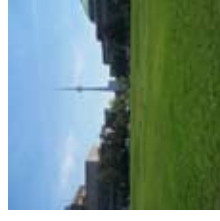




# Annual Sustainability Report 2008



# Executive Summary



Over the past year, the University of Toronto has made measurable and significant progress towards institutional sustainability, particularly in coordinating environmental initiatives across all three campuses.

The establishment of the Sustainability Board in January of 2007 set the stage for improved coordination, planning and execution of energy and resource conservation efforts across the Mississauga, Scarborough and St. George campus. These processes were further facilitated by the launch of the Sustainability Office at the Scarborough Campus in May 2007. As a direct result, the campuses are nearing the end of a comprehensive energy and resource planning exercise, are set to launch a pilot of a revolving loan fund for environmental projects, and have begun to develop an improved 'green' standard for capital projects. Furthermore, we have seen the completion of some prominent tri-campus projects, including the 'Ban the Bulb' campaign, which resulted in the replacement of nearly all of the incandescent light bulbs with more energy efficient compact fluorescent lights.

While these new administrative structures have contributed to the success of sustainability initiatives, the true driving force has continued to be the support, dedication and knowledge of students, staff and faculty at each campus. Thousands of community members have been actively engaged in academic courses, conferences, lectures, and

sustainability initiatives such as Rewire and Resource. Sustainability initiatives thrive on a fusion of research, application and education and contribute to the diversity and value of sustainability efforts at the University.

Grant applications totaling more than \$650,000 were submitted to a variety of agencies and foundations, and over twenty-five articles in the media were published about sustainability initiatives at the University, from the Globe and Mail to Now Magazine. Major projects were undertaken in 2008, including the completion of the Energy and Greenhouse Gas Inventory at Mississauga and Vending Miser projects – aimed at reducing electricity demand – at both Scarborough and St. George campuses.

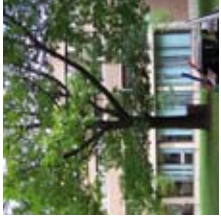
In the coming year, the Sustainability Board will guide the three campuses to create a set of overarching sustainability objectives, which will be presented and reported on in next year's Annual Sustainability Report. The continued development of funding mechanisms and partnerships to support the initiatives of each campus will be key to the achievement of these objectives. Finally, sustainability staff will continue to dedicate efforts to the further synthesis of a culture of sustainability with the functions and operations of the University.

A selection of activities from the three campuses between February 2007 to April 2008 are highlighted in this report.



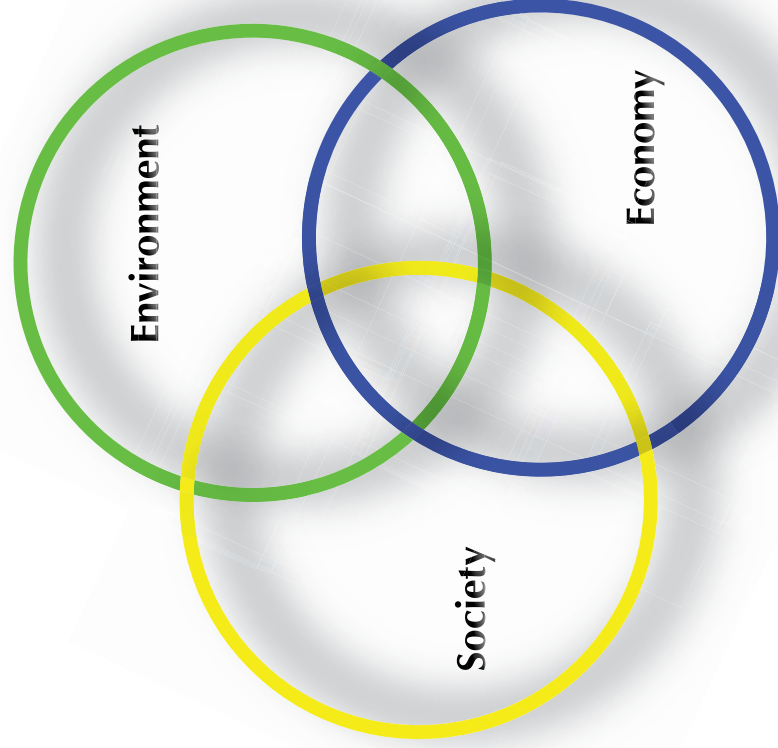
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# What is Sustainability?



In order to clearly communicate sustainability achievement at the University of Toronto it is important to explain the concept of sustainability and what that term means to our operations.

In the broadest sense of the term, “sustainability” refers to the ability of a system or a community to maintain itself over time. Since the 1960’s, there have been concerns that contemporary human society is unsustainable – i.e., that our current culture cannot continue indefinitely, because it is destroying the ecological systems and depleting the natural resources on which it depends to survive.

In 1987, Gro Harlem Brundtland articulated the concept of sustainable development – “meeting the needs of the present without compromising the ability of future generations to meet their own needs” – in the landmark report “Our Common Future.” Since that time, calls for sustainable societies have only increased, fuelled by growing concern about climate change and other ecological disasters.

Sustainability is not just about the environment – it is about meeting the needs of a community as a whole. Sustainable communities meet economic, social, and environmental needs in the short and long term. At the same time, sustainability is as much a process as it is a condition – it therefore requires conscious consideration of the connections between the environment, economy, and society, and the balancing of present expectations with future needs.

# Introduction



Recent polls have shown that Canadians are becoming increasingly concerned about environmental issues, listing the environment behind only health-care as a primary issue of importance.

Through the establishment of the Environmental Affairs Office at the Mississauga campus (May 2004), the Sustainability Office at the St. George campus (Nov 2004), and most recently, the Sustainability Office at Scarborough (May 2007), the University of Toronto is taking steps to address these growing concerns about environmental sustainability.

Unique in a number of ways, each campus has taken a slightly different approach to sustainability and as a result, there exists a rich array of projects, programs and partnerships stemming from these initiatives across the university as a whole. In recognition of this, the administration has established a Sustainability Board, bringing together representatives from each campus. The aim of this board is to effectively embed sustainability into the fabric of the University of Toronto through providing guidance, support and accountability to sustainability activities, and to assist in coordinating University-wide sustainability initiatives.

# Organizational Structure

Central hubs to coordinate sustainability efforts exist at each of the three UofT campuses: Scarborough, Mississauga and St. George. The organization of each hub varies from campus to campus, with numbers of persons involved fluctuating each year particularly with regards to student involvement. The Sustainability Board unites representatives from all three campuses to coordinate and provide broad-based support for sustainability initiatives across the university. Selected text from the terms of reference for the board, including a listing of board members, is included in Appendix A. The 2007-2008 structures of each office are summarized below.

## *Scarborough (Sustainability Office)*

- A full-time Sustainability Coordinator;
- A Sustainability Assistant (4-month contract terms, 3 terms per year);
- 6 work study students (3 junior, 3 senior);
- Strong collaborative work with faculty, staff, student offices and organizations on campus; and
- Significant volunteer, staff & faculty involvement.

Launched in May 2007 in order to help U of T Scarborough achieve its sustainability goals, the Sustainability Office lies within the Office of Business & Administration at U of T Scarborough. The Sustainability Coordinator reports directly to the Chief Administrative Officer, works collaboratively with all other faculty, staff, and student offices and organizations on campus and manages the work of the Sustainability Assistant and work study students.

## *St. George (Sustainability Office)*

- Half-time Faculty Director;
- 2 full-time Sustainability Coordinators;
- 4 full-time project specialists;
- 24 work study students;
- 5 part-time project staff;
- 13 independent coursework students;
- 25 Students involved through classes;
- 2 full-time summer student employees;
- 57 Students engaged as Rewire Coordinators; and
- Significant volunteer, staff & faculty involvement.

In 2007, two full-time Sustainability Coordinators replaced the Sustainability Manager, managing the technical and behaviour portfolios. The Coordinators manage the operation and projects of the Office and offer support to the Sustainability Director and the Director of Utilities and Building Operations. The Director reports to the Vice-President Business Affairs and Vice-President & Provost.

*Mississauga (Environmental Affairs Office)*

- A full-time Environmental Project Coordinator;
- A full-time Environmental Inventories Coordinator;
- 30 work study students + 5 additional student volunteer members of the Green Team;
- 2 independent coursework students;
- 4 full-time summer student employees;
- Significant student, staff & faculty volunteer involvement.

In 2007, the position of Sustainability Coordinator was replaced by the position of Environmental Project Coordinator, who will work under the direction of the Chief Administrative Officer and the Director of the Centre of Environment. They will oversee environmental projects on the Mississauga campus through the office of the CAO, supporting them through integration with the academic mission of the Centre of Environment. Furthermore, an Environmental Inventories Coordinator was hired by Department of Facilities Management and Planning. This new structure is reflected in the organizational chart included in Appendix B.



# Partnership Development



UNIVERSITY  
of TORONTO



Ontario Centres of  
Excellence



The generosity of the numerous funding agencies and partners involved with each campus has been critical to the success of sustainability initiatives.

Of course, the widespread support and range of invaluable relationships within the University of Toronto community continues to be one of the greatest resources and strengths of sustainability at the university.

## Grants

All three of U of T's campuses enjoy generous financial support from numerous organizations. Over the past year, applications worth over \$650,000 were submitted to granting agencies. See Appendix C for a summary of granting activities in the area of campus sustainability.

*The Sustainability Office at UTSC enjoys generous support from:*

- University of Toronto
- Evergreen (through EcoAction – Environment Canada)
- Natural Resources Canada Science and Technology Internship Program
- Toronto & Region Conservation Authority

*The Environmental Affairs Office at UTM enjoys generous support from:*

- University of Toronto
- Human Resources and Skills Development Canada
- Natural Resources Canada Science and Technology Internship Program

*The Sustainability Office at St. George enjoys generous financial support from:*

- University of Toronto
- Natural Resources Canada Science and Technology Internship Program
- Social Sciences and Humanities Research Council
- ECO Canada
- Ontario Centres of Excellence
- Toronto Community Foundation
- Conservation Bureau (Ontario Power Authority)
- Toronto & Region Conservation Authority
- Toronto Atmospheric Fund
- EcoAction (Environment Canada)





### Partnerships

Beyond the support of the University administration and outside funders, a number of internal and external partnerships contribute to the success of sustainability initiatives at all campuses.

#### *Scarborough*

Office of Business & Administration, Office of the Vice-Principal Research & Graduate Studies, Scarborough Campus Students' Union, and Evergreen.

#### *Mississauga*

The City of Mississauga, Credit Valley Conservation Authority, Smart Commute Mississauga, Sierra Youth Coalition, Community Foundations of Mississauga, and University of Toronto Environmental Resource Network, Riverwood, Evergreen, Mississauga Transit.

#### *St. George*

Citizens' Environment Watch, Toronto Atmospheric Fund, University of Toronto Environmental Resource Network, Environmental Students Union, BikeChain, U of T Magazine, Ancillary Services, World Wildlife Fund, Forest Stewardship Council, the University Health Network, Indeco Strategic Consulting, and AM FM Consulting Group Inc.

# Media and Communications



## Internal Media

The Internet is one of the main tools employed to connect with students, staff and faculty at the University. Furthermore, it provides a means of communicating to the outside community about the sustainability initiatives at the University. The Offices of all three campuses can be found online at:

[www.utsc.utoronto.ca/sustainability](http://www.utsc.utoronto.ca/sustainability)

[www.utm.utoronto.ca/green](http://www.utm.utoronto.ca/green)

[www.sustainability.utoronto.ca](http://www.sustainability.utoronto.ca)

The U of T Scarborough Sustainability Office publicizes all of its events and projects on its website, as well as through the main U of T Scarborough Events website ([www.utsc.utoronto.ca/events](http://www.utsc.utoronto.ca/events)) and

through digital signs. The U of T Scarborough Communications Office also frequently writes articles about sustainability projects and events, some of which are published in the U of T Bulletin ([www.utsc.utoronto.ca/info/news](http://www.utsc.utoronto.ca/info/news)).

The offices at Mississauga and St. George distribute information through listservs, each with hundreds of subscribers. The St. George SO publishes The Green Note – a newsletter geared towards students – along with pamphlets and a campus Green Tour guide. The St. George SO has also used display cases in high traffic campus locations, such as the Sidney Smith building and Robarts Library, to raise awareness about issues of sustainability and the initiatives going on across campus.

## UNIVERSITY OF TORONTO

B

↑ Higher Grade Than Last Year

All three campuses enjoy widespread U of T media coverage, through college and campus newspapers and radio stations, such as the Varsity, the Bulletin, U of T Magazine, and a monthly radio spot on Take 5 with Andy Frank on CIUT.

### External Media

Sustainability at each campus has been highlighted in radio and print, locally, nationally and internationally. Articles on the Sustainability Offices' work have appeared in such varied print media as the Toronto Star, NOW magazine, the Globe and Mail, the Sustainable Endowments Institute Report, the Toronto Sun, The Metro, and the Mississauga news.

Please see Appendix D for specific details of this media coverage.

### Events

Representatives from each campus take every opportunity to promote the University's efforts to increase sustainability. All Offices have organized or been invited to speak in numerous settings, and frequently organize well attended outreach, educational and training events, some of which are highlighted here.

### Tri-Campus

#### *Ontario Sustainable Campuses Conference*

Held at the University of Ottawa in January 2008, the Ontario Sustainable Campuses Conference was a primarily student oriented

gathering organized by the Sierra Youth Coalition. Though most of the sessions were heavily student oriented, the conference proved to be a valuable networking opportunity.

#### *Ontario Sustainability Coordinators Association (OSCA) Inaugural Meeting*

A selection of Ontario College & University sustainability coordinators met at the Sierra Youth Coalition conference in January (mentioned above), and decided to meet again at a summit specifically oriented towards sustainability coordinators who work within the administrations of Ontario colleges & universities. The summit was held at U of T Scarborough in May, and agreements were reached regarding a name for the group (Ontario Sustainability Coordinators Association), as well as confidential sharing of information regarding sustainability performance, practice, and organization.

### Mississauga

#### *Speakers Series – Galen G. Weston*

With the Department of Management and the Undergraduate Commerce Society, the Environmental Affairs office with the Green Team presented a discussion with Galen Weston of Loblaws. The topic of the discussion was 'Greening of a Canadian Retailing Giant' leaving standing room only in the 500-seat gymnasium.

#### *Technowefile 2008*

The annual conference dedicated to IT services at the University

adopted Green Computing as one of its core themes. Both Sun Microsystems and the St. George Sustainability Office presented issues with regards to IT and its energy consumption and environmental impact. A challenge to reduce IT related electricity and paper consumption by 50% in two years was enthusiastically received by the IT community.

*'Show Me the Green' student conference*

300 undergraduate commerce students participated in this weekend event that had groups compete against each other, marketing unknown environmental initiatives on the campus. The event was run by the undergraduate commerce society with support from the Green Team. There were a number of sponsors, including PriceWaterhouseCoopers, LUSH, the Body Shop, Apple Computers, Certified General Accountants of Ontario, WWF, and Yves Rocher.

**St. George**

*ECOLOGYECOmy: A Sustainable Dilemma? (Hart House)*

Hart House proudly took on the theme of ECOLOGYECOmy (ECO ECO) for 2007-08, offering a series of wide-ranging and divergent multidisciplinary programs to members of the campus community, which aimed to examine and challenge the oppositional nature of ecology and economy. Staff and students from the Sustainability Office were honoured to participate as panelists for the November 2007 event entitled "Climate Change: Global Problem



Local Action! What you as a student can do” .

*Lectures by the St. George Sustainability Director*

Beth Savan presented at the International Conference on Living Knowledge Communities: building knowledge innovation through citizens' science and university engagement, which took place in Paris in August 2007. She also gave the keynote address at the 5th Annual Elizabeth Killam Rodgers & Constance Killam Distinguished Public Lecture to the incoming scholars of the Canada-US Fulbright Program in September 2007. Beth's presentation was entitled "Moving Minds: The Social Side of Sustainability."



## Recognition of Achievement

### Tri-Campus

#### *Sustainable Endowments Institute Report Card*

In October 2007, the Sustainability Endowments Institute released its second annual report ranking the sustainability of the 100 best-endowed public and private universities in the United States and Canada. The University of Toronto improved its grade to a B from last year's B-, again placing it in the top quartile of the schools evaluated; of particular note were the A grades received for the leadership of the university administration in their commitment to sustainability, for policies on food & recycling, and for the transparency of the university's endowment holdings.

### Mississauga

#### *Charlie Brown Distinctive Service Award*

This award recognizes the significant service, volunteerism and partnership with the Riverwood Park and the Mississauga Garden Council. Campus members have participated in hands-on roles, leading interpretive walks, participation on the Stewardship Committee, and leading corporate stewardship events on site. Professors and students perform research on the property, including researching the white-footed mouse and invasive species control.

#### *City of Mississauga Partnerships Award*

Awarded to City employees and partners who engage in a joint project or event with an external organization, association, service group or level of government where the outcome has demonstrated mutual benefit. The U-Pass Transit Implementation Team (comprised of staff from Transportation & Works Department and Corporate Services Department) and members of the Mississauga campus community received this award.

#### *Communities in Bloom*

The City of Mississauga is once again involved in the CIB program, where civic pride and city beauty are ranked against all other cities of that size category. In 2007, the City of Mississauga ranked third place in Canada and won distinction for its tidiness. The U of T Mississauga campus is a major part of the tour every year.

# Measurement and Assessment

Accurately monitoring emissions and resource use is fundamental to the success of sustainability initiatives in identifying opportunities, prioritizing projects and evaluating program effectiveness.

The three-year Sustainability Plan is currently being revised to reflect and enhance the integration of sustainability objectives at all three U of T campuses. Using tools such as those outlined below, the plan will provide a framework to evaluate the progress each of the three campuses.

## Mississauga

### *Buildings energy inventory*

An inventory of building energy use at UTM has been completed. The inventory compiled building-by-building information including types of heating and cooling systems, types of windows, building occupants and facility function, as well as use of electricity, natural gas, and water. Energy intensities of buildings were calculated to identify “energy hogs” so that these buildings can be targeted for reduction strategies.

### *Greenhouse gas inventory*

The first greenhouse gas inventory for the Mississauga campus has been completed. The inventory analyzed emissions from on-campus fuel use (building heating and cooling), purchased electricity, campus grounds vehicles, faculty and staff driving to campus, and students driving to campus. The inventory covers fiscal years 2001-2007, and provides a valuable baseline against which U of T Mississauga can track its progress towards sustainability.

### *Laboratory equipment inventory*

An inventory of laboratory equipment in all Mississauga campus labs of the South Building was undertaken. The inventory specifically targeted refrigerators, freezers, incubators, and ovens. The location, number, and types of units were recorded. For refrigeration equipment the annual energy consumption of these units (both primary electricity consumption and increased cooling load) was estimated.

## Scarborough

### *Sustainability Vectors*

In addition to completing a building energy inventory similar to UTM, U of T Scarborough tracks a series of 28 sustainability vectors on an annual basis with the 7 vectors listed below representing the most salient information. Though the two year trend identifies some initial signs of improvements, the continual maintenance of sustainability vectors will mature into a strong, comprehensive analytical tool that will help determine whether campus sustainability is progressing.

Vector	2006-2007	2007-2008	Trend
Water (cu.m)	145,234.1	139,287.8	-4.1%
Natural Gas (M cu.ft.)	109.0	105.3	-3.5%
Hydro (MWh)	23,374.7	23,912.4	2.3%
Auto Fuel (L)	40,176.0	40,604.0	1.1%
Landfilled Waste (t)	254.1	288.9	13.7%
Diverted Waste (t)	160.5	185.3	15.5%
GHGs (t-eCO <sub>2</sub> )	12,984.9	12,944.1	-0.3%

## St. George

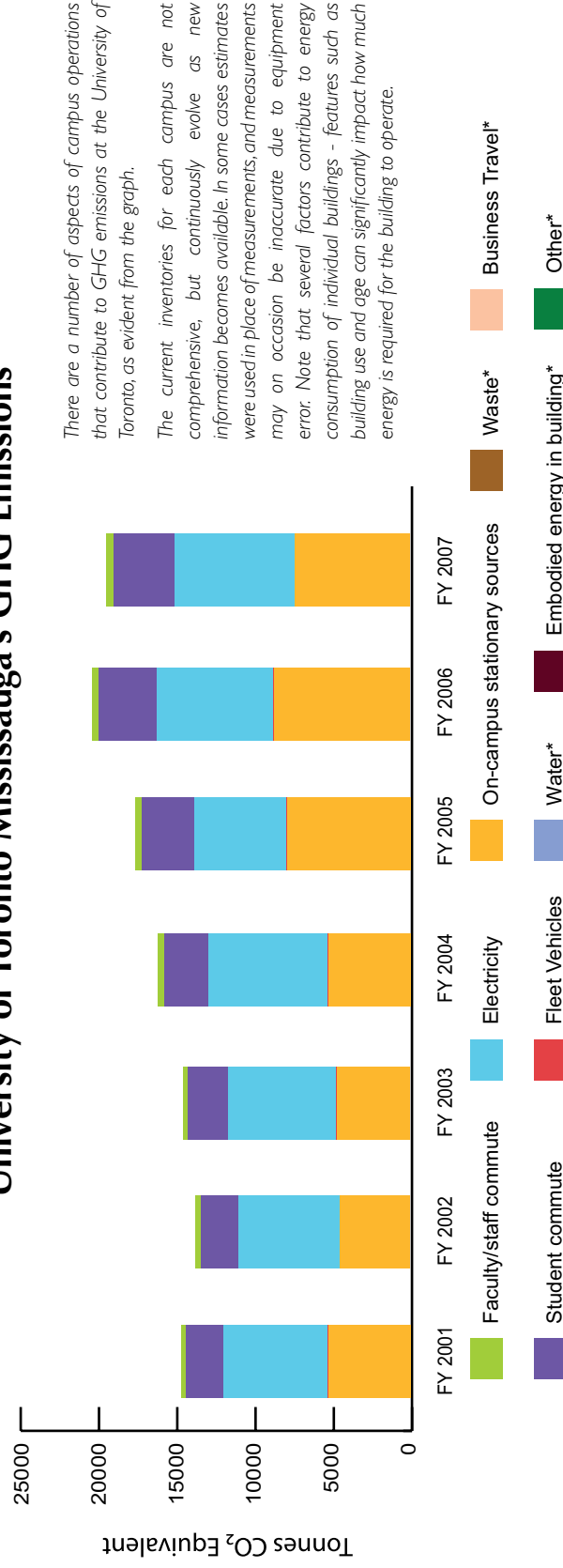
### Greenhouse gas inventory

The St. George campus boasts an online interactive greenhouse gas inventory for its building operations (<http://www.sustainability.utoronto.ca:81/ghg-inventory>). The inventory displays historical energy use and emissions data back to 1990 on a building-by-building basis. Research has been completed to assess the emissions resulting from the commuting pattern of staff, faculty and students as well as from the disposal of waste generated on campus. All of this information will be available online by late 2008, and lays a foundation for exercises in energy and resource planning.

### Residence Laundry Appliance Inventory

Rewire reviewed the laundry toolkit in order to assess whether the maximum electricity savings from laundry usage was being achieved through the targeted behaviours. To do so, a full inventory was conducted of all the laundry washers and dryers in residences on campus. It was found that over 70% of electricity use from laundry comes from dryer use. To reduce this electricity load Rewire will be piloting the use of drying racks in 2008-2009.

## University of Toronto Mississauga's GHG Emissions



\*Currently Unavailable

# Ways and Means



Numerous projects and initiatives that address sustainability are underway at all three campuses, enhanced by the integration of research, learning and implementation. These initiatives use the university as a living laboratory to test a myriad of sustainability strategies, an approach that has proven to be successful in engaging students, faculty and staff while improving campus sustainability. What follows are more detailed descriptions of just some of the key projects being implemented at each of the campuses, organized into the following categories: transportation; technology and retrofits; buildings and lands; and behaviour and policies.

## Transportation

### Multi-campus

#### *TTC Metropass discount*

All U of T campuses continue to benefit from a reduced TTC Metropass rate for students, faculty and staff. Many people at the three campuses take advantage of this discount.

#### *Intercampus Shuttle*

The shuttle bus between the Mississauga and St. George campus was increased to 28 round trips per day and now includes 2 round trips on Saturdays. The shuttle bus is provided by a levy in the incidental fees for Mississauga students and they enjoy it fare-free. Staff, faculty and other passengers can use the intercampus shuttle for

\$6.25 per one-way trip. The shuttle operates at a reduced schedule in the summer months.

### Scarborough

#### *EcoPark*

Beginning in the 2008-2009 academic year, certain desirable parking spots will be reserved for people driving low emissions vehicles. To participate, anyone with an outer lot parking permit can apply to also have an ecoPark decal displayed on their vehicle that allows them to park in the designated spaces. Eligible cars must emit less than 140g equivalent-CO<sub>2</sub>/km.

#### *Bike Share*

In August 2007, the Scarborough Campus Students' Union (SCSU) launched Bike Share on campus. Through the program, members of the U of T Scarborough community can borrow bikes for a fixed amount of time, free of charge. There are currently five bicycles, with more being added to the fleet this year. Bikes have been commonly used for recreation in the Highland Creek Valley, and as a mode of transportation for students living on campus.

#### *Police Charger Conversion: Gasoline to Compressed Natural Gas (CNG)*

In summer 2007, a Dodge Charger police vehicle was converted from running on gasoline to compressed natural gas. Natural gas

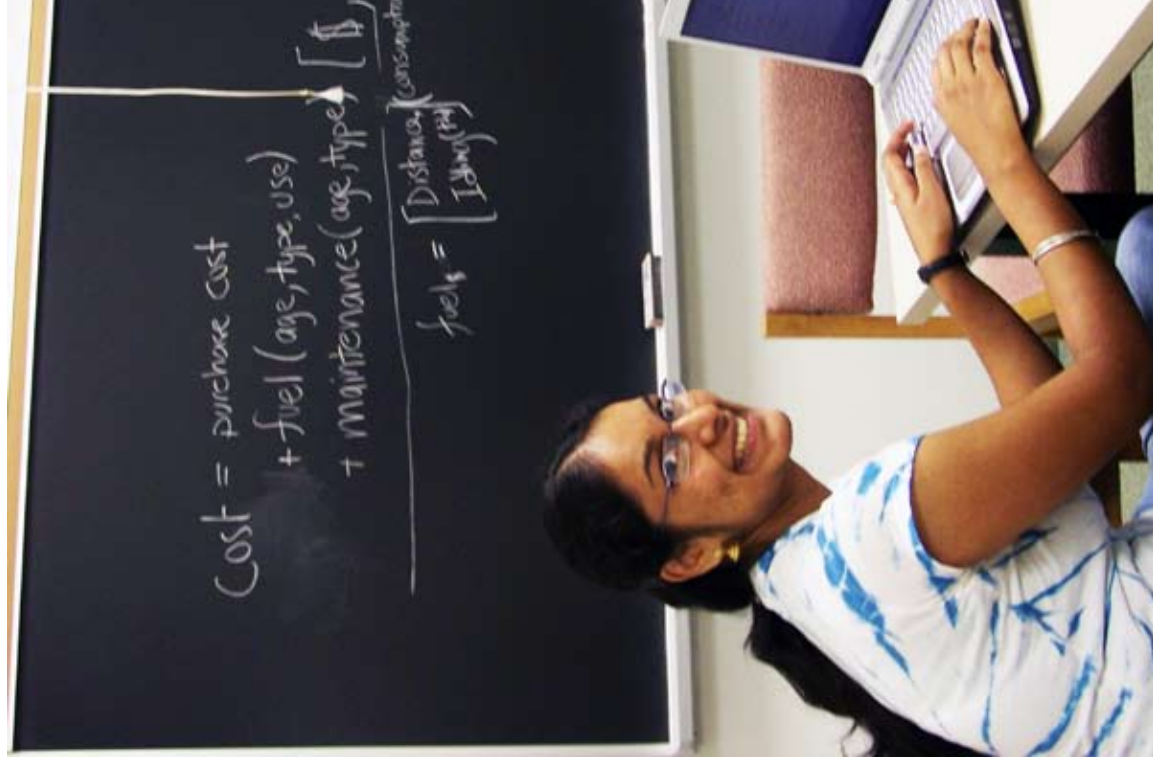


vehicles emit fewer greenhouse gases than gasoline vehicles, and the project is expected to result in a reduction of 3 tonnes equivalent-CO<sub>2</sub> per year.

### **Mississauga**

#### *U-Pass*

September 2007 marked the first year of the Universal Bus Pass for Mississauga Transit and Mississauga campus students. The cost per student is \$89 which includes a \$1.50 administrative fee. 7,561 full time undergraduate and graduate students of 9,200 eligible students picked up their U-Pass for unlimited, fare-free use on Mississauga Transit bus routes. Initial U-Pass distribution occurred over 4 weeks in August and September and was supervised by the Environmental Project Coordinator. Subsequent distribution occurred at the U of T Mississauga Student Union office. The Environmental Project Coordinator maintains inventory of the decals and reports to Mississauga Transit three times over the U-Pass term. The cost per student will increase to \$90 for year two. An undergraduate thesis project was completed to assess the impact on commuting patterns resulting from the addition of a U-Pass program on campus. The results show a 3% reduction in automobile use since the U-Pass program began, contributing to the already high proportion of community members using transit.





### *Carpool program*

Introduction of the U-Pass this year resulted in fewer carpool permit sales. Drivers who were more apt to choose an alternative method of commuting would likely be the first to use their fare-free bus pass. Smart Commute Mississauga continues to maintain the online ride-matching software and held two alternative commuting events over the year; Carpool and Win and the Commuter Challenge.

### *Zipcar*

In August 2007, Zipcar purchased two parking spaces in the underground parking garage, providing members with 24-hour access to rental cars that can be booked by the hour or by the day. Anyone over 21 years and meeting eligibility requirements can become a Zipcar member. Promotion of the Zipcar occurred three times over the year. The two Zipcars are very popular with graduate students and are signed out often.

### **St. George**

#### *Bikechain*

Bikechain's first full year of operating under student levy funding allowed it to expand both its range of equipment and breadth of services. With the help of six part-time staff members and dozens of committed volunteers, Bikechain worked hard to empower cyclists to take a hands-on approach with their own bicycles. Throughout the fall



and spring terms, the shop logged over 1500 distinct cases of repair or maintenance. In countless other instances Bikechain assisted St. George campus students and staff in answering questions on cycling in Toronto.

The tradition of holding events and seminars continued this year with great success, including bicycle-themed movie nights and numerous seminars on basic and advanced bike maintenance techniques. Furthermore, as Bikechain assumes additional funding from the Bikeshare student levy, it has inaugurated a new bike-lending program on the campus. For a refundable deposit, any U of T student may now borrow a bike from the former Bikeshare fleet.

#### *Plug-in Hybrid Electric Vehicle (PHEV) Pilot*

Facilities and Services purchased a Ford Escape and had it converted into a Hymotion plug-in hybrid with the generous assistance of the Toronto Atmospheric Fund. Faculty and students from the University of Toronto have been working in concert with engineers at Hymotion to monitor and evaluate the performance of this cutting-edge technology by gathering data from a number of the vehicles involved in the pilot project. The University of Toronto vehicle itself is being used to transport employees, materials and equipment for grounds maintenance around the St. George campus on a daily basis.





#### *Transportation Demand Management research*

This year, the Sustainability Office completed a baseline assessment of fleet vehicle usage and of daily commuting trips by students, faculty and staff. Based on data from the 2006 Transportation Tomorrow Survey it was determined that 82% of campus commuters use public- or active transit, and only 13% drive. However, a spatial analysis of this travel survey data conducted in conjunction with a student project (GGR462H) identified enough unrealized carpooling matches to cut the number of auto-driver trips in half.

In parallel, work-study program students analyzed fleet usage patterns and fuel efficiencies using data from 19 Facilities and Services Department vehicles equipped with Global Positioning System (GPS) units. Results from this work revealed usage patterns characterized by low-speed, short distance trips with repeated stops and starts. In the coming year the Office will use these results to conduct cost-benefit analyses for replacing aging fleet vehicles with more sustainable options such as hybrids and all-electric drive trains.

#### **Technologies & Retrofits**

##### **Multi-Campus**

###### *Incandescent Light Bulbs Replaced*

In winter 2007-2008, the incandescent light bulbs on the UTSC and St. George campuses were replaced with compact fluorescent light



bulbs (CFLs), where possible. If all bulbs were in use simultaneously, this would represent a reduction in electrical demand of over 1 MW. If all bulbs were used for 8 hours a day, 260 days a year (i.e. weekdays), it would represent an energy savings of nearly 4,000,000 kWh per year.

###### *Vending Misers*

Installed in summer 2007 at the UTSC and St. George campus, VendingMisers are devices that shut down vending machines when no one is around using motion sensors. An average cold beverage vending machine uses 3500 kWh per year, and it is estimated that these VendingMisers will reduce electricity consumption by 46%, or roughly 1600 kWh per machine.

##### **Scarborough**

###### *Recreation Centre Lighting Upgrade*

In September 2007, all remaining T12 fluorescent light fixtures in the Recreation Centre were switched to T8s. T8s provide a slightly higher level of light and reduce energy consumption, resulting in a net decrease of 172,500 kWh/year and 34kW in demand.



## **Mississauga**

### *Analysis of energy-saving measures*

The Mississauga campus identified opportunities the campus can take to reduce energy use, such as lighting retrofits, window replacement, and waste heat recovery. Cost-benefit analyses and feasibility studies have been completed for some of the identified opportunities with many still ongoing. Best practices and energy-saving measures that have been implemented at other universities are currently being researched and assessed for their applicability on campus.

## **St. George**

### *Fume hoods and research laboratory energy consumption*

There are over 1100 fume hoods on the St. George campus, (laboratory work stations which protect users from volatile hazardous substances by exhausting air away from the user at a rapid rate). It is estimated that the energy consumed annually through the operation of a single hood is more than three times the energy consumed by the average home. In the past year, the Sustainability Office worked with the Department of Chemistry, which hosts nearly one third of all hoods on campus, to identify opportunities for energy savings through upgrades and the elimination or deactivation of unnecessary hoods. Currently, preliminary results from student-collected data suggest



that simple strategies will achieve major reductions in hood energy consumption at this site. The next step will be to collaborate with relevant units to implement these strategies in a pilot program.

#### *Green Computing*

Over the past few months, research to understand current information technology (IT) practices and related patterns of electricity consumption was conducted. Highly conservative estimates suggest that over 5 million kWh are consumed annually through the operation of personal computers on campus, resulting in 1400 tonnes of GHG emissions. This figure does not include the many peripheral units, servers and cooling equipment associated with computing activities on campus. However, through the implementation of both hardware and software solutions, it is possible to reduce consumption dramatically. In this year's TechKnowFile, a conference dedicated to IT services at the University, the St. George Sustainability Office presented all IT service providers with a challenge: to reduce IT-related electricity and paper consumption by 50% in the next two years. There has already been tremendous interest in participation in the challenge, and in the coming months the Office will work with the University's IT community to design a program that can support them in this ambitious endeavour.

## **Buildings & Lands Scarborough**

### *Evergreen:*

U of T Scarborough has partnered with Evergreen Canada since 2006 to renaturalize areas of the campus, as well as undertake other environmental stewardship initiatives. There were 11 events, which saw the planting of 630 trees & shrubs, as well as 1000 wildflowers. An invasive species workshop held in February drew a crowd of over 60 community members.

### *Parking Lot Storm Drain Filters*

From September 2007 to March 2008, U of T Scarborough participated in a pilot program for storm drain filters, funded in partnership with the Toronto & Region Conservation Authority (TRCA) Community Program for Stormwater Management (CPSWM). Filters were installed under the grates of storm sewers in U of T parking lots, and later removed to test their efficacy. These filters remove some heavy metals and hydrocarbons from runoff, which would have otherwise gone into the receiving waters, and ultimately Lake Ontario.

### *De-Icers*

For winter 2007-2008, U of T Scarborough used Mountain Organic Natural Ice Melter in place of Blue Heat for ice removal



on walkways and terraces around campus. The former primarily uses potassium chloride to melt ice, whereas the latter uses calcium chloride. It is generally not beneficial to use large quantities of any sort of salt, but potassium has a fertilizing affect on plants where calcium does not.

### **Mississauga**

#### *Riverwood*

U of T Mississauga continues its partnership with Riverwood, a garden park located just north of the campus property owned by the City of Mississauga. This year a student from Environmental Affairs monitored invasive species at the Riverwood site and produced a site map. This invasive species mapping and removal project now enjoys a partnership with the Credit Valley Conservation Authority. To celebrate the campus partnership with Riverwood, U of T Mississauga was awarded the Charlie Brown Distinctive Service Award.

#### *Naturalization Committee activities*

The Naturalization Steering Committee (NSC), with the support Mississauga city staff, Evergreen, and the Credit Valley Conservation Authority, focused on four projects:

##### *1. Species at Risk*

Monitoring of threatened amphibian populations, which reside near a natural vernal pond located in the campus woodlot are

ongoing to ensure their ecosystem needs can be fully understood. Over the last year, 19 monitoring sites were set up and populations were observed, recorded and measured. The Credit Valley Conservation Authority and Evergreen have been active participants in this project with the campus NSC since 2005. Monitoring wells have been installed to measure the hydraulic movement at the site. Research is being conducted in this habitat by the biology department.

##### *2. Old field reclamation project/prescribed burn*

This controlled burn is part of the University's long-term management plan designed to preserve and enhance part of our grassland habitat, which is an important resource for teaching and research at U of T Mississauga. Without active management, this area would develop into a shrubland dominated by non-native invasive plant species. A controlled burn is the most effective way to encourage native grassland plants, to remove non-native species and to restore the meadowland character of the area. Evergreen has been an active participants in this project with the NSC since 2006. Research is being conducted on the burn by academics and students in the geography and biology departments. The burn occurred on April 18th and lasted less than an hour.

##### *3. Naturalization & stewardship*

Evergreen continues to lead naturalization and stewardship events on campus. With support of the NSC and Evergreen, over 20 sites (13 hectares) have been naturalized on campus with thousands of trees, shrubs and wildflowers. Restoring the campus' natural

areas through the engagement of the campus community and the general public will remain the focus. In 2008 we will continue to plant native trees and shrubs to enhance the beauty and ecological integrity of the campus. This project provides a great opportunity to tie in with biology course curriculum with students from a 200-series biology class participating in the largest naturalization event this year.

#### 4. *Stormwater management pond*

Construction of a high-volume stormwater management pond, which will retain and settle all campus storm runoff, commences in May 2008. Located on a decommissioned parking lot and retaining a permanent volume of 6,136 m<sup>3</sup>, this pond will be renaturalized with design features that are approved by the Grounds Monitoring Committee. It is expected that many students will benefit by its aesthetics as well as its research potential. Experimental water savings initiatives are incorporated into the pond design (e.g. a grant funded sustainable irrigation pilot project).

The NSC, in conjunction with the Grounds Monitoring Committee, report to the Resource Planning and Priorities Committee, which in turn, reports to the Erindale College Council (the governing body that approves all activities at the U of T Mississauga) on a monthly basis.



## Behavior & Policies

### Tri-Campus

#### *Energy and Resource Planning*

Under the direction of the Sustainability Board, the Energy and Resource Plan Working Group is developing a comprehensive plan to harmonize and expand existing initiatives addressing energy consumption, supply and energy reduction. This plan will address the long-range requirements of the University with energy retrofits of old facilities or specifications for new ones and the required financing to implement them. Thus far, the plan includes:

- Identification of new facilities likely to be built or undergo major renovations within the next 5 year horizon and the infrastructure necessary to serve them;
- Researching the best practices for efficient energy usage and debunking the claims of others;
- Identifying sources of funds (i.e. grants, low interest loans) available outside the University;
- Development of programs of projects that will not only reduce energy use but will also work toward eliminating the University's backlog of deferred maintenance items.

The plan, expected to be complete in Fall 2009, will set energy use and emissions reduction targets for the University.



### **Mississauga**

#### *Recycling, Compost, and Waste*

UTM added organics bins to the dining hall, and organized a ‘make your own worm compost’ event. Other events throughout the year include a toner and battery collection, and two successful e-waste removal days. Residence students received a Three R’s brochure. Litter across campus was targeted in an anti-litter demonstration that comprised of a 24-hour caretaker hiatus and Litter Art.

### **Scarborough**

#### *Organic Waste Recycling for Bluff’s & Aramark*

In August 2007, U of T Scarborough began the collection of organic waste from the Bluff’s Restaurant and Aramark kitchens. As a result, 20 bins of organic waste are delivered to a composting facility per week instead of being sent to a landfill. Ultimately, this program will be expanded to being sent to a landfill. Ultimately, this program will be expanded to the dining areas of campus, provided community members can use them responsibly.

#### *Bottle-Free Orientation*

In collaboration with the AccessAbility Office and the Scarborough Student Union (SCSU) Orientation Committee, the Sustainability Office is helping eliminate bottled water from the first-year orientation. The AccessAbility Office is providing Bishpenol-A free aluminum bottles to incoming students, and the Sustainability Office

is providing the materials to set-up water stations for all meals and events. During the orientation, the SCSU Orientation Committee will ensure that the water stations are adequately outfitted, supplied, and operated.

#### *Peer Programming Working Group*

Through the PPWG, the Sustainability Office has routinely met with other departments on campus to enhance the administration of peer groups and the quality of the programming experience for students. The Sustainability Office has worked towards generating its own programming for student leader training, as well as integrating information on sustainability into other peer programming.

### **St. George**

#### *Rewire*

Rewire is an innovative campaign that encourages students, faculty and staff at the University of Toronto to reduce their energy use. The Rewire Project is based on the principles outlined by Douglas McKenzie-Mohr in his book entitled “Fostering Sustainable Behaviour” and is a synthesis of social marketing strategies that can be implemented as a single plan. The goal is to develop and launch a replicable electricity conservation strategy that persuades participants to make simple changes in their behaviours, reducing electricity consumption by up to 15 percent. Currently, Rewire is operating in





seven residences, and has piloted at two offices, reaching over 3,000 students, staff and faculty at the St. George campus. Research and program evaluation is being conducted through electrical metering, focus groups and surveys.

In 2008, the Sustainability Office will focus on streamlining and improving the effectiveness of this unique and highly visible project. Five new residences have signed on to participate, as well as three new office site including Simcoe Hall. Rewire is possible in large part due to the generous financial support of the Toronto Atmospheric Fund, EcoAction, the Ontario Power Authority, the Better Buildings Partnership, Natural Resources Canada, and Human Resources and Skills Development Canada.

#### *ReSource*

The Sustainability Office made significant progress in assessing baseline paper use practices and habits on the St. George campus with the help of six students in GGR491Y, ENV492H and ENV299Y. Their work shows that the campus purchases approximately 100 million sheets of copy paper annually—the majority of which is used by academic departments, not administrative units—and 100 million more sheets are consumed by nine of the more widely circulated U of T publications (from a total of 80). Inconvenience, lack of knowledge, and low social norms for conservation were found to be the key barriers blocking reductions, in addition to the fact that only 45% of

printers on campus can print double-sided. ReSource will use these findings to help achieve its goal of reducing paper consumption on the St. George campus by 30-50% through retrofits and conservation behaviour.

#### *Departmental Engagement*

In March 2008, the Sustainability Office received an invitation from the Department of Public Health Sciences (PHS) to join a group of enthusiastic staff and act as a facilitator to their Environmental Plan. As a result, work began on a strategic planning process that can be easily replicated in other academic units. PHS has achieved its first milestone by receiving full support for the drafted plan, and is now moving forward on 2008 Sustainability Targets. Currently, similar sustainability plans for the Department of Family and Community Medicine and Hart House are also being co-developed.

# Appendices

## Appendix A: University of Toronto Sustainability Board Terms of Reference (Selected text)

### Representation

This is a high level strategic group, with senior staff and faculty from all three University of Toronto campuses, who will report back to and supervise the Sustainability and Environmental Affairs Offices and staff at each campus.

#### Members:

- Vice-President, Business Affairs (ex-officio)
- Vice-President and Provost (ex-officio)
- Assistant Vice-President, Campus and Facilities Planning (co-chair)
- Assistant Vice-President, Facilities and Services (co-chair)
- Vice-Provost, Student Life and Provostial Adviser on Tri-Campus Matters
- Chief Administrative Officer, UTM
- Chief Administrative Officer, UTSC
- Director, Capital Projects
- Director, Sustainability Office
- Director of Utilities and Building Operations, F&S
- Director, Facilities Management, UTSC
- Director, Facilities Management and Planning, UTM
- Faculty member, UTM, UTSC, and St. George
- Manager, Facilities and Services

#### ASSES3075:

The Sustainability and Environmental Affairs Coordinators are invited to the Sustainability Board meetings as observers and for record keeping purposes, and to support the presentation of documents as required. Sustainability Offices' and Environmental Affairs Office staff at the three campuses will arrange meetings, prepare agendas and take minutes on a rotating basis.

#### Purpose and Mandate

The overall purpose of the Sustainability Board is to effectively embed sustainability into the fabric of the University of Toronto by providing guidance, support and accountability to related sustainability activities in various sites and divisions in the University. In addition, this forum will promote communication and mutual support for related sustainability activities in different sites and divisions of the university. While the individual campuses set their own agendas and determine their own priorities, the Sustainability Board will help them to find opportunities where they can coordinate with each other on University-wide initiatives.

The Sustainability Board will provide strategic guidance and direction on plans, policies, partnerships, projects and financial mechanisms used to promote sustainability at the University. In particular, the Board will review annual reports and strategic plans

developed by the Sustainability Offices at UTSC and St. George, and the Environmental Affairs Office at UTM and monitor the progress against these plans. This structured system of accountability will encourage the comparison of the Annual Report with the previous Strategic Plan, to identify those activities which are progressing as planned and those which are not, for which a rationale will be presented, for all areas of the University's operations falling under the ambit of Campus Planning and the CAO's of UTM and UTSC.

### **Working Groups**

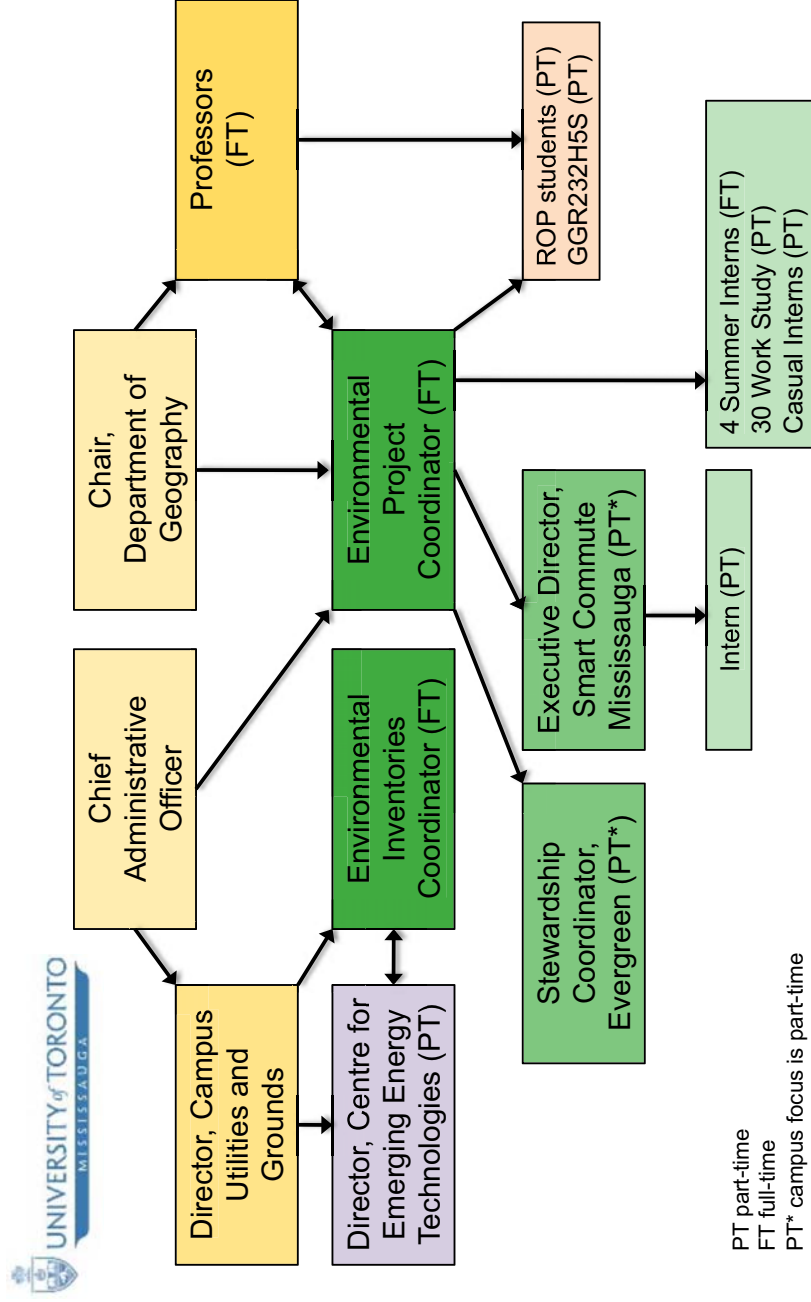
The board will be responsible for establishing, guiding and ensuring the timely progress of specific working groups as required. Three working groups have been established, and more are anticipated as the need arises. Working Groups can include members who are not on the Sustainability Board.

The Energy Planning Working Group is preparing a comprehensive energy plan for all three campuses that will address the long range requirements relating to utilities conservation, intensity, absolute consumption and emissions targets and conservation, retrofit and renewable energy projects of the University. The Group's membership and mandate is described in more detail in its ToR document. The Financial Aspects of Sustainability in Capital Projects Working Group is preparing a revised policy for new buildings and major retrofits to ensure that designs incorporate sustainable features.

### **Governance**

The Board will integrate sustainability into the governance structure of the University, providing a reporting conduit to senior management groups at UTM and UTSC, Planning and Budget, University Affairs, Business Board and Governing Council. Specific project proposals which need to proceed through the governance process will be requested and reviewed by the Board at their meetings, prior to their submission to Business Board.

Appendix B: Sustainability at UTM: 2008 Organizational Chart



## Appendix C: Grant Activity

<i>Agency</i>	<i>Submitted</i>	<i>Value</i>	<i>Status</i>
<b>Scarborough</b>			
Natural Resources Canada Science and Technology Internship Program	05/07	\$6,000	Accepted
<i>Sub-total (Scarborough)</i>		\$6,000	
<b>Mississauga</b>			
Human Resources and Skills Development Canada	02/07	\$7,000	Accepted
Government of Ontario, Summer Experience Program	02/07	\$2,550	Not Accepted
Habitat Stewardship Program for Species at Risk (Salamander Project)	03/07	\$10,000	Accepted
Habitat Stewardship Program for Species at Risk (Oldfield project)	03/07	\$14,000	Not Accepted
Natural Resources Canada Science and Technology Internship Program	05/07	\$11,000	Accepted
Ministry of Natural Resources, Species at Risk Stewardship Fund (Salamander Project)	04/07	\$15,270	Not Accepted
Ministry of Natural Resources, Species at Risk Stewardship Fund (Oldfield Project)	04/07	\$14,000	Not Accepted
WWF-Canada & Government of Canada, Endangered Species Recovery Fund (Oldfield Project)	04/07	\$12,200	Not Accepted
TD Friends of the Environment Foundation	04/07	\$8,000	Accepted
Ministry of Natural Resources, Community Fisheries & Wildlife Involvement Project	04/07	\$1,000	Accepted
<i>Sub-total (Mississauga)</i>		\$95,020	
<b>St. George</b>			
Ontario Centres of Excellence	07/06	\$162,000	Accepted
EcoAction (Environment Canada)	11/06	\$44,578	Not Accepted
City of Toronto - Stormwater Management	11/06	\$12,125	Accepted

## Appendix C: Grant Activity

Adrian and Reta Hudson Fund (Toronto Community Foundation)	02/07	\$9,897	Accepted
U of T Work Study Program	05/07	\$54,000	Accepted
Natural Resources Canada Science and Technology Internship Program	05/07	\$29,000	Accepted
Transport Canada's Moving On Sustainable Transportation Program	11/07	\$146,938	Not Accepted
Community Go Green Fund	01/08	\$90,540	Not Accepted
University of Toronto Excellence Award in the Social Sciences and Humanities	02/08	\$11,250	Accepted
Human Resources and Skills Development Canada (Canada Summer Jobs)	02/08	\$1,971	Accepted
Summer Experience Program	03/08	\$1,971	Not Accepted
Research Opportunity Program 299Y	03/08	\$6,000	Accepted
Ministry of Transportation Green Commercial Vehicles Program	04/08	scalable	Pending
<i>Sub-total (St. George)</i>		\$570,270	

## Summary

Grand total submission	\$671,290
Successful	\$329,243
Pending	scalable

## Appendix D: Media Exposure

<b>Tri-Campus</b>	
Toronto Star	U of T ranked high for environmental conduct
The Window	How inconvenient is the truth? Toronto's attempt at sustainability
The Bulletin	Sustainability: A Tri-Campus Model
The Bulletin	U of T Sustainability Leader: U.S. Report
The Varsity	U of T's green gets B-
Sustainable Endowments Institute	College Sustainability Report Card
<b>Mississauga</b>	
The Medium	Giving the trees a fighting chance
The Medium	Budgeting Garbage?
The Medium	Show me the green
The Medium	Response: A greener U of T?
The Medium	Litter Piles up in Meeting Place
The Medium	Green Team ink
The Medium	Deals on Wheels at UTM
The Medium	UTM Woods to Burn
<b>St. George</b>	
The Bulletin	Students Creating Green Campus
The Bulletin	Sustainability Challenges are learning tools
Globe and Mail	Everyone is looking for a leader on Climate Change

## Appendix D: Media Exposure

Toronto Star	03/07	Students make plea for bike repair shop
The Metro	03/07	U of T Students asked to support BikeChain service
Now Magazine	03/07	Bikechain Q&A
The Toronto Sun	03/07	Environmental peddler leads by example
The Varsity	03/07	Bikechain rides again
ULife Profile	03/07	Bikechain the Self-Help group for cyclists
TCF Vital Ideas 2007	09/07	University of Toronto Sustainability Office - Rewire Project
The Varsity	09/07	Freewheelin' UofT's Bikeshop Fixes Bicycles for next to nothing
The Newspaper	11/07	Students Lead Environmental Movement
Toronto Star	03/08	Getting Green, One Street at a Time



## Appendix E: Events

### Attendance

Event	Date	Attendance
<b>St. George</b>		
UTSC ENV Day	03/13/07	50
Victoria College Environmental Fair	03/26/07	15
Prospective CFE student presentation	03/27/07	30
Innis Residence talk re: SO	03/29/07	30
Sustainable Energy Fair	04/04/07	50
Architecture, Landscape and Design talk	04/05/07	10
PM Advisory Committee	08/09/07	30
UTSU Clubs Day	09/02/07	80
Fullbright Keynote Lecture	09/13/07	500
Hart House Social Justice Committee Sustainable Fair	09/26/07	40
UofT Senior Alumni Assoc.	10/15/07	100
Secondary School (St. Christopher, Sarmia) St. George Campus Green Tour	10/26/07	40
ECO-ECO Hart House Panel Discussion	11/03/07	70
U of T Volunteer Fair	11/08/07	35
Work Study Meet and Greet	11/08/07	20
Rewire Training Session	09/20/07	28
Frank Cunningham's Policy class	11/12/07	25
Chinese Delegation	11/14/07	25
Business of Education Conference (UofT)	11/27/07	150
ENV421 Class presentation re: SO Research	01/08/08	25
Rewire Training Session	01/12/08	16

## Appendix E: Events

POL 108 Rewire Interview	02/19/08	2
POL 108 Rewire Interview	02/23/08	3
HR Group Presentation	02/26/08	35
ENV Career Day	03/07/08	20
Business Officers group	03/12/08	35
Work Study and Volunteer Appreciation Party	03/14/08	20
Victoria College Environmental Fair	03/19/08	25
Centre for Environment – Environmental Programs Information Session	04/02/08	40
EcoStock at St. Theresa's high school	04/03/08	35
University College Environmental Fair	04/03/08	30
Earth Day Garbage Pick Up with the SO	04/18/08	3
Downsview Earth Day event	04/20/08	80
Professional Development Centre Facilities Management Course	04/29/08	20
	<i>Subtotal</i>	1717
<b>Mississauga</b>		
Hydrogen Village information session regarding campus fuel cells	01/25/07	20
An Inconvenient Debate – dinner and a movie followed by debate	01/31/07	75
Flatland Jam with the City of Mississauga, indoor winter bmx jam	02/10/07	40
Environment Week – activities, lectures, speakers, giveaways	03/19-23/07	500
Take your Kids to Work Day – Fresh air and Flowers tour	04/26/07	50
Peel Environmental Youth Alliance tree planting event, highschool	05/01/07	50

Public environmental stewardship event with Evergreen	05/12/07	30
Public native wildflower planting event with Evergreen	05/19/07	25
40th Anniversary Commemorative tree planting with Evergreen	06/08/07	30
Communities in Bloom judging of Mississauga and the campus	07/23/07	20
Mormon Youth Leadership conference stewardship event	08/17/07	550
City of Mississauga Yellowfish Road program painting day	08/23/07	30
Stewardship at Riverwood with Deloitte for Impact Day	09/07/07	40
Public native wildflower planting event with Evergreen	09/29/07	20
Roots & Shoots Accessibility planting event with Evergreen	10/03/07	20
Galen Weston: The Greening of a Canadian Retailing Giant event	11/01/07	750
Campus wide eWaste collection day by the Green Team	11/06/07	50
Annual guided nature walk fundraiser; proceeds to United Way	11/16/07	20
SYC Provincial Conference in Ottawa, 6 representing Mississauga	01/25-27/08	6
Green Team presents 'Leap Year" pub night with a green focus	02/29/08	80
"Show me the Green" environmental conference, commerce students	03/01/08	120
Environment Week – activities, lectures, speakers, giveaways	03/03-07/08	600
Campus wide eWaste collection day by the Green Team	03/07/08	50
Campus prescribed burn open house for local community	03/12/08	20
Bus trip to the local integrated waste facility by the Green Team	03/25/08	24
Take your Kids to Work Day – Story of a Seed and seed planting	04/24/08	50
	<i>Subtotal</i>	3270
	<i>Total</i>	4987



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