus, she was motivated by comments provided to her through survey responses suggesting that paper submission guidelines align with the printer settings to help encourage sustainability on campus. To support this change in research direction, Melissa conducted yet another survey to gain an understanding of faculty members' current submission guidelines as well as their willingness to change in order to increase sustainability. The survey specifically asked faculty to choose from a list of sustainable criteria they were willing to incorporate. Examples include double-sided pages, reduced margins and single line spacing. Melissa generated a response from faculty members in both the Arts and Science Program and the Faculty of Social Science.



With the help of Dr. Jean Wilson, Director of the Arts and Science Program, and a number of engaged members of the Arts and Science Program, a hierarchy outlining the criteria for sustainable assignment submissions has been created. The proposed hierarchy will be further reviewed and evaluated by members of the Program for possible incorporation into written work submission guidelines presented to students in the fall 2012 academic term.

Report using sustainable submission guidelines.

■ **Collaborators:** Melissa Gallina was the key facilitator of this initiative with support from academic supervisor, Dr. Ulrich Riller, professor and non-academic supervisor, Kate Whalen, Senior Manager, University Sustainability. Key collaborators include Jean Wilson, Director of Arts and Science; Charlotte Yates, Dean of Social Sciences; as well as all of the faculty members who took the time to submit a survey response.

SUSTAINABLE PROCUREMENT GUIDE



■ Overview

Education is an important component that impacts one's ability to evaluate various goods and/or services with respect to their impact on social, economic and environmental sustainability. As sustainability is a strategic component of the McMaster University procurement process, providing sufficient information to help guide this process is integral to achieving a successful program.

■ Objectives

- 1 Increase awareness and understanding of sustainable procurement through education
- 2 Increase the proportion of purchases made that consider the sustainability of the good or service

■ Reporting

Inspired by previous work done by students, faculty and staff relating to sustainable procurement at McMaster, Sustainability volunteer and Masters student, Janelle Trant, took on the role of updating a draft version of the McMaster *Sustainable Procurement Guide*, initially prepared by Tommy Lee, former Sustainability student intern. With new information and guidance from the Strategic Procurement Department, Janelle prepared a guide to making a sustainable purchase. The guide aligns with McMaster's seven areas of focus. Under each area of focus is a brief overview of how the area relates to sustainable procurement, a list of questions to consider and is concluded with a list of related eco-logos or certifications that may be presented. The *Sustainable Procurement Guide* has been developed to support purchases at any level. The guide is suitable for purchases made by departments as well as students, faculty or staff in their personal lives, as it provides information at an overview level that can be narrowed down depending on the specific good or service being purchased. This guide is posted online on the Office of Sustainability website.

■ **Collaborators:** Janelle Trant conducted research of best practices of other institutions and utilized draft reports prepared by past student intern Tommy Lee and collaborators to prepare the McMaster *Sustainable Procurement Guide*. Support was provided by Austin Noronha, Acting Director, Strategic Procurement, and the Office of Sustainability.

COMPOSTING EXPANSION



compost

FOOD AND OTHER ORGANIC WASTE

■ Overview

Since 2009, McMaster has continually worked to expand its campus composting program. Composting infrastructure at McMaster began with a backyard-style system that operated on campus, and as demand increased the University opted for removal by a third party organics hauler. The main source of organic material was obtained from the kitchen preparation areas of all major eateries on campus. Further expansion to smaller eateries, as well as public areas is now underway.

■ Objectives

- 1 Divert organic waste from landfill
- 2 Achieve carbon reductions associated with organic waste composting

■ Reporting

McMaster has expanded its composting locations from a limited number of campus eateries and office locations to include the following:

- McMaster University Student Centre, location across from Union Market
- Religious Studies Office
- Student Success Centre
- McMaster Students Union (MSU) Main Office
- MSU AVTEK/Campus Events Office



To facilitate the use and expansion of the composting program, each participating area or department has a program champion, who is a dedicated staff member who facilitates this program in their area on volunteer basis. At the end of each day, the program champion brings the organic waste to one of the central bin locations to be collected by Planet Earth, the compost services provider for McMaster.

From Ministry-approved waste reports from BFI, 90 tonnes of organic waste has been composted between January 1st 2012 and September 1st 2012 on main campus.

■ **Collaborators:** Collaborators include the following program champions as well as the staff and students in each area who choose to take part in the program; David Campbell, MSU VP Administration; Miriam DeCock, Graduate Student, Department of Religious Studies; Lauren McCauley, AVTEK Office Manager, AVTEK Productions; and Amanda McFarland, Department Administrator, Student Success Centre.

WASTE FREE EVENTS



■ Overview

An area of opportunity for waste reduction exists through the planning and hosting of events that take place at McMaster. Items such as food waste, single-use serving tableware and the choice of food and beverages being served, as well as how they are being served, are all areas that could be improved upon with respect to sustainability.

■ Objectives

- 1 Decrease waste produced for and during campus events
- 2 Educate for sustainable consumption

■ Reporting

This initiative was facilitated by the McMaster Sustainability Ambassador group. Please refer to page 5 for more information. By working with stakeholders, including individuals in their respective areas, the Ambassadors developed a list of best practises, which was communicated and made available as an online resource guide. Highlights from the guide include composting options, communications to remind event attendees to bring reusable mugs, using insulated beverage dispensers to reduce the need of individual beverage bottles and using china for sugar and cream rather than individual, disposable packages. As a method to promote the use of the guide to hosting waste free events, additional criterion was added to the Guidelines for the Undergraduate Student Initiatives Fund that requires applicants, which includes undergraduate students and undergraduate student clubs, to demonstrate ways their proposed event will be run sustainably. To provide a resource for information, a link to the online guide was added to the application form.

Through consultation with students, faculty and staff, it was found that hosting events with china service was difficult due to budgetary constraints. MACgreen previously developed a dish lending program, but lacked the necessary resources to fully operationalize the program to its greatest capacity. With support from the Office of Sustainability, MACgreen was able to secure five hundred plates and cutlery to help in the development of their program. MACgreen is now working to create a program that will facilitate the use of china dishes at a reasonable cost to departments and groups looking to host a waste free event.

■ **Collaborators:** This initiative was a joint collaboration of MACgreen and the Sustainability Ambassadors with support from the Office of Sustainability.

THE BUSINESS OF WASTE



this

PAPER, NEWSPAPER AND CARDBOARD



that

GLASS, CANS, MILK CARTONS & PLASTICS



the other

EVERYTHING ELSE GOES IN THIS ONE

■ Overview

A substantial amount of waste is produced during game events held at the David Braley Athletic Centre. A waste audit of a sporting event will help determine opportunities to reduce waste generation and increase options for recycling.

■ Objectives

- 1 Reduce waste generation during athletic events
- 2 Increase recycling in the David Braley Athletic Centre

■ Reporting

This study was conducted by Sustainability student intern, Asfand Minhas, with the goal to quantify the amount of garbage and recycling generated over the period of one McMaster University sporting event. Through an integrative approach, the study conducted a waste audit, in-person interviews and feedback surveys in order to help determine opportunities to reduce waste generation and increase options for recycling. A series of cost-effective improvement strategies were implemented that resulted in two of the major high-traffic areas experiencing a 7% and 41% improvement in garbage and recycling disposal accuracy. Additionally, since the David Braley Athletic Centre is home to more than three dozen varsity sport teams and clubs, a facility-wide implementation can reap even greater benefits.



Asfand Minhas, Sustainability student intern.

■ **Collaborators:** This initiative was designed, facilitated and implemented by Asfand Minhas with support from the McMaster Athletics & Recreation team, including TJ Kelly, Mark Alfano, Andrew Pettit and event staff; academic supervisor Dr. Maureen Padden, Assistant Professor in the McMaster School of Geography and Earth Sciences; non-academic supervisor Kate Whalen, Senior Manager, University Sustainability; Carlos Figueira, Director, Facility Services; as well as Laura McAlpine and the team from Progressive Waste Solutions Canada.

WATER MANAGEMENT PROGRAM



■ Overview

To support active management of water usage on campus, Facility Services has installed water meters on selected buildings across campus. Metering individual buildings will help to identify areas of high use as well as areas to target for improvement and upgrade.

■ Objectives

- 1 Support active management of water usage
- 2 Determine areas of high usage
- 3 Implement strategies to achieve reductions in water usage



■ Reporting

The water systems in the Refectory building, A.N. Bourns Science Building and Life Sciences Building have been upgraded from a once-through system to a closed system that recirculates and recycles water, rather than continually using fresh water. This initiative has resulted in an annual savings of 40,083,000 litres of water and \$101,291.46.

■ **Collaborators:** Facility Services was the project lead on this initiative for McMaster.

Appendix A

Resources Saved and Consumed at McMaster

Estimated on October 1, 2012 since May 1, 2008

Resources Saved at McMaster University Main Campus (Estimated real time since May 1, 2008)		Resources Consumed at McMaster University Main Campus (Estimated real time since May 1, 2008)	
47,525,752	kWh of electricity saved	321,281,054	kWh of electricity used
181,562,915	lb of steam saved	1,120,646,140	lb of steam used
207,470	m3 of natural gas saved	40,607,356	m3 of natural gas used
244,911,956	L of water saved	2,074,798,711	L of water used
12,751,295	kg of waste diverted	7,423,807	kg of waste created
23,854,659	kg of carbon saved		
633,839	plastic bags saved from landfill		
6,621,390	dollars saved		

Source: Office of Sustainability home page:
<http://www.mcmaster.ca/sustainability/>

Appendix B

McMaster Sustainability Initiatives since 2009

2009 Initiatives

Initiative	In Progress	Complete
MacEARTH		•
Sustainability Internship Program		•
Sustainability Annual Report		•
Campus Sustainability Day		•
Sustainability Ambassador Program		•
Desktop Power Management		•
Carbon Inventory		•
Permeable Paving		•
MAcTive		•
Automobile Sharing Program		•
Transportation Survey		•
Secure Bike Storage Facility		•
Commuter Challenge		•
Campus Bike Rack Reorganization		•
Waste Diversion Strategy		•
Compositing		•
Sustainable Procurement		•
Water Fountain Retrofits		•
Campus Bag Policy		•
I.T. Collection, Reuse and Recycle		•
Rainwater Harvesting		•



2010 Initiatives

Initiative	In Progress	Complete
Sustainability Internship Program Expansion		•
Presentation Series		•
Campus Tours and New Employee Orientation		•
2010 McMaster Sustainability Annual Report		•
Climate Action Plan		•
Print Management Strategy		•
Permeable Paving (Parking Lot M)	•	
MActive		•
Campus Farmstand		•
Campus Maps		•
Community Garden		•
Bike Racks		•
Bike Share		•
Clean Air Commute		•
Waste Reduction Work Plan		•
Composting Expansion		•
Sustainable Purchasing		•
Bike Garbage Pick-Up and Community Clean-Up		•
Water Fountain Retrofit Expansion		•
Plastic-Bottle-Free Zones		•
A.N. Bourns Science Building (ABB) Rainwater Capture Tank	•	
Engineering Technology Building (ETB) Rainwater Treatment		•

2011 Initiatives

Initiative	In Progress	Complete
Sustainability Internship Program Expansion		•
Presentation Series		•
Student Sustainability Pledge		•
Beverage Vending Machine Energy Use		•
Desktop Power Management		•
Solar Thermal Heating of McMaster's Pool		•
Residence-Wide Energy Challenge		•
Bookstore Green Space		•
Mac Farmstand		•
Health and Education Fair		•
Campus Transportation Survey Results		•
Bike Racks		•
Cycle Safe Campaign		•
Flex Pass		•
Information Technology Collection, Reuse and Recycle Expansion		•
Recycling Program Alignment		•
Composting Expansion		•
Water Fountain Retrofit Program Expansion and Upgrade		•
Plastic-Bottle-Free Zone Expansion		•
Clean-Up of Coldwater Creek		•

2012 Initiatives

Initiative	In Progress	Complete
Climate Change Education and Community Engagement		•
Ambassador Program Expansion		•
Employee Sustainability Education		•
Utilities Dashboard	•	
Climate Action Plan	•	
Sustainable Printing Initiative		•
Permeable Paving Expansion		•
Ash Tree Preservation and Landscape Management		•
McMaster Students Union Green Roof Initiative		•
McMaster Teaching and Community Garden (Phase I)		•
McMaster Teaching and Community Garden (Phase II)		•
Health & Wellbeing: Open Streets Hamilton: McMaster Edition		•
Carpool Week 2012		•
Flex Pass	•	
CAN-BIKE	•	
Long-Term Bike Rack Recommendation Plan		•
A study of the impact of infrastructure and education		•
Electronics Recycling Program Expansion		•
Written Work Submission Guidelines		•
Sustainable Procurement Guide		•
Composting Expansion		•
Waste Free Events		•
The Business of Waste		•
Water Management Program		•





The Office of Sustainability supports and promotes **sustainability**.
To download a pdf version of this report please visit <http://sustainability.mcmaster.ca>
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