

BROCK UNIVERSITY
Report to the Capital Projects and Facilities Committee
Information Item

TOPIC: Waste Audit Annual Report

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BACKGROUND

In compliance with Ontario Regulations 102/94 and 103/94, an annual non-hazardous waste audit must be conducted at educational institutions with more than 350 full time students. The purpose of an annual waste audit is to identify, quantify and analyze the composition of the waste stream at designated waste collection points throughout the University. Waste collection points are examined to determine the locations' ability to reduce, reuse and recycle materials from the existing waste stream on a go-forward basis to pinpoint recycling opportunities and to enhance and strengthen recycling initiatives currently in place. This information forms the foundation for a *Waste Reduction Work Plan (Attachment 1)* which is also a requirement under Ontario Regulation 102/94 that requires plans to reduce, reuse and recycle waste.

A successful implementation of the *Waste Reduction Work Plan* requires cooperation and involvement from all Faculties and Departments by implementing recycling and waste reduction methods such as the procurement of goods and services that are eco-friendly, reduced packaging at the source, asset redeployment program, reduction of newsprint, printer cartridge recycling, battery recycling, and IT/Audio visual electronic equipment redeployment/recycling. With the establishment of the Sustainability Coordinating Committee a greater involvement and awareness is occurring with these and other initiatives.

The operational responsibility for non-hazardous waste management at the University resides with the Facilities Management Department. Waste is collected by Custodial staff across three shifts, seven days a week and is assimilated in collection points throughout the University and then sent to landfill. Recyclables are collected, for the most part by the *Recycling Custodian* (one position) on the day shift and transported to the designated exterior collection points. Organic recyclables are collected at the source (food prep areas, coffee stands and in dining halls) in totes, which are then transported to exterior collection points by the users. Cardboard boxes are broken down by Custodial staff and Food Services staff and are placed in cardboard bins at the various collection points.

Modern Landfill Incorporated removes non-recyclable waste items to the landfill sites and collects cardboard recycling bins. Niagara Recycling (Regional Municipality of Niagara) collects and processes the recyclable waste stream which includes: fine paper, cardboard, newsprint, cans, glass, plastics, milk and juice containers. Davidson Environmental collects food waste and other organic waste such as coffee grinds and coffee cups.

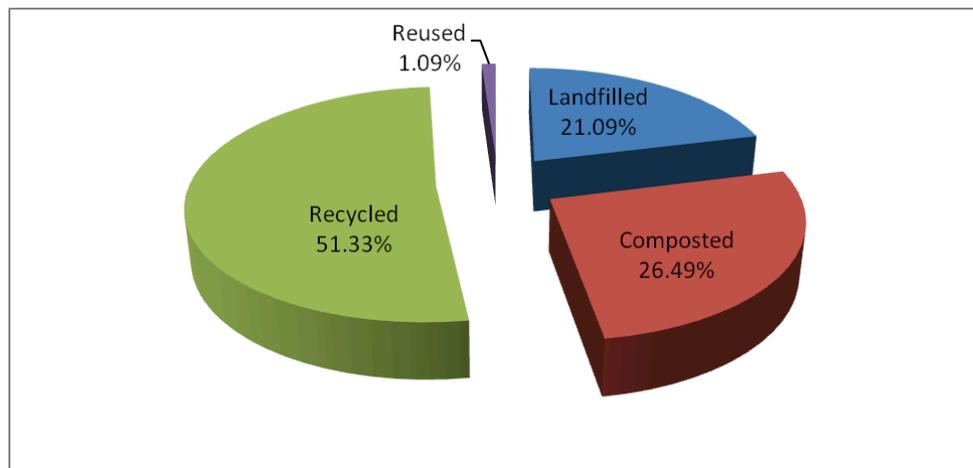
WASTE AUDITS

Unwin and Associates were retained to conduct the annual non-hazardous waste audit which took place over a two week period in October 2010. The purpose of an annual waste audit is to identify, quantify and analyze the composition of the waste stream at designated waste collection points throughout the University. The results are used to modify or develop new approaches to improve waste reduction methods and increase recycling at those locations.

The scope of work includes interviews and site tours to gather background information, physical collection of waste samples at each collection location, and data analyses of waste and recycling activities to form a final report.

The 2010 audit found Brock's annual solid non-hazardous waste to be approximately 1,691,432 kgs. Of this total, 868,268 kgs were recycled, 448,057 kgs were composted and 18,417 kgs were reused. A total of 356,688 kgs were sent to landfill. As seen in Figure 1, these numbers translate to a landfill diversion rate of 79%. This year's rate has increased from 2009 (75%), it is still considerably higher than the Ministry of Environment provincial waste reduction/diversion goal of at least 60%.

Figure 1: Overall Waste Diversion



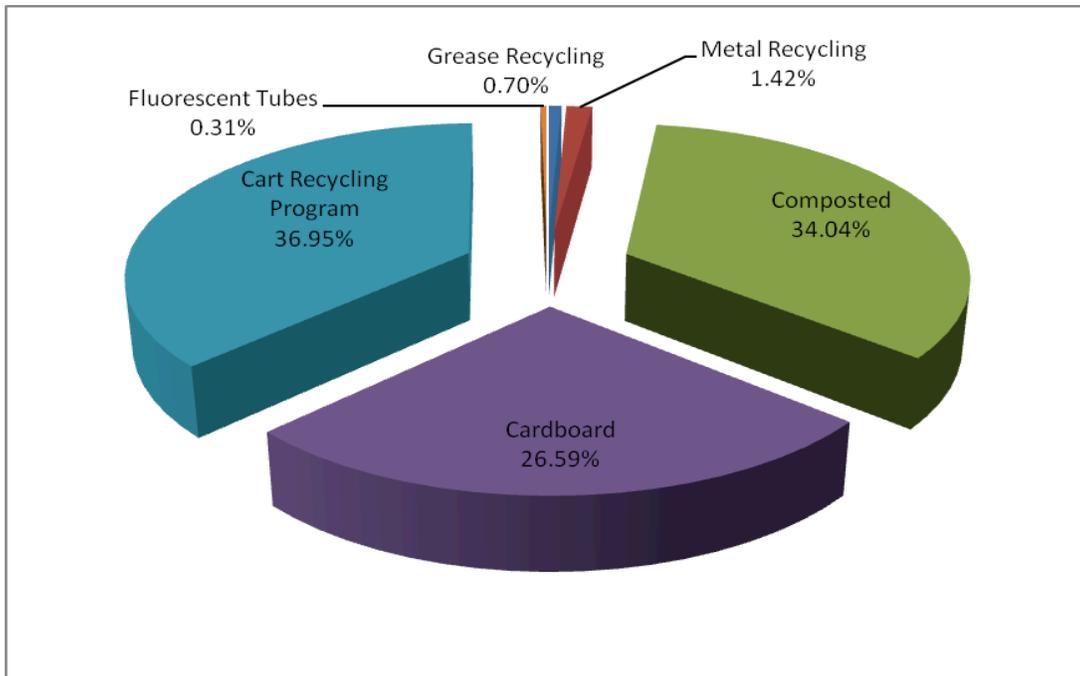
There are several successful programs currently in place which are contributing to Brock's diversion rate:

- **Recyclable Fine Paper** - individual blue bins are distributed in all offices and work rooms, these bins are then disposed of in larger 96 gallon roll away totes and delivered to the exterior collection stations. The large totes are used in high paper generation areas such as Computer Commons, Learning Commons and by photocopiers.
- **Recycling Receptacles for Cans, Glass, Plastics and Cartons** - recycling receptacles are located throughout the university (corridors, lectures, large meeting rooms, and dining halls). These receptacles are emptied into larger rollaway bins and delivered to the exterior collection stations.

- **Cardboard Recycling**- cardboard is collected by various stakeholders, the largest being Food Services and Custodial Services. The cardboard is delivered to exterior collection stations where it is flattened and placed in large bins. The bookstore, due to the volume of cardboard generated has its own compactor which compresses the cardboard and reduces the tipping frequency.
- **Organic Recycling** - food waste, coffee grinds, napkins and coffee cups are collected primarily in the dining halls and food prep/service areas and are placed in totes which are transported to the exterior collection stations.
- **Metal Recycling** - recyclable ferrous metal is collected at the Central Utilities Building by Facilities Management staff. Pieces of metal recovered from repairs and broken and old furniture and equipment are deposited in a lugger box and recycled.

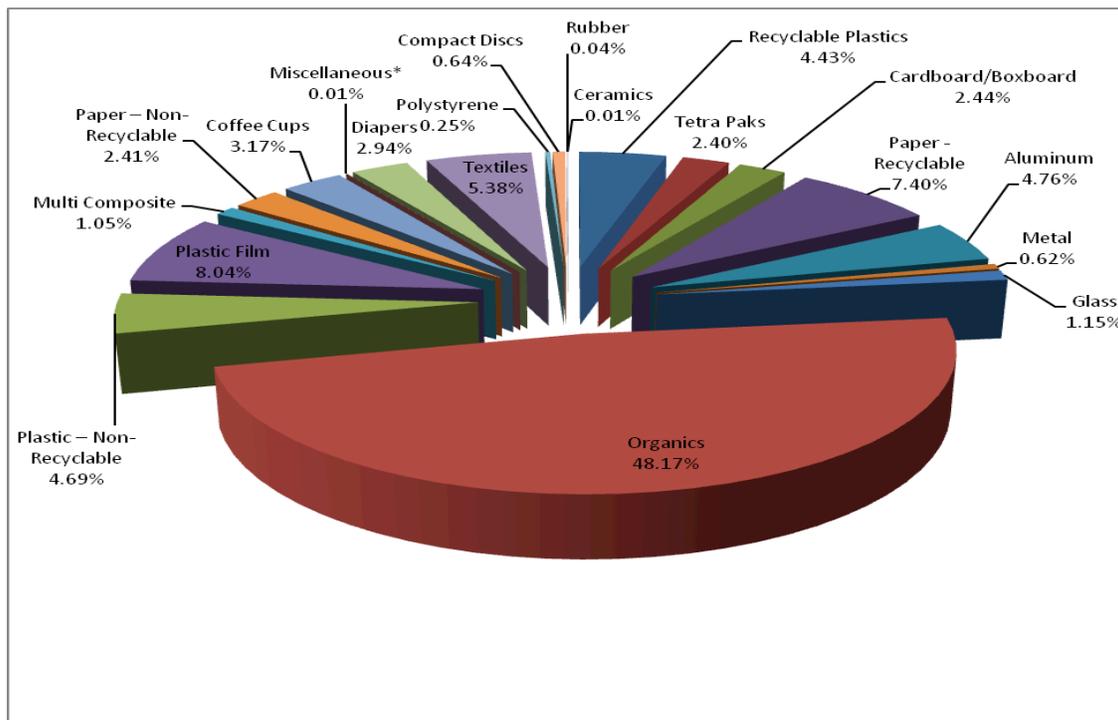
Figure 2 depicts the contribution that each program makes toward the entire recycling effort. The cart program is the most successful which is made up of fine paper, cans, glass, plastic and cartons.

Figure 2: University Wide Recycling Stream Composition



While analyzing the university wide regular waste stream composition (sent to landfill), organic waste was the largest component at 48.17%, plastic film was the next significant at 8%, followed by recyclable paper at 7.4% (see Figure 3).

Figure 3: University Wide Regular Waste Stream Composition - Landfill



COMPARISON OF 2009 AND 2010 AUDITS

As seen on Table 1, the overall diversion rates for Brock have increased between 2009 and 2010. This increase can be attributed to the successful recycling programs currently in place as well as the hard work of staff that monitor and separate the different recycling streams. The re-opening of the Tower Market Place has also contributed to the increase in recycling at this location.

Table 1: Comparison of Overall Diversion Rates

Waste	Diversion Rate (%) 2009	Diversion Rate (%) 2010
Composted	24	26.49
Recycled	50	51.33
Reused	1	1.09
Overall Diversion Rate	75	78.91
Land filled	25	21.09

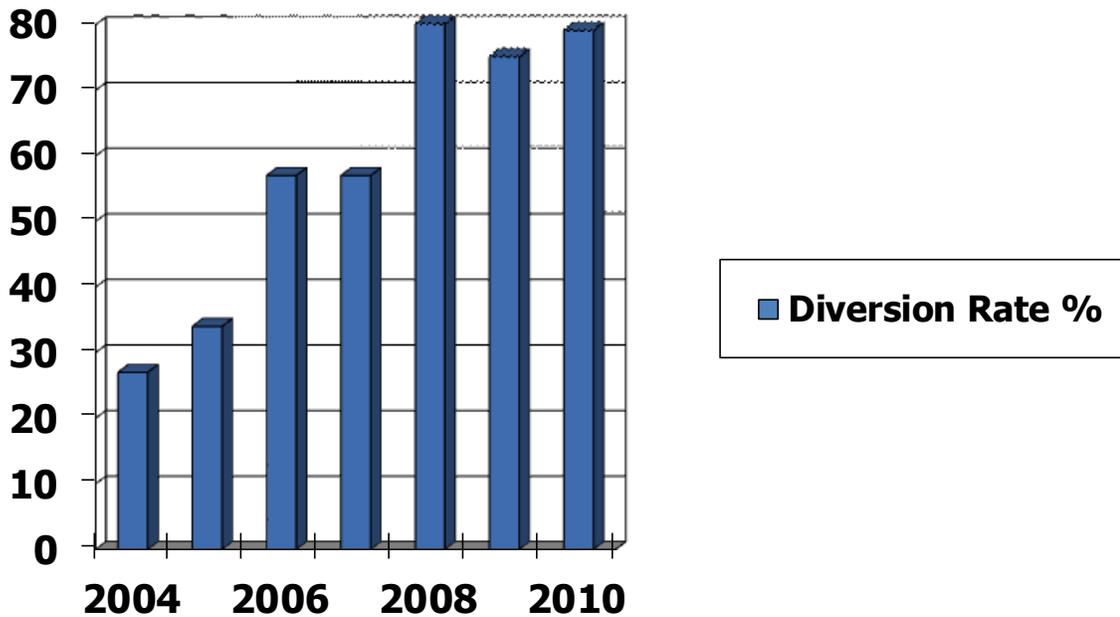
The comparison of recycling waste from 2009 and 2010 indicates a slight increase in most material capture rates with the exception of aluminum and organic waste (see Table 2).

Table 2: Comparison of Recycling Capture Rates by Material

Material	Capture Rate (%) 2009	Capture Rate (%) 2010
Aluminum	89	87.8
Cardboard/Boxboard	93	97.6
Juice boxes / Milk Cartons	66	77.3
Glass	80	89.3
Metal	89	94.6
Paper	84	91.9
Plastic	76	78.7
Organic Waste	83	72.3

The graph below indicates how waste diversion rates have increased over the years at Brock.

Historical Diversion Rates



NEXT STEPS

- The *Waste Reduction Work Plan* must be updated annually once the results of the annual waste audit are completed. The 2010 *Waste Reduction Work Plan* is complete and will be presented to the Sustainability Coordinating Committee this month.
- The waste audit will be posted on the Facilities Management web site.
- The results of the audit will be reviewed with key stakeholders in an effort to improve waste diversion capture rates.
- Additional recycling staff is required to keep pace with a growing university as well as the workload associated with the University community's increased environmental awareness towards recycling. Custodial Services will continue to seek additional funding resources to assist in sustaining and improving a growing recycling program.
- Work with our Food Service Provider and Brock's Managing Director of food Services to find ways to increase the collection of organics from our kitchens and dining halls.
- A Waste Diversion Resource guide was developed by Custodial Services to help the Brock community reference how and where they can recycle material on campus. This guide will be distributed and posted on the Facilities Management website (*Attachment 2*).
- Initiatives for waste compactors and cardboard bailers are being brought forward for discussion in this year's FM budget submission.

CONCLUSION

The recyclable solid and organic wastes initiatives that are in place are working very well for Brock. The University's waste diversion rate remains well above the Ministry of Environment's target of 60 percent diversion. Facilities Management will continue to take the lead in raising awareness in recycling throughout the year and during *Waste Reduction Week* (Oct 17-23) as well, by monitoring collection points to ensure stakeholders adhere to established recycling practices.

It takes the combined efforts of everyone within the Brock Community to pitch in to make recycling and waste reduction a success. With the establishment of a Sustainability Coordinating Committee a greater involvement and awareness is occurring at Brock.

Please remember the 3 Rs: Reduction, Reuse and Recycle!