

Sustainability Annual Report | 2010







President's Message

This is an exciting time to be involved helping shape McMaster's future. For students, faculty, staff and members of the community, the possibilities are endless as we work together to make McMaster a more sustainable University.

Every day, we are making a difference.

Across campus, there are large-scale projects that reflect the involvement of many. At the Engineering Technology Building, rainwater is harvested and filtered for use in drinking fountains. In our offices, a new system is in place to sustainably deliver supplies that reduces our carbon footprint, cuts down on cardboard packaging, and consolidates the number of deliveries to campus. In our campus kitchens and food service areas, food scraps are composted so that we reduce the amount of food waste being sent to landfill.

There are also many initiatives where you and I as individuals are making a difference. When we opt for a refillable coffee mug instead of a disposable paper cup; choose to car pool or take public transit to work or class; or make sure office lights and computers are switched off at the end of a day; each of us is doing our part.

These and other measures ensure McMaster is at the vanguard of sustainability for post secondary institutions. This year McMaster became among the first in Ontario to sign two important climate change accords. These include the Talloires Declaration and the University and College Presidents' Climate Change Statement of Action for Canada. By signing these accords, we affirm McMaster's leadership position in achieving compliance with sustainability standards and excellence.

This annual report contains updates and overviews of where the McMaster community stands in our ongoing efforts to make campus more sustainable. I encourage you to review this information and to take pride in these combined achievements. I also invite you to continue to help us be at the forefront of innovation in this area. Your commitment, your leadership and your enthusiasm are needed now more than ever, to help our University continue to achieve its goals, and develop its culture of sustainability.

Thank you.



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 lifecycle 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:

Energy
Transportation
Green Space
Waste
Water
Health & Wellbeing
Education



Table of Contents

A. Energy 4
 Climate Action Plan..... 4
 Print Management Strategy 5

B. Transportation 6
 Bike Racks 6
 Bike Share 7
 Clean Air Commute 9

C. Green Space..... 11
 Permeable Paving (Lot M) 11

D. Waste 13
 Waste Reduction Work Plan 13
 Composting..... 15
 Sustainable Purchasing 16
 Big Garbage Pick-Up and Community Clean-Up..... 17
 Water Fountain Retrofits 18
 Plastic-Bottle-Free Zones..... 19

E. Water 20
 A.N. Bourns Science Building (ABB) Rainwater Capture Tank..... 20
 Engineering Technology Building (ETB) Rainwater Treatment..... 21

F. Health & Wellbeing 22
 MAActive..... 22
 Campus Farmstand 23
 Campus Maps 24
 Community Garden..... 25

G. Education..... 26
 Sustainability Internship* Program 26
 Presentation Series 27
 Campus Tours and New Employee Orientation 28
 2010 McMaster Sustainability Annual Report..... 29

Glossary..... 30



A. Energy

Climate Action Plan

Overview

In 2009, McMaster University worked with Zero Footprint to conduct a campus-wide carbon inventory of McMaster's Main Street campus. This inventory has enabled McMaster to understand emission sources and create reduction goals. A Climate Action Plan (CAP) is required to establish action items to achieve reductions.

Objectives

- Create progressive and realistic multi-year goals for reduction of campus greenhouse gas (GHG) emissions.
- Establish a plan of action to achieve the multi-year goals.
- Encourage collaboration and engagement by campus stakeholders to make reductions in their respective areas.

Reporting

Three working groups were created, which included stakeholders from across campus, including faculty, staff and student representation. A working group for each key area – Transportation, Waste and Energy – was established, and bi-weekly meetings took place throughout the summer of 2010. Each of the three working groups, using a baseline of the year 2009, established a targeted multi-year plan and goals for annual GHG reductions. Initiatives were identified to achieve the stated reduction targets. Projected results for each initiative were established to ensure they were sufficient to achieve the stated GHG reductions.

A Climate Action Plan will be created and released in the fall of 2010 to outline the goals and projections established by the three working groups. The Climate Action Plan will be posted on the Office of Sustainability website under Reports and Publications.

Collaborators

Working group representation from each of the following areas was included: Facility Services, University Technology Services (UTS), Hospitality Services, Faculty of Health Sciences, MACgreen, Housing & Conference Services, Purchasing Resources, Parking & Transit Services, Faculty of Science, Faculty of Engineering, Faculty of Social Sciences and the Office of Sustainability.

Links

Office of Sustainability > Reports and Publications:

<http://www.mcmaster.ca/sustainability/reports.html>





Print Management Strategy

Overview

McMaster University has made great strides to provide a fleet of energy-efficient Multifunctional Devices, which will support double-sided printing, default black-and-white printing, scanning to email and will provide tremendous energy and paper savings.

To further encourage the use of these Multifunctional Devices, and the removal and recycling of inefficient stand-alone printers, fax machines, copiers and scanners, both educational material and support for device removal are required.

Objectives

- Realize energy savings associated with the removal of inefficient printers, fax machines, copiers and scanners.
- Reduce paper and toner consumption resulting from the ability to print double-sided and electronically manage documents.

Reporting

A number of informative presentation sessions were provided to campus stakeholders leading up to an information technology (IT) Collection, Reuse and Recycling Event, which was held on April 22nd, Earth Day. Staff and faculty were encouraged to retire their stand-alone print, fax, copy and scanning devices for full recycling. One hundred devices were collected on April 22nd, which, if all were plugged in, would save \$32,400 in energy and 64,800,000 grams of GHG annually. Congratulations goes to Financial Services for removing 14 devices, Mills Library for removing 12 and Graduate Studies for removing five stand-alone devices on Earth Day 2010.



In addition to informative presentation sessions and twice-annual IT Collection, Reuse and Recycle events, an online list of “How To’s” was created to assist members of the McMaster community to discover the various functions of the new Multifunctional Devices.

Collaborators

Initiated by Media Production Services (MPS), the Office of Sustainability worked in collaboration with MPS and UTS to help provide information and support for the removal of stand-alone print, fax, copy and scanning devices and adoption of McMaster’s Print Management Strategy. Facility Services, Waste Services Inc. (WSI), and SHARP assisted in the successful facilitation of this event.

Links

Print Smart: <http://printsmart.mcmaster.ca/>

Office of Sustainability IT Collection, Reuse and Recycle:
http://www.mcmaster.ca/sustainability/waste_recycle.html#special

B. Transportation

Bike Racks

Overview

In the spring and summer of 2009, the Office of Sustainability worked with campus stakeholders to conduct a survey of current bike rack locations, obtain feedback from campus stakeholders on preferences for rack placement, reorganize current racks, and purchase and install ten additional racks.

In the fall and winter of 2009/10, a student intern conducted an analysis of campus bike rack placement and usage. The resulting report made recommendations for further improvement of bike rack placement on campus. This report can be found on the Office of Sustainability website.

The recommendations made within the report were intended to assist in further improvement of bike rack placement on campus in the spring and summer of 2010.

Objectives

- Encourage cycling as a form of sustainable transportation.
- Provide cyclists with more bicycle parking spaces on campus.
- Align bike rack placement with current campus bikeways, demand for bike parking at current rack locations and plan for campus landscape design.



Reporting

Guided by the 2009/10 student report, suggested locations for bike racks were included in a campus-wide survey posted online requesting feedback from campus stakeholders on bike rack placement as well as recommendations for new bike rack locations.

Through consultation with various campus stakeholders, including the Sustainability Steering Committee, Sustainability Ambassadors, McMaster Students Union (MSU), MACycle, MACgreen, and through the online survey, nine locations were selected for placement of more racks.

To accommodate this demand, twelve new bike racks were purchased, and six were moved from locations that were defined as low use in the 2009/10 student report.

Collaborators

Civil Engineering student, Zibby Petch, conducted the 2009/10 report on McMaster's bike rack usage and the resulting suggestions for placement facilitated further consultation with various campus stakeholders. The MSU President, MACycle, MACgreen and the Office of Sustainability provided assistance with communication and supported campus-wide consultation to gain stakeholder feedback of the suggested locations. McMaster's Parking & Transit Services provided financial support for the purchase of twelve new bike racks, which were installed by McMaster's Facility Services.

Links

Student Report: http://www.mcmaster.ca/sustainability/edu_interns.html



Bike Share

Overview

Bike-sharing programs have become very popular over the past decade as an innovative Transportation Demand Management (TDM) initiative aimed at increasing cycling as a form of sustainable transportation. Cities, such as Montreal, Paris and Melbourne, have implemented programs that provide a resource for further investigation.

Various models for bike-sharing programs exist around the world. It is important to determine which model is best suited for McMaster and the City of Hamilton.

Objectives

- Determine which model of bike sharing would be most successful if implemented in the City of Hamilton and at McMaster University.
- Conduct a feasibility study on selected models and make recommendations for implementation.

Reporting

With support from Hamilton Public Works, Smart Commute Hamilton, the Hamilton Transportation Management Association (TMA), Metrolinx and McMaster's Office of Sustainability, two Arts and Science student interns conducted a feasibility study of four different models of bike-sharing systems to determine which one is best suited for McMaster University and the City of Hamilton.

The feasibility study consisted of in-depth research into pre-existing systems in North America and across the globe, demographic analysis of the Hamilton area, including McMaster University, and community consultation. Presentation to the Hamilton TMA of study findings took place and in collaboration it was decided that a well-established fourth generation model of bike sharing was the most feasible for the City of Hamilton.

In August 2010, community stakeholders were invited by Public Works, Smart Commute Hamilton, the Hamilton TMA and the two student interns to participate in a demonstration by Bixi and B-Cycle, two widely known fourth generation bicycle-sharing companies.

Community feedback and support is being sought through Public Works and Smart Commute Hamilton for possible implementation.

Representatives from Bixi will report back to Public Works on the cost to implement a pilot project, and that information will be shared with McMaster representatives to determine next steps for pilot implementation with the downtown core and McMaster University being the two primary nodes of the system.



Collaborators

Led by Arts and Science students Jesse Bauman and Nicole Harper, Hamilton Public Works, Smart Commute Hamilton, Hamilton TMA, Metrolinx, and McMaster's Office of Sustainability worked in collaboration with the students to conduct a feasibility study of bicycle-sharing systems in the City of Hamilton and at McMaster University.

Links

Student Presentation:

[http://www.smartcommutehamilton.ca/media/uploads/images/bike_share_hamilton3\[1\].pdf](http://www.smartcommutehamilton.ca/media/uploads/images/bike_share_hamilton3[1].pdf)

Public Works:

<http://www.smartcommutehamilton.ca/en/bike/bikeshare>



Clean Air Commute

Overview

The City of Hamilton, Metrolinx, and the cities and regions of the Greater Toronto and Hamilton Area (GTHA) have adopted Clean Air Commute for their annual sustainable commuting challenge.

Previously, many cities took part in the Commuter Challenge, and McMaster had great success in winning the Challenge for the City of Hamilton in previous years.

The Clean Air Commute challenge is held annually in June and aims to engage commuters in, and promote the use of, sustainable forms of transportation.

Objectives

- Increase awareness of sustainable transportation.
- Encourage the use of alternatives to Single Occupancy Vehicles (SOVs).
- Develop connections between physical activity, sustainable transportation and improved health.
- Celebrate and promote the McMaster community's support for sustainable modes of transportation.

Reporting

To support and promote the 2010 Clean Air Commute, information on sustainable commuting and details of how to register were sent through various channels of communication to the McMaster community. A pancake breakfast kick-off celebration and sustainable transportation information fair took place the Friday before the challenge week. During the challenge week, events such as Bike to Work Day, Totally Transit Thursday and a group walk led by McMaster's Vice-President Administration took place to encourage participants to engage in various forms of sustainable transportation. Prize give-aways included an ipod, a mountain bike, and a variety of gift certificates and promotional items.

McMaster University won the 2010 Clean Air Commute by having the highest rate of participation in its size category. The City of Hamilton also won the challenge for their size category. McMaster's rate of participation was more than 4% higher than any other employer in the same category.

There were 170 workplaces across the GTHA, in six size categories, who took part in the 2010 Clean Air Commute.



Collaborators

Facilitated by the Office of Sustainability, the Clean Air Commute is a cross-campus effort. Challenge participants, departmental coordinators and Sustainability Ambassadors from a wide array of campus groups and departments truly engaged colleagues and coworkers in their respective areas to take part.

Support from Parking & Transit Services, the Healthy Workplace Group, the Vice President Administration, MACycle, MACgreen, the City of Hamilton, Metrolinx, Hamilton Street Railway (HSR), the Hamilton TMA and Hamilton Car Share made implementation of the event possible.

Links

Smart Commute Hamilton – Clean Air Commute:

www.smartcommutehamilton.ca/en/events/cleanaircommute



C. Green Space

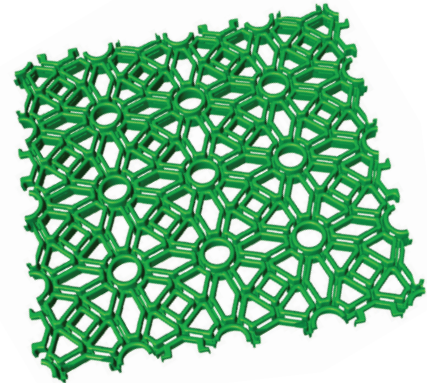
Permeable Paving (Lot M)

Overview

In 2009, Parking & Transit Services began working with the City of Hamilton on a plan to replace Parking Lot M, which had been damaged during the construction of the City's Overflow Retention Tank. This created an opportunity to replace the asphalted lot with a more environmentally friendly parking surface for the 225-space facility. The Office of Sustainability worked in a support role with Parking & Transit Services and Facility Services.

Parking & Transit Services hired an engineering firm to work with stakeholders to develop and evaluate options which ranged from regular paving to a permeable solution.

From project initiation, the City of Hamilton assumed responsibility for the financing of Parking Lot M remediation since the current surface was to require replacement due to damage that resulted from the City's construction of a combined sewer overflow tank adjacent to Lot M.



Objectives

- Increase infiltration of surfaces on campus.
- Decrease the amount of paved surfaces contributing to an urban heat island effect.
- Increase the amount of campus green space at McMaster University.

Reporting

Investigation of various types of permeable surfaces took place throughout the spring and summer of 2010. As an example, a 25-foot permeable pathway, constructed from a grass paving system, was successfully implemented. This system was considered in the evaluation of paving alternatives for Lot M, and it was determined to be the most suitable and sustainable option for further consideration.

This innovative project has provided an opportunity for student internships, community collaboration, and positive environmental impact, such as increased rainwater infiltration and green space. It has also been instrumental in developing information to guide McMaster's approach to paving on campus. If implemented, construction of the grass paving system will also facilitate further opportunities for students to study effects of surface construction on groundwater infiltration and other social and environmental impacts of permeable versus impermeable surfacing.

Collaborators

Materials Science & Engineering and Society student intern, Tommy Lee, provided research and recommendations for permeable paving at McMaster based on the 2009 permeable pathway, which has greatly assisted in planning for remediation of the Lot M parking surface. Tommy's report can be found on the Office of Sustainability website.

The City of Hamilton, MMM Consulting, McMaster's Parking & Transit Services, Facility Services, the Faculty of Engineering and the Office of Sustainability have worked in collaboration on the research and investigation of McMaster's permeable paving parking lot.

Links

Student Report:

http://www.mcmaster.ca/sustainability/edu_interns.html

Green Innovations:

<http://www.greenroofs.us/greeninnovations.php?to=garden-grid&dm=>



D. Waste

Waste Reduction Work Plan

Overview

In 2009, McMaster conducted a campus-wide waste audit to provide a benchmark of waste disposal habits and an understanding of where improvements can be made. A Waste Reduction Work Plan was created by McMaster's Facility Services in collaboration with the Office of Sustainability.

McMaster's Waste Reduction Work Plan outlines action items to meet the stated diversion goals of each specific waste item defined by the Ministry of the Environment.

Objectives

- Reduce waste at source from across campus whenever possible.
- Provide opportunities and educate campus stakeholders to reuse items before recycling or disposing of them.
- Ensure that there is the opportunity for items to be recycled whenever possible.

Reporting

Reducing waste at the source has taken place through a variety of initiatives such as promotion of McMaster's Multifunctional Devices that default double-sided printing and support electronic management of office documentation; provision of educational material and resources to support and guide sustainable purchasing of office supplies by campus stakeholders; and provision of resources to support groups and departments wanting to host waste-free events on campus.

McMaster continues to encourage reuse by hosting IT Collection, Reuse and Recycle events twice each year as well as the 2010 Big Garbage Pick-Up and Community Clean-Up, outlined below, and maintaining McMaster's Business Management Systems' online Auction Site. Education of McMaster's recycling program has expanded in 2010 to include waste and recycling posters on all central campus waste and recycling bins. A campus-wide waste and recycling bin inventory has been conducted for all campus buildings; development of a three-year implementation plan for more receptacle hubs on campus is underway.

McMaster is in the process of expanding its recycling program to include CDs and DVDs through WSI and Super Shred to ensure that confidential information is kept secure and the disks are being fully recycled. The "Think Recycling" program, which provides receptacles for the recycling of toner cartridges and cell phones, is run by the student environmental group BioSphere, and has expanded with eight new bins for a combined 14 locations in total. In 2009, the "Think Recycling" program recycled 300 ink cartridges, and as of October 1, 2010, recycled over 3,000 ink cartridges and more than 100 cell phones.



Collaborators

The primary stakeholders involved in McMaster's Waste Reduction Work Plan are McMaster's Facility Services, Office of Sustainability and WSI.

Various campus stakeholders have collaborated on a number of initiatives to encourage reducing, reusing and recycling.

Links

Office of Sustainability > Waste Reduction Work Plan:

<http://www.mcmaster.ca/sustainability/documents/McMaster%20University%20Waste%20Reduction%20Work%20Plan.pdf>

Think Recycling:

<http://www.thinkrecycle.com/>

Office of Sustainability > Recycling > Special Items:

http://www.mcmaster.ca/sustainability/waste_recycle.html#special



Composting

Overview

In 2009, the Office of Sustainability worked with MACgreen, Hospitality Services and Facility Services to investigate the opportunity to incorporate composting as a method of waste diversion on campus.

It was found that a variety of models could be used in combination to support the unique requirements of the various areas across campus.

Both a backyard-style composting system and a third-party collection system were piloted on campus this year.

Objectives

- Divert organic waste from landfill.
- Pilot two different composting systems to determine best application and make recommendations for expansion and further diversion.

Reporting

A 4th year Geography and Environmental Studies student intern has piloted a backyard-style composting system in an unused portion of McMaster's Biology Greenhouse. Utilizing funds and support from the Ontario Public Interest Research Group (OPIRG), McMaster's Faculty of Science, Faculty of Social Sciences, Facility Services, Hospitality Services, and Office of Sustainability, composting bins and supplies were purchased. Organic material from two campus eateries was instrumental in supporting the composting process. This program has composted approximately 1.2 tonnes of organic material from McMaster's waste stream in its initial five months of operation. An estimated 3 tonnes of organic material will be diverted on an annual basis through this composting system. Annually, nearly 5 tonnes of GHG emissions will be eliminated.

A third-party composting pilot program took place beginning in the spring of 2010 in the preparation area of Mary E. Keyes Residence eatery, East Meets West Bistro. This program is expected to expand to all "back-of-house" eatery locations across campus as the system is piloted and perfected.

In addition, food composting facilitated waste-free events throughout the year for the first time at McMaster. The organic waste is sent to one of McMaster's two composting programs mentioned above.

Collaborators

McMaster's backyard-style composting program is led by Geography and Environmental Studies student intern, Julia Shulist, with support from OPIRG, Faculty of Science, Faculty of Social Sciences, Facility Services, Hospitality Services, and the Office of Sustainability.

McMaster's third-party composting program is facilitated by McMaster's Facility Services, Hospitality Services, and Office of Sustainability. The organic material is collected by WSI and composted by Planet Earth.



Sustainable Purchasing

Overview

As a large diverse institution, McMaster University consumes a great quantity of resources to conduct its research, teaching and operations. To ensure that a critical evaluation of the social, environmental and economic impact is made when purchasing, a focus will be placed on sustainability within our purchasing process, where applicable.

Objectives

Strive for procurement processes that include a culture of sustainability and take a life cycle approach, where applicable.

Reporting

Identify opportunities to encourage the campus community to consider sustainability in the evaluation of purchases internal and external to McMaster University through research of best sustainability practices.

Collaborators

Purchasing Resources, the MSU, student interns and the Office of Sustainability are working in collaboration on the research of best practices related to sustainable purchasing.





Big Garbage Pick-Up and Community Clean-Up

Overview

Many of McMaster's students live within the local community of Westdale and Ainslie Wood. The high turnover rate of residents on an annual basis generates a large quantity of unwanted household items.

Various stakeholders have expressed interest in hosting an event that will encourage reuse, rather than disposal, of items.

Objectives

- Encourage reuse of unwanted household items.
- Communicate this opportunity to the local community, including charitable groups.
- Decrease the volume of waste going to landfill during spring move-out.
- Provide an opportunity for community engagement.

Reporting

On Monday, April 26, and Monday, May 3, 2010, the City of Hamilton collected large household items from the Ainslie Wood/Westdale area. To support the reuse of items, residents were encouraged to place unwanted items on the boulevard on Saturday, April 24 and Saturday May 1 to allow fellow community members to pick them up.

On May 1, two local charitable organizations, St. Vincent de Paul and the Salvation Army, were invited to collect items that could be reused.

On May 4, staff, faculty and students were invited to join in and help conduct a community clean-up to ensure that debris left over from the two prior events were cleared and properly disposed of. Over 20 volunteers helped clean a total of 25 kilometres of neighborhood street-front property. Five bags of paper, six bags of containers and eleven bags of garbage were collected.



Collaborators

The City of Hamilton, St. Vincent de Paul, the Salvation Army and members of the Ainslie Wood and Westdale communities contributed to the collection and reuse of household items during the April 24 and May 1 weekends.

MACgreen, Student Community Support Network (SCSN), Off-Campus Resource Centre (OCRC), Society of Off-Campus Students (SOCS), MSU and the Office of Sustainability worked in collaboration to communicate and organize the event as well as volunteer in the community clean-up.

Water Fountain Retrofits

Overview

In 2009, the Office of Sustainability worked with Facility Services, MPS and MSU to retrofit one water fountain in every academic and administrative building on campus. The retrofits were accompanied by an educational campaign promoting the use of refillable containers.

The pilot was received very well by members of the campus community. Expansion of this program further supports the use of refilling containers rather than purchasing single-use plastic bottles.

Objectives

- Decrease the number of single-use plastic water bottles being consumed by the campus community by providing the infrastructure to support the refilling of reusable containers.
- Promote the campus-wide use of reusable containers and water-filling stations.

Reporting

During the summer of 2010, 13 water fountains were retrofitted with a refilling station. These stations include a bubbler for drinking, a gooseneck spout for refilling and a chiller to provide cold water. The retrofits were accompanied by an educational campaign and signage promoting the use of refillable water bottles.

Collaborators

McMaster's Facility Services and Office of Sustainability, in consultation with various members of the McMaster community, worked in collaboration to define the locations to be retrofitted. McMaster's Facility Services conducted retrofits of the initial ten defined locations as well as three retrofitted fountains that, in addition to the gooseneck, bubbler and chiller, also contain a filter and sensor to track the number of bottles saved by refilling.





Plastic-Bottle-Free Zones

Overview

To further engage the community to reduce their consumption of single-use plastic beverage bottles, the creation of Plastic-Bottle-Free Zones was investigated.

Objectives

- Decrease the number of single-use plastic bottles being consumed by the campus community through education and encouragement.
- Promote the campus-wide use of refillable containers and alternatives to plastic bottles.
- Expand on MACgreen's "Tap It" campaign, which encourages reusable water bottles by educating the student population on the social, economic and environmental benefits of employing a reusable bottle rather than consuming single-use plastic bottles.



Reporting

The MSU President along with MSU staff and volunteers are working together with the Office of Sustainability to establish the MSU Office as McMaster's first Plastic-Bottle-Free zone on campus.

To ensure that water quality meets a high standard for consumption, testing of water was conducted across campus. Remedial actions were taken at locations found to be inconsistent with McMaster's standards.

More information will be posted on the Office of Sustainability website as this initiative develops.

Collaborators

The MSU and McMaster's Office of Sustainability are the main collaborators leading this initiative for McMaster.

E. Water

A.N. Bourns Science Building (ABB) Rainwater Capture Tank

Overview

McMaster University currently has a rainwater harvesting strategy, which encompasses systems on both the roofs of the David Braley Athletic Centre (DBAC) and the Engineering Technology Building (ETB) to capture and reuse rainwater for uses other than human consumption.

To further diversify our rainwater harvesting strategy, we have developed an alternative rainwater capturing system that is being constructed under the A.N. Bourns Science Building (ABB) to further take advantage of this non-renewable resource.

Objectives

- Decrease McMaster's dependence on the municipal water supply.
- Conserve water resources.
- Decrease stormwater runoff.

Reporting

A 450,000-gallon reservoir below ABB will capture and house rainwater, which will then be reused at various locations and for a variety of uses on campus. This system will offset municipal demand for water which is expected to result in \$100,000 in annual savings.

The final design and implementation of the ABB rainwater system is underway. The project will be completed in the spring of 2011.

Collaborators

McMaster's Facility Services has managed the planning, design, funding and implementation of the ABB Rainwater Harvesting System.





Engineering Technology Building (ETB) Rainwater Treatment

Overview

In 2009, a rainwater harvesting system on the roof of ETB was constructed. Testing the recapture and reuse capabilities within the building began in the Spring of 2010.

The rainwater harvesting system that has been put in place has the ability to treat water to standards suitable for human consumption for use within the building.

Objectives

- Reduce McMaster's dependence on the municipal water supply.
- Conserve water resources.
- Educate students and the McMaster community at large of the benefits and sustainability of adopting rainwater harvesting systems.

Reporting

The rainwater harvesting system collects rainfall from the rooftop of ETB, then filters and disinfects it for both drinking and non-drinking purposes throughout the building.

McMaster's rainwater harvesting system for treating drinking water is the first of its kind in Canada. Harvesting rainwater has provided 70-90 per cent reduction in potable water requirements from the municipal system.

Collaborators

Tony Cupido, Assistant Vice-President (Facility Services) and Ph.D. Candidate in Civil Engineering, has led the research and development of ETB's rainwater harvesting system with support from McMaster's Faculty of Engineering.



F. Health & Wellbeing

MActive

Overview

MActive is an eight-week physical activity challenge hosted by McMaster's Healthy Workplace Group. Teams of employees engage in physical exercise and fitness activities throughout the challenge and log their progress throughout.

Objectives

- Increase the physical health of McMaster employees.
- Decrease instances of long- and short-term disability.
- Heighten employee engagement and wellbeing.

Reporting

The Healthy Workplace Group achieved great success with the 2010 MActive Challenge. There were a total of 532 employees who participated on 80 teams and logged 998,079 minutes of physical activity. This is a 16% increase in participation from the 2009 challenge.

Collaborators

The Healthy Workplace Group organizes and runs the MActive Challenge annually with support from various groups and departments on campus as well as organizations external to the university.





Campus Farmstand

Overview

Providing easy access to local food will benefit the health and wellbeing of the campus community. Fresh food is a healthy alternative to pre-packaged or take-out food.

Purchasing food from local sources has less of an adverse effect on the environment by decreasing the distance food is shipped.

Supporting local food producers also provides an economic stimulus for the local economy.

Objectives

- Encourage the purchase of local food.
- Provide access to healthy food choices.
- Support local farmers.
- Provide an opportunity for community engagement.
- Educate about sustainable consumption.

Reporting

On August 26, 2010, McMaster launched the first Mac Farmstand, a mini farmer's market held on main campus. The Farmstand, held each Thursday between 11:30 a.m. and 5:30 p.m. until the end of October, makes fresh, local produce and preserves available to staff, faculty, and students of McMaster as well as to the surrounding community.



Farmstand items include peaches, tomatoes, apples, corn, and beets as well as preserves, such as honey and jam, to name just a few. The Student Health Education Centre (SHEC) provides weekly recipes that can be made with items available at that week's Farmstand. Recipes are printed on a blackboard at the Farmstand and can be found on the Mac Farmstand website for reference.

Collaborators

The MSU, Hospitality Services and the Office of Sustainability are the key collaborators on the Mac Farmstand. Support was also provided by Facility Services, MACgreen and SHEC. Local participating farms include Simpler Thyme in Flamborough, Two Century Farm in Grimsby and Busy Liz's Farm Shop in Campbellville.

Links

Mac Farmstand:

<http://www.macfarmstand.com/>

Campus Maps

Overview

McMaster University is constantly a hub of activity filled with new and returning students, faculty, and staff as well as visitors of all kinds, including parents of current and prospective students, guest lecturers, researchers and more.

Displaying educational materials, such as maps and directional signs, will not only ensure that all who attend the university are able to navigate their way around campus, but will also provide easy access to pertinent information.

Objectives

- Provide easy access to information.
- Ensure efficient and effective way-finding.
- Support the positive experience to all who attend McMaster.
- Achieve paper reductions through reducing the need to print paper maps.

Reporting

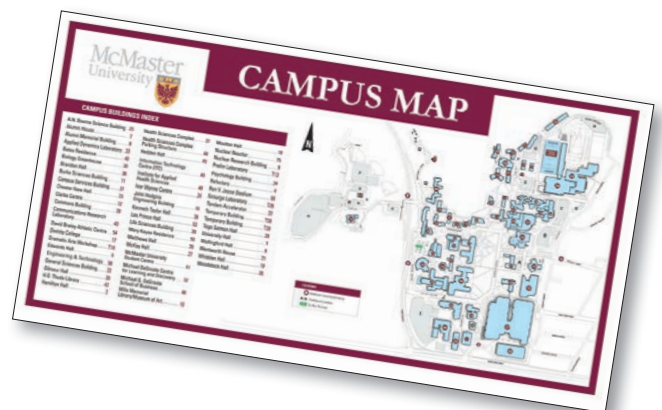
Campus maps will be posted in all academic and administrative buildings at McMaster's Main Street campus in the winter of 2010 to support easy and effective way-finding.

Maps printed 34" x 17" and posted at building entrances will be highly visible, easy to read and placed in entrance locations.

Parking & Transit Services eliminated the printing of 8,000 pocket maps and achieved \$1,900 in annual savings.

Collaborators

McMaster's Facility Services, Parking & Transit Services, Human Resource Services, Centre for Student Development (CSD) and the Office of Sustainability worked in collaboration on this initiative.





Community Garden

Overview

Interest from multiple stakeholders at McMaster University and the City of Hamilton to incorporate a community garden has provided incentive to investigate this opportunity further.

Community gardens not only offer a local source of produce, but provide an avenue for community engagement and relationship building.

Objectives

- Investigate the opportunity to incorporate a community garden at, or related to, McMaster University.
- Provide an opportunity for community collaboration.
- Provide an opportunity for the production of local food, which could be consumed within the community.
- Encourage the rehabilitation and utilization of green space, which may currently be monoculture and/or under-utilized.
- Provide educational opportunities for McMaster students.



Reporting

The City of Hamilton's Public Works Committee passed a Community Garden Policy in April 2010, which will facilitate community gardens housed on City property by defining the process for community members to establish more community gardens in the City of Hamilton. This policy will take effect January 1, 2011.

Items outlined in the policy include: criteria for establishing new community gardens, garden plot allocation policies and a budget for establishing new community gardens.

The establishment of a formal Community Garden Policy has provided an opportunity to further the academic mission of students who are looking to investigate the creation of a community garden related to McMaster University.

Collaborators

The main parties responsible for creating the Community Garden Policy include the City of Hamilton's Public Works Department, the Community Food Security Stakeholder Committee and the Hamilton Community Garden Network.

Connections with community stakeholders have begun to take place to further develop student opportunities for studying and taking part in the implementation of a community garden related to McMaster University.

G. Education

Sustainability Internship* Program

Overview

To enable students who have a passion for sustainability and to assist them in applying their formal education, the Office of Sustainability worked with faculties and departments across campus to create ten sustainability internship opportunities for the 2009/10 school year.

The Sustainability Internship Program has been highly successful and will continue to be expanded and developed. Broader communication will assist in program development and success.

Objectives

- Provide internship opportunities for McMaster students to apply their educational learnings to practical, on-campus sustainability initiatives.
- Highlight the achievements of those students who have successfully completed their internship.
- Provide an avenue for education and information sharing.
- Communicate this practical learning opportunity to current and prospective students.



Reporting

During the winter and spring of 2010, a number of successful sustainability internship projects took place, some of which continued from the fall 2009 term. Projects include a 3D model of building energy usage, inventory of campus paper usage, plug-load comparison of various campus computers and an inventory of campus bike racks and their corresponding usage levels. Each project also included recommendations for ways to improve sustainability as it related to the project investigation. The recommendations have supported, and will continue to support, campus sustainability initiatives, such as the campus composting program, permeable paving pilot project and bike rack implementation plan mentioned above.

Various groups and departments have shown interest in working together with students on proposed projects to begin in the fall of 2010, including creation of a community garden, paper-saving initiatives and energy conservation educational programs.

Collaborators

A variety of faculty and students at McMaster have been involved in the Sustainability Internship Program. Support from stakeholders, both internal and external to the university, has provided information and expertise to contribute to students' academic learnings and success of this program.

*NOTE: Sustainability internships are non-paid experiential opportunities. Course credit is awarded to successful participants by the faculty through which the internship is offered.



Presentation Series

Overview

Support has been demonstrated by stakeholders from across campus to host a seminar or presentation series on topics related to sustainability.

Access to expert knowledge on all Sustainability Areas of Focus will enable effective information sharing and educational awareness on topics of sustainability.

Objectives

- Educate sustainability-minded citizens.
- Share information and expertise.
- Network across disciplines.
- Expose research and learning opportunities to fellow faculty, staff and students.

Reporting

The Office of Sustainability and BioSphere, an MSU Club and student environmental group organized through the Biology Society, are in the process of organizing a presentation series to take place in March of 2011.

During the past two years, BioSphere has engaged a number of researchers from various disciplines such as environmental science, biology, history, anthropology, engineering, religious studies and chemistry, as well as members from community groups, to speak at their annual “EverGreen” conference. Issues covered include: sustainability, climate change, agriculture and the role of human beings in nature.

The 2010 series is expected to include a broader range of presenters as well as focus on participant engagement in conversation and discussion.

Collaborators

BioSphere and the Office of Sustainability are collaborating on this initiative. Further information will be posted on the Office of Sustainability website.



Campus Tours and New Employee Orientation

Overview

McMaster has a well-established program coordinated by the Student Liaison Office which runs campus tours to support the many visitors to, and prospective members of, McMaster University.

McMaster's Centre for Continuing Education (CCE) has created a New Employee Orientation program in collaboration with McMaster's Human Resources Services. Employees hired in the past six months are encouraged to attend a one-day session aimed, among other things, at informing new employees about the larger university, its mission and culture.

Including a sustainability component into current tour and orientation programs allows those who are new to McMaster and who are interested in sustainability to obtain relevant information about the resources available to them and encourages them to adopt and embrace a culture of sustainability.

Objectives

- Communicate information about sustainability at McMaster to current and prospective stakeholders of the university community.

Reporting

The Office of Sustainability has worked with Student Liaison to include aspects of university sustainability into campus tours, such as McMaster's Secure Bike Storage Facility, the student-run composting program and McMaster's waste and recycling program. Information on getting involved in sustainability is also highlighted in the tour guide handbook for reference.

The Manager of Sustainability provides a presentation to new employees through the New Employee Orientation program session which is held approximately once every two months.

The presentation is a method to provide awareness of the Office of Sustainability, along with information that can be obtained through the office and various ways to become involved in creating and cultivating a culture of sustainability at McMaster.

Collaborators

The Office of Sustainability has worked with both the Student Liaison Office and CCE to provide information about campus sustainability to new staff, faculty and students.





2010 McMaster Sustainability Annual Report

Overview

The Office of Sustainability has authored an annual report detailing an overview, objectives, reporting and collaborations of all sustainable initiatives for the current year.

Objectives

- Provide efficient communication and transparency of McMaster's Sustainability Initiatives to the McMaster community and broader public.
- Record and track the objectives, implementation process and results in order to create tangible outcomes.

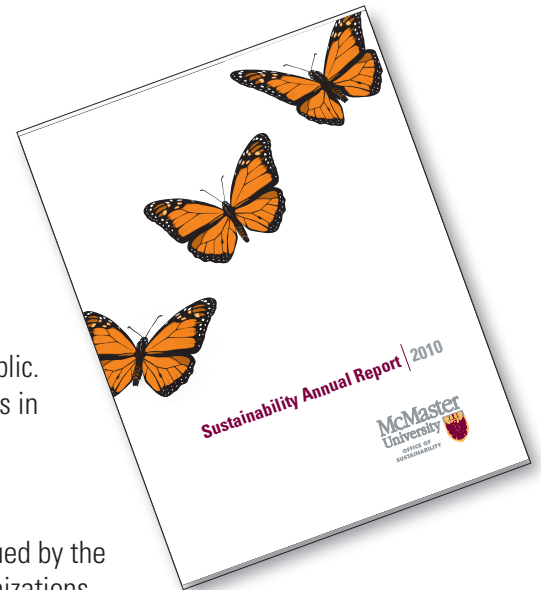
Reporting

Initiatives corresponding to each Sustainability Area of Focus were pursued by the Office of Sustainability in conjunction with individuals, groups, and organizations both within and external to campus. The final list of the 2010 Sustainability Initiatives was available for review in January 2010 with final recommendations and feedback received in April 2010.

All Sustainability Initiatives that have been successfully implemented prior to October 1, 2010 are reported in full within the Annual Report. Initiatives that are still in progress will present a status report within the "Reporting" section. All Sustainability Initiatives are anticipated to achieve full implementation before the end of each calendar year. Initiatives designed to carry over for more than a 12-month period are described as such within the Annual Report and will be further reported on in the following year. The McMaster Sustainability Annual Report is authored throughout September and is available for final release on Sustainability Day, held annually in October.

Collaborators

The Office of Sustainability facilitates the campus community at large on the development and implementation of the Sustainability Initiatives for McMaster. The Sustainability Ambassadors and the Sustainability Steering Committee provide feedback and recommendations on the final list of proposed initiatives to be pursued. Research, investigation, development and successful implementation of McMaster's Sustainability Initiatives are truly campus-wide collaborative efforts put forth by many staff, faculty, students, and external partners.



Glossary

Active Transportation

Active Transportation is any form of human-powered transportation. Examples include walking, cycling, wheeling, in-line skating, skateboarding, and ice skating.

Reference:

http://www.phac-aspc.gc.ca/pau-uap/fitness/active_trans.htm

Bike-Sharing

A short-term bicycle rental available at a network of unattended locations. Fourth generation bike-sharing systems include movable kiosks, wireless monitoring systems and are solar powered.

Reference:

http://cms1.smartcommute.ca/sites/com.hamilton/files/File/bike_share_hamilton3.pdf

Carbon Footprint

A carbon footprint is the measure of the amount of greenhouse gases, measured in units of carbon dioxide, produced by human activities. A carbon footprint can be measured for an individual or an organization, and is typically given in tons of CO₂-equivalent (CO₂-eq) per year

Reference:

http://www.eoearth.org/article/Carbon_footprint

Greenhouse Gas (GHG)

Gases in the atmosphere that absorb infrared energy and contribute to the air temperature. These gases are like a heat blanket and are important in insulating the Earth's surface. Among the greenhouse gases are carbon dioxide, water vapor, methane, nitrous oxide, chlorofluorocarbons, and other halocarbons.

Reference:

Wright, R., 2004. *Environmental Science: Towards a Sustainable Future*. 9th edition. New Jersey, Pearson Prentice Hall, 736pp.

Heat Island

The term "heat island" describes built-up areas that are hotter than nearby rural areas. Heat islands can affect communities by increasing summertime peak energy demand, air conditioning costs, air pollution and greenhouse gas emissions, heat-related illness and mortality, and water quality – United States Environmental Protection Agency, 2009

Reference:

<http://www.epa.gov/heatisland>



Single Occupancy Vehicles (SOVs)

A single-occupancy vehicle is a privately operated vehicle in which the only occupant is the driver. Single-occupancy vehicles are cited to be high pollutants, cause traffic gridlock, contribute to climate change, as well as waste fuel and money.

Reference:

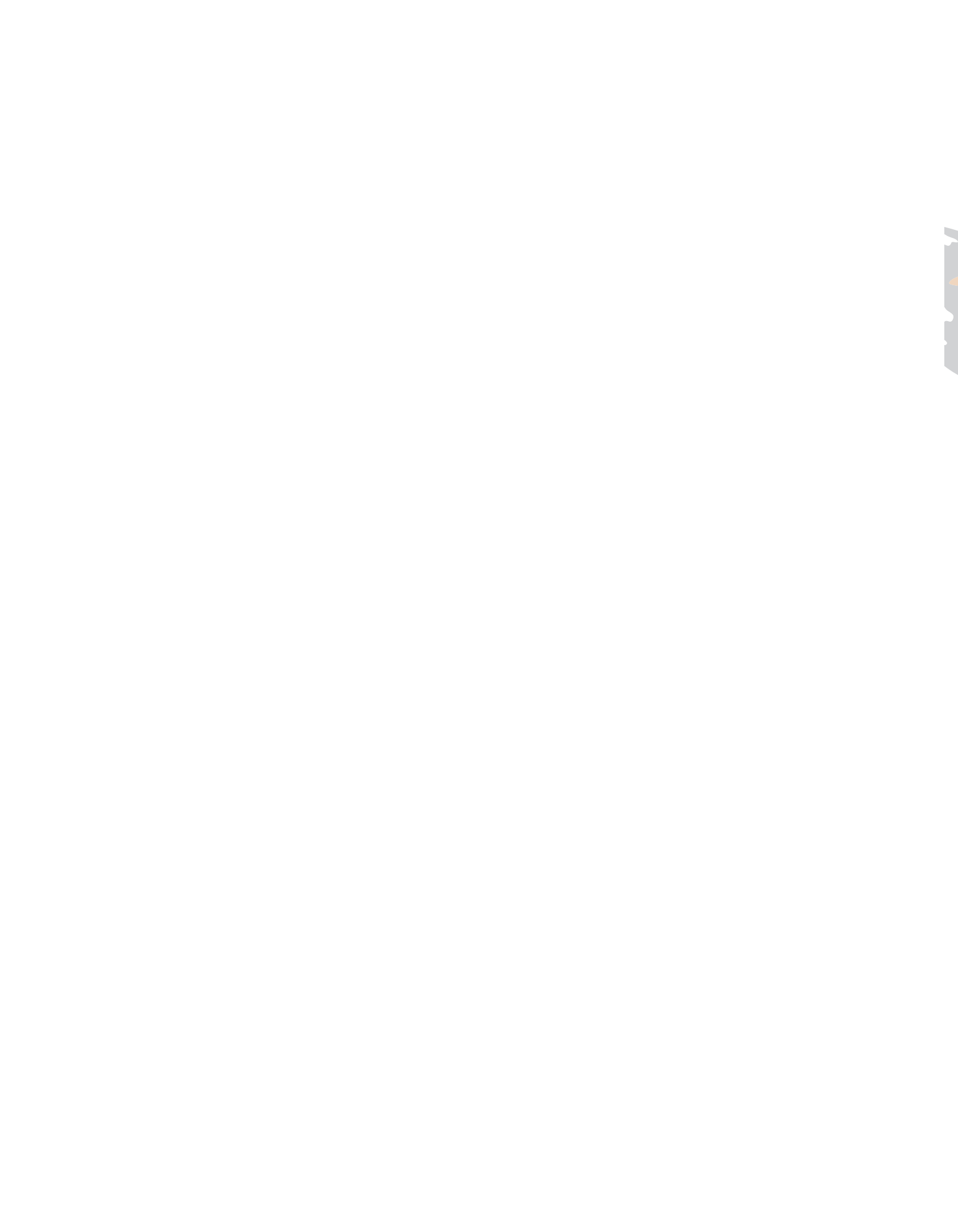
<http://air.greenventure.ca/healthy-commuting>

Transportation Demand Management (TDM)

Transportation Demand Management (TDM) is the use of policies, programs, services and products to influence whether, why, when, where, and how people travel. TDM measures can lead people to shift their mode of transportation, make fewer trips, and/or drive more efficiently.

Reference:

http://www.sustainablecommunities.fcm.ca/files/Capacity_Building_Transportation/TransportationDemandManagement-e.pdf







<http://sustainability.mcmaster.ca>