



Waste Audit and Waste Reduction Work Plan



Sheridan College
Davis Campus
Brampton, ON
January 17-18, 2012

This report has been prepared by Wasteco for the owners, property managers and tenants of Sheridan College Davis Campus in Brampton and their sole use. Written consent from Wasteco must be obtained prior to delivering this report or disclosing its contents to any other party.

January 30, 2012

Cathy Sloat
Administrative Assistant
Sheridan College
1430 Trafalgar Road
Oakville, ON
L6H 2L1

Dear Ms. Cathy Sloat:

Re: Davis Campus – Waste Audit & Waste Reduction Work Plan Report

The Recycling Services Department of Wasteco is pleased to submit a copy of our report detailing the Waste Audit that took place for Sheridan College's Davis Campus on January 17-18, 2012.

The following report outlines the observations made during a detailed waste audit of the facility's waste and recycling streams. Waste and recycling stream material generated over a 24 hour period from the Davis Campus was sorted, categorized, weighed and recorded. Observations, discussions, recommendations and photographs are included, as well as a completed Waste Audit & Waste Reduction Work Plan Summary Form as required by the Ministry of Environment.

This report complies with Ontario Regulation 102/94 of the Environmental Protection Act. Please make sure that you sign the completed Waste Audit & Waste Reduction Work Plan Summary Form, as required by the M.O.E. The regulation also requires that the Waste Reduction Work Plan be posted in public sight on the premises of Davis Campus.

We are confident that this report will assist the Davis Campus in gaining a better understanding of the materials currently being disposed of via the waste and recycling streams.

Please do not hesitate to contact the Wasteco Recycling Services Department if you have questions or concerns related to this report or require further assistance in reaching your facility's waste management goals and requirements.

Sincerely,

Recycling Services Department
Wasteco

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Executive Summary

In accordance with Ontario Regulation 102/94, Wasteco conducted a Waste Audit for Sheridan College Davis Campus in Brampton over two days on January 17-18, 2012 and developed a Waste Reduction Work Plan based on the observations.

The table below summarizes recycling and waste weights for Davis Campus. Based on these figures, the diversion rate (percentage of waste materials diverted from landfill) for this site is 24%.

Table 1: Material Stream Composition

MATERIAL STREAMS	SUM OF MATERIAL GENERATED DAILY	ANNUAL PROJECTED WEIGHT
RECYCLING STREAM	198.42 kg	51,552.00 kg
WASTE STREAM	627.50 kg	163,030.78 kg

According to the graph below, approximately 13% of the sample weight was found to be divertible using the currently recycling programs for paper, cardboard, washroom paper towels, and cans and bottles.

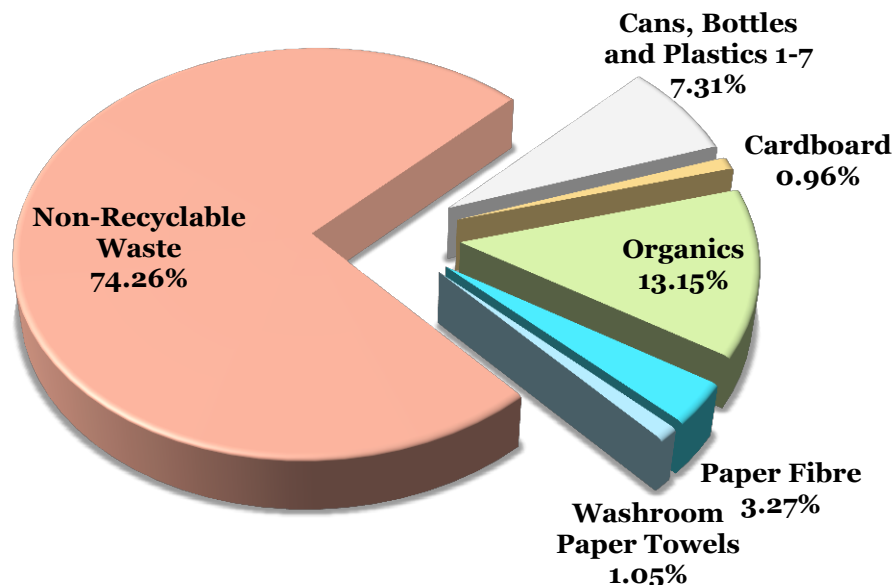


Figure 1: Composition of Material in the Waste Stream

Table 2: Diversion and Capture Rates

	CURRENT	POTENTIAL
DIVERSION RATE	24%	44%
CAPTURE RATE	55%	100%

In order to maintain compliance with regulation 102/94 a Waste Audit and Waste Reduction Work Plan must be conducted or updated on an annual basis. Please contact the Recycling Service Department 6 months in advance to schedule your next audit.

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1.0 – INTRODUCTION

Many benefits can be gained through the performance of a waste audit. Waste audits provide the opportunity to gain a better understanding of the materials being disposed of by a facility. Auditing both the recycling and waste streams illuminates the strengths and weaknesses of the current recycling program. Reliable documentation is created, providing a record of a facility's recycling program history.

Over the past decade, building owners and management companies have taken up the challenge of making their operations more environmentally sustainable. Operators face increasing pressure to find effective and efficient ways to improve the environmental performance of their buildings and save money at the same time. Solid waste management has proven to be a worthwhile place to begin. By diverting waste from disposal through waste reduction and reuse and recycling activities, building owners and management are realizing significant environmental and cost saving benefits.

Specific benefits derived from implementing an energetic waste diversion program include improved system efficiencies resulting in reduced waste haulage and disposal costs and increased revenue from the sale of specific recyclables. Other benefits include reduced greenhouse gas generation and resource conservation through product and packaging reduction and reuse and the substitution of recycled materials for virgin materials during manufacturing. Finally, an important indirect benefit is the enhanced corporate image and staff pride that result from the waste diversion initiatives.

Solid waste reduction efforts also are being driven by Ontario Government initiatives including the Ontario Ministry of the Environment's (MOE) 3R's regulations and the Ontario Government's 60% waste diversion goal. More specifically, the MOE 3R's regulations require designated office buildings to participate in the waste audit and waste reduction planning process.

1.1 – Ontario Government 3 R's Initiatives

MOE 3Rs Regulatory Requirements

In 1994, the Ontario Ministry of the Environment enacted a set of environmental regulations requiring the institutional, commercial and industrial (IC&I) sectors to address their solid waste streams. Regulations 102 and 103 require IC&I generators in designated sectors to carry out waste audits and develop waste reduction plans. The regulations also prescribe source separation requirements for specific generators. Educational Institutions with an enrollment of 350 persons or more at any time during the calendar year are included in these requirements.

The two waste reduction regulations that directly impact the Educational Institution sector:

- O. Reg. 102/94 – Waste Audits and Waste Reduction Work Plans
- O. Reg. 103/94 - Industrial, Commercial and Institutional Source Separation Programs

O. Reg. 102/94 – Waste Audits and Waste Reduction Work Plans

According to O. Reg. 102/94 Waste Audits and Waste Reduction Work Plans, a waste audit required under the regulation shall address:

- a. The amount, nature and composition of the waste;
- b. The manner by which the waste gets produced, including management decisions and policies that relate to the production of waste; and
- c. The way in which the waste is managed.

Under the regulation, the operator of an Educational Institution with an enrollment of 350 persons or more at any time during the calendar year is subject to the regulation.

An audit of the solid waste stream and the formation of an action plan for waste reduction as required under Ontario Regulation 102/94 is therefore an ongoing process, which make waste reduction through 3R's activities a routine part of daily operations. The following is a list of other basic requirements for compliance with the provincial regulations.

- The waste audit summary sheet and waste reduction work plan are to be prepared on a form provided by the MOE or in a similar format.
- Audit and Work Plan must be held on file for at least five years.
- A work plan must set out who will implement each part of the plan, when and expected results.
- Owner/operator of facility must submit the most recent audit and work plan within 7 days to a Ministry Director when requested to do so.

O. Reg. 103/94 Industrial, Commercial & Institutional Source Separation Programs

O. Reg. 103/94 builds upon the waste audit and waste reduction planning process by stipulating which recyclable materials a designated generator must recycle. In the case of the operator of an Educational Institution classified under O. Reg.103/94, the operator shall implement a source separation program targeting, at a minimum, the following materials: aluminum food and beverage cans, cardboard (corrugated), fine paper, newspaper, plastics, glass jars and bottles (used for food or beverages) and steel food and beverage cans.

2.0 –AUDIT SCOPE

In December 2011, Sheridan College commissioned Wasteco to conduct a solid waste audit and complete a waste reduction work plan. The audit for Davis Campus was performed on January 17-18, 2012. The main objectives of the project included:

- Conduct a solid waste audit to determine the quantities and types of wastes and recyclables being generated within the designated areas;
- Determine the composition of the solid waste stream and determine annual generation rates through extrapolation;
- Determine the overall waste diversion and capture rates for specific recyclable materials;
- Identify opportunities to increase diversion of materials that are included in the current waste diversion program; and
- Identify opportunities for reducing, reusing and recycling materials that are not currently included in the waste diversion program.

3.0 –METHODOLOGY

All material streams were collected by the cleaning personnel and labeled as to the area from where it was generated. The waste and recycling bags were collected on-site at Davis Campus then shipped to a Wasteco facility to be audited. All waste and recycling bags were sorted by generation area, opened, and further sorted into labeled collection bins. The materials sorted from the waste were divided into categories, described in detail in the Materials List. (**Appendix C**).

The materials removed from the waste, for audit purposes, included paper fibres (office paper, magazines, newspaper, kraft paper, boxboard, envelopes, post-it notes and file folders), washroom paper hand towels, cardboard, organics (pre and post-consumer food waste), cans/bottles/plastic (aluminum, glass, steel, plastics 1-7, milk cartons and tetra packs), and other non-recyclable waste (single-use food service packaging, polystyrene and soiled napkins). Each material group was then weighed (in kilograms rounded to 0.1 kg.) and recorded on the Material Weights Spreadsheet (**Table 5** and **Table 11**). A Rubbermaid 4010-88 Digital Receiving Scale was used for all measurements. (**Appendix F**)

A “Green Audit” was maintained throughout the entire process and all recyclable materials removed from the waste were discarded in appropriate recycling containers for landfill diversion. All Health and Safety Regulations, as prescribed in the provincial Health and Safety Act, were held in compliance throughout the full procedure.

Photographs were taken during the entire process to help illustrate certain situations. The pictures have been included (see **Appendix I**) to support observations and highlight the exact nature and composition of the materials being discarded.

The methods used for this audit are appropriate for evaluating and expanding the existing waste diversion programs. However, the waste and recycling composition data was extrapolated from a one-day sample and therefore cannot take into consideration all intermittent activities from the entire year. Therefore the results should not be used for any other purposes, other than those contained within this report.

4.0 – BUILDING INFORMATION AND SITE VISIT

4.1 – Building Profile

Davis Campus is a college campus managed by Sheridan College in Brampton, Ontario. The campus has a total of 4 buildings which total 532,302 square feet. There are 8,187 students attending this campus with 1,043 staff.

4.2 – Pre-Waste Audit Questionnaire Summary

On December 16, 2011, Carlo Caponigro, Waste Audit Supervisor and Recycling Coordinator, Rob Hanna, Waste Auditor and Recycling Coordinator, and Paul Niessen, Territory Manager of Wasteco met with Cathy Sloat, Administrative Assistant, and Gord Ide, Facilities Manager of Sheridan College at the Trafalgar Campus. At this initial meeting, the pre-audit questionnaire was discussed and filled in. A discussion on logistics and the basics of a waste auditing took place. A secondary meeting on January 10, 2012 was scheduled, here the generation areas were decided upon and labels were provided to label waste and recycling bags from the generation areas. A description of the materials to be sorted, audit logistics and methodology were also discussed.

Cleaning of this facility is completed by a team of cleaners who use a two-bag cart system for the collection of the waste and recyclable material from the office staff and students. Materials collected for disposal include paper, containers, cardboard, washroom paper hand towels, and non-recyclable waste. The different materials are collected daily.

The paper and garbage containers are usually 1/2 full when the cleaning staff empty the desk side bins at night. The containers are collected by the cleaning staff on an as need basis.

The campus operates 7 days a week with offices open generally 5 days a week during normal business hours while other buildings such as the library are open on weekends with shortened hours. At the time of the audit there were no unusual activities taking place in the building that may have altered the audit results.

Sheridan College is committed to maintaining an effective Environmental Management System (EMS).

“Green” procurement policies are employed by the cleaning contractor at Davis Campus. The cleaners (Hurley) clean the building with Green Certified products. Paper products, including hand towels and toilet tissues are purchased with “recycled content”. Cleaners are also using micro-fibre cloths, greatly reducing the need for using paper towels for cleaning different surfaces.

Many communication strategies allow maximum information to be distributed to the occupants and visitors. Lobby displays and elevator signage, along with memos and emails sent to the staff and students, promote the waste management initiatives within the complex. The waste and recycling program is also communicated to the cleaning staff through regular cleaners meetings and inspection reports. Please refer to **Appendix B** for a complete review of the pre-audit questionnaire as discussed in January 10, 2012.

5.0 – OBSERVATION AND ANALYSIS

The total weight of the sample including all waste and recycling bags was 825.92 kg. The waste bags accounted for 75.98% of the total weight. The recycling bags (paper, paper towel, and cans/bottles/plastic) accounted for 24.02% of the total weight. This is reflected in **Figure 2** below.

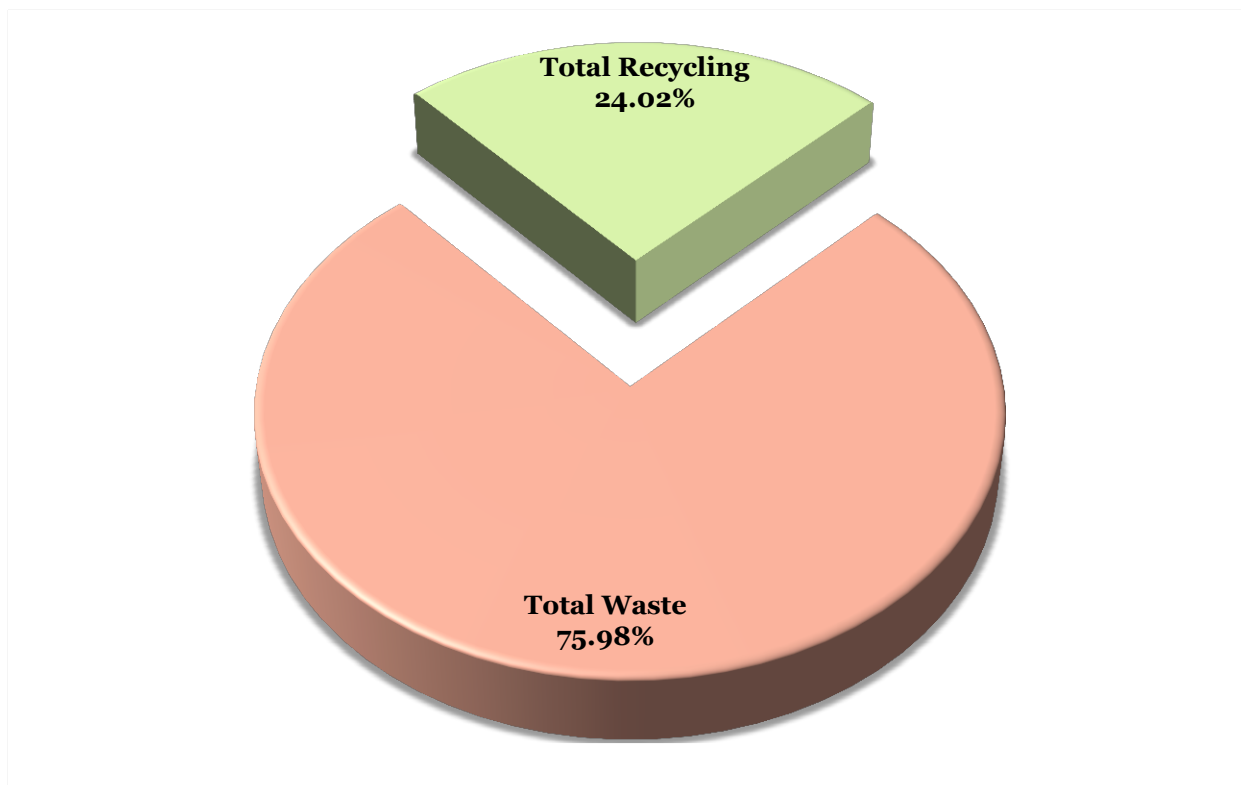


Figure 2: Total Waste and Recycling

5.1 – Waste and Recycling Analysis

By examining the material weights, the materials labeled as waste for the one day sample period equaled a sum of 627.50 kg. The recycling material weights (paper, cans/bottles/plastics, organics, washroom paper hand towels and cardboard) were lower at 198.42 kg. Based on these totals the annual projected weight of the waste stream is 163,030.78 kg/year. The annual projected weight of the recycling stream is 51,552.00 kg/year. See **Table 3** below.

Table 3: Waste and Recycling Weights

	Daily	Monthly	Yearly
Residual Waste	466.00 kg	10,088.90 kg	121,071.46 kg
Recycling in Waste	161.50 kg	3,496.48 kg	41,959.32 kg
Total Waste	627.50 kg	13,585.38 kg	163,030.78 kg
Total Recycling	198.42 kg	4,295.84 kg	51,552.00 kg

The materials that made up the largest percentage of waste by weight included the non-recyclable waste material with 74.26%. This is followed by organics with 13.15% then by cans/bottles/plastics 1-7 with 7.31%. **Figure 3** (below) displays the overall waste composition percentages discovered during the waste audit.

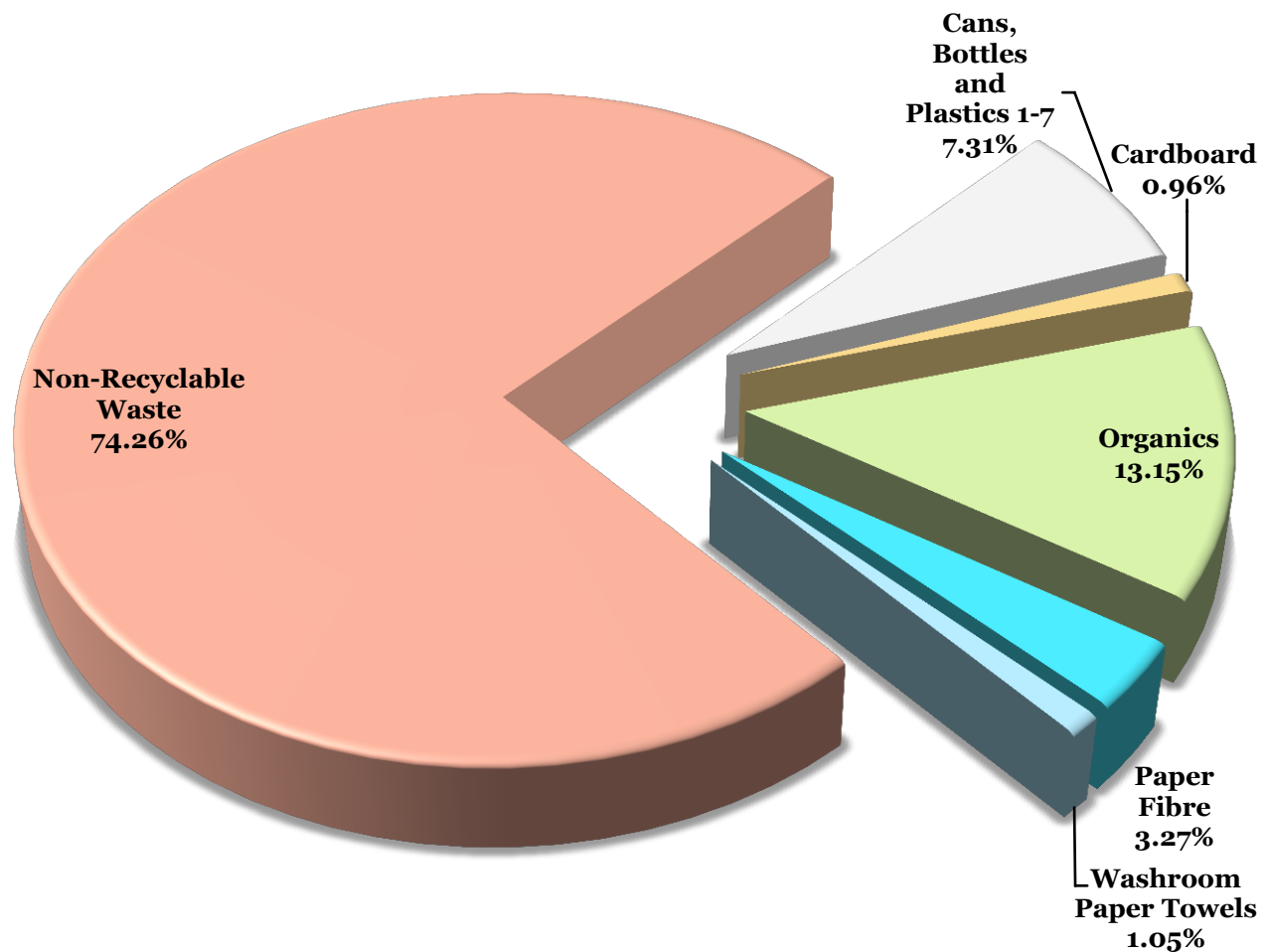


Figure 3: Composition of Material in the Waste Stream

Some recyclable materials which may have been diverted from landfill were found once the waste bags were opened. The food waste was observed to be pre and post-consumer generated from staff and student lunches and catered events that occurred during the day of collection for the audit.

Much of the waste sample contained the following, generally, non-recyclable materials:

- Food packaging – soup bowl containers, straws, fast food cups, chip bags, plastic-coated coffee cups, Ziploc bags, wrappers, gum wrappers, straws, stir sticks, granola bar wrappers, plastic cutlery, wax paper, coffee creamers, chocolate bar wrappers, plastic wrap and paper plates.
- Office waste – label backings, bubble wrap, plant leaves, highlighters, pens, string, markers, paper clips, and elastics.
- Other waste – coffee pods, contaminated hand towels, contaminated tissues, and Styrofoam.

The materials that made up the largest percentage of the recycling stream included paper fibre accounting for 44.25% and followed by cardboard with 39.57%. **Figure 4** (below) displays the overall recycling composition percentages discovered during the waste audit.

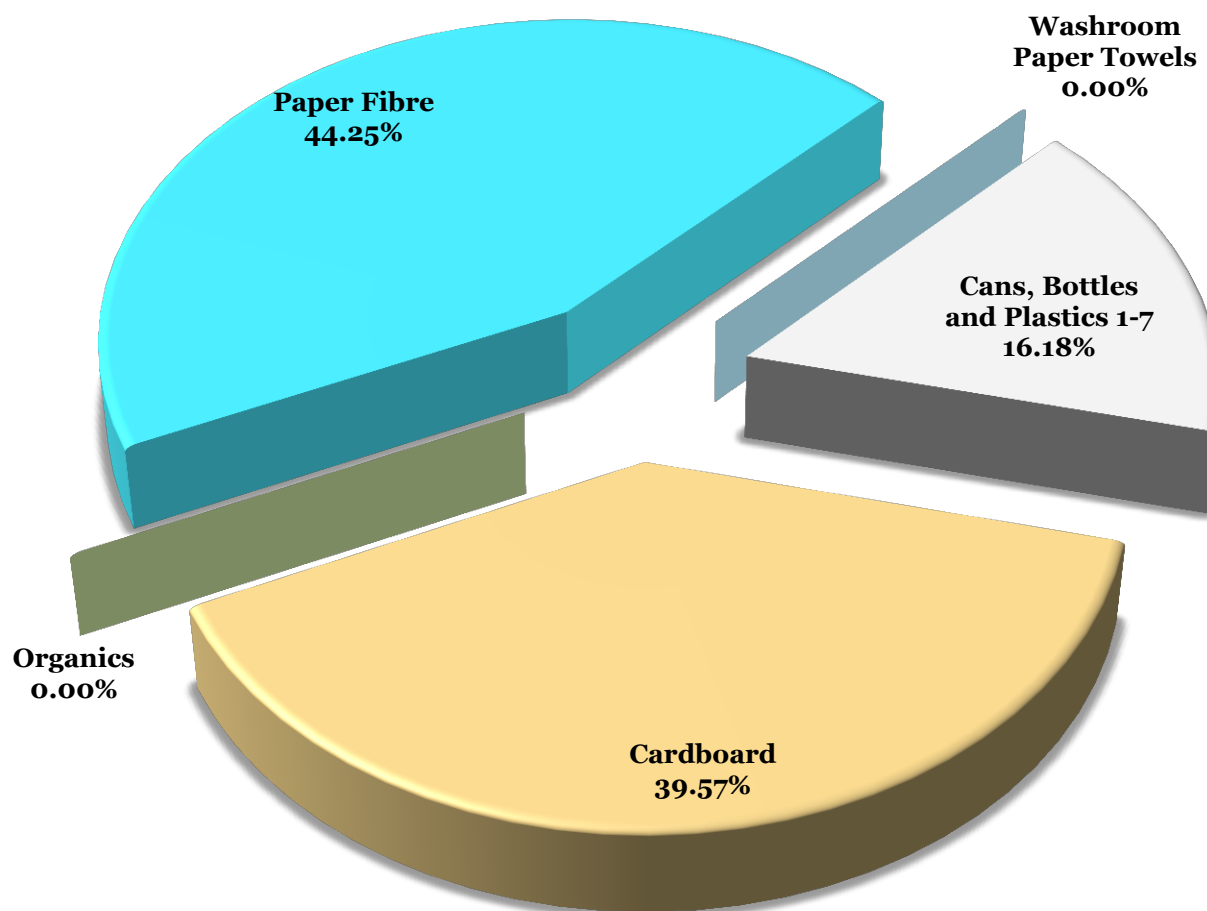


Figure 4: Composition of Material in the Recycling Stream

Most recyclable material was found to be diverted from the landfill through recycling programs. Capture rate for recyclable material is shown in **Table 4** (below). These were derived from the Material Weights Spreadsheets (**Table 5** and **Table 11**).

Table 4: Material Capture Rates

Cans/Bottles/Plastics	Cardboard	Organics	Paper Fibres	Washroom Paper Towel
41.15%	92.90%	N/A	81.07%	N/A

5.2 – Waste stream Analysis

Referring to the material weights in **Table 5** (below), calculations of the statistical information were gathered and provided the following weight measurements associated to each generation zone.

Table 5: Waste Material Weights

Davis Campus	Cans, Bottles and Plastics 1-7	Cardboard	Organics	Paper Fibre	Washroom Paper Towels	Non-Recyclable Waste	Total Weight	%
B-wing	9.20	2.70	1.30	2.50	3.80	92.60	112.10	17.86%
Cafeteria/Food Services	2.60		75.00	0.10		18.20	95.90	15.28%
Academic Services	0.50			0.50		1.70	2.70	0.43%
C-wing	7.80		0.70	0.40	1.30	39.50	49.70	7.92%
Portables	0.70					2.00	2.70	0.43%
Student Residences	5.30	1.20	2.40	2.70	0.40	54.30	66.30	10.57%
Student Centre	2.20	0.50	0.40	1.50		15.30	19.90	3.17%
CHC	3.60	0.40	0.60	1.90	0.60	35.90	43.00	6.85%
Library/Learning Commons	3.20	0.50	0.50	8.40		80.30	92.90	14.80%
McLaughlin Building	1.80			0.80	0.20	19.80	22.60	3.60%
Grounds	1.40		0.30			11.00	12.70	2.02%
Unknown	7.60	0.70	1.30	1.70	0.30	95.40	107.00	17.05%
Daily Projection	45.90	6.00	82.50	20.50	6.60	466.00	627.50	100.00%
%	7.31%	0.96%	13.15%	3.27%	1.05%	74.26%	100.00%	-
Monthly Projection	993.74	129.90	1,786.13	443.83	142.89	10,088.90	13,585.38	-
Yearly Projection	11,925.28	1,558.86	21,434.33	5,326.11	1,714.75	121,071.46	163,030.78	-
Capture Rate	41.15%	92.90%	0.00%	81.07%	0.00%	-	55.13%	-
Insignificant amount of recyclable material in the waste stream	<0.10	<0.20	<1.00	<0.20	<0.20	-	-	0%-2%
Moderate amount of recyclable material in the waste stream	>0.11- <0.40	>0.21- <0.50	>1.01- <3.00	>0.21- <0.50	>0.21- <0.50	-	-	2%-10%
Significant amount of recyclable material in the waste stream	>0.41	>0.51	>3.01	>0.51	>0.51	-	-	>10%

It became apparent that once the waste was divided into known areas of generation that B-Wing had the greatest contribution to the waste sample with 112.10 kg. See **Figure 5** below.

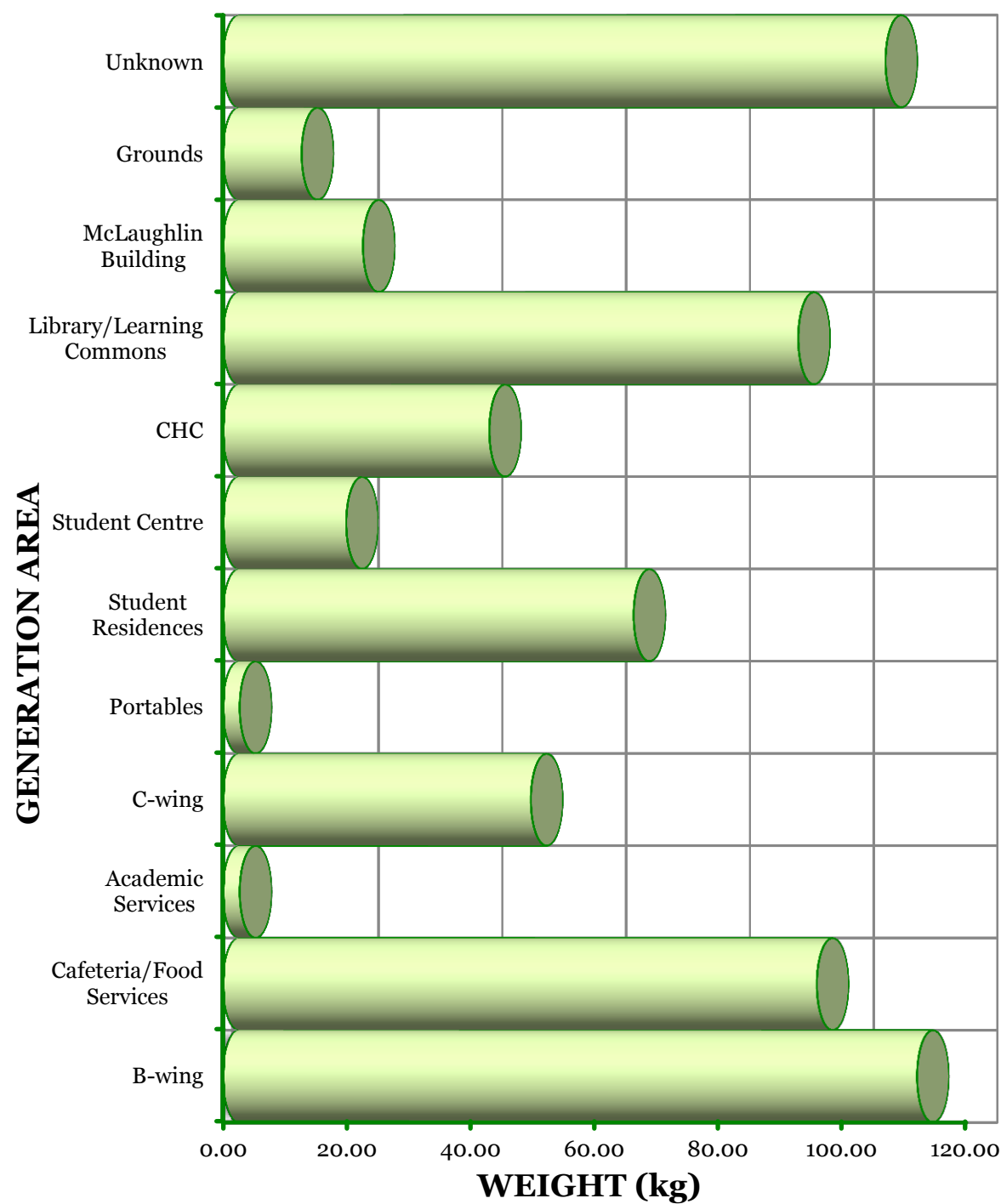
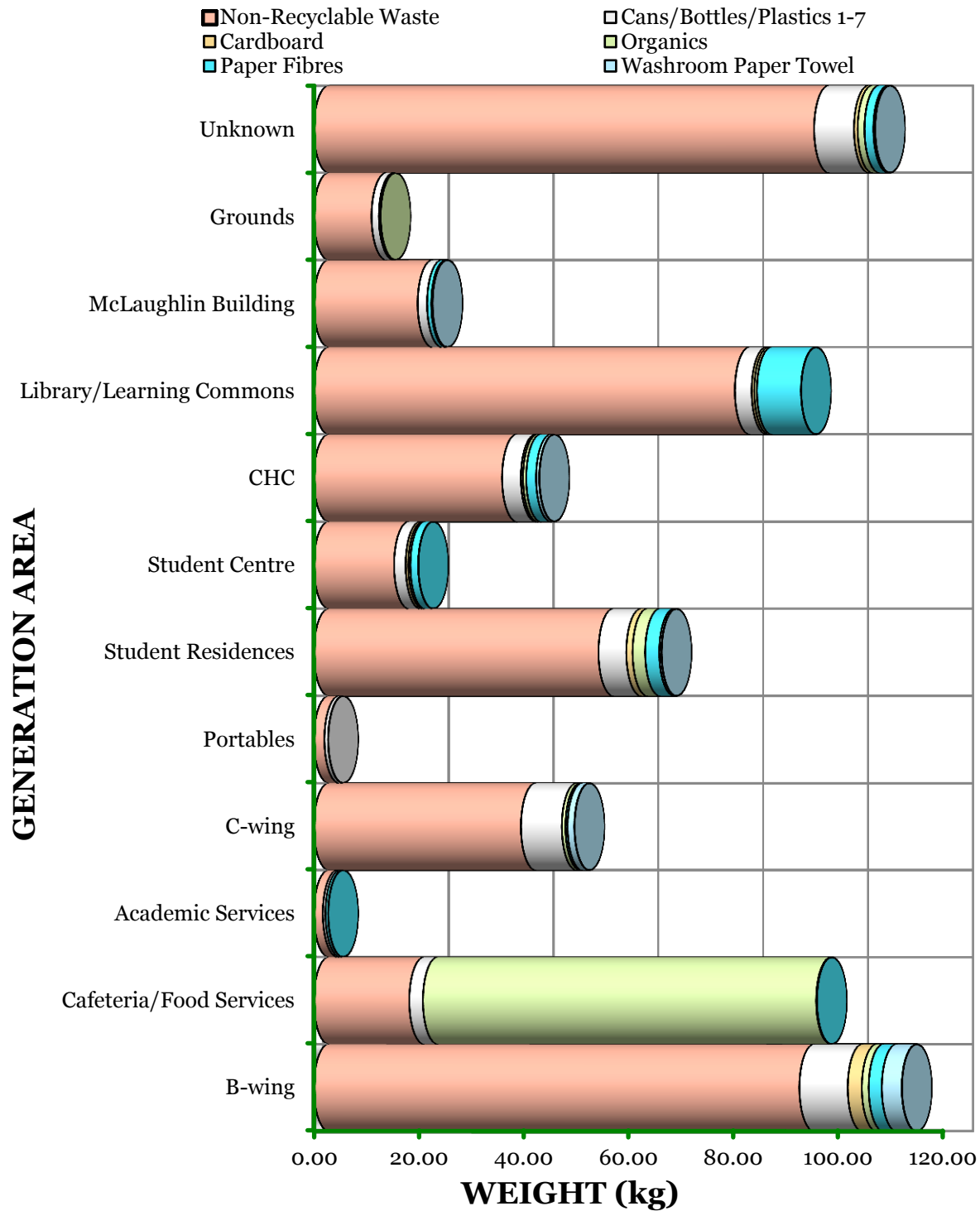


Figure 5: Waste Weights by Generation Area

Furthermore, the most common recyclable material found in the waste was cans/bottles/plastics since it was found in every generation area. However, organics made up the most weight of recyclable material in the waste. The generation area that contained the most of this recyclable material was Cafeteria/Food Services See **Figure 6** below.



5.2.1 – Cans/Bottles/Plastics – Waste Stream Analysis

A significant amount of cans/bottles/plastics was recovered from the waste, measuring 7.31% or 45.90 kg of the total waste from Davis Campus. Recyclable cans/bottles/plastics recovered from the waste included milk cartons, plastic water bottles, aluminum pop cans, party platter, plastic takeout containers, tetra paks and miscellaneous plastics 1-7. Analysis of the material weights shows that only a few of the generation areas diverted this material from landfill. The generation area that produced the most cans/bottles/plastics in the waste stream was B-Wing with 9.20 kg. The pictures below show what was found in the waste and **Table 6** below shows the top generation areas of cans/bottles/plastics in the waste.



B-Wing



Cafeteria/Food Services



C-Wing



Unknown

Table 6: Top Generators of Cans/Bottles/Plastics in the Waste

Generation Area	Weight of cans/bottles/plastics in waste	Percentage of cans/bottles/plastics in waste*
B-Wing	9.20 kg	20.04%
C-Wing	7.80 kg	16.99%
Unknown	7.60 kg	16.56%

*The percentage generated in table above is the weight of recyclable cans/bottles/plastics generated per floor divided by the sum total of all cans/bottles/plastics in waste multiplied by 100.

The cans/bottles/plastics in the pictures above are recyclable and could have been kept aside for recycling. Continuous monitoring and ongoing-education of the students will help increase landfill diversion. Signs should be posted in the building to inform and remind students about the recycling programs available, in addition to using proper collection bins. The staff and cleaners should be trained on how to collect waste separately and where to take separated materials. Cleaners should be monitored in order to ensure that the recyclable materials are collected efficiently.

5.2.2 – Cardboard – Waste Stream Analysis

A significant amount of cardboard was recovered from the waste, measuring 0.96% or 6.00 kg of the total waste from Davis Campus. Analysis of the material weights shows that half of the generation areas diverted this material from landfill. The generation area that produced the most cardboard in the waste stream was B-Wing with 2.70 kg. The pictures below show what was found in the waste and **Table 7** below shows the top generation areas of cardboard in the waste.



B-Wing



B-Wing



Student Residences



Unknown

Table 7: Top Generators of Cardboard in the Waste

Generation Area	Weight of cardboard in waste	Percentage of cardboard in waste*
B-Wing	2.70 kg	45.00%
Student Residences	1.20 kg	20.00%
Unknown	0.70 kg	11.67%

*The percentage generated in table above is the weight of recyclable cardboard generated per area, divided by the sum total of all cardboard in waste multiplied by 100.

The cardboard in the pictures above are recyclable and could have been kept aside for recycling. Continuous monitoring and ongoing-education of the staff and Students will help increase landfill diversion. Signs should be posted in the building to inform and remind Staff and students about the recycling programs available. The staff and cleaners should be trained on how to collect waste separately and where to take separated materials. Cleaners should be monitored in order to ensure that the recyclable materials are collected efficiently.

5.2.3 – Organic Material – Waste Stream Analysis

At present, an organics diversion program is not available for students or employees at Davis Campus to recycle food waste. A significant amount of organics was recovered from the waste, measuring 13.15% or 82.50 kg of the total waste from Davis Campus. Organics recovered from the waste consisted mostly of fruit peels, pre and post-consumer food waste. None of this material was diverted from landfill because there is no organics program. The generation area that produced the most organics in the waste stream was Cafeteria/Food Services with 75.00 kg. The pictures below show what was found in the waste and **Table 8** below shows the top generation areas of organics in the waste.



Unknown



Cafeteria/Food Services



Cafeteria/Food Services



Cafeteria/Food Services

Table 8: Top Generator of Organics in the Waste

Generation Area	Weight of organics in waste	Percentage of organics in waste*
Cafeteria/Food Services	75.00 kg	90.91%
Student Residences	2.40 kg	2.91%
Unknown	1.30 kg	1.58%

*The percentage generated in table above is the weight of recyclable organics generated per floor divided by the sum total of all organics in waste multiplied by 100.

Environmental impacts and waste reduction should also be considered when the procurement for lunches and other catering is needed. Continuous monitoring of staff and students throughout the year will help determine the feasibility of establishing an organics recycling program.

5.2.4 – Paper Fibres – Waste Stream Analysis

A significant amount of paper fibres was recovered from the waste, measuring 3.27% or 20.50 kg of the total waste from Davis Campus. Recyclable paper fibres recovered from the waste included office paper, newspaper, paper trays, envelopes and boxboard. Analysis of the material weights shows that only a few of the Staff and students diverted this material from landfill. The generation area that produced the most paper in the waste stream was Library/Learning Commons with 8.40 kg. The pictures below show what was found in the waste and **Table 9** below shows the top generation areas of paper in the waste.



B-Wing



Student Residences



Library/Learning
Commons



CHC

Table 9: Top Generators of Paper in the Waste

Generation Area	Weight of paper fibre in waste	Percentage of paper in waste*
Library/Learning Commons	8.40 kg	40.98%
Student Residences	2.70 kg	13.17%
B-Wing	2.50 kg	12.20%

*The percentage generated in table above is the weight of recyclable paper generated per area, divided by the sum total of all paper fibers in waste multiplied by 100.

The paper fibres in the pictures above are recyclable and could have been kept aside for recycling. Continuous monitoring and ongoing-education of the Staff and students will help increase landfill diversion. Signs should be posted in the building to inform and remind Staff and students about the recycling programs available. The staff and cleaners should be trained on how to collect waste separately and where to take separated materials. Cleaners should be monitored in order to ensure that the recyclable materials are collected efficiently.

5.2.5 – Washroom Paper Hand Towel – Waste Stream Analysis

A significant amount of washroom paper towels was recovered from the waste, measuring 1.05% or 6.60 kg of the total waste from Davis Campus. Analysis of the material weights shows that about half of the Staff and students diverted this material from landfill. The generation area that produced the most washroom paper towel in the waste stream was B-Wing with 3.80 kg. The pictures below show what was found in the waste and **Table 11** below shows the top generation areas of washroom paper towel in the waste.



B-Wing



B-Wing



C-Wing



CHC

Table 10: Top Generators of Washroom Paper Towel in the Waste

Generation Area	Weight of washroom paper towel in waste	Percentage of washroom paper towel in waste*
B-Wing	3.80 kg	57.58%
C-Wing	1.30 kg	19.70%
CHC	0.60 kg	9.09%

*The percentage generated in table above is the weight of recyclable washroom paper towel generated per area, divided by the sum total of all washroom paper towel in waste multiplied by 100.

The washroom paper towels in the pictures above are recyclable and could have been kept aside for recycling. Continuous monitoring and ongoing-education of the staff and students will help increase landfill diversion. Signs should be posted in the building to inform and remind staff and students about the recycling programs available. The staff and cleaners should be trained on how to collect waste separately and where to take separated materials. Cleaners should be monitored in order to ensure that the recyclable materials are collected efficiently.

5.2.6 – Other Recyclable Materials

Electronic Waste:

All discarded electronic materials (printers, keyboards, servers, monitors, cabling, etc.) destined for disposal, should be kept aside for appropriate disposal; not waste. Regularly scheduled pick-ups by Wasteco will divert these materials from landfill appropriately through an authorized Ontario Electronic Stewardship processor. Please call your Wasteco representative for electronic waste diversion options.

Metal:

Any scrap metal material generated within a building should not be discarded as waste. If generated during a renovation project, the contractor should be responsible for the appropriate diversion handling (either re-use or recycling). Scrap metal may be saved and staged for a designated pick-up forwarding the material to an authorized metal recycler.

Clothing/Textiles:

Clothing that is in wearable condition could be donated to a charity or other organization that would see that make it to those in need.

See the pictures below.



5.2.7 – Non-recyclable waste (Single use items)

Non-recyclable waste accounted for 74.26% or 466.00 kg of the total waste sample staged for the audit at Davis Campus. A lot of the non-recyclable waste collected included plastic cutlery, soiled paper plates, single use coffee cups, creamers/milkettes, Styrofoam plates, packaging and soiled napkins.



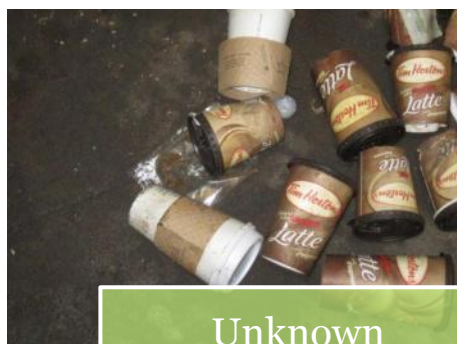
B-Wing



B-Wing



Cafeteria/Food
Services



Unknown

It should be encouraged that staff and students be mindful of single use packaging and containers and should be reminded of the environmental impact these materials have within landfills. Staff and students should be encouraged to use their own refillable coffee mugs and glasses to reduce the number of single use cups discarded as waste. Ceramic or reusable plates and metal cutlery are encouraged to help reduce the amount of material going to landfill. The milkettes and creamers found in the waste stream can be eliminated by substituting them with gable top cartons or tetra paks. This will help reduce consumption of packaging waste.

5.3 – Recycling Stream Analysis

Referring to the material weights in **Table 11** (below), calculations of the statistical information were gathered and provided the following weight measurements associated to each generation zone.

Table 11: Recycling Material Weights

Davis Campus	Cans, Bottles and Plastics 1-7	Cardboard	Organics	Paper Fibre	Washroom Paper Towels	Total Weight	%
B-wing	20.50			68.10		88.60	73.89%
Cafeteria/Food Services						0.00	0.00%
Academic Services				5.20		5.20	4.34%
C-wing						0.00	0.00%
Portables	0.80					0.80	0.67%
Student Residences	3.20			2.10		5.30	4.42%
Student Centre						0.00	0.00%
CHC	2.30					2.30	1.92%
Library/Learning Commons				12.40		12.40	10.34%
McLaughlin Building	5.30					5.30	4.42%
Grounds						0.00	0.00%
Unknown						0.00	0.00%
Other Recycling (Not Audited)						0.00	0.00%
Cardboard		78.52				0.00	0.00%
Daily Projection	32.10	78.52	0.00	87.80	0.00	198.42	100.00%
%	16.18%	39.57%	0.00%	44.25%	0.00%	100.00%	0.50%
Monthly Projection	694.97	1,700.00	0.00	1,900.87	0.00	4,295.84	2165.00%
Yearly Projection	8,339.90	20,400.79	0.00	22,811.32	0.00	51,552.00	25981.00%

It became apparent, once the recycling materials were divided into their areas of generation, that B-Wing had the highest contribution to the recycling sample with 88.60 kg. See **Figure 7** below.

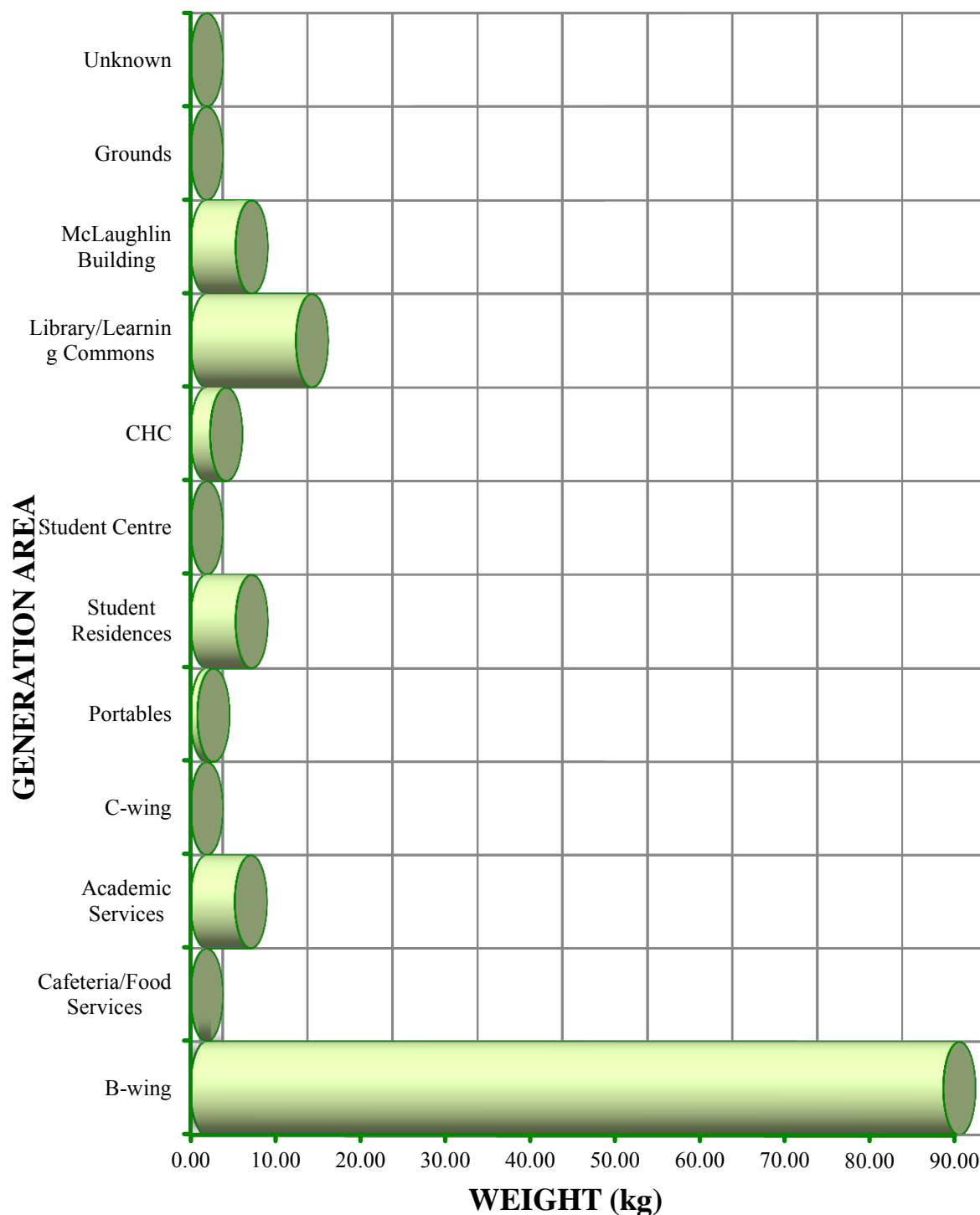


Figure 7: Recycling Weights by Generation Area

Furthermore, the most common recyclable material found in the waste was paper. The generation area that contained the most of this material was B-Wing. See **Figure 8** below.

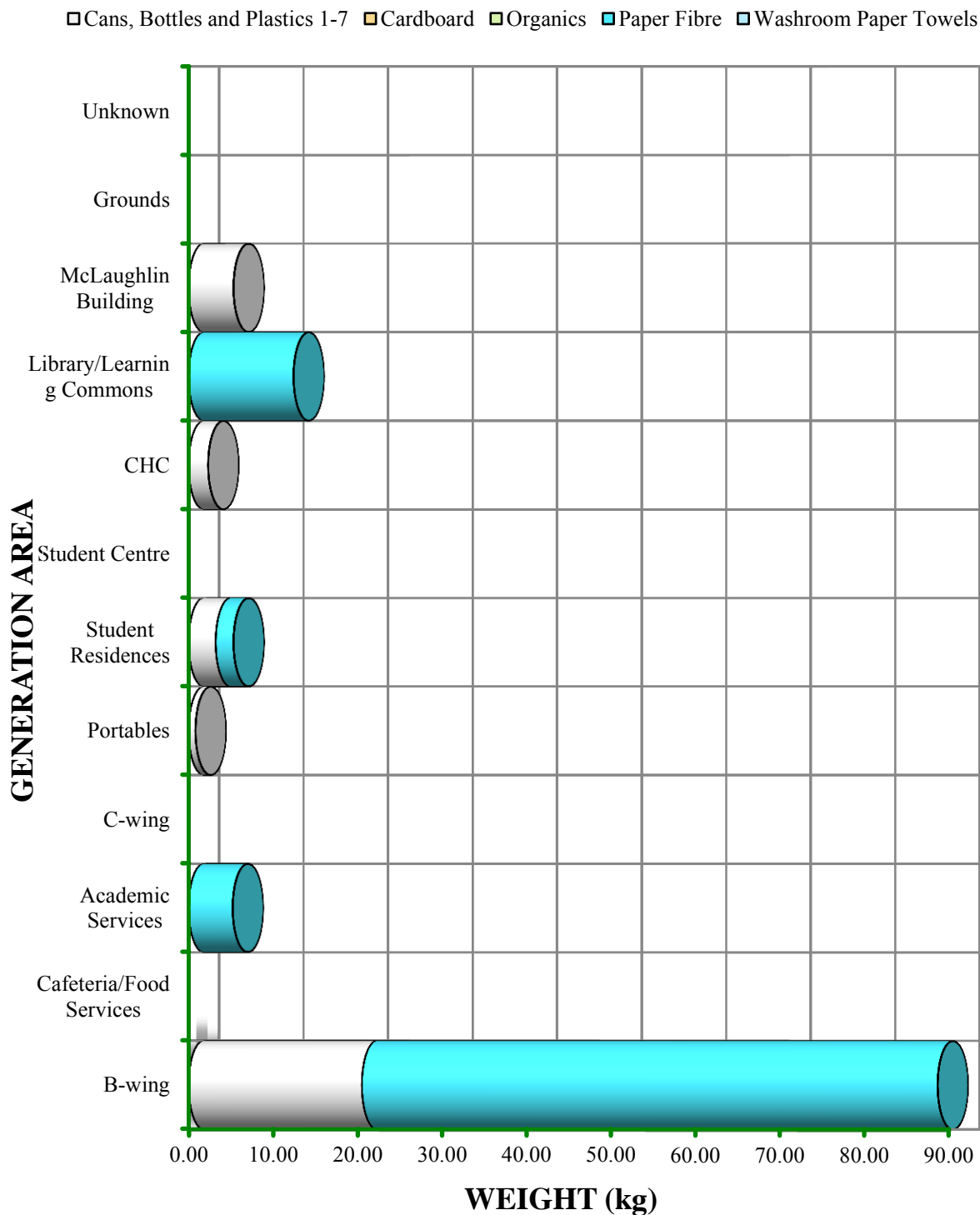


Figure 8: Recycling Breakdown by Generation Area

5.3.1 – Cans/Bottles/Plastics Recycling

There were some observations of contamination in the cans/bottles/plastics recycling. The contaminating materials include non-recyclable waste such as single use single use cups and creamers. Cans/bottles/plastics accounted for 26.77% or 32.1 kg of the total recycling collected during the sample period. The pictures below show the amount of contamination that was observed in this recycling stream.



B-Wing



B-Wing



Portables A-H



CHC



McLaughlin

The most common contaminate in the recycling was non-recyclable waste. The waste should have been placed into the proper waste bin. Ensuring proper signage is in place and that proper disposal bins are available will affect how much contamination enters a recycling stream. On-going cleaner staff and student education is recommended to ensure they are knowledgeable of the programs used at Davis Campus

5.3.2 – Cardboard Recycling

This recycling stream was found to be very clean and no contamination was found. Cardboard accounted for 39.57% or 78.52 kg of the total recycling. It is recommended that spot checks on the cleaners and staff and students take place periodically to ensure that this high level of material diversion is maintained.

5.3.3 – Paper Recycling

There were some observations of contamination in the paper recycling. The contaminating materials include cans/bottles/plastics, cardboard and non-recyclable waste such as single use coffee cups. Paper accounted for 73.23% or 87.80 kg of the total recycling collected during the sample period. The pictures below show the amount of contamination that was observed in this recycling stream.



B-Wing



B-Wing



B-Wing



B-Wing

The most common contaminate in the recycling was non-recyclable waste and cans/bottles/plastic. The waste should have been placed into the proper waste bin, and the cans/bottles/plastics into the proper bin. Ensuring proper signage is in place and that proper disposal bins are available will affect how much contamination enters a recycling stream. On-going cleaner, staff and students education is recommended to ensure they are knowledgeable of the programs used at Davis Campus.

5.3.4 – Paper Towel Recycling

There was no paper towel recycling stream to audit.

5.3.5 – Overview

Currently a multi stream recycling program exists at this school. Multi stream recycling has the advantage of reducing cross contamination by keeping materials such as paper fibres separate from other products. This helps maintain the integrity of the recycled material sent to an end user thus increasing the raw purity and reducing their re-manufacturing costs. It is therefore important to re-educate staff students, and cleaners about the recycling programs at Davis Campus.

Single use coffee cups are non-recyclable and should be discarded in the waste stream. Alternatively, staff and students could substitute these items with reusable materials such as refillable mugs, china plates or reusable food containers could be used in the cafeteria.

All office staff should have access to desk-side blue bins for their paper fibres and collector bins for containers should be located in convenient centralized areas for students. Cleaner awareness and continual spot checks, to ensure proper collection processes are being maintained, should be exercised at all times. Once materials are mixed, it is very difficult to guarantee maximum recycling potential of many materials and post collection separation will need to be employed. This potentially can raise costs and diminish material integrity. The cleaners can help identify opportunities where equipment or signage is missing or better staff and student education is needed. The cleaners should also be reminded about how the different materials need to be collected and staged before removal from the building.

6.0 – CONCLUSION

Overall, the findings presented within this Waste Audit Report, show that Davis Campus is operating at a below average level for diverting their waste from landfill. The current diversion rate based upon the results of this report is 16%. The waste and recycling composition data was extrapolated from a one-day sample and therefore cannot take into consideration all intermittent activities from the entire year.

The purpose of the Waste Audit was to identify generation areas and material streams where further improvement in waste diversion and waste minimization could be made. The generation areas with the highest population and waste/recycling generation would definitely be targeted. All users of the program within these generation areas should be provided with the correct equipment and specific education to use the equipment properly. Control factors to ensure continual compliance should always be maintained.

Programs for increased waste diversion and waste reduction opportunities were discussed and will be the focus in the Waste Reduction Work Plan presented alongside this report. The initiative that may have the greatest impact on waste diversion would be to capture more cans/bottles/plastics since this material was found in the waste stream of every generation area. Additionally implementing an organics program to capture the organics from the cafeteria should be investigated. Combining different materials in the recycling stream should be discouraged at all times. This will help minimize contamination. Communicating the need for greater participation and diligence with the existing recycling programs offered within this facility is also suggested. Monitoring all material programs with an intensified education and promotional campaign targeting specific department areas would improve the overall recycling program dramatically.

It should be recognized that the cleaning staff has a great impact on waste minimization and landfill diversion. Materials need to be collected properly and staged neatly before removal from the facility. Continual education and monitoring of the cleaning contract is always encouraged. The cleaning staff may also be able to provide feedback and input on those areas requiring attention, as identified within the audit report, and how improvements may be accomplished.

7.0 – WASTE REDUCTION WORK PLAN

Please refer to **Appendix A** for the completed Ministry of Environmental Waste Audit and Waste Reduction Work Plan Forms and a single page summary to be posted on a public board.

Davis Campus is currently offering recycling programs for office paper, cardboard, newspaper, steel cans and glass bottles and is required to comply with Ontario Regulation 103/94. After reviewing the Waste Audit, the following work plan was formulated. The work plan refers back to many of the observations and conclusions expressed within the Waste Audit report and opportunities for improving the waste management have been included. Current programs are assessed and new programs could be considered to control waste costs and increase the diversion of waste from landfill.

A Waste Reduction Work Plan provides Property Managers with the ability to make continuous improvements to the facility's recycling programs, and to monitor their effectiveness. However, it should be remembered that recycling is just one way to reduce wastes. To be really effective, the 4R's (Refuse, Reduce, Reuse, and Recycle) should be incorporated into the daily activities of all buildings and staff and students. Reducing the amount of waste produced is, by far, the most effective way to counter the flow of garbage to landfill.

Davis Campus employs the waste and recycling services of Wasteco and the cleaning services are under contract from **Hurley**. Before any plan or action is undertaken, all parties associated with the waste and recycling program, including the staff and students themselves, should be contacted and made aware of the specifics of the change.

1. **Equipment Inventory:** A thorough inspection and survey should be conducted to ensure each desk and workstation is fully equipped to support the various recycling programs. Before any building staff and student education can begin, it would be best that each area is properly equipped. This would include blue bins for waste paper at every desk, side-saddles for regular waste and containers, and centrally located bins for the collecting of cans/glass/plastic food and beverage containers and, potentially, organic food waste. Easily accessible collection bins will increase the staff and student participation and limit health and safety issues associated with cross contaminating wastes or material staging. Once all areas have been equipped, the educational aspect of the program may start.
2. **Improved Signage and Labeling:** When an area is equipped with the appropriate recycling equipment, the bins and areas surrounding should be correctly labeled to identify their specific use. The proper identification of receptacles would improve source separation and limit the opportunity for waste streams to mix and become non-recyclable. The goal is to make recycling a pleasant and clean experience for the user. Posters and desk-drops would aid in educating the staff and students and guests of the building and promote the recycling program within each building zone.
3. **Increase Program Accountability:** There must be strict enforcement procedures in place to ensure the program is progressing. Continual spot checks, audits and education will help keep the program current and fresh. Information gathered for the reports must be correct, clear, and concise so that the program can be measured accurately. The cleaners and staff and students from each space may be questioned to provide feedback in areas where the program is not working. Once a problem area is identified, continual follow-up and communication may be required to ensure that a solution is reached.

4. **Monitoring Contract Cleaners:** There is a need to educate and monitor the cleaning and maintenance staffs with regards to the recycling program. A Cleaner's meeting is encouraged to help educate the staff to identify those materials that are to be kept out of the waste. The cleaning personnel are the "eyes" of the program because they not only see the materials generated on a nightly basis, but where they are generated also. The Cleaners can help identify opportunities where equipment or signage is missing or better staff and student education is needed. The Cleaning Contractor should not be expected to separate recyclables from waste; only collect, and keep separate the recyclables from waste. A "Cleaner's Log Sheet", is recommended and will help document and solve any concerns associated with the Recycling Program on a day-to-day basis. The log sheet also aids in keeping the program updated and acts as a constant reminder to the cleaners of the priorities they need to maintain.
5. **Consider an Organic Recycling Program:** Currently, there is no Organics program for recycling food waste. A review and assessment for the feasibility of implementing a program is recommended.
6. **Consider a Washroom Paper Towel Recycling Program:** it is important to separate clean washroom paper towels from the general waste stream. If collected in a clear plastic bag, clean washroom paper towel can be staged with the paper recycling. Continuous monitoring, education and increased staff and student awareness would help reduce the volume of recyclables going to landfill and this will in turn provide environmental and social benefits to the building.
7. **Consider Food Container Alternatives:** A large quantity of paper plates and take out containers were witnessed during the audit. Alternative food containers should be considered to decrease the amount of materials going to landfill.
8. **Hold Green Team Meetings:** In an effort to, not only control the waste and recycling streams generated within the building, but also maintain the costs associated with waste management, an environmental "Green Team" is important. This "Green Team" is headed by building Management and includes participation from interested building staff and students, all cleaning contractors, and the waste contractor.

It is recommended that the Green Team should continue with their focus on the following initiatives.

- A. **Educate Staff and students.** The recycling program relies on proper source separation. Teaching all staff and students of the acceptable processes involved with each waste stream would only increase the amount of recyclables diverted from landfill.
- B. **Increase Program Awareness.** The marketing and promotion of the recycling program is very important. Promoting the Building Green Team diversion goals and accomplishments would increase awareness and therefore, participation.
- C. **Constant Program Monitoring.** Information will always need updating. The program will benefit from the constant exchange of information between all staff and students and management and service contractors. Successes should be acknowledged, and failures should be examined for how to improve continuously.

9. Promote Waste Minimization Benefits: Waste is a resource which can lead to greater business productivity if managed correctly. Shifting from methods and thinking of waste disposal to processes of waste reduction can bring a range of key benefits;

- Businesses may save money through more efficient use of raw materials, packaging and technology.
- Compliance with environmental legislation may become cheaper and more straightforward.
- Businesses can improve their reputation among customers, suppliers, potential staff and students and insurers, who may want to be sure that they take their environmental responsibilities seriously.
- Companies may also boost the morale of existing staff.

10. Maintain compliance with Regulation 102/94: It is important that your facility remains in compliance with Regulation 102/94 Waste Audits and Waste Reduction Work Plans. The Ministry of the Environment requires that you update or conduct a waste audit and waste reduction work plan on an annual basis. If found in non-compliance you will be given 1-2 months to complete a waste audit and waste reduction work plan. Wasteco's waste audit team requires 6 months' notice to schedule your next waste audit.



APPENDICIES

Appendix A

Ministry of the Environment Waste Form

Report of a Waste Audit

Industrial, Commercial and Institutional Establishments

As required by O. Reg. 102/94

- *This report must be prepared 6 months after becoming subject to O. Reg. 102/94 and a copy retained on file for at least five years after it is prepared, and be made available to the ministry upon request.*
- *For large construction and demolition projects, please refer to the forms included with “A Guide to Waste Audits and Waste Reduction Work Plans for Construction and Demolition Projects as Required Under Ontario Regulation 102/94” (revised July 2008)*

I. General Information

Name of Owner and/or Operator of Entity(ies) and Company Name: [Sheridan College](#)

Name of Contact Person:

[Cathy Sloat,](#)
[Administrative Assistant,](#)
[Sheridan College](#)

Telephone #:

[905.815.4213 ext 4213](#)

Email address:

catherine.sloat@sheridan.on.ca

Street Address(es) of Entity(ies): [Davis Campus](#)

Municipality: [Brampton](#)

Date: [January 2012](#)

Type of Entity
(check one)

Retail Shopping Establishments	<input type="checkbox"/>	Hotels and Motels	<input type="checkbox"/>
Retail Shopping Complexes	<input type="checkbox"/>	Hospitals	<input type="checkbox"/>
Office Buildings	<input type="checkbox"/>	Educational Institutions	<input checked="" type="checkbox"/>
Restaurants	<input type="checkbox"/>	Large Manufacturing Establishments	<input type="checkbox"/>

Note: O. Reg. 102/94 does not apply to multi-unit residential buildings.

II. Description of Entity

Provide a brief overview of the entity(ties):

[Davis Campus](#) is a college campus managed by [Sheridan College](#) in [Brampton, Ontario](#). The campus has a total of 4 buildings which total 532,302 square feet. There are 8,187 students attending this campus with 1,043 staff.

III. How Waste is Produced and Decisions Affecting the Production of Waste

Categories of Waste	How Is the Waste Produced and What Management Decisions/Policies Affect Its Production?
Cans/bottles/plastics Recycling Program: Aluminum food and beverage cans, Glass food and beverage bottles/jars, Steel food and beverage cans, PET (#1) plastic food and beverage bottles, HDPE (#2) plastic jugs, all plastics 1-7, crates, totes and drums	Generated by staff and students purchasing beverage containers in the building and by bringing containers from home and purchasing outside the building. Some staff and students use reusable mugs for water instead of bottled water.
Cardboard	Generated by the staff and students. Cardboard is generated through receiving new products from suppliers. Cardboard is used for convenience packaging. Using suppliers with minimal packaging is being reviewed.
Paper Products Recycling Program: Fine paper, Newsprint, Boxboard shoe boxes, cereal boxes, etc., Glossy magazines, catalogues, flyers	Paper is generated by staff and students printing documents on the printers and from incoming faxes. Newspapers and magazines are supplied through mail subscriptions.
Paper towels	Generated by staff and guests. The majority of paper towels are generated in the washrooms. Paper towels are also generated in the kitchenettes. Hand towels are used for sanitary reasons. Hand dryers in the washrooms may be reviewed.
Organics	Generated by staff and students. Generated by staff and students eating food in the offices. Food retailer also generate by preparing food.
LDPE (#4) plastic film	Generated by purchased products wrapped in plastics packaging. Plastic film is used to secure products on skids. There is not enough of this material for it to be recyclable.
Polystyrene (#6)	Generated by staff and students bringing back their polystyrene take-out food containers. Polystyrene containers are used for convenience purposes. It is also generated by retailers supplying customers with take-out containers. staff and students are sent educational reminders to use reusable containers and dishes where possible.
Wood	Generated on the loading dock by suppliers bringing in materials on wooden skids. There is a leave a skid take a skid policy in the building.
Steel	Generated by contractors in the building when there is a construction project. All steel construction is to be recycled by the contractor.
Drywall	Generated by contractors in the building when there is a construction project. All drywall construction is to be recycled by the contractor.
Skids	Generated on the loading dock by suppliers bringing in materials on wooden skids. There is a leave a skid take a skid policy in the building.
Printer cartridges	Generated by all printers on campus.

IT equipment/audio-visual equipment	Generated by offices. Computers are sent for reuse or recycling when on a as needed basis.
Furniture	All offices are furnished. Most furniture is sent to charities or recycled when staff and students no longer need it.
Building/renovation material	Generated by contractors. Contractors must dispose of this material.
Disposable takeout food packaging	Generated by staff and students bringing back their take-out food containers. Containers are used for convenience purposes. It is also generated by retailers supplying customers with take-out containers.
Cell phones	Generated by staff and students.
Diapers	n/a
Clothing/textiles	n/a
Other:	

Note: When completing this form, write "n/a" in the columns where the entity will not produce any waste for a category of waste.

IV. Management of Waste

Category	Waste to be Disposed	Reused or Recycled Waste
Cans/bottles/plastics Recycling Program	Material is periodically disposed in garbage due to staff and students lack of participation for the recycling program.	Staff and Students place in containers provided in the kitchenettes. Janitorial staff is responsible for collecting and staging on the loading dock in the blue 95 Gallon totes.
Cardboard	Material is periodically disposed in garbage due to Staff and Students lack of participation for the recycling program.	Staff and Students place aside for Janitorial staff who disposes of it in the compactor located on the loading dock. Retailers are responsible for bringing their own cardboard to the loading dock.
Paper Products Recycling Program: Fine paper, Newsprint, Boxboard shoe boxes, cereal boxes, etc., Glossy magazines, catalogues, flyers	Material is periodically disposed in garbage due to staff and students' lack of participation for the recycling program.	Staff and Students place paper in recycling receptacles. Janitorial staff later collects paper. Those in garbage are disposed; those in recycling receptacles are recycled and placed on the garbage area for recycling collection.
Paper towels		Staff and Students place paper towels in recycling receptacles in washrooms and in kitchenettes. Collection staff later collects. Those in garbage are disposed; those in recycling receptacles are recycled and placed the garbage area for recycling collection.
Organics	Material currently disposed in waste bin because there is no organics program.	
LDPE (#4) plastic film	Staff and Students may place in garbage bins because there is not enough volume of material to recycle.	

Polystyrene (#6)	Staff and Students may place in garbage bins because this item is not recyclable.	
Wood		If there is a construction project wood is collected in a separate temp bin and recycled.
Steel		If there is construction project, steel is collected in a separate temp bin and recycled.
Drywall		If there is a construction project drywall is collected in a separate temp bin and recycled.
Skids		Skids are taken back by supplier or recycled.
Printer cartridges		Staff send back to suppliers for reuse and recycling.
IT equipment/audio-visual equipment		Staff and Students notify operations if they have e-waste and material is picked up by e-waste recycling and reused or recycled.
Furniture		Furniture is sent to local charities to be reused.
Building/renovation material		If there is a construction project, material is collected in a separate temp bin and recycled.
Disposable take-out food packaging	Staff and Students may place in the garbage because this material is not accepted in the recycling program.	
Batteries		Staff and Students place batteries in designated bins in each suite. Staff and Students can then call for pick up. Batteries are stored in the storage room until arrangements are made for material to be picked up by a licensed collector.
Fluorescent Tubes		Discarded lights and old ballasts are staged before removal for recycling.
Cell phones	n/a	
Diapers	n/a	
Clothing/textiles	n/a	
Other:		

Note: When completing this form, write “n/a” in the columns where the entity will not produce any waste for a category of waste.

V. Estimated Quantity of Waste Produced Annual

	Estimated Amount of Waste Produced in Metric Tonnes											
	Generated			Reused			Recycled			Disposed		
Categories of Waste	"A" Base Year 2012	"B" * Current Year 2013	"C" * Change (A-B)	"A" Base Year 2012	"B" * Current Year 2013	"C" * Change (A-B)	"A" Base Year 2012	"B" * Current Year 2013	"C" * Change (A-B)	"A" Base Year 2012	"B" * Current Year 2013	"C" * Change (A-B)
Cans/bottles/plastics	20.26		20.26				8.34		8.34	11.92		11.92
Cardboard	21.97		21.97				20.40		20.40	1.57		1.57
Paper Products	28.14		28.14				22.81		22.81	5.33		5.33
Washroom Paper Hand Towels	1.71		1.71				0.00		0.00	1.71		1.71
Confidential Shredding	n/a		n/a				n/a		n/a	n/a		n/a
Organics	21.44		21.44				0.00		0.00	21.44		21.44
Wood/Wood Skids	n/a		n/a				n/a		n/a	n/a		n/a
Toner Cartridges	n/a		n/a				n/a		n/a	n/a		n/a
Scrap Metal	n/a		n/a				n/a		n/a	n/a		n/a
Construction and Demolition	n/a		n/a				n/a		n/a	n/a		n/a
Batteries	n/a		n/a				n/a		n/a	n/a		n/a
Drywall	n/a		n/a				n/a		n/a	n/a		n/a
Furniture	n/a		n/a				n/a		n/a	n/a		n/a
E-waste	n/a		n/a				n/a		n/a	n/a		n/a
Cell Phones	n/a		n/a				n/a		n/a	n/a		n/a
Clothing/textiles	n/a		n/a				n/a		n/a	n/a		n/a
Grease	n/a		n/a				n/a		n/a	n/a		n/a
Office Furniture	n/a		n/a				n/a		n/a	n/a		n/a
Fluorescent tubes	n/a		n/a				n/a		n/a	n/a		n/a
Non-Recyclable Waste	121.07	0.00	121.07				0.00	0.00	0.00	121.07	0.00	121.07
Total	214.58	0.00	214.58	0.00	0.00	0.00	51.55	0.00	51.55	163.03	0.00	163.03
Percent Change (total C ÷ total A x 100)			100.00%			0.00%			100.00%			100.00%
Note: When completing this form, write "n/a" in the "Estimated Amount of Waste Produced" column where the entity will not produce any waste for a category of waste. * Fill out these columns each year following the initial waste audit or baseline year to determine the progress that is being made by your waste reduction program.												

VI. Extent to Which Materials or Products Used Or Sold By the Entity Consist of Recycled or Reused Materials or Products

Please answer the following questions:

1. Do you have a management policy in place that promotes the purchasing and/or use of materials or products that consist of recycled and/or reused materials or products? If yes, please describe.

Yes. Sheridan College is a front-runner in promoting sustainable property management and development practices and is committed to maintaining an effective Environmental Management System (EMS).

2. Do you have plans to increase the extent to which materials or products used or sold* consist of recycled or reused materials or products? If yes, please describe.

Yes. The paper hand towels purchased for the washrooms are also made of recycled materials and the cleaner's cleaning products are environmentally friendly.

* Information regarding materials or products "sold" that consist of recycled or reused materials or products is only required from owner(s) of retail shopping establishments and the owner(s) or operator(s) of large manufacturing establishments.

Please attach any additional page(s) as required to answer the above questions.

I hereby certify that the information provided in this Report of Waste Audit is complete and correct.

**Signature of authorized
official:**

Title:

Date:

Ministry of the Environment Waste Form

Report of a Waste Reduction Work Plan

Industrial, Commercial and Institutional Establishments

As required by O. Reg. 102/94

This report must be prepared 6 months after becoming subject to O. Reg. 102/94 and a copy retained on file for at least five years after it is prepared, and be made available to the ministry upon request.

I. General Information

Name of Owner and/or Operator of Entity(ies) and Company Name: Sheridan College

Name of Contact Person:

Cathy Sloat,
Administrative Assistant,
Sheridan College

Telephone #:

905.815.4213 ext 4213

Email address:

catherine.sloat@sheridan.on.ca

Street Address(es) of Entity(ies): Davis Campus

Municipality: Brampton

Date: January 2012

**Type of Entity
(check one)**

Retail Shopping Establishments	<input type="checkbox"/>	Hotels and Motels	<input type="checkbox"/>
Retail Shopping Complexes	<input type="checkbox"/>	Hospitals	<input type="checkbox"/>
Office Buildings	<input type="checkbox"/>	Educational Institutions	<input checked="" type="checkbox"/>
Restaurants	<input type="checkbox"/>	Large Manufacturing Establishments	<input type="checkbox"/>

Note: O. Reg. 102/94 does not apply to multi-unit residential buildings.

II. Description of the Entity

Provide a brief overview of the entity(ties):

Davis Campus is a college campus managed by Sheridan College in Brampton, Ontario. The campus has a total of 4 buildings which total 532,302 square feet. There are 8,187 students attending this campus with 1,043 staff.

III. Plans to Reduce, Reuse and Recycle Waste

Waste Category (as stated in Part V of your “Report of a Waste Audit”)	Source Separation and 3Rs Program
Office Paper	<p>“Office Paper 3Rs Program”</p> <p>Reduce: Staff will be encouraged to print on both sides of each sheet.</p> <p>Reuse: Discarded paper with print only on one side will be used for note pads/scrap.</p> <p>Recycle: Staff will be provided with instructions via email. Receptacles will be provided beside each desk. Staff will empty receptacles into centralized containers. Custodial staff will empty centralized containers into bulk container at loading dock for collection by recycling company.</p>
Cans/Bottles/Plastics	<p>Cans/Bottles/Plastics 3Rs Program:</p> <p>Reduce: Staff will be encouraged to use travel mugs and bottles, instead of take-out cups.</p> <p>Reuse: Staff will be encouraged to use Ceramic mugs provided instead of disposable plastics and paper cups.</p> <p>Recycle: Staff will be provided with instructions via email. Receptacles will be provided beside each desk. Staff will empty receptacles into centralized containers. Custodial staff will empty centralized containers into bulk container at loading dock for collection by recycling company.</p>
Organics	Organics is not collected on this property.
Furniture	Reuse: Furniture is donated to local schools and/or charities.
E-waste	All E-Waste is sent off for <u>reuse</u> and <u>recycling</u> .
Batteries	<p>Reuse: Staff are encouraged to use rechargeable batteries.</p> <p>Recycle: batteries are recycled through a licensed hazardous waste company.</p>
Skids	All skids are taken back through the supplier and <u>reused</u> and <u>recycled</u> .
Toner Cartridges	All toners are taken back through the supplier and / or sent to recycling company to be <u>reused</u> and <u>recycled</u> .
Building/renovation material	<p>Reuse: contractors are encouraged to reuse renovation materials were ever possible.</p> <p>Recycle: contractors are to recycle all renovation materials that can be recycled.</p>
Disposable takeout food packaging	<p>Reduce and Reuse: Staff and Students and staff are encouraged to bring in their own reusable container or to use china and steel cutlery provided.</p> <p>Recycle: Staff and Students and staff are encouraged to recycled plastic containers with the numbers 1 and 2.</p>
Cell phones	<p>Reuse: staff are encouraged to keep working phones to pass on to people who need phones or parts.</p> <p>Recycle: Staff and Students and staff are encouraged to use recycling containers located at the security desk and management office.</p>
Diapers	n/a
Clothing/textiles	n/a
Other:	
Polystyrene (#6)	Reduce: staff and Staff and Students are encouraged to use reusable packaging and china instead of polystyrene take-out containers.
Wood	Reuse: contractors and suppliers are encouraged to take a skid for reuse

	when they leave a skid. Recycle: all skids that are not in reusable condition are sent to a skid recycler.
Steel	Reuse and Recycle: all steel picked up by a scrap metal recycler.
Drywall	Recycle: contractors are encouraged to separate and recycle all drywall.

IV. Responsibility for Implementing The Waste Reduction Work Plan

Identify who is responsible for implementing the Waste Reduction Work Plan at your entity(ies). If more than one person is responsible for implementation, identify each person who is responsible and indicate the part of the Waste Reduction Work Plan that each person is responsible for implementing.

Name of Person	Responsibility	Telephone #
Cathy Sloat Administrative Assistant Sheridan College	Implement and monitor program	905.815.4213 ext 4213
Cleaning Representative	Monitor program	n/a

V. Timetable for Implementing Waste Reduction Work Plan

Source Separation and 3Rs Program	Schedule for Completion
Office Paper	An equipment survey will be conducted to make sure that all Staff and Students have the proper paper receptacles along with the proper labeling and signs. This will be completed by April 2012 .
Cans/Bottles/Plastics	An equipment survey will be conducted to make sure that all Staff and Students have the proper Cans/bottles and plastics receptacles along with the proper labeling and signs. This will be completed by April 2012 .
Organics	Tenant areas should be monitored in order to determine the possibility of starting an organics program. This will be completed by June 2012 .
Paper Towels	An equipment survey will be conducted to make sure that all Staff and Students have the proper receptacles along with the proper labeling and signs. This will be completed by April 2012 .
Furniture	Complete. All furniture is sent to charities.
E-waste	Complete. All e-waste is sent to an authorized dealer for recycling.
Batteries	Complete. All batteries are sent to an authorized dealer for recycling.
Fluorescent Tubes	Complete. All lights and ballasts are sent to Aevitas for recycling.
Skids	Complete. Skids are taken back by contractors and suppliers. Leave a skid take a skid policy.
Toner Cartridges	Complete. All toner cartridges are taken back by suppliers or recycled.
Building/renovation material	Complete. All contractors are responsible for taking these materials back with them and recycling any materials that can be recycled.
Disposable take out food packaging	n/a. These materials can not be recycled in the building program.
Cell phones	Complete. All cell phones are recycled through recycler.
Diapers	n/a
Clothing/textiles	n/a
Polystyrene (#6)	This material is not recyclable in the building program.
Wood	n/a

Steel	Complete. All steel is picked up by a scrap metal recycler.
Drywall	Complete. All drywall is taken back by the contractor and recycled where possible.

VI. Communication to Staff, Customers, Guests and Visitors

Explain how the Waste Reduction Work Plan will be communicated to customers, Staff and Students, guests/visitors and students:

A memo will be sent out to all staff and facilities contacts explaining the recycling program. Attached to the memo will be signage that staff and students can post above containers and on notice boards explaining the program.

Holding Green Team Meetings are a good method to discuss, monitor and implement the Waste Reduction Work Plan.

All floors with a moderated amount of recycling found in their waste will be visited to work on improving program.

The waste reduction work plan will also be posted on a notice board in a public area or posted on the website.

VII. Estimated Waste Produced By Material Type And The Projected Amount (in Tonnes)

Material Categories (as stated in Part III)	Estimate d Annual Waste Produced * (tonnes)	Name of Proposed 3Rs Program (as stated in Part III)	Projections to Reduce, Reuse or Recycle Waste (tonnes)			Estimated Annual Amount to be Diverted ** (%)
			Reduce	Reuse	Recycle	
Cans/bottles/plastics	20.26	Cans/bottles/plastics	2.40	0.61	14.21	85%
Cardboard	21.97	Cardboard	3.65	1.15	17.17	100%
Paper Products	28.14	Paper Products	5.80	3.00	17.94	95%
Washroom Paper Hand Towels	1.71	Washroom Paper Hand Towels	0.00	0.00	1.71	100%
Confidential Shredding	n/a	Confidential Shredding	n/a	n/a	n/a	100%
Organics	21.44	Organics	0.00	0.00	17.15	80%
Wood/Wood Skids	n/a	Wood/Wood Skids	n/a	n/a	n/a	100%
Toner Cartridges	n/a	Toner Cartridges	n/a	n/a	n/a	100%
Scrap Metal	n/a	Scrap Metal	n/a	n/a	n/a	100%
Construction and Demolition	n/a	Construction and Demolition	n/a	n/a	n/a	100%
Batteries	n/a	Batteries	n/a	n/a	n/a	100%
Drywall	n/a	Drywall	n/a	n/a	n/a	100%
Furniture	n/a	Furniture	n/a	n/a	n/a	100%
E-waste	n/a	E-waste	n/a	n/a	n/a	100%
Cell Phones	n/a	Cell Phones	n/a	n/a	n/a	100%
Clothing/textiles	n/a	Clothing/textiles	n/a	n/a	n/a	100%
Grease	n/a	Grease	n/a	n/a	n/a	100%
Office Furniture	n/a	Office Furniture	n/a	n/a	n/a	100%
Fluorescent tubes	n/a	Fluorescent tubes	n/a	n/a	n/a	100%
Non-Recyclable Waste	n/a	Non-Recyclable Waste	n/a	n/a	n/a	100%

* Estimated Waste Produced = Waste Diverted (3Rs) + Waste Disposed

** Estimated Waste Diversion Rate = Amount of Waste Diverted (3Rs) ÷ Estimated Waste Produced x 100%

I hereby certify that the information provided in this Waste Reduction Work Plan is complete and correct.

**Signature of authorized
official:**

Title:

Date:

Davis Campus Waste Reduction Work Plan Summary

January 2012 – January 2013

Recently, a Waste Audit was completed at Davis Campus in order to maintain compliance with Ontario Regulation 102/94 (Waste Audits and Waste Reduction Work Plans) of the Environmental Protection Act.

The regulation requires that the Waste Reduction Work Plan, which is created based on the results of the waste audit, is posted in a public area and available for the public to view.

A Waste Reduction Work Plan provides Property Managers and Staff and Students with the ability to make continuous improvements to the facility's recycling programs, and to monitor their effectiveness. This plan reviews ways the building can reduce, reuse and recycle all materials disposed. This includes paper, cardboard, paper towels, containers, organics, biodegradable containers, grease, skids, electronic waste, fluorescent tubes, toner cartridges and batteries.

In order to reduce, reuse and recycle at this building the following top 3 recommendations have been provided:

1. Conduct an Equipment Survey, by making sure all areas have the proper equipment and all areas and equipment have the proper signage and labelling,
2. Increase Program Accountability, and
3. Continue Educating Staff and Students and Cleaning Staff about the recycling program.

If you would like to review the full Waste Reduction Work Plan for Davis Campus please contact Property Management.

Thank you for your continued efforts to Reduce, Reuse and Recycle.

Recycling Facts

Recycling 1 tonne of paper:

*Saves 4,100 kWh of energy
Saves 26,498 litres of water
Saves 1,438 litres of oil
Saves 17 trees
Saves 3.3 cubic metres of landfill space
Reduces greenhouse gas emissions by 1 tonne of carbon equivalent*

Recycling 1 tonne of plastic:

*Saves 5,774 kWh of energy
Saves 2,593 litres of oil
Saves 23 cubic metres of landfill space*

Recycling 1 tonne of Glass:

*Saves 42 kWh of energy
Saves 19 litres of oil
Saves 1.5 cubic metres of landfill space
Saves 3.4 kg of air pollutants from being released*

Recycling 1 tonne of aluminum:

*Saves 14,000 kWh of energy
Saves 5,882 litres of oil
Saves 7.64 cubic metres of landfill space*

Source: US EPA, 2008



Appendix B

Pre-Waste Audit Questionnaire

Facility Profile:

School Name	Sheridan Institute of Technology & Advanced Learning ('Sheridan College')
Campus Name	Davis Campus 7899 McLaughlin Rd., Brampton, Ontario L6Y 5H9
# of buildings on campus	<p>1) Main Building (Wings joined by corridor, enclosed bridge, etc.): Library/Learning Commons CHC Student Centre B Wing C Wing <i>Independent Buildings:</i> 2) Student Residence 3) Annex Bldg. 4) McLaughlin Bldg.</p> <p>*B Wing - 3 stories with a mezzanine identified as the "4th floor", incl. mixed used office and classrooms. Main boiler room is in this building, emergency generator is located on the roof (natural gas fired) *C Wing - 2 stories, mixed use of athletics and classrooms, labs *Student Centre - 2 stories, main floor is pub, cooking areas, common area, 2nd floor is offices *H Wing - 3 stories, mixed use office and classrooms, nursing program runs out of this building on the 3rd floor. This building also has an emergency generator in the basement, also doubles as the main electrical room. *J Wing - 3 story building, contains the Library Learning Commons, classrooms on each floor *M Building - single story building containing classrooms</p>
Campus Size (sq. ft.)	Approx. 532, 302
# of Students on Campus full & part-time (Stats for FALL 2011)	8,187
# of Staff on Campus	<ul style="list-style-type: none"> – 1043 FT & PT Admin. and Support Staff and Faculty – 1 x Residence (PT Support)
# of days open and operating per week	Various
Cleaning Company	Hurley
Provide a brief description of the facility.	Davis Campus is a college campus managed by Sheridan College in Brampton, Ontario. The campus has a total of 4 buildings which total 532,302 square feet. There are 8,187 students attending this campus with 1,043 staff.

Waste Audit Logistics:

Pre-Waste Audit Meeting Date		December 15, 2011 & January 10, 2012		
	Trafalgar Campus	Davis Campus	H. McCallion Campus	Skills TC
Waste Audit Collection Date	Jan. 22 – North Side; Jan. 23 – South Side	Jan. 16 – West Side; Jan. 17 – East Side	January 19	January 26
Waste Audit Sorting Date	January 24	January 19	January 20	January 27
Sorting Location	Off Site	Off Site	Loading dock	Loading dock
Waste Zones	Primarily by wing (see Operational Plan)	Primarily by wing (see Operational Plan)	By floor	Building or by A-rooms, B-rooms and C&D-rooms: TBD
Security Accesses Issues		Security will attend Jan. 10 meeting to answer questions.		

Contact Information:

Name	Title	Dept.	Phone and/or Email
Cathy Sloat	Administrative Assistant	Office for Sustainability Sheridan College	905-815-4213 bus. (x4213) catherine.sloat@sheridanc.on.ca
Rick Lewis	Facilities Manager (Trafalgar and STC)	Facilities Management	rick.lewis@sheridanc.on.ca 416-809-6827 cell
Gord Ide	Facilities manager (Davis and HMC)	Facilities Management	gordon.ide@sheridanc.on.ca

Waste Removal

- What materials are commonly found in the waste stream?
Paper cups, paper and plastic bags, plastic utensils, paper napkins, bread, fruit, fruit peels, pizza and sandwich boxes, sandwich wraps and bags. Pop cans, plastic bottles, wood, metal, liquids, vegetables, ETC.
- Does each office have a desk-side waste and recycling containers and what type is used? (i.e. desk-side, mini desktop, or side saddle) If not, please explain alternate waste disposal systems.
Deskside bins for classrooms and offices and various sizes for the common areas and corridors.
- What are the cleaning procedures that occur on this site? Is waste collected daily? At what time of the day is it collected, and what time is collection completed? Are employees required to empty their waste containers at a central point?
Hurley, sweeps, damp mops, dusts, window cleaners, autoscrubbs, carpet cleaners, buffs, burnishes, strips and refinishes floors, removes waste and recycling on a daily basis. Waste is collected daily from 8am to 6am the next day. There are three shifts, the morning shift removes common area, washroom and corridor waste. The afternoon porter, removes common area, washroom and corridor waste. The night shift removes classroom, washroom, cafeteria, common area, office and corridor waste. All our products are green products from Dustbane.
- Is there an Organics Recycling Program?
There is no organics program.
- Is there a cafeteria? If so how is kitchen waste handled? Who empties it and when? Does the cafeteria supply/pay for their bins or composting program?
Cafeteria staff handles their own kitchen waste.

6. Other than summer vacation period, are there any seasonal variations to waste volumes, or exceptions to the regular schedule?

There are variations during winter break, and march break.

7. Are there any unusual occupancy areas (i.e. daycares, labs) or any floors that are vacant?

No.

8. Will any unusual events be occurring during the audit period that would affect the amount of waste produced? (I.e. office moves, special events, renovations, seasonal variations, etc.) If yes, please explain.

Renovations being done during this period push students to other areas of the campus which results in a concentration of more waste than usual in certain areas.

9. Are there usually bulky materials such as cardboard boxes or construction material in the containers that should not be?

There are separate bins for waste, recycling and cardboard. There are separate bins for construction waste and wood also.

10. Do contractors put construction waste into the regular waste bins?

The contractors have rarely put construction waste in the regular waste containers.

Recycling Program

Please mark off which recycling programs are in place in the building

Material	Building Management/ Tenant Program	Where is the collection bins located?	How often are they collected
Paper	X	Desk sides, beside photo copiers, mail rooms and high traffic areas	Every night
Cardboard	X	Fold up and place beside paper bins.	Every night
Containers	X	In the kitchenettes, high traffic areas and some meeting rooms.	Every night
Hand Towels	X	Collected in the washrooms and serveries	Every night
Organics			
Grease			
Confidential Shredding			
Skids			
Fluorescent Tubes			
Toner Cartridges			
Electronic Waste			
Batteries			
Scrap Metal			
Office furniture			
Other:			

Reduction and Reuse Information

1. Are there any formal or informal reduction or reuse initiatives in place? (I.e. office supplies, toner cartridges for printers / fax machines, etc.)
Yes- IT clients/user community logs a helpdesk call to have hardware removed and then IT collects it in a central depot and disposes of it via Ministry approved OES vendor (once central depot is full, e.g. approx. 3x annually. Toner is recycled by vendor...collected by staff and then Shipping calls vendor to pick up.
2. Are you able to quantify the volume of material that has been reused or reduced? (In terms of units, weight, or money saved)?
Yes. Most large volume networked computers.
3. Do you have photocopiers with duplexing (double-sided) capabilities? Yes.

Communication Information

4. What, if any communication initiatives have been implemented to support waste reduction initiatives? (I.e. educational posters, theme weeks, tent cards in cafeteria, demonstrations, earth month, waste reduction week, etc...) All information is communicated by email and memos as well as Information posters and signs.

Procurement Information

5. Do you have the following corporate policies? (Ex. Purchasing policies, environmental policies, green procurement policy and any other policies affecting waste production).
Yes. Sheridan College is a front-runner in promoting sustainable property management and development practices and is committed to maintaining an effective Environmental Management System (EMS).
6. Do you purchase or use products with recycled content that are recyclable, or are reusable? If yes, estimate quantity in terms of units, recycled content, cost, or other, where possible. Yes.
Hand Towels in the washrooms are made from recycled content.

Material	Yes	No
Reconditioned toner cartridges		✓
Use refillable coffee mugs	✓	
Purchase paper with recycled content	✓	
Purchase paper towels with recycled content	✓	
Purchase toilet paper with recycled content	✓	
Do the cleaners use Green Cleaning Products	✓	

Appendix C

Material List

Material	Example
Batteries	Alkaline, lead acid, lithium, mercury, nickel, cadmium and silver oxide batteries, cell phone
Cans/Bottles/Plastics	glass bottles, pop cans, tuna cans, plastic bottles, milk and juice cartons, drink boxes, plastics #1 to #7
Cardboard	Corrugated cardboard
C & D (Construction and Demolition)	brick, concrete, asphalt, drywall,
Electronic Waste	Computers, fax machines, photocopiers, etc...
Fluorescent Tubes	CFLS, Ballasts
Furniture	Desks, tables, chairs, etc...
Grease/Oil	Cooking oil or grease
Hazardous Waste	Paint, oils, chemicals, etc...
Organics	Pre and post-consumer food (fruit, vegetable scraps, meat, fish, bines, pasta, bread, cereal, dairy products, eggs shells, coffee grounds, filters, tea bags, cadies, cookies, cake)
Paper Products	Computer paper, envelopes, file folders, post-it notes, newspaper, magazines, boxboard, brown paper bags
Scrap Metal	Metal cabinets, aluminum, copper, brass
Shredding	Confidential paper, storage boxes
Toner Cartridges	Laser, inkjet
Washroom Paper Hand Towels	Unsoiled white or brown paper towels from the washrooms.
Waste	Other materials, including non-recyclable materials, contaminated recyclables, plastics #3- #7
Wood	Wood scraps, wood skids

Appendix D

Glossary of Terms

Capture Rate:

Capture rate is the percentage of recyclable materials that are diverted from landfill and captured in the recycling stream. Capture rates measure the effectiveness of a recycling program. Achieving a capture rate of 100% requires that all recyclables be placed in the recycling stream and that the waste stream consist solely of non-recyclable residual materials.

$$\frac{\text{Total Weight of Specific Material}}{\text{Total Weight of Material + Material in Waste}} \times 100 = \text{Capture Rate (\%)}$$

Diversion Rate:

The diversion rate reflects the percentage of all outgoing materials diverted to recycling from those disposed of as landfill. Achieving a diversion rate of 100% requires that all outgoing material be recyclable and placed in the recycling stream, in other words no residual materials.

$$\frac{\text{Total Weight of All Recyclables}}{\text{Total Weight of All Recyclables + All Land-filled Waste}} \times 100 = \text{Diversion Rate (\%)}$$

Hazardous Waste:

Waste generated during production or other activities by society that can pose a substantial or potential hazard to human health or the environment when improperly managed.

Landfill:

Designed, controlled and managed disposal site for municipal solid waste spread in layers, compacted to the smallest practical volume, and covered by material applied at the end of each operating day.

Material Recovery Facility (MRF):

This is a facility that separates and processes the recyclable material (glass, metals, plastics, and paper) into a marketable material.

Municipal Solid Waste (MSW):

Household waste, commercial solid waste, non-hazardous sludge; conditionally exempt small quantity hazardous waste, and industrial solid waste

Recycling:

The process by which materials otherwise destined for disposal are collected reprocessed, or manufactured, and are reused.

Residual Waste:

Any material that is not diverted in any way and thus is disposed of via the waste garbage stream and sent to landfill.

Solid Waste:

Waste composed of solid matter from household, commercial, institutional and industrial sources.

Waste:

Unwanted materials left over from any human activity.

Waste Diversion:

The redirection of waste material that was landfill bound through reuse, recycling, or recovery of that material. It does not include source reduction.

Waste Reduction:

Waste reduction is a broad term encompassing all waste management methods – source reduction, recycling, composting – that result in reduction of waste to going to a combustion facility or landfill.

Waste Stream:

The waste output of a community, region, or facility. Total waste can be categorized into different waste stream components) e.g., wet organics waste, construction waste, household hazardous waste, or white goods).

Waste-to-Energy (WtE) System:

A method of converting municipal solid waste into a usable form of energy, usually through combustion.

Appendix E

Signage

**BOTTLES
CANS
PLASTICS**

- ✓ Plastics ♻️♻️♻️♻️♻️♻️♻️
- ✓ Tetra paks
- ✓ Aluminium and steel cans
- ✓ Milk and juice cartons
- ✓ Glass bottles
- ✗ No coffee cups
- ✗ No wax paper
- ✗ No plastic bags
- ✗ No styrofoam

WASTE

- ✓ Coffee cups
- ✓ Paper towels, napkins
- ✓ Styrofoam & polystyrene cups & containers
- ✓ Plastic bags
- ✓ Organic food waste
- ✗ No paper recycling
- ✗ No bottles & cans recycling
- ✗ No electronic waste
- ✗ No batteries
- ✗ No toner cartridges

**PAPER
PRODUCTS**

- ✓ Office paper
- ✓ File folders
- ✓ Newspapers / magazines
- ✓ Directories
- ✓ Windowed envelopes
- ✓ Boxboard
- ✗ No paper towels
- ✗ No coffee cups

TRIM YOUR WASTE

Thank You
for recycling and diverting
waste from landfills

W Wasteco
Making a Material Difference

Appendix F

Scale Calibration



CERTIFICATE OF CALIBRATION

Date: January 3, 2012

Wasteco has seen to it that the scales we use for waste auditing are calibrated on a regular basis. The scale has been checked and calibrated as per the manufacturer's specifications on scale calibration.

To ensure that the scale is performing properly three checkpoints are used during the calibration process. Each checkpoint has an acceptable tolerance for the scale readout.

Rubbermaid 4010-88 Digital Receiving Scale

Checkpoint	Tolerance	Readout
50 lbs.	±0.5 lbs.	50 lbs.
100 lbs.	±1.0 lbs.	100 lbs.
150 lbs.	±1.5 lbs.	150 lbs.

The calibrated readouts were within the accepted tolerance range at three different check points.

Next calibration date: January 3, 2013

Wasteco Recycling Services Department

January 3, 2012



Appendix G

Environmental Initiatives



Appendix H

Historical Diversion Reports

Appendix I

Waste Audit Pictures