

**Queen's University's
Waste Management Program Summary
May 2005**

Queen's University offers full recycling, reuse and landfill services

Queen's University operates a well established comprehensive campus-wide recycling, reuse and landfill service for its solid non-hazardous waste through Physical Plant Services.

Exploration of opportunities to fine tune existing services, increase campus participation in them and implement new waste diversion programs that are fiscally and environmentally responsible is an ongoing process. Two new services currently being pilot tested are the use of outdoor recycling stations and electronic waste recycling through Noranda Recycling.

It is expected that the upcoming Ontario waste minimization legislation will create additional opportunities such as food waste composting that could help the University significantly reduce the amount of material it sends to landfill.

Queen's Waste Management Programs

Landfill Services – controlling landfill costs while ready for diversion opportunities

Approximately 2000 tonnes of University waste is sent to Waste Management's Napanee landfill site on average annually. The use and service schedule for each of the 50 campus dumpsters is monitored through periodic dumpster capacity audits and adjusted to ensure efficiency and control of landfill costs. As part of the University's environmental practices, the department of Environmental Health and Safety checks scrap equipment scheduled for disposal, removing hazardous components for safe disposal (Appendix A – Waste Watcher's Guide to Queen's).

Sending less campus waste to landfill is an important goal of the University's waste management services. Ontario continues to face the problem of where to put its garbage. Existing landfill sites are filling up and opposition to them has resulted in few new ones opening, driving up disposal costs and the pressure to do something different with garbage. The campus diverts an estimated 30% of its waste from landfill on average each year, closely mirroring Ontario's provincial diversion rate for 2002.

Waste composition studies of the University's regular landfill waste were conducted in 1992, 1994 and most recently in March 2005. These studies were performed as part of Queen's obligation to Ontario Regulation 102/94. They help the University monitor the progress of its recycling and reuse waste diversion programs, plan program improvements and develop new ones. Bags of garbage were collected from selected building areas that represented basic campus activities such as student residence, classroom, laboratory, library and food service. The contents of each bag were sorted,

weighed, recorded and disposed of by Waste Management's audit team. Results for the 1992 and 1994 studies are posted on the Web at <http://www.queensu.ca/pps/> The March 2005 study results will be available in fall 2005.

Queen's waste management services is ready to take advantage of the new diversion opportunities such as food waste composting expected to arise from the province's upcoming waste minimization legislation that will direct Ontario to achieve 60% waste diversion from landfill by the year 2008. Information about this new legislation is available at <http://www.ene.gov.on.ca/envision/land/wda/bluebox/60percent.htm>

Reuse Activities – The larger community benefits from Queen's scrap material

The campus reuse programs divert an approximate total of 25 tonnes of University surplus and scrap furniture and equipment away from landfill annually. The majority of the University's reusable materials is redistributed to the Kingston community through Enviroworks, a reuse centre operated by Queen Elizabeth Collegiate and Vocational Institute as one of its high school programmes.

Queen's University began large-scale computer donations to Computers for Schools' Sharbot Lake location in 2004. Computers for Schools is a federally funded program that refurbishes old computers and distributes them to Ontario schools, local volunteer agencies and non-profit organisations in the developing world. In addition, the University continues to channel reusable material directly to various Queen's departments, local school boards, the Goodwill and other volunteer agencies.

Stewardship Ontario – contributing to the funding of municipal Blue Box programs

In 2004, Queen's University registered with Stewardship Ontario and began contributing to the funding of Ontario's municipal Blue Box recycling programs as required by the province's *Waste Diversion Act*. All Ontario companies and institutions that generate paper and other designated waste material that become part of the municipal recycling waste stream are required to share a portion of the costs to manage Ontario's Blue Box programs. Queen's produces materials such as academic calendars, fundraising letters, magazines and promotional materials that are distributed off campus and are recycled through municipal programs.

Multi-material recycling is available campus-wide

A comprehensive campus-wide multi-material recycling program has been in place since 1996. Queen's diverts 500 tonnes of campus waste from landfill on average annually through recycling. Materials recycled on campus include mixed paper, cardboard, plastics (#1 through #6), mixed glass, metal cans and toner cartridges (Appendix A – Queen's Recycling Tips).

Campus office users are provided with desk side blue boxes for their mixed paper. Containers for other recyclables are located in lunchrooms and public areas. Information about this program is available on the Web at <http://www.queensu.ca/pps/> and is distributed in brochures mailed annually to departments and through advertising in the Queen's Gazette (Appendix B).

Students living in residence use blue tote bags to collect and carry their recyclables to recycling depots located in each residence. The program is promoted through Residence Life with the assistance of the Residence Waste Management Committee (Appendix A – Queen's Residence Recycling Tips).

The Queen's Apartment and Housing department offers and promotes recycling in the buildings it manages. Students living in Queen's owned residential housing use the City of Kingston's curb side blue box recycling program. Recycling is popular in An Clachan and John Orr Tower apartments and has resulted in a 50% reduction in the waste landfilled from these two facilities.

One of the most challenging aspects of the University's waste management services is ensuring that the campus community is aware of the programs, knows how to participate in them and is motivated to do so. This is particularly important for the Queen's recycling program because its success relies on participants sorting their waste material into the appropriate recycling containers. Recycling bins containing contaminants are not sorted but emptied as landfill waste.

Informal surveying of the Queen's community reveals that there are still a number of people who have a limited understanding of the University's recycling program despite direct mailing of program brochures, advertisements in the Queen's Gazette and recycling information posted on the Web. Developing effective communication strategies is an ongoing project.

Periodic informal visual waste monitoring of landfill waste is conducted in addition to the large-scale waste composition studies. Visual waste audits help determine where to target promotional efforts for instance, in increasing campus participation in the paper recycling program, and where to improve recycling container design and placement for example, the recent purchase and placement of "Slim Jim" recycling containers in the campus libraries. The results from the March 2005 waste composition study should provide further insight into the progress of the campus recycling program and where it could be improved.

Outdoor Recycling Stations – a pilot project

Pilot testing of outdoor recycling stations began in January 2005. Recycling stations for the collection of plastic bottles, cans, glass, paper and garbage were positioned in high pedestrian traffic areas outside of Stauffer Library and the John Deutsch University Centre.

This pilot project will determine the quantity of recyclable material collected by the outdoor containers, the contamination rate (i.e. quantity of inappropriate materials placed in the recycling bins), and the operational requirements, cost effectiveness and feasibility of continuing such a program on an ongoing basis. The pilot's results will be available in the fall of 2005.

Electronic (E-Waste) Recycling – a pilot project

The diversion of electronic waste (e-waste) from landfill by recycling it at Noranda Recycling's Brampton plant is currently being pilot tested. This pilot was initiated in anticipation of Ontario's waste minimization legislation currently being developed and to mitigate potential environmental hazards associated with the landfilling of University e-waste.

The Ontario government is concerned about the long-term environmental effects of landfilling e-waste and is exploring various legislative options to achieve e-waste diversion. E-waste such as computer equipment, fax machines and television sets may contain lead, copper, mercury and other potentially toxic substances difficult to remove conventionally. Although these are in such small quantities to be deemed non-hazardous under the current legislation, the accumulation of large quantities of e-waste may overtime have a perceptible impact on the environment.

Until recently, the only feasible disposal option for campus e-waste that could not be reused or recycled as scrap metal was to landfill it. Now, the Noranda Recycling facility in Brampton, Ontario offers an alternative to sending this material to landfill. The facility removes the hazardous components from e-waste, disposing of it as hazardous waste while recycling the remaining parts. Diverting e-waste from landfill enhances the University's environmental practices.

The quantity of Queen's campus e-waste disposed of increased noticeably over the last two years and will likely continue to grow if computer prices stay low, encouraging a shorter equipment replacement time.

The departments of Physical Plant Services and Environmental Health and Safety visited the Noranda Recycling facility to ensure that it complied with environmental regulations prior to initiating the e-waste recycling pilot project.

The purpose of this pilot project is to divert campus e-waste from landfill, determine the quantity and type of e-waste disposed, and assess the projects operational requirements, cost effectiveness and the feasibility of continuing this service on an ongoing basis. Results from this pilot project will be available in the fall of 2005.

Leaf and yard waste composting and the status of composting food waste

Physical Plant Services Grounds crew collects for composting over 110 tonnes of campus leaf and yard waste on average each year. A portion of this consists of plant and soil

material from the greenhouse facility in the Bioscience Complex. This material is composted off campus at Waste Management's Napanee facility. Composting of the organic waste produced by residence cafeterias has been explored for a number of years. The current stumbling block to composting this material is the lack of a local facility that will accept Queen's food waste.

Food waste composting was successfully piloted at the Jean Royce kitchen for almost five years. CORCAN's large-scale food waste composting facility at Joyceville Correctional Institution was composting this material. Preparations were underway to expand the program into other student residence kitchens when in 1999 CORCAN's composting facility closed its doors to all food waste outside the federal corrections system and National Defence facilities.

Although investigation continues into other composting methods such as on-site in-vessel composting systems, the most promising solution lies in the development of a local, possibly municipally operated composting facility that could result if the upcoming provincial legislation places further restrictions on landfilling organic material.

Queen's Waste Management Services – a work in progress

Queen's University's waste management services are a constant "work in progress". The existing campus waste programs evolve while new ones are introduced in response to new legislation, environmental discoveries, waste diversion opportunities and improved waste management technology.

The implementation of zero waste production or waste reduction programs in certain sectors of the Queen's campus will be explored in future. Not to produce waste in the first place is believed to be the most environmentally and economically beneficial approach to managing waste but remains largely underutilized except in the manufacturing industry.

A report summarising the results from the current two pilot projects, the March 2005 waste composition study and assessment of the University's overall waste management services will be available in the fall of 2005.

Appendix A

- Waste Watcher's Guide to Queen's
- Queen's Recycling Tips
- Residence Recycling Tips

Appendix B

- Recycling program advertisements published in the Queen's Gazette - 2004

What paper can be recycled at Queen's?



All paper and cardboard products are acceptable in your office blue box and other bins labeled for mixed paper.

But please keep paper recycling bins free of:

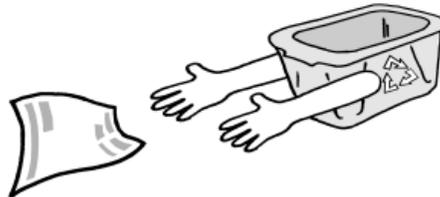
- Non-paper products (e.g. Plastics)
- Paper towels
- Facial tissue
- Food wrappers
- Hard cover & spiral bound books
- Paper & cardboard marked with food, oil, wax, paint or chemicals
- Paper bound by large metal clips

For more information visit www.queensu.ca/pps or call Ext 75059.

Join the Queen's *Paper Chase*



Please recycle



**Almost 40% of Queen's garbage
landfilled last year was paper.
Please recycle.**

For more information call Ext. 75059
or visit www.queensu.ca/pps

STOP!

SORT!

RECYCLE!

Did you know that mixed items in campus recycling boxes are emptied as **GARBAGE?**



Recycle more! Sort your cans, glass, paper & plastic into labeled bins provided in offices, lunchrooms, & public areas.

For more information, call Physical Plant Ext 75059 or visit www.queensu.ca/pps

Your office recycling box wants your paper work



For more information call Ext. 75059
or visit www.queensu.ca/pps