



waste reduction

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**University of Guelph
2022 Solid Non-Hazardous Waste Audit**

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Executive Summary

University of Guelph retained the services of Waste Reduction Group Inc to conduct a solid non-hazardous waste audit at its campus located in Guelph, Ontario. Twenty-four hour samples of waste materials were collected from ten (10) different areas on campus, consisting of approximately 821 kg. The collected samples were audited over four (4) days in October 2022. In some cases, waste materials collected for the audit were labelled to indicate the functional area of the campus that generated the waste, including office public, classroom/lecture, washrooms, kitchenettes/break rooms and library areas. The following list summarizes the overall garbage composition determined from the audit:

• Organic Waste	35.2%
• Mixed Containers:	13.2%
• Paper Towels:	10.5%
• Mixed Papers:	9.7%
• LDPE (#4 Plastic) films:	9.7%
• Non-recyclable	6.8%
• Coffee Cups:	4.2%
• Cardboard	4.1%
• Styrofoam:	3.9%
• Textiles:	1.5%
• PPE:	0.4%
• Scrap Woods:	0.4%
• Scrap Metals:	0.3%

Waste diversion programs have been implemented on campus for cardboard, mixed recycling, papers (including confidential papers), scrap metals, scrap woods, electronics, bulbs, batteries, organics, oil and grease, large appliances, car and motor, tires, textbook donations, beverage bottle returns, wood pallets, printer toner cartridges, used furniture donations, food share, manure and contaminated wood/paint. Through discussions with University of Guelph personnel, estimates of the annual amounts of solid non-hazardous waste materials disposed, reduced, reused, recycled and composted were determined. The following table summarizes the estimated annual quantities of waste materials generated, diverted and disposed.

Annual Quantities of Materials Diverted & Disposed

Material	Total Annual Amount	
	Metric Tonnes	Percent
Disposed to Landfill	1665.25	86.6%
Materials Diverted from Landfill	257.64	13.4%
Total Waste Generated	1922.89	100%

Based on the total annual amount of waste generated and materials diverted, the university's waste diversion rate was determined to be approximately 13%. The Ministry of the Environment, Conservation & Parks (MECP) provincial objective is 60% waste diversion rate. University of Guelph's management team are committed to improving their waste diversion rate and minimizing the amount of materials disposed to landfill.

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1 Introduction

University of Guelph (UofG) retained the services of Waste Reduction Group Inc to conduct a solid non-hazardous waste audit in 2022 at its campus located in Guelph, Ontario. The waste audit examined representative samples of waste from ten (10) different areas on campus over a four (4) day period in October 2022. The goal of the waste audit was to gain an understanding of the quantities and composition of solid non-hazardous wastes generated on campus.

UofG is a multi-building community that has 25,643 Fiscal Full-Time Equivalent (FFTE) students (2020/21) and staff that generate waste and divertible materials (refer to Appendix A). UofG conducted the solid non-hazardous waste audit to comply with the requirements of O.Reg. 102/94, to confirm compliance with O.Reg.103/94 and to further improve upon their waste reduction, reuse and recycling initiatives.

Note: This waste audit was conducted during the COVID-19 pandemic response. Due to the pandemic response, the collected waste audit samples and annual service records may not be representative of typical operations and caution should be used when comparing sample and annual data from 2020/21/22 and previous data at the same facility.

1.1 Purpose

The purpose of the solid non-hazardous waste audit was to:

- Comply with Part X of O.Reg. 102/94 ‘Waste Audits and Waste Reduction Work Plans’, which requires the operator of an educational institution with more than 350 students enrolled per year, to conduct an annual waste audit and prepare and implement a waste reduction work plan (Refer to Appendix A for a partial excerpt of O.Reg.102/94);
- Confirm compliance with Section 14 of O.Reg.103/94 ‘Industrial, Commercial and Institutional Source Separation Programs’ and Part X ‘Educational Institutions’ of the Schedule attached to the Regulation (Refer to Appendix A for a partial excerpt of O.Reg.103/94).
- Determine the annual waste diversion rate for UofG resulting from existing waste reduction, reuse, and recycling (3Rs) programs;
- Identify point of generation and quantify composition of wastes at UofG;
- Identify any additional opportunities for waste reduction and diversion that may exist at UofG;
- Address any specific concerns or opportunities identified during the study.

1.2 Scope of Work

To satisfy the purpose of the waste audit, the following scope of work was completed:

- Collected data pertaining to waste composition between October 18 and 21, 2022;

- Determined the total quantity of waste materials diverted from landfill by UofG through current reduction, reuse, and recycling programs;
- Completed a Waste Audit Report (per MECP protocol) that addressed the amount, nature and composition of the waste, the manner by which the waste was generated, including management decisions and policies that relate to the production of waste, and the way in which the waste is managed on campus; and
- Completed a Waste Reduction Work Plan (per MECP protocol) regarding plans to reduce, reuse and recycle waste on campus. The report set out who will implement each part of the plan, when each part will be implemented and what the expected results shall be.

2 Methodology

Discussions were held with UofG personnel to review existing waste management and recycling programs implemented on campus. Based on information gathered by UofG, a waste audit schedule was developed. The waste audit was performed over four (4) days, as summarized in Table 1:

Table 1: Waste Audit Sample Schedule

Audit Date	Building/Location
October 18, 2022	Creelman Hall, University Centre (UC)
October 19, 2022	East Tower, South (Maritime)
October 20, 2022	OVC Pathobiology, Biodiversity Institute, MacDonald Institute
October 21, 2022	MacKinnon Building, McLaughlin Library, Summerlee Science Centre

Refer to Appendix A for a copy of the original waste audit schedule. In coordination with the UofG staff, 24-hr samples were collected from each identified building. Bags of garbage were collected and labelled describing the functional area within the building that generated the waste material, including office areas, public areas, classrooms, washrooms, labs, kitchenettes/break rooms, food service kitchens, dining areas and residences.

The collected bags of labelled wastes were brought to a designated collection and waste audit area by UofG staff. The weights of waste materials from each building and functional area were recorded. Refer to Appendix A for a copy of the Scale Calibration Certificate.

Waste materials were then unloaded, sorted into individual waste categories, weighed and disposed of in the appropriate garbage or recycling bins. Waste samples were sorted by a qualified team from Waste Reduction Group. Materials source separated by UofG for recycling were not collected and categorized during the audit however the annual quantity of all diverted materials was reviewed and included in the audit results.

Waste material categories were established prior to the audit based on O.Reg.103/94 requirements for source separation at educational institutions, including:

- Aluminum food or beverage cans (including cans made primarily of aluminum);
- Cardboard (corrugated);
- Fine paper;
- Glass bottles and jars for food or beverages;
- Newsprint; and
- Steel food or beverage cans (including cans made primarily of steel).

In addition to these standard categories other important waste streams such as other mixed containers (PET, HDPE, polypropylene, aseptic), organic wastes, paper towels, mixed plastics, Styrofoam, yard waste, electronic waste, scrap wood, scrap metal and special wastes (i.e. batteries, bulbs and ballasts) were included depending on what auditors found in the samples.

3 Waste Audit Results

A key aspect of O. Reg. 102/94 is for waste generators to gain a good understanding of the areas of their operation that generate the most waste, how it is generated, as well as the waste composition. One can use this information to focus their recycling and waste reduction efforts efficiently and effectively.

3.1 Garbage Quantities & Distribution

Table 2 summarizes the quantity and distribution of garbage materials collected for the waste audit.

Table 2: Quantity & Distribution of Garbage Sample

Building Name/Location	Waste Audit Garbage Sample	
	Sample Weight (kg)	Distribution (%)
Creelman Hall	231.60	28.2%
University Centre (UC)	174.42	21.2%
East Tower	105.10	12.8%
South (Maritime)	69.55	8.5%
OVC Pathobiology	66.68	8.1%
Library	53.42	6.5%
Summerlee Science Centre (SSC)	41.63	5.1%
Mackinnon	36.80	4.5%
Macdonald Institute	30.04	3.7%
Biodiversity Institute	11.65	1.4%
Total	820.88	100.0%

Therefore, Creelman Hall, University Centre, East Tower, South (Maritime) and OVC Pathobiology generated the most garbage, representing approximately 79% of the waste audit garbage sample.

In addition, a review of UofG’s activities identified the following functional areas within campus buildings:

- Office/Administrative Areas
- Public Areas
- Classrooms
- Washrooms
- Laboratories
- Kitchenette/Break Areas
- Hospitality – Front of House
- Hospitality – Back of House
- Residences

Table 3 ranks the quantity of garbage generated per functional area based on the waste audit results.

Table 3: Garbage Generated per Functional Area

Building Name	Waste Audit Garbage Sample	
	Sample Weight (kg)	Distribution (%)
Library	49.22	53.4%
Public Areas	28.88	31.3%
Washrooms	7.30	7.9%
Classrooms/Lecture Halls	4.35	4.7%
Kitchenette/Break Rooms	2.45	2.7%
Total	92.20	100.0%

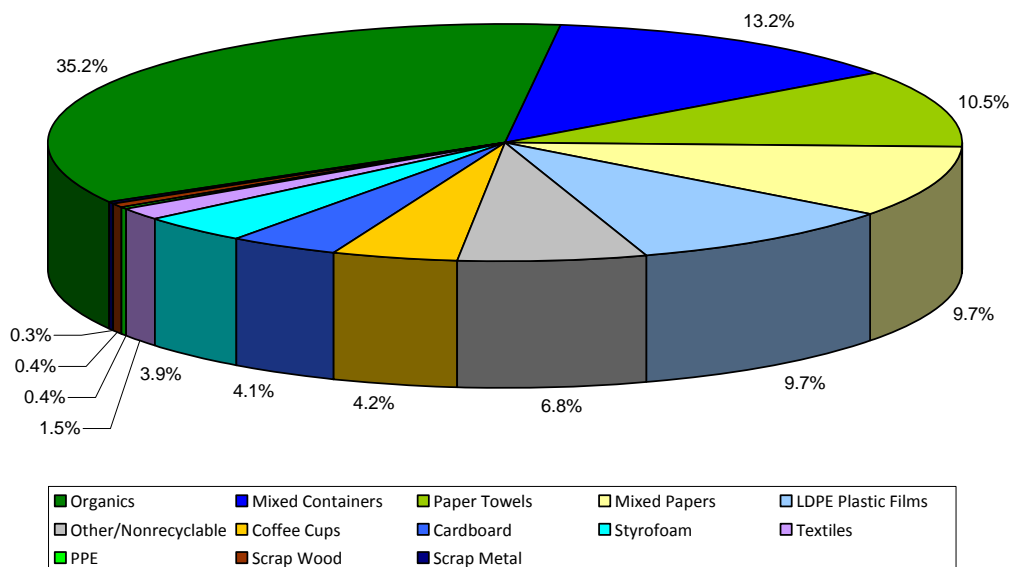
Therefore library and public areas generated the most garbage on campus, representing approximately 85% of the sample.

Note: Approximately 11% of the entire waste audit sample was sub-labelled per the functional area. It is understood that the full waste audit sample was sub-labelled however the university’s waste service provider disposed of the samples prior to the waste audit team weighing and sorting the samples.

3.2 Garbage Composition

The total weight of garbage collected and sorted for the audit was approximately 820.88 kg. Figure 1 summarizes the overall combined garbage composition from the waste audit.

Figure 1: Overall Garbage Composition



Summary tables for each building per waste generation functional area, including waste composition, weights and percentages, are included in Appendix B. Refer to Appendix A for a photo summary of typical materials found during the sorting activity. Table 4 summarizes the largest primary categories (i.e. >5%) of waste materials per building based on the total amount of garbage sorted for the waste audit:

Table 4: Primary Material Categories per Building

Building	Percent of Sample (By Weight)	Organics	Mixed Containers	Paper Towels	Mixed Papers	Plastic Films	Non-recyclable	Coffee Cups	Cardboard	Styrofoam	Textiles
Creelman Hall	28.2%	68.5%	5.9%	11.9%		6.6%					
University Centre	21.2%	26.4%	22.1%	7.6%	18.1%	9.6%		6.8%			
East Tower	12.8%	36.3%	18.1%	7.2%	13.4%		5.3%	9.8%			
South (Maritime)	8.5%	28.0%	12.0%	20.3%	12.0%	7.6%		5.1%	7.3%		5.1%
OVC Pathobiology	8.1%			9.4%	5.0%	24.5%	40.3%	5.8%		9.2%	
Library	6.5%	14.7%	16.6%	14.7%	9.4%	8.9%	11.5%	9.5%			9.6%
Summerlee Science Centre (SSC)	5.1%	7.3%	7.4%	5.0%	7.9%				8.4%	51.6%	
Mackinnon	4.5%	8.0%	22.6%	15.0%	8.3%	20.6%		23.8%			
Macdonald Institute	3.7%	36.0%	25.4%		12.3%	18.6%					
Biodiversity Institute	1.4%			9.4%		18.9%	55.8%			13.7%	
Total	100.0%	35.2%	13.2%	10.5%	9.7%	9.7%	6.8%	4.2%	4.1%	3.9%	1.5%

Note: Shaded cells < 5%.

Organic food wastes were found in high quantities in the garbage stream from most areas of the university. Organics represented 35.2% of the overall garbage stream, or approximately 586 MT annually. An organics program is implemented in some areas on campus. Results suggest that program expansion, improved collection systems, improved bin labels, program promotion and/or improved student/personnel education may be required to capture more of this material. Organics are not a mandatory recyclable material per O.Reg.103/94. However, according to Ontario's Food and Organic Waste Policy Statement, it is proposed that ICI Sectors will have to reduce and/or recover food and organic wastes between 50%-70% by 2025.

Mixed containers and mixed papers were found in high quantities in the garbage stream, representing a combined 22.9% of the overall garbage stream (or approximately 382 MT annually). UofG has implemented a mixed recycling program that accepts both mixed papers and mixed containers. Results suggest that improved collection systems, improved labels, program promotion and/or improved student/personnel education may be required to capture more of these materials. Fine paper and newsprint as well as aluminum, steel and glass food and beverage containers are mandatory recyclable materials per O.Reg.103/94 for educational institutions.

Approximately 10.5% of the garbage stream was comprised of paper towels, or approximately 174 MT annually. UofG may wish to investigate the feasibility of implementing a paper towel recycling program to divert this material from landfill. Paper towels are not a mandatory recyclable material per O.Reg.103/94.

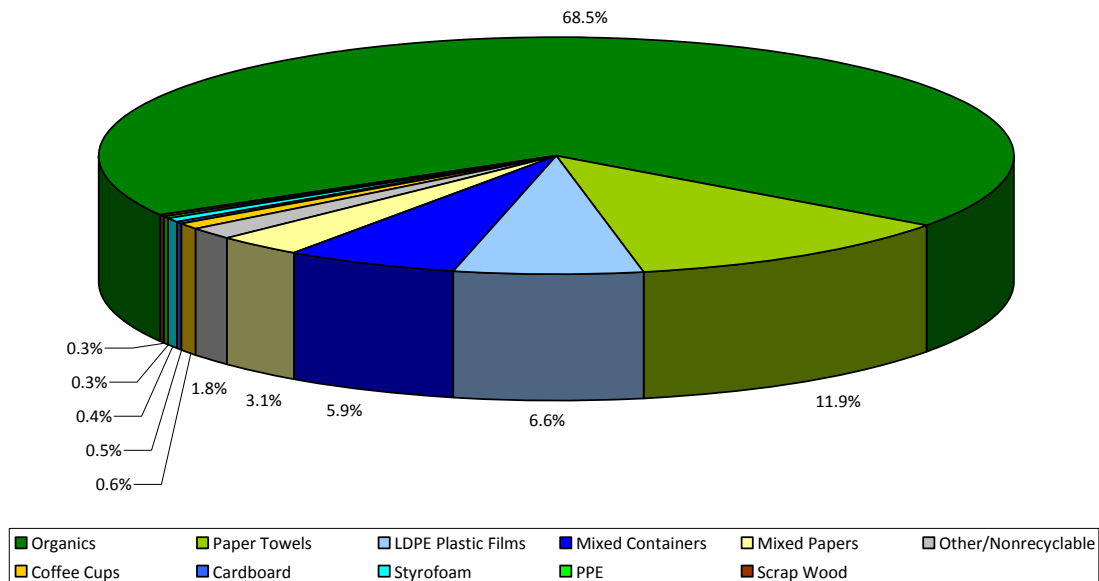
3.3 Garbage Composition per Audit Location

The garbage composition determined for each building/location based on 24-hour sample results is presented below.

3.3.1 Creelman Hall

Figure 2 summarizes the overall garbage composition determined at Creelman Hall.

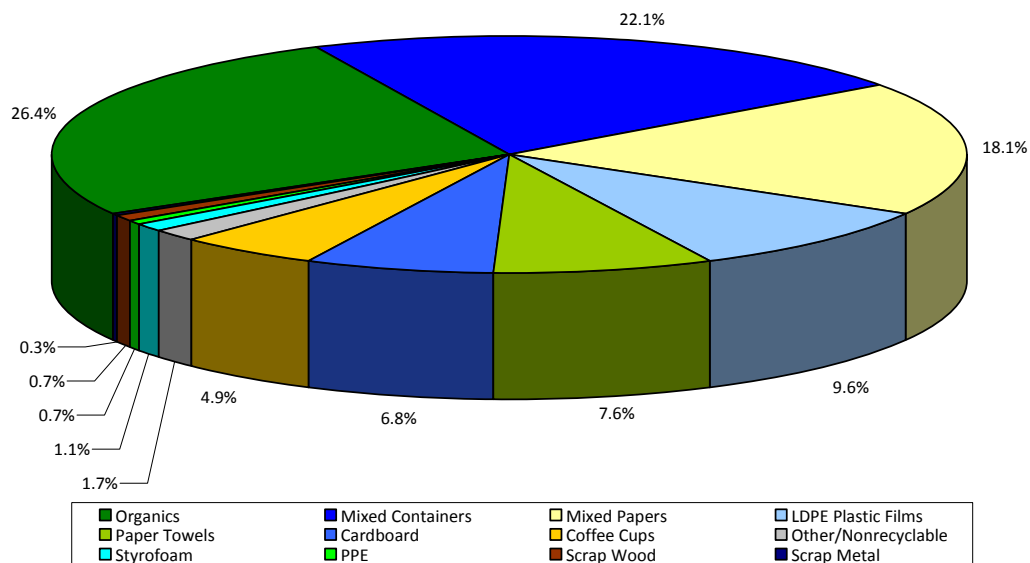
Figure 2: Creelman Hall Garbage Composition



3.3.2 University Centre

Figure 3 summarizes the overall garbage composition determined at University Centre.

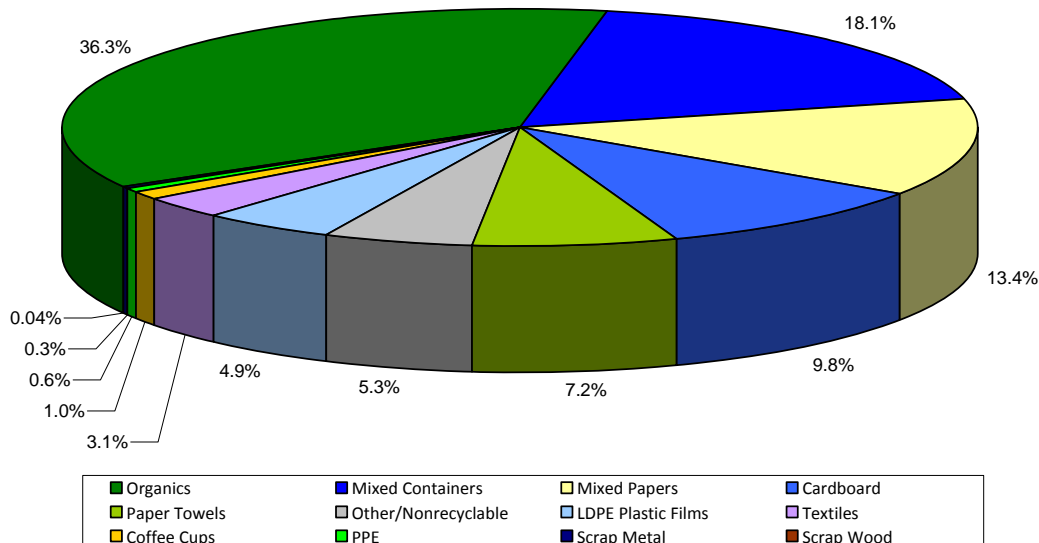
Figure 3: University Centre Garbage Composition



3.3.3 East Tower

Figure 4 summarizes the overall garbage composition determined at East Tower.

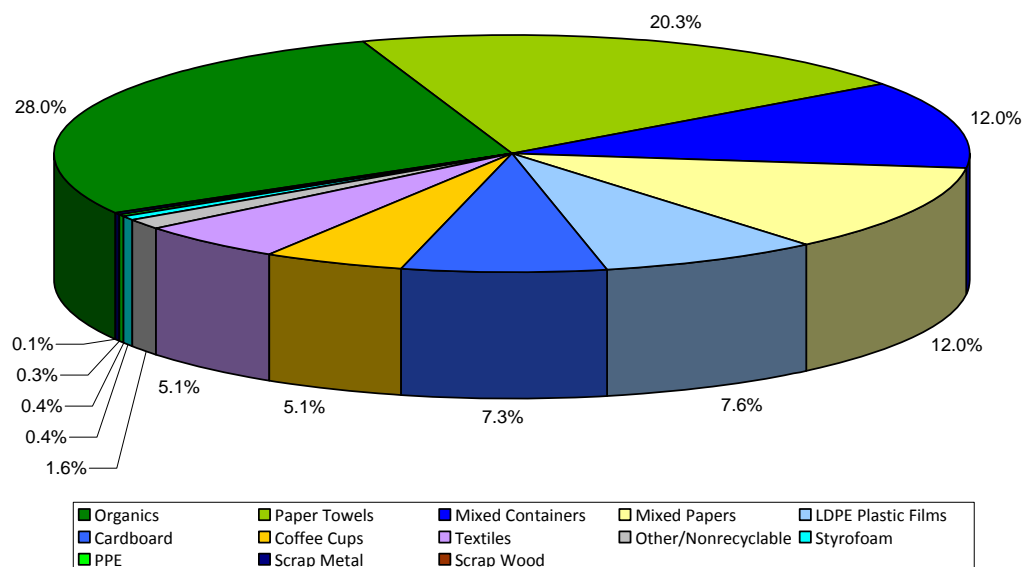
Figure 4: East Tower Garbage Composition



3.3.4 South (Maritime)

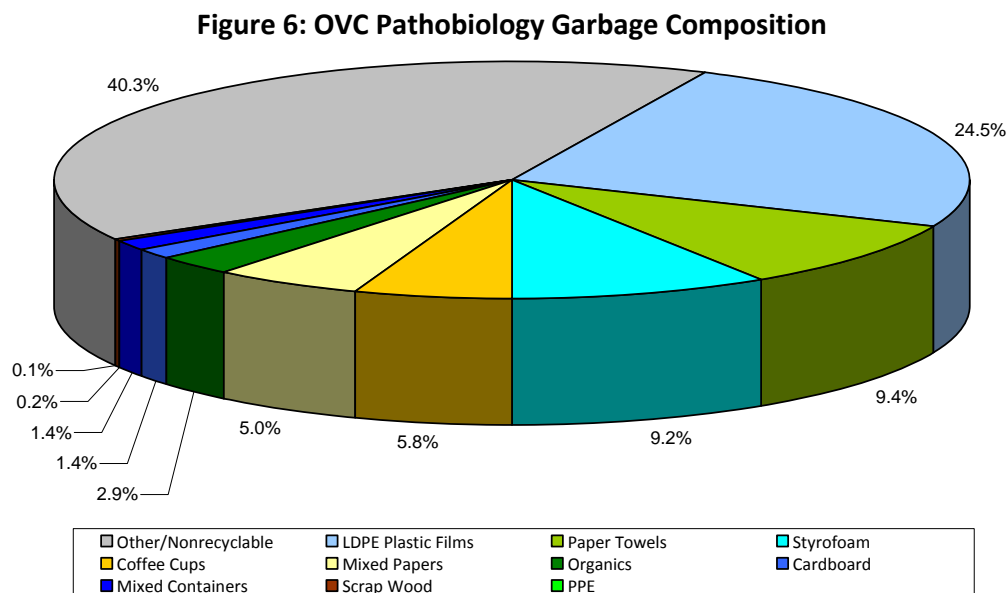
Figure 5 summarizes the overall garbage composition determined at South (Maritime).

Figure 5: South (Maritime) Garbage Composition



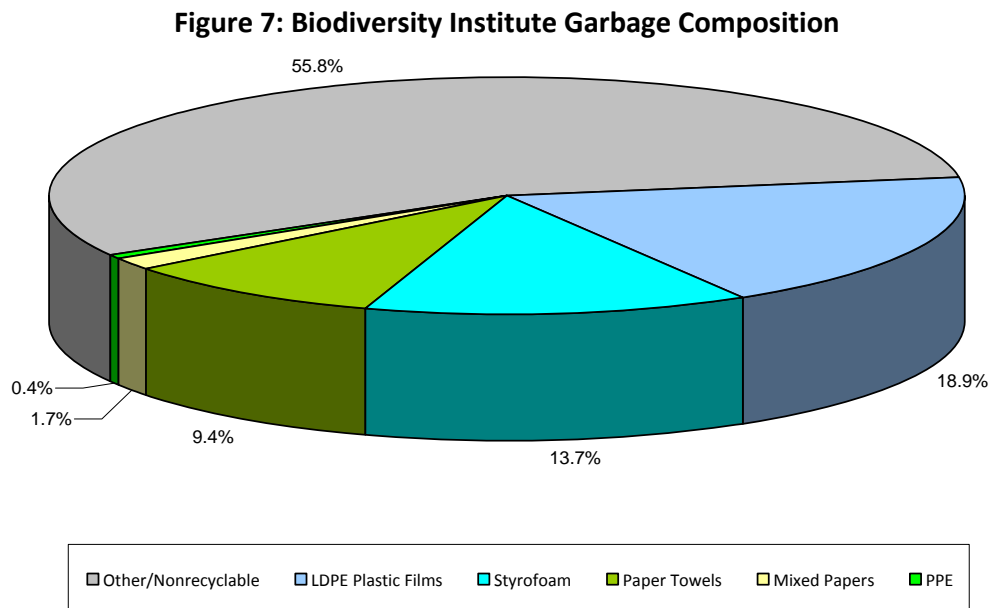
3.3.5 OVC Pathobiology

Figure 6 summarizes the overall garbage composition determined at OVC Pathobiology.



3.3.6 Biodiversity Institute

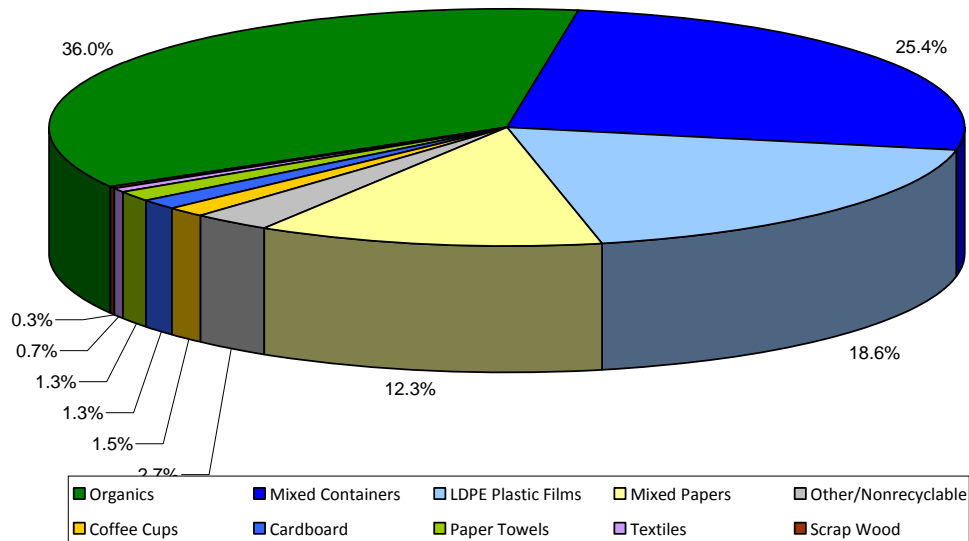
Figure 7 summarizes the overall garbage composition determined at the Biodiversity Institute.



3.3.7 MacDonald Hall

Figure 8 summarizes the overall garbage composition determined at MacDonald Hall.

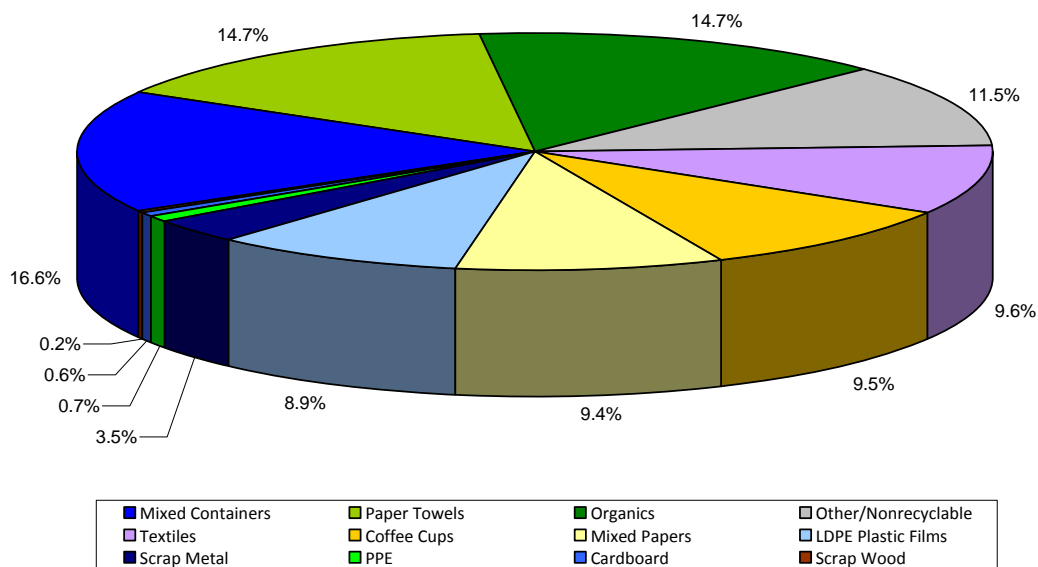
Figure 8: MacDonald Hall Garbage Composition



3.3.8 McLaughlin Library

Figure 9 summarizes the overall garbage composition determined at McLaughlin Library.

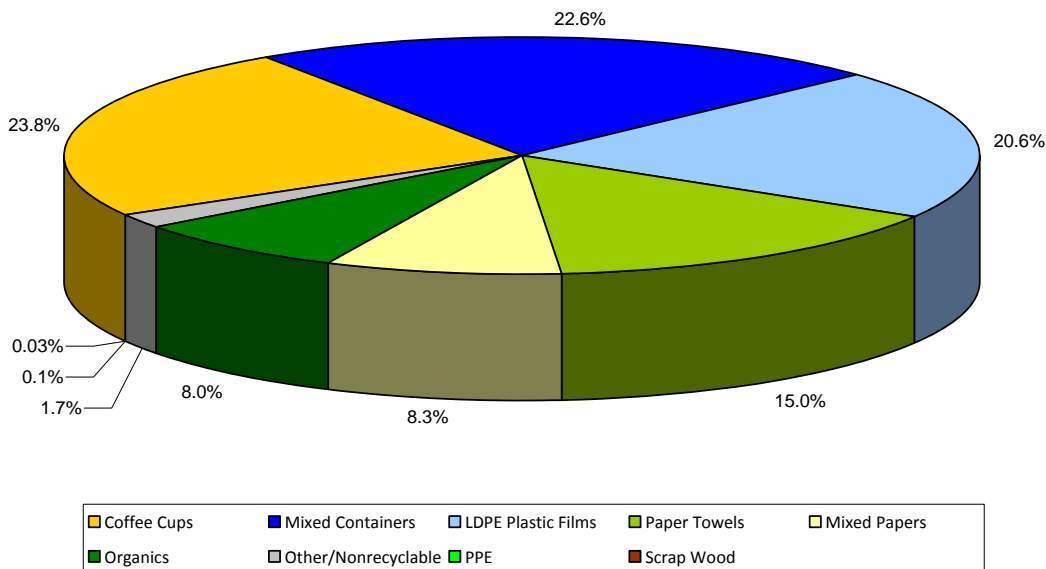
Figure 9: McLaughlin Library Garbage Composition



3.3.9 MacKinnon Building

Figure 10 summarizes the overall garbage composition determined at the MacKinnon Building.

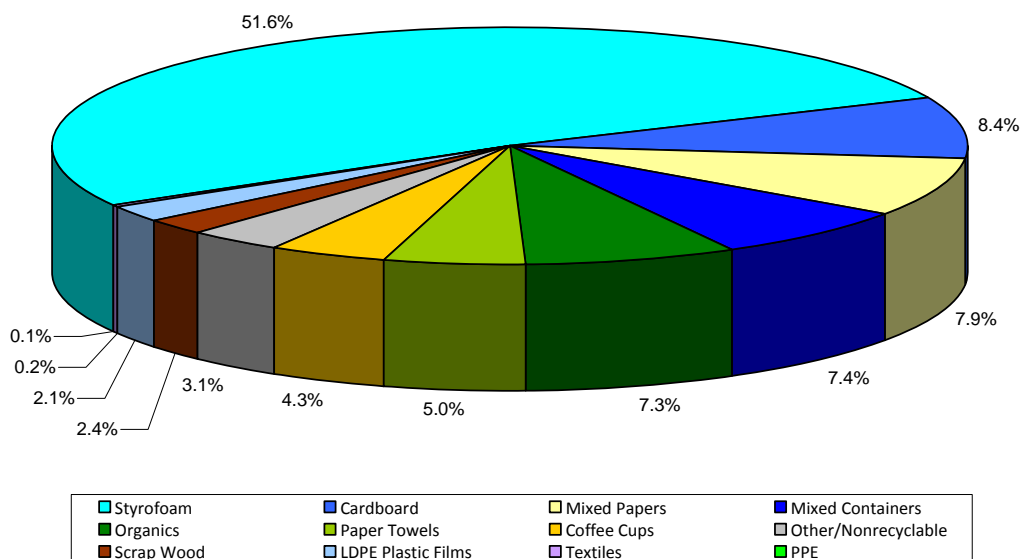
Figure 10: MacKinnon Garbage Composition



3.3.10 Summerlee Science Centre

Figure 11 summarizes the overall garbage composition determined at SSC.

Figure 11: Summerlee Science Centre Garbage Composition

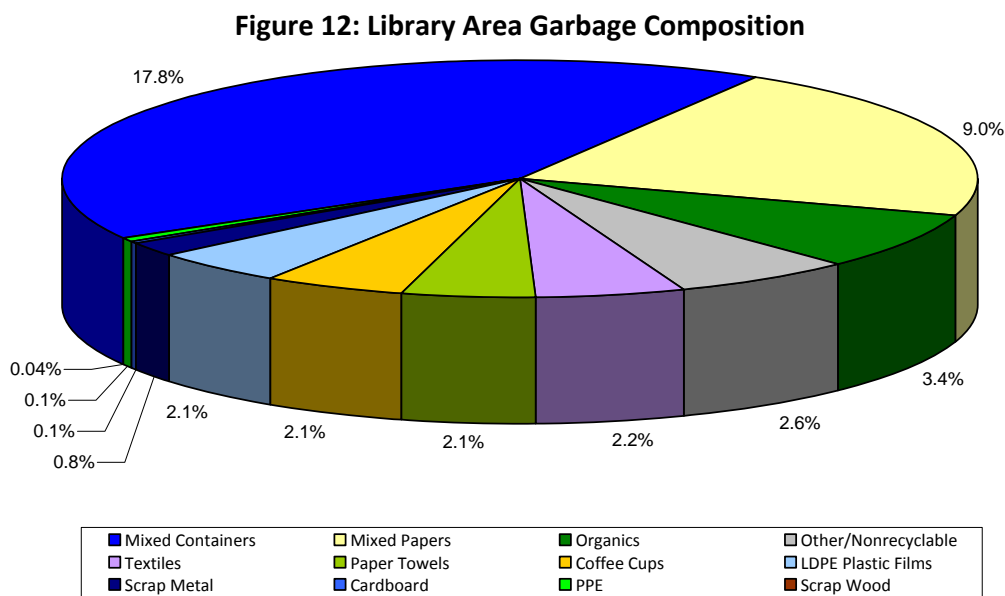


3.4 Garbage Composition per Functional Area

The garbage composition determined for each functional area based on 24-hour sample results is presented below.

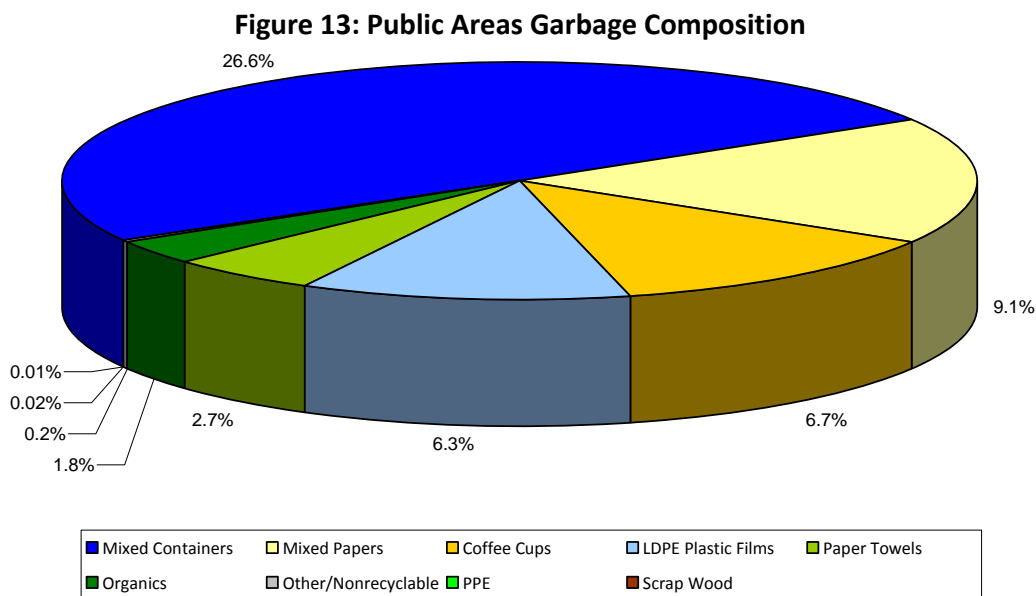
3.4.1 Library Area

Figure 12 summarizes the overall garbage composition determined in the library area.



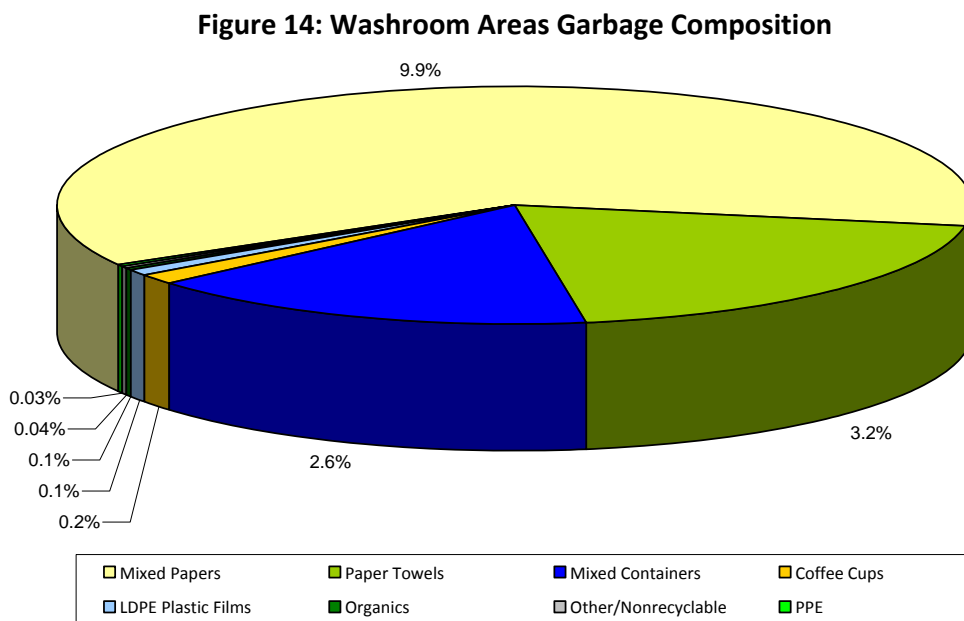
3.4.2 Public Areas

Figure 13 summarizes the overall garbage composition determined in public areas.



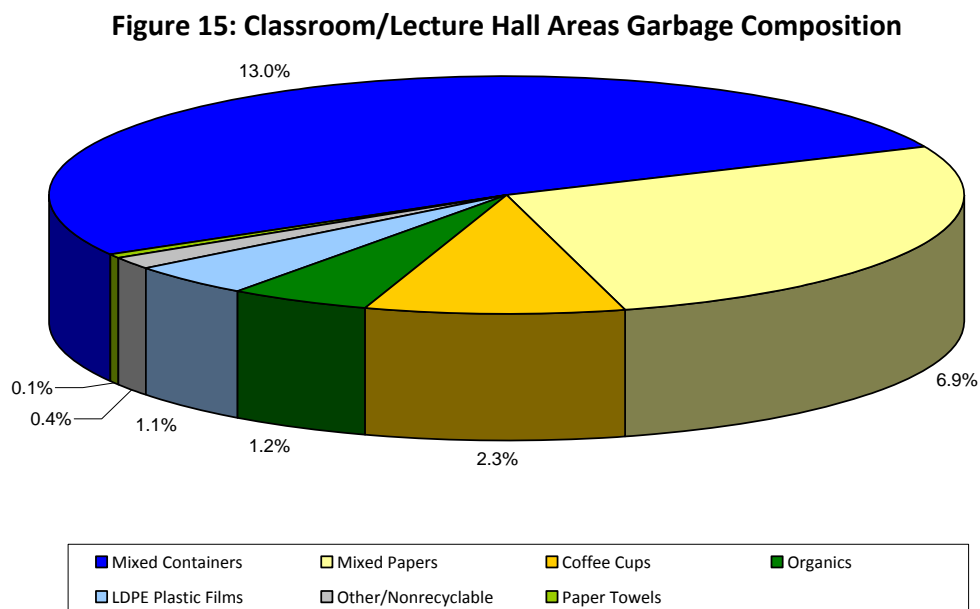
3.4.3 Washroom Areas

Figure 14 summarizes the overall garbage composition determined in washroom areas.



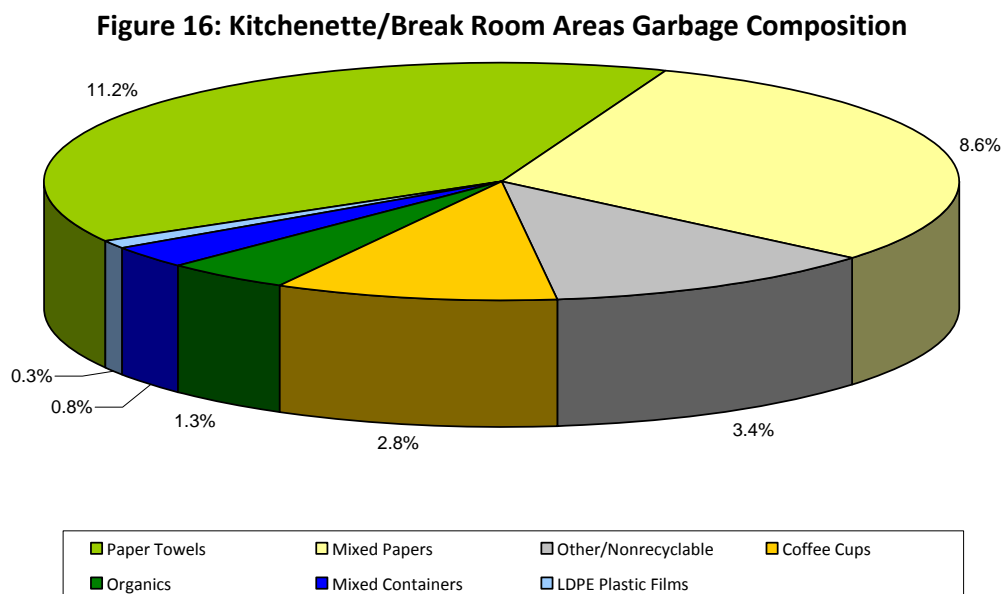
3.4.4 Classroom/Lecture Hall Areas

Figure 15 summarizes the overall garbage composition determined in classroom/lecture hall areas.



3.4.5 Kitchenette/Break Room Areas

Figure 16 summarizes the overall garbage composition determined in kitchenette/break room areas.



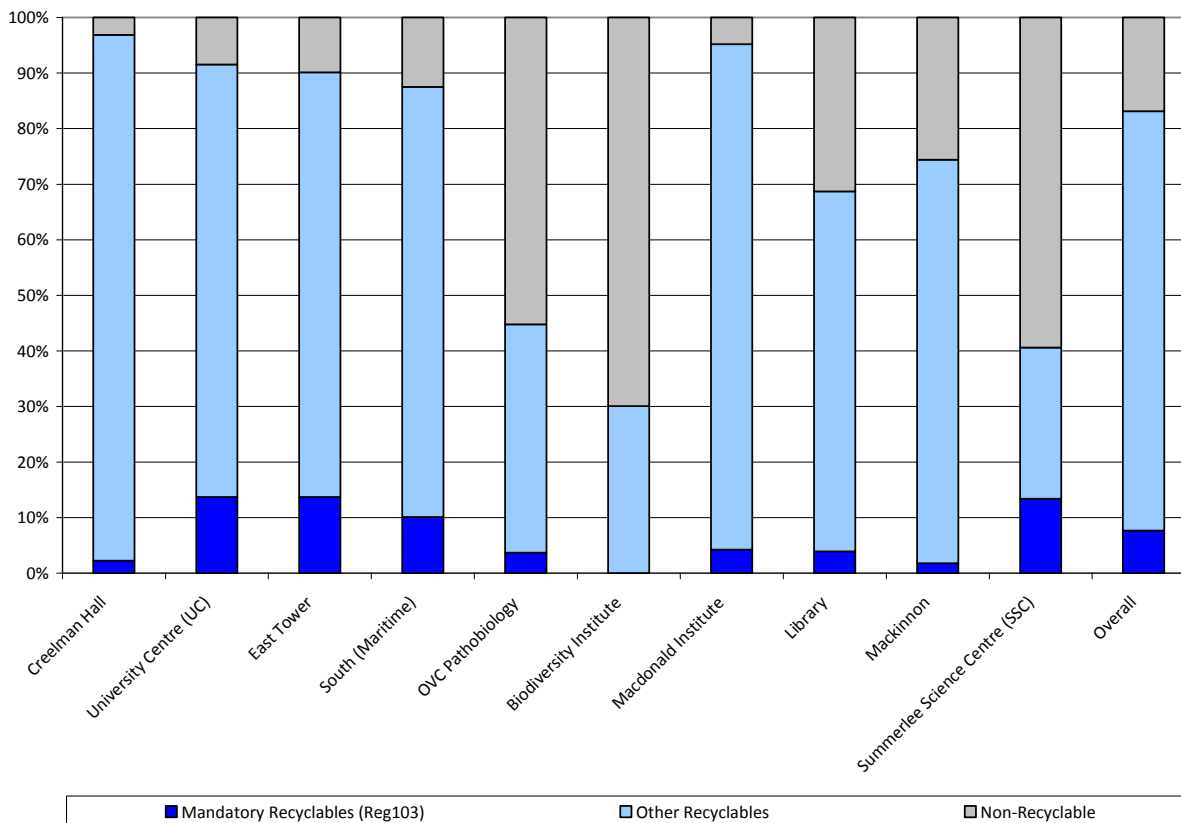
3.5 Percentage of Recyclables in Garbage

O.Reg. 103/94 requires that 'educational institutions' source separate the following materials (at a minimum):

- Aluminum food or beverage cans (including cans made primarily of aluminum);
- Cardboard (corrugated);
- Fine paper;
- Glass bottles and jars for food or beverages;
- Newsprint; and
- Steel food or beverage cans (including cans made primarily of steel).

Figure 17 summarizes the quantity of these 'mandatory recyclable' materials found in the waste audit garbage samples compared to 'other recyclable' materials (i.e. organics, paper towels, etc) and 'non-recyclable' materials.

Figure 17: Percent Recyclables in Garbage Stream



The data suggests that UofG has a ‘mandatory’ recyclable content of 7.6% in the combined garbage of the university. The main ‘mandatory’ recyclable materials were cardboard and fine papers. ‘Other Recyclables’ represented 75.5% of the sample and consisted mainly of organics, paper towels and non-mandatory paper fibres. Non-recyclables represented approximately 16.9% of the sample.

4 Diversion Programs & Waste Systems

4.1 Waste Diversion Programs

Waste diversion programs have been implemented at UofG to reduce/reuse/recycle/compost a wide range of materials as described below.

Cardboard: Cardboard recycling is provided across campus. Cardboard boxes are flattened and placed in dedicated bins located across campus. Cardboard bins are serviced by private contractor as required.

Mixed Recycling: Mixed recycling accepts both mixed containers and mixed papers. Mixed containers include assorted plastics food and beverage containers (PET, HDPE, LDPE, PP, and PS), aluminum and metal cans, glass food and beverage containers, gable top containers and aseptic

containers (i.e. tetra paks, etc). Mixed papers include a range of items such items as (but not limited to) newspapers, fine papers, envelopes, magazines, brochures, boxboard, packing paper, shipping/receiving supplies, paper bags and other clean food paper products. Mixed recycling is collected throughout campus in dedicated recycle depots, primarily concentrated in high waste generating areas. Collected materials are disposed into dedicated bins serviced by private contractor as required.

Papers & Confidential Papers: Confidential papers are collected mainly in office/administrative areas in secure consoles or totes. All shredded materials were recycled.

Scrap Metals: Recyclable scrap metals are collected by UofG staff. Scrap metal recycling service is provided by a private contractor as required.

Scrap Woods: Recyclable scrap woods are collected by UofG staff. Scrap wood recycling service is provided by a private contractor as required.

Electronics Wastes: Electronic wastes are collected across campus and stored in dedicated locations. Service was provided by private contractor as required.

Bulbs & Ballasts: Bulbs and ballasts are collected across campus and stored in dedicated totes. Service is provided by private contractor as required.

Batteries: Batteries are collected in dedicated containers across campus. Collected batteries are stored in dedicated totes. Service is provided by private contractor as required.

Oil & Grease: Oil & grease is collected from food service areas across campus, and stored in dedicated containers. Service is provided by private contractor as required.

Large Appliances: Large appliances are collected across campus, and stored in dedicated areas. Service is provided by private contractor as required.

Car, Motor & Tires: UofG collects and stores various vehicles, motors and tires in dedicated areas. Recycling service is provided by private contractor as required.

Textbooks: UofG collects numerous textbooks, some of which are donated, repurposed and/or recycled.

LCBO/Beer Store Returns: UofG returns glass beer, wine and spirit bottles, as well as aluminum cans via the LCBO/Beer Store return program.

Wood Pallets: UofG collects wood pallets for reuse whenever possible.

Printer Toners: Printer toner cartridges are collected for reuse whenever possible. Cartridges are returned to suppliers or diverted via private contractors.

Used Furniture: Used furniture is collected for storage and reuse whenever possible.

Manure and Organics: Manure is collected in some locations on-campus for composting. Organic based food waste is collected in some locations for composting.

Table 5 summarizes the estimated annual amount of waste materials diverted from landfills due to waste diversion programs implemented at the university.

Table 5: Waste Diversion Summary

Waste Material	Diversion Program	Total Diversion	
		Metric Tonnes	Percent
Cardboard	Recycled	9.25	3.6%
Mixed Recycling	Recycled	9.82	3.8%
Papers (Incl. Confidential)	Recycled	4.64	1.8%
Scrap Metals	Recycled	51.35	19.9%
Scrap Wood	Recycled	18.95	7.4%
Electronic Wastes	Recycled	14.90	5.8%
Bulbs & Ballasts	Recycled	1.68	0.7%
Batteries	Recycled	2.62	1.0%
Contaminated Wood/Paint	Recycled	5.71	2.2%
Oil & Grease	Recycled	21.56	8.4%
Large Appliances	Recycled	4.06	1.6%
Car & Motor	Recycled	3.90	1.5%
Tires	Recycled	1.23	0.5%
Textbooks	Reused	1.25	0.5%
Beverage Bottles	Reused	3.10	1.2%
Wood Pallets	Reused	1.69	0.7%
Printer Toner Cartridges	Reused	0.54	0.2%
Used Furniture/Donations	Reused	82.00	31.8%
Food Share	Reduce/Reuse	3.07	1.2%
Manure	Composted	2.00	0.8%
Organics	Composted	14.31	5.6%
Total Waste Material Diverted		257.64	100%

Therefore, the total amount of waste material diverted from landfill in 2021 was approximately 258 metric tonnes. Annual data obtained from UofG is provided in Appendix B. Waste diversion programs implemented on campus exceed the minimum requirements of O.Reg.103/94 for educational institutions.

4.2 Waste Disposal Systems

Regular solid non-hazardous waste is collected across campus by UofG staff and placed in dedicated garbage bins located at designated waste handling areas. The City of Guelph is responsible for the collection of waste. The total quantity of solid non-hazardous waste disposed to landfill in 2021 was estimated to be approximately 1665.25 metric tonnes.

5 Performance Metrics

5.1 Waste Diversion Rate

Waste Diversion Rate is the percentage of waste materials that a facility diverts from landfill due to reduce, reuse and recycling (i.e. 3Rs) programs versus the total amount of waste generated (i.e. 3Rs plus disposed). According to the MECP, Waste Diversion Rate is calculated as follows:

$$\text{Waste Diversion Rate} = \frac{\text{Total Waste Diverted (3Rs)}}{\text{Total Waste Generated}} * 100\%$$

Based on the total annual amount of waste generated and materials reduced, reused and recycled, the university's waste diversion rate was determined to be 13.4%. Table 6 summarizes the quantities of wastes diverted and disposed. The MECP provincial objective is 60% waste diversion.

Table 6: Quantities of Materials Diverted & Disposed

Material	Total Waste	
	Metric Tonnes	Percent
Disposed to Landfill	1665.25	86.6%
Materials Reduced/Reused	91.66	4.8%
Materials Recycled	149.67	7.8%
Materials Composted	16.31	0.8%
Total Waste Generated	1922.89	100%
WASTE DIVERSION RATE		13.4%

If 60% of all divertible materials found in the garbage stream were captured and diverted from landfill appropriately, the university's waste diversion rate would increase to approximately 57%.

5.2 Capture Rate

Capture rate is the proportion of divertible waste materials which are successfully diverted from disposal compared to the total amount of the divertible waste materials generated. According to the Recycling Council of Ontario, Capture Rate is calculated as follows:

$$\text{Capture Rate} = \frac{\text{Total Divertible Material Captured (3Rs)}}{\text{Total Divertible Material Generated}} * 100\%$$

Thus, capture rate assists in determining the effectiveness of recycling programs. Table 7 summarizes the capture rate for the main divertible materials at UofG.

Table 7: Capture Rate Summary

Divertible Material	Material Generated Metric Tonnes	3Rs Quantity Captured Metric Tonnes	Capture Rate Percent
Cardboard	77.48	9.25	11.9%
Mixed Recycling	391.93	9.82	2.5%
Papers (Incl. Confidential)	4.64	4.64	100.0%
Scrap Metals	57.13	51.35	89.9%
Scrap Wood	25.51	17.26	67.7%
Electronic Wastes	14.90	14.90	100.0%
Bulbs & Ballasts	1.68	1.68	100.0%
Batteries	2.62	2.62	100.0%
Contaminated Wood/Paint	5.71	5.71	100.0%
Oil & Grease	21.56	21.56	100.0%
Large Appliances	4.06	4.06	100.0%
Car & Motor	3.90	3.90	100.0%
Tires	1.23	1.23	100.0%
Textbooks	1.25	1.25	100.0%
Beverage Bottles	3.10	3.10	100.0%
Wood Pallets	1.69	1.69	100.0%
Printer Toner Cartridges	0.54	0.54	100.0%
Used Furniture/Donations	82.00	82.00	100.0%
Food Share	3.07	3.07	100.0%
Manure	2.00	2.00	100.0%
Organics	603.13	14.31	2.4%
Overall Facility	1309.14	255.94	19.6%

Capture rates ranged between 2.4% and 100%. Organics, mixed recycling and cardboard had the lowest values, being approximately 2.4%, 2.5% and 11.9% respectively. The overall capture rate of all recyclables on campus was determined to be approximately 20%.

5.3 Year over Year Change in Waste Generation

Waste diversion rate and capture rate do not always demonstrate how effective a site's 3R programs are operating. This is due to the continual change of many important factors involved in waste and recyclable material generation on campus, such as number of students enrolled, floor area of buildings, etc. As student numbers change or more buildings are added to the campus, quantities of waste and recyclables change making it difficult to have a direct comparison of data between years. It is recommended that UofG start tracking 'Year over Year' changes in the amount of wastes disposed and/or materials recycled per standard unit. This allows direct comparison of data from year to year, thus assisting the university in gaining an understanding of the effectiveness of their waste diversion programs. For UofG, the most applicable standard unit is Full-time equivalent students, or FTE.

5.3.1 Year-over-Year Change in Diverted Quantities

The 'Year-over-Year Change in Diverted Quantities' is the indicator of the amount of materials diverted from disposal through reduce, reuse and/or recycle activities per FTE compared to

previous data. Table 8 summarizes the results for the 2018 year. A positive year-over-year change indicates waste diversion programs are improving over time.

Table 8: Yr-over-Yr Change in Waste Diversion Quantities

Period	Total Materials Diverted (MT)	FTE	Annual Diverted Quantity (kg/FTE)	Yr-over-Yr Change in Diverted Quantity (kg)
2018	2475.45	24,191	102.33	--
2022	257.64	25,643	10.05	-92.28

The main reason for the significant decrease was due to the COVID-19 pandemic response.

5.3.2 Year-over-Year Change in Garbage Disposed

The 'Year over Year Change in Garbage Disposed' is the indicator of the amount of reduction in waste materials disposed to landfill due to waste diversion activities on campus. Table 9 summarizes the results for the 2018 year. A reduction in the year over year value will indicate the university is continually reducing wastes disposed to landfill.

Table 9: Yr-over-Yr Change in Garbage Disposed

Period	Total Materials Disposed to Landfill (MT)	FTE	Annual Disposed Quantity (kg/FTE)	Yr-over-Yr Change in Disposed Quantity (kg)
2018	2050.74	24,191	84.77	--
2022	1665.25	25,643	64.94	-19.83

The main reason for the significant decrease was due to the COVID-19 pandemic response.

6 Waste Audit Summary & Waste Reduction Work Plan

Refer to Appendix C and Appendix D for the Waste Audit Summary and the Waste Reduction Work Plan respectively. The last page of each set of forms in the appendices need to be signed by an authorized person at the University. According to O.Reg. 102/94, the Waste Reduction Work Plan (Appendix D) or a summary of the plan must be posted at the University in a place where staff/students can review it. If a summary is posted, the entire Work Plan should also be made available for review by any staff/student upon request.

7 Conclusions & Recommendations

Based on the results of the solid non-hazardous waste audit conducted for UofG, the following conclusions can be made. Recommendations presented below are intended to assist UofG in maximizing their waste diversion potential.

- This waste audit was conducted during the COVID-19 pandemic response. Due to the pandemic response, the collected waste audit samples and annual service records may not be representative of typical operations and caution should be used when comparing sample and annual data from 2020/21/22 and previous data at the same facility.

- In 2021, it was estimated that UofG disposed of approximately 1665.25 tonnes of solid waste in landfills. Approximately 257.64 tonnes of waste materials were diverted through existing waste diversion programs. This represents a waste diversion rate of approximately 13.4%. The provincial objective is 60% waste diversion.
- If 60% of all divertible materials found in the garbage stream were captured and diverted from landfill appropriately, the university's waste diversion rate would increase to approximately 57%.
- UofG maintains waste diversion programs for cardboard, mixed recycling, papers (including confidential papers), scrap metals, scrap woods, electronics, bulbs, batteries, organics, oil and grease, large appliances, car and motor, tires, textbook donations, beverage bottle returns, wood pallets, printer toner cartridges, used furniture donations, food share, manure and contaminated wood/paint. These programs exceed the minimum requirements of O.Reg.103/94 for educational institutions.
- Based on the waste audit results, Creelman Hall, University Centre, East Tower, South (Maritime) and OVC Pathobiology generated the most garbage, representing approximately 79% of the waste audit garbage sample. Functional areas that generated the most garbage included library and public areas, representing approximately 85% of the sample.
- UofG has a 'mandatory' recyclable content of 7.6% in the combined garbage of the university. The main 'mandatory' recyclable materials were cardboard and fine papers. 'Other Recyclables' represented 75.5% of the sample and consisted mainly of organics, paper towels and non-mandatory paper fibres. Non-recyclables represented approximately 16.9% of the sample.
- Capture rates ranged between 2.4% and 100%. Organics, mixed recycling and cardboard had the lowest values, being approximately 2.4%, 2.5% and 11.9% respectively. The overall capture rate of all recyclables on campus was determined to be approximately 20%.
- Organics represented 35.2% of the overall garbage stream, or approximately 586 MT annually. An organics program is implemented in some areas on campus. Results suggest that program expansion, improved collection systems, improved bin labels, program promotion and/or improved student/personnel education may be required to capture more of this material. Organics are not a mandatory recyclable material per O.Reg.103/94. However, according to Ontario's Food and Organic Waste Policy Statement, it is proposed that ICI Sectors will have to reduce and/or recover food and organic wastes between 50%-70% by 2025.
- Mixed containers and mixed papers represented a combined 22.9% of the overall garbage stream (or approximately 382 MT annually). UofG has implemented a mixed recycling program that accepts both mixed papers and mixed containers. Results suggest that improved collection systems, improved labels, program promotion and/or improved student/personnel education may be required to capture more of these materials. Fine paper and newsprint as well as aluminum, steel and glass food and beverage containers are mandatory recyclable materials per O.Reg.103/94 for educational institutions.
- Approximately 10.5% of the garbage stream was comprised of paper towels or approximately 174 MT annually. UofG may wish to investigate the feasibility of implementing a paper towel

3Rs program to divert this material from landfill. Paper towels are not a mandatory recyclable material per O.Reg.103/94.

- It is recommended that UofG conduct studies to verify the density of wastes disposed to landfill.
- It is recommended that a study be conducted to verify mixed recycling weights as well as to conduct an inventory of bins on-campus. It is recommended that the total number of totes picked-up per week be verified (per season to account for temporal variability).
- It is recommended that UofG conduct studies to add and improve reduction, reuse, recycling weights to improve the university's diversion rate. For example, waste reduction credits can be calculated for the university's wood pallet, used furniture, yard waste, double-sided printing policy, refillable mug program and refillable water bottle station 3Rs programs.
- Continue to make use of multi-compartment containers (i.e. recycling depots) for waste collection and recycling as much as possible. Remove all solitary waste bins on campus. We recommend only having waste bins that are attached to or close to multi-compartment recycling containers.
- It is recommended that signs be continually updated on all garbage and recycling bins to assist students/staff in sorting wastes easily and correctly. Signs should be easily visible and instructive, such as those having pictograms. Signs are a very effective method of increasing participation, reducing contamination and increasing capture rate.
- Ensure UofG's Environmental Policy is clearly visible in all common areas throughout campus. Emphasize UofG's commitment to environmental stewardship in its newsletters, brochures, annual reports and contracts. Regular newsletters promoting the school's waste reduction programs, goals and concerns will increase student/staff cooperation.
- Continue to increase awareness of current recycling programs through staff and student education programs. Such programs can include brief training programs as well as placement of posters in strategic locations around campus, and posting information regarding campus goals and recycling, reuse, and reduction rates at the school. A suggestion email address may be helpful in communicating student/staff concerns and suggestions when developing or changing existing diversion programs.
- It is important that all staff and students at UofG be made aware of all available recycling programs. UofG staff should provide easy access to contact information for questions and/or help regarding the various recycling programs. The recycling programs should have as much consistency as possible across campus.
- Throughout the year, waste should be collected in clear plastic garbage bags instead of black garbage bags. This practice allows cleaning staff to monitor waste collection, as well as to ensure that separated waste streams are disposed of in the correct containers/areas. Some of our clients find it beneficial to use clear bags that have a slight blue tint for use in recycling containers.
- Support and encourage the purchase and use of "environmentally friendly", reusable or recyclable materials and packaging, and/or those that contain recycled content.

- In order to be successful, the waste diversion program must have the full support of UofG's management team.
- According to O.Reg. 102/94, the Waste Reduction Work Plan (Appendix D) or a summary of the plan must be posted at the facility in a place where it can be viewed. If a summary of the work plan is posted, the full Work Plan must be made available for review upon request by any of the university's staff or students.
- The waste audit report and waste reduction work plan must be retained on file for a minimum of five years.
- A waste audit report and waste reduction work plan must be conducted and updated annually.

Appendix A

Supporting Documentation

Total Undergraduate Enrolment and Demographic Information, 2020/2021

College/Year Level	FFTE	Headcount			Gender			Geographic Origin			
		Full-Time	Part-Time	Total	Female	Male	Another Gender Identity/Undeclared	Ontario	Outside Ontario	International	
COLLEGE OF ARTS	1	443.6	458	78	536	333	191	12	503	18	15
	2	418.0	419	71	490	325	143	22	464	14	12
	3	396.8	334	102	436	280	139	17	418	11	7
	4	315.3	258	70	328	234	87	7	315	7	6
	Other	20.8	11	31	42	30	9	3	39	1	2
Total	1,594.4	1,480	352	1,832	1,202	569	61	1,739	51	42	
COLLEGE OF BIOLOGICAL SCIENCE	1	958.2	961	37	998	720	265	13	923	27	48
	2	1,030.4	1,023	44	1,067	749	307	11	988	34	45
	3	1,104.4	1,045	72	1,117	800	303	14	1,039	36	42
	4	1,243.9	1,031	176	1,207	853	347	7	1,145	28	34
	Other	55.8	49	42	91	56	23	12	89	2	
Total	4,392.6	4,109	371	4,480	3,178	1,245	57	4,184	127	169	
GORDON S. LANG SCHOOL OF BUSINESS AND ECONOMICS	1	798.6	790	44	834	276	541	17	762	7	65
	2	910.0	880	85	965	323	611	31	859	18	88
	3	883.1	716	120	836	264	556	16	745	21	70
	4	1,008.6	886	205	1,091	455	624	12	972	21	98
	Other	6.3	2	14	16	9	6	1	15		1
Total	3,606.6	3,274	468	3,742	1,327	2,338	77	3,353	67	322	
COLLEGE OF ENGINEERING AND PHYSICAL SCIENCES	1	644.0	644	63	707	211	482	14	610	14	83
	2	814.8	812	71	883	247	618	18	759	26	98
	3	675.5	631	116	747	236	501	10	651	37	59
	4	942.9	740	221	961	282	673	6	878	21	62
	Other	6.6	2	13	15	3	8	4	15		
Total	3,083.8	2,829	484	3,313	979	2,282	52	2,913	98	302	
COLLEGE OF SOCIAL AND APPLIED HUMAN SCIENCES	1	1,042.9	1,044	80	1,124	843	263	18	1,065	18	41
	2	1,261.9	1,243	115	1,358	1,026	299	33	1,296	24	38
	3	1,314.7	1,112	240	1,352	989	339	24	1,300	25	27
	4	1,043.8	891	188	1,079	837	234	8	1,032	27	20
	Other	16.0	7	12	19	12	4	3	19		
Total	4,679.3	4,297	635	4,932	3,707	1,139	86	4,712	94	126	
ONTARIO AGRICULTURAL COLLEGE	1	647.7	644	35	679	475	187	17	619	20	40
	2	631.5	623	35	658	445	193	20	585	26	47
	3	528.1	485	37	522	349	164	9	468	22	32
	4	637.4	576	80	656	460	191	5	595	36	25
	Other	5.4	3	10	13	8	4	1	10	2	1
Total	2,450.0	2,331	197	2,528	1,737	739	52	2,277	106	145	
ONTARIO VETERINARY COLLEGE	1	119.5	120		120	99	17	4	100	6	14
	2	120.1	119		119	101	15	3	102	3	14
	3	122.0	122		122	105	17		103	4	15
	4	120.0	120		120	99	21		102	5	13
	Other										
Total	481.6	481	0	481	404	70	7	407	18	56	
UNIVERSITY OF GUELPH MAIN CAMPUS TOTAL	1	4,654.5	4,661	337	4,998	2,957	1,946	95	4,582	110	306
	2	5,186.7	5,119	421	5,540	3,216	2,186	138	5,053	145	342
	3	5,024.5	4,445	687	5,132	3,023	2,019	90	4,724	156	252
	4	5,311.7	4,502	940	5,442	3,220	2,177	45	5,039	145	258
	Other	110.8	74	122	196	118	54	24	187	5	4
Total	20,288.2	18,801	2,507	21,308	12,534	8,382	392	19,585	561	1,162	
UNIVERSITY OF GUELPH-HUMBER	1	1,125.7	1,170	26	1,196	714	465	17	1,164	7	25
	2	1,075.2	1,023	98	1,121	705	389	27	1,104	3	14
	3	1,398.3	1,040	478	1,518	1,086	379	53	1,491	14	13
	4	1,355.7	1,040	376	1,416	954	440	22	1,399	13	4
	Other	2.2	10	10	6	6	4		10		
Total	4,957.1	4,273	988	5,261	3,465	1,677	119	5,168	37	56	
RIDGETOWN CAMPUS	1	195.0	218	5	223	167	56		97	124	2
	2	203.0	200	8	208	123	85		153	54	1
	Other	0.1									
Total	397.93	418	13	431	290	141	0	250	178	3	
GRAND TOTAL	1	5,975.2	6,049	368	6,417	3,838	2,467	112	5,843	241	333
	2	6,464.8	6,342	527	6,869	4,044	2,660	165	6,310	202	357
	3	6,422.8	5,485	1,165	6,650	4,109	2,398	143	6,215	170	265
	4	6,667.4	5,542	1,316	6,858	4,174	2,617	67	6,438	158	262
	Other	113.0	74	132	206	124	58	24	197	5	4
Total	25,643.2	23,492	3,508	27,000	16,289	10,200	511	25,003	776	1,221	

Note 1: FFTE enrolment includes spring/summer, fall and winter as reported to MCU on each count date.

Note 2: For most undergraduate programs, FFTE (Fiscal Full-time Equivalent) is based on the student credit load as a proportion of the Normal annual credit load for that program. The Normal load is determined by the total Required Credits specified in the University Calendar. For the DVM program, a full-time student generates 0.5 FFTEs in each active term.

Note 3: Total number of U of G undergraduate students as of Nov. 1, 2020 and as reported to MCU.

Note 4: Total number of students excludes students on co-op work term.

Note 5: Year level 1 consists of session levels 1 and 2, year level 2 consists of session levels 3 and 4, year level 3 consists of session levels 5 and 6, year level 4 consists of session levels 7 and 8.

Note 6: Other level includes non-degree, certificate, general studies and honours equivalent students.

Source: Student Information System

**Environmental Protection Act
Loi sur la protection de l'environnement**

Partial copy of
O.Reg.102/94

ONTARIO REGULATION 102/94

WASTE AUDITS AND WASTE REDUCTION WORK PLANS

Consolidation Period: From March 3, 1994 to the [e-Laws currency date](#).

No amendments.

This Regulation is made in English only.

**PART I
GENERAL**

1. In this Regulation,

“waste” means municipal waste as defined in Regulation 347 of the Revised Regulations of Ontario, 1990;

“waste audit” means a study relating to waste;

“waste reduction work plan” means a plan to reduce, reuse and recycle waste. O. Reg. 102/94, s. 1.

2. A waste audit required under this 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. O. Reg. 102/94, s. 2.

3. (1) A waste reduction work plan required under this Regulation shall include, to the extent that is reasonable, plans to reduce, reuse and recycle waste and shall set out who will implement each part of the plan, when each part will be implemented and what the expected results are.

(2) In developing the work plan, regard shall be had to the following principles:

1. Reduction is the first objective.

2. If reduction is not possible, then reuse is the next objective.

3. If reduction and reuse are not possible, then recycling is the final objective. O. Reg. 102/94, s. 3.

4. A person who is required under this Regulation to prepare a report of a waste audit or a waste reduction work plan shall prepare it on a form provided by the Ministry or in the same format as such a form. O. Reg. 102/94, s. 4.

5. (1) A person who is required under this Regulation to prepare a report of a waste audit or a waste reduction work plan shall retain a copy of the report or plan for at least five years after it was prepared.

(2) A person who is required under this Regulation to prepare a report of a waste audit or a waste reduction work plan shall submit to the Director, on request, the required report or plan, within seven days of the Director requesting them. O. Reg. 102/94, s. 5.

6. (1) A person who becomes subject to an obligation under this Regulation to prepare a report of a waste audit or a waste reduction work plan shall do so within six months of becoming subject to the obligation.

(2) This section does not apply with respect to updated reports or plans.

(3) This section does not apply with respect to obligations of a builder under Part IV or a demolisher under Part V. O. Reg. 102/94, s. 6.

7. (1) A new owner or operator to whom this Regulation applies is not required to conduct a new waste audit or prepare a new waste reduction work plan if an audit or work plan was conducted or prepared by a previous owner or operator and the new owner or operator updates the audit and work plan as required under this Regulation.

(2) This section does not apply with respect to a builder under Part IV or a demolisher under Part V. O. Reg. 102/94, s. 7.

8. (1) A person who has an obligation to conduct a waste audit and prepare a report under Part II, III, VI, VII, VIII, IX, X or XI in respect of more than one retail shopping establishment, retail shopping complex, building, restaurant, hotel or motel, hospital, location or campus of an educational institution, or site of a manufacturing establishment, may conduct a single

50. The waste reduction work plan shall include measures for communicating the plan to the operator's employees who work at the hospital and, as a minimum, those measures shall require,

- (a) that the plan or a summary be posted in places where most employees will see it; and
- (b) if a summary is posted, that any employee who requests to look at the plan be allowed to do so. O. Reg. 102/94, s. 50.

PART X
EDUCATIONAL INSTITUTIONS

51. (1) This Part applies to the operator of an educational institution in respect of a location or campus of the institution if, at the location or campus, at any time during the calendar year, more than 350 persons are enrolled.

(2) This Part continues to apply in respect of a location or campus for the two calendar years following the last year in which more than 350 persons were enrolled at the location or campus. O. Reg. 102/94, s. 51.

52. (1) The operator shall conduct a waste audit covering the waste generated by the operation of the institution at the location or campus. The audit shall also address the extent to which materials or products used consist of recycled or reused materials or products.

(2) After conducting the waste audit, the operator shall prepare a written report of the audit.

(3) In every year following the initial waste audit, the operator shall update the audit and prepare an updated written report. O. Reg. 102/94, s. 52.

53. (1) The operator shall prepare a written waste reduction work plan, based on the waste audit, to reduce, reuse and recycle waste generated by the operation of the institution at the location or campus.

(2) In every year following the preparation of the initial waste reduction work plan, the operator shall prepare an updated written plan. O. Reg. 102/94, s. 53.

54. The operator shall implement the waste reduction work plan as updated. O. Reg. 102/94, s. 54.

55. The waste reduction work plan shall include measures for communicating the plan to the operator's employees who work at the location or campus and, as a minimum, those measures shall require,

- (a) that the plan or a summary be posted in places where most employees will see it; and
- (b) if a summary is posted, that any employee who requests to look at the plan be allowed to do so. O. Reg. 102/94, s. 55.

PART XI
LARGE MANUFACTURING ESTABLISHMENTS

56. (1) This Part applies to the owner or operator of a site that is a manufacturing establishment.

(2) This Part does not apply to an owner of a site in a particular calendar year if,

- (a) during the two preceding calendar years there was no calendar month in which the hours worked by the persons employed at the site exceeded 16,000 hours; and
- (b) the owner is able to demonstrate this fact, within seven days of a request from the Director, through evidence satisfactory to the Director.

(3) Copies of the records related to hours of employment maintained under section 11 of the *Employment Standards Act* shall be deemed to be sufficient evidence of hours worked at a site if the copies are certified by the owner or the owner's representative as to the accuracy of the records.

(4) In this Part,

"owner" includes the operator of a manufacturing establishment but does not include a landlord;

"site" means one property and includes nearby properties owned or leased by the same person where passage from one property to another involves crossing, but not travelling along, a public highway. O. Reg. 102/94, s. 56.

57. (1) The owner shall conduct a waste audit covering the waste generated by the operation of the establishment at the site. The audit shall also address the extent to which materials or products used or sold consist of recycled or reused materials or products.

(2) After conducting the waste audit, the owner shall prepare a written report of the audit.

(3) In every year following the initial waste audit, the owner shall update the audit and prepare an updated written report. O. Reg. 102/94, s. 57.

58. (1) The owner shall prepare a written waste reduction work plan, based on the waste audit, to reduce, reuse and recycle waste generated by the operation of the establishment.

(2) In every year following the preparation of the initial waste reduction work plan, the owner shall prepare an updated written plan. O. Reg. 102/94, s. 58.

**Environmental Protection Act
Loi sur la protection de l'environnement**

Partial copy of
O.Reg.103/94

ONTARIO REGULATION 103/94

**INDUSTRIAL, COMMERCIAL AND INSTITUTIONAL SOURCE SEPARATION
PROGRAMS**

Consolidation Period: From March 3, 1994 to the [e-Laws currency date](#).

No amendments.

This Regulation is made in English only.

SOURCE SEPARATION PROGRAMS

1. In this Regulation,

“Northern Ontario” means the territorial districts of Algoma, Cochrane, Kenora, Manitoulin, Nipissing, Parry Sound, Rainy River, Sudbury, Thunder Bay and Timiskaming and The Regional Municipality of Sudbury;

“source separation program” means a program to facilitate the source separation of waste for reuse or recycling. O. Reg. 103/94, s. 1.

2. (1) A source separation program required under this Regulation must include,

- (a) the provision of facilities for the collection, handling and storage of source separated wastes described in subsection (2) adequate for the quantities of anticipated wastes;
- (b) measures to ensure that the source separated wastes that are collected are removed;
- (c) the provision of information to users and potential users of the program,
 - (i) describing the performance of the program,
 - (ii) encouraging effective source separation of waste and full use of the program;
- (d) reasonable efforts to ensure that full use is made of the program and that the separated waste is reused or recycled.

(2) The source separated waste referred to in clause (1) (a) is waste that has been source separated from other kinds of waste and that consists solely of waste from one or more of the following categories:

- 1. The categories of waste set out in the part of the Schedule applicable to the person required to implement the source separation program.
- 2. The categories of waste set out in Schedule 1, 2 or 3 of Ontario Regulation 101/94 that the source separation program accepts.

(3) A source separation program required under this Regulation must provide for all the categories of waste set out in the part of the Schedule applicable to the person required to implement the program except for categories of waste that cannot be reasonably anticipated. O. Reg. 103/94, s. 2.

3. Source separation programs required by this Regulation are exempt from sections 27, 40 and 41 of the Act. O. Reg. 103/94, s. 3.

4. (1) A source separation program that is not required by this Regulation is exempt from sections 27, 40 and 41 of the Act if,

- (a) the program is restricted to waste generated at a single site;
- (b) the program only accepts waste that has been source separated from other kinds of waste and that consists solely of waste from one or more of the categories of waste set out in Schedule 1, 2 or 3 of Ontario Regulation 101/94;
- (c) the program includes everything set out in subsection 2 (1).

(2) For the purposes of clause (1) (c), the reference to source separated waste in clause 2 (1) (a) shall be deemed to be a reference to the waste described in clause (1) (b). O. Reg. 103/94, s. 4.

RETAIL SHOPPING ESTABLISHMENTS

5. (1) This section applies to the owner of an establishment that sells goods or services at retail to persons who come to the establishment if,

- (a) the establishment occupies premises with a floor area of at least 10,000 square metres; or
- (b) the establishment occupies premises in a complex in respect of which section 6 applies and the owner of the establishment is solely responsible for the establishment's waste management.

(2) The owner shall implement a source separation program for the wastes generated by the establishment or shall ensure that such a program is implemented.

(3) This section applies only in respect of an establishment located within a local municipality that has a population of at least 5,000.

(4) This section takes effect with respect to an establishment in Northern Ontario on July 1, 1996. O. Reg. 103/94, s. 5.

RETAIL SHOPPING COMPLEXES

6. (1) This section applies to the owner of a complex that contains premises occupied by establishments that sell goods or services at retail to persons who come to the establishments if the total floor area of such premises is at least 10,000 square metres.

(2) The owner shall implement a source separation program for the wastes generated at the complex or shall ensure that such a program is implemented.

(3) The source separation program need not provide for the waste generated in the operation of an establishment in the complex if section 5 applies to the owner of the establishment.

(4) This section applies only in respect of a complex located in a local municipality that has a population of at least 5,000.

(5) This section takes effect with respect to a complex in Northern Ontario on July 1, 1996. O. Reg. 103/94, s. 6.

- (c) a building in respect of which section 9 applies;
- (d) a hotel or motel in respect of which section 12 applies;
- (e) a hospital in respect of which section 13 applies;
- (f) a location or campus of an educational institution in respect of which section 14 applies.

- (4) This section does not apply to an owner of a restaurant in a particular calendar year if,
- (a) during the two preceding calendar years there was no year in which the gross sales for all restaurants operated by the owner in Ontario equalled or exceeded \$3,000,000; and
 - (b) the owner is able to demonstrate this fact, within seven days of a request from the Director, through evidence satisfactory to the Director.

(5) Copies of the records related to purchase and sale maintained under subsection 5 (1) of Regulation 1013 of the Revised Regulations of Ontario, 1990 shall be deemed to be sufficient evidence of the gross sales of a restaurant if the copies are certified by the owner or the owner's representative as to the accuracy of the records.

(6) This section applies only in respect of a restaurant located within a local municipality that has a population of at least 5,000.

(7) This section takes effect with respect to a restaurant in Northern Ontario on July 1, 1996. O. Reg. 103/94, s. 11.

HOTELS AND MOTELS

12. (1) The owner of a hotel or motel that has more than seventy-five units shall implement a source separation program for the wastes generated by the operation of the hotel or motel or shall ensure that such a program is implemented.

(2) This section applies only in respect of a hotel or motel located within a local municipality that has a population of at least 5,000.

(3) This section takes effect with respect to a hotel or motel in Northern Ontario on July 1, 1996. O. Reg. 103/94, s. 12.

HOSPITALS

13. (1) The operator of a public hospital classified as a class A, B or F hospital in Regulation 964 of the Revised Regulations of Ontario, 1990 shall implement a source separation program for the wastes generated by the operation of the hospital or shall ensure that such a program is implemented.

(2) This section applies only in respect of a public hospital located within a local municipality that has a population of at least 5,000.

(3) This section takes effect with respect to a public hospital in Northern Ontario on July 1, 1996. O.Reg. 103/94, s. 13.

EDUCATIONAL INSTITUTIONS

14. (1) This section applies to the operator of an educational institution in respect of a location or campus of the institution if, at the location or campus, at any time during the

calendar year, more than 350 persons are enrolled.

(2) The operator shall implement a source separation program for the waste generated by the operation of the institution at the location or campus or shall ensure that such a program is implemented.

(3) This section continues to apply in respect of a location or campus for the two calendar years following the last year in which more than 350 persons were enrolled at the location or campus.

(4) This section applies only in respect of a location or campus located within a local municipality that has a population of at least 5,000.

(5) This section takes effect with respect to a location or campus in Northern Ontario on July 1, 1996. O. Reg. 103/94, s. 14.

LARGE MANUFACTURING ESTABLISHMENTS

15. (1) This section applies to the owner or operator of a site that is a manufacturing establishment.

(2) The owner shall implement a source separation program for the waste generated by the operation of the establishment at the site or shall ensure that such a program is implemented.

(3) This section does not apply to an owner of a site in a particular calendar year if,

(a) during the two preceding calendar years there was no calendar month in which the hours worked by the persons employed at the site exceeded 16,000 hours; and

(b) the owner is able to demonstrate this fact, within seven days of a request from the Director, through evidence satisfactory to the Director.

(4) Copies of the records related to hours of employment maintained under section 11 of the *Employment Standards Act* shall be deemed to be sufficient evidence of hours worked at a site if the copies are certified by the owner or the owner's representative as to the accuracy of the records.

(5) In this section,

“owner” includes the operator of a manufacturing establishment but does not include a landlord;

“site” means one property and includes nearby properties owned or leased by the same person where passage from one property to another involves crossing, but not travelling along, a public highway. O. Reg. 103/94, s. 15.

TRANSITION

16. Except as otherwise provided, a person who, upon the coming into force of this Regulation, or at any time within twelve months after the coming into force of this Regulation, becomes subject to an obligation with respect to the implementation of a source separation program shall fulfil the obligation within twelve months after the coming into force of this Regulation. O.Reg. 103/94, s. 16.

SCHEDULE

WASTES TO BE PROVIDED FOR IN SOURCE SEPARATION PROGRAMS

2. Cardboard (corrugated).
3. Fine paper.
4. Glass bottles and jars for food or beverages.
5. Newsprint.
6. Polyethylene terephthalate bottles for food or beverages (including bottles made primarily of polyethylene terephthalate).
7. Steel food or beverage cans (including cans made primarily of steel).

**PART IX
HOSPITALS**

(referred to in section 13)

1. Aluminum food or beverage cans (including cans made primarily of aluminum).
2. Cardboard (corrugated).
3. Fine paper.
4. Glass bottles and jars for food or beverages.
5. Newsprint.
6. Steel food or beverage cans (including cans made primarily of steel).

**PART X
EDUCATIONAL INSTITUTIONS**

(referred to in section 14)

1. Aluminum food or beverage cans (including cans made primarily of aluminum).
2. Cardboard (corrugated).
3. Fine paper.
4. Glass bottles and jars for food or beverages.
5. Newsprint.
6. Steel food or beverage cans (including cans made primarily of steel).

**PART XI
LARGE MANUFACTURING ESTABLISHMENTS**

(referred to in section 15)

1. Aluminum.
2. Cardboard (corrugated).
3. Fine paper.
4. Glass.
5. Newsprint.

University of Guelph Waste Audit Schedule: October 18th-21st, 2022

Location	Bag Tagging Period	Audit Date
Creelman Hall - 007 99 College Avenue East Manager: Marco Plozzer mplozzer@uoguelph.ca	Oct. 17th 8am - 8am	Oct. 18th 8am – 8am
University Centre (UC) - 158 50 South Ring Road East Manager: Marco Plozzer mplozzer@uoguelph.ca	Oct. 17th 8am - 8am	Oct. 18th 8am – 8am
East Tower - 180 64 East Ring Road Manager: Yunyue Yang yunyue@uoguelph.ca	Oct. 18th 8am - 8am	Oct. 19th 8am – 8am
South (Maritime) - 072 89 South Ring Road East Manager: Yunyue Yang yunyue@uoguelph.ca	Oct. 18th 8am - 8am	Oct. 19th 8am – 8am
OVC Pathobiology - 089 419 Gordon Street Manager: Sylvie Nadon snadon@pr.uoguelph.ca	Oct. 19th 8am - 8am	Oct. 20th 8am – 8am
Biodiversity Institute - 138 579 Gordon Street Manager: Danna-Lee Peters dlpeters@pr.uoguelph.ca	Oct. 19th 8am - 8am	Oct. 20th 8am – 8am
Macdonald Institute - 001 50 Macdonald Street Manager: Mary Bridgeman mbridgem@pr.uoguelph.ca	Oct. 19th 8am - 8am	Oct. 20th 8am – 8am
Mackinnon - 068 87 Trent Lane Manager: Marco Plozzer mplozzer@uoguelph.ca	Oct. 20th 8am - 8am	Oct. 21st 8am – 8am
Library - 071 480 Gordon Street Manager: Sylvie Nadon snadon@pr.uoguelph.ca	Oct. 20th 8am - 8am	Oct. 21st 8am – 8am
Summerlee Science Centre (SSC) - 140 488 Gordon Street Manager: Sylvie Nadon snadon@pr.uoguelph.ca	Oct. 20th 8am - 8am	Oct. 21st 8am – 8am



CALIBRATION CERTIFICATE

DATE: May 11 2018

SR No.: 47338

CUSTOMER:

Waste Reduction Group
801 King St W Unit PH #20
Toronto ON M5V 3C9

REMARKS

This is to certify that the following scale has been tested and calibrated in relation to the Standards maintained by **CANADIAN SCALE COMPANY LIMITED**, with test weights traceable to the Legal Metrology Laboratories of, Industry Canada and National Research Council, Canada.

Anyload EWH-150
Capacity 150 kg
S/N -20161108049

Technician's Signature



CANADIAN SCALE COMPANY LIMITED
305 Horner Avenue, Toronto, ON M8W 1Z4
1-800-461-0634 www.canscale.com

University of Guelph
Waste Audit – Photos (Oct. 18-22, 2022)



Creelman Sample – Pre-Sort



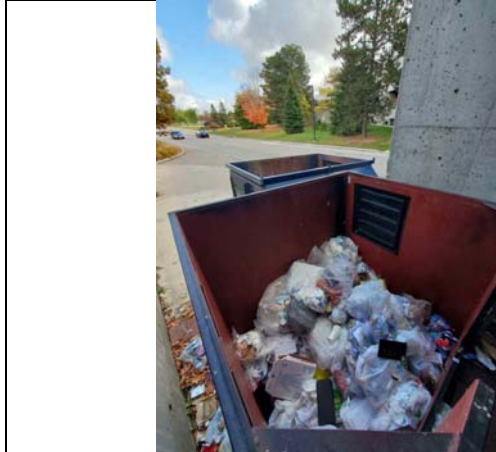
Summerlee Sample – Pre-Sort



UC Sample – Pre-Sort



East Tower Sample – Pre-Sort



South (Maritime) Sample – Pre-Sort



Biodiversity Institute Sample – Pre-Sort

University of Guelph
Waste Audit – Photos (Oct. 18-22, 2022)



Macdonald Sample – Pre-Sort



OVC Pathobiology Sample – Pre-Sort



Library Sample – Pre-Sort



Mackinnon Sample – Pre-Sort



Typical Organics



Typical Paper towels

University of Guelph
Waste Audit – Photos (Oct. 18-22, 2022)



Typical Plastic films



Typical drink cups, papers



Typical Styrofoam chips



Typical Cardboard



Various sorting streams



Various sorting streams

University of Guelph
Waste Audit – Photos (Oct. 18-22, 2022)



Typical newspaper



Typical scrap woods



Typical coffee cups



Typical drink cups



Typical plastic bottles



Typical plastic bottles & cardboard

University of Guelph
Waste Audit – Photos (Oct. 18-22, 2022)



Typical mixed papers



Typical plastic bottles



Typical non-recyclables and PPE



Typical PPE



Typical lab wastes



Typical lab wastes

University of Guelph
Waste Audit – Photos (Oct. 18-22, 2022)



Typical gable top and aluminum cans



Typical aseptic containers



Typical Styrofoam



Typical aseptic containers

Appendix B

Waste Audit Data

Waste Audit Report
 University of Guelph
 Waste Reduction Group Project P1343

Table B1: Garbage Sample Summary - By Building

Sample #	Location	Waste Audit Date	Total Sample	
			kg	%
1	Creelman Hall	Oct.18/22	231.60	28.2%
2	University Centre (UC)	Oct.18/22	174.42	21.2%
3	East Tower	Oct.19/22	105.10	12.8%
4	South (Maritime)	Oct.19/22	69.55	8.5%
5	OVC Pathobiology	Oct.20/22	66.68	8.1%
6	Biodiversity Institute	Oct.20/22	11.65	1.4%
7	Macdonald Institute	Oct.20/22	30.04	3.7%
8	Library	Oct.21/22	53.42	6.5%
9	Mackinnon	Oct.21/22	36.80	4.5%
10	Summerlee Science Centre (SSC)	Oct.21/22	41.63	5.1%
Total			820.88	100.0%

Table B2: Garbage Sample Summary - By Building

Waste Generating Area	Creelman Hall		University Centre (UC)		East Tower		South (Maritime)		OVC Pathobiology		Biodiversity Institute		Macdonald Institute		Library		Mackinnon		Summerlee Science Centre (SSC)		Total		
Sample Size	231.60		174.42		105.10		69.55		66.68		11.65		30.04		53.42		36.80		41.63		820.88		
Percent of Sample Size	28.2%		21.2%		12.8%		8.5%		8.1%		1.4%		3.7%		6.5%		4.5%		5.1%		100.0%		
	kg	%	kg	%	kg	%	kg	%	kg	%	kg	%	kg	%	kg	%	kg	%	kg	%	kg	%	
Mixed Containers	PET (#1)	3.36	1.5%	6.79	3.9%	5.97	5.7%	1.85	2.7%	0.12	0.2%	0.00	0.0%	0.00	0.0%	1.70	3.2%	3.05	8.3%	1.01	2.4%	23.85	2.9%
	HDPE (#2)	3.81	1.6%	5.09	2.9%	4.77	4.5%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	3.75	7.0%	0.00	0.0%	0.00	0.0%	17.42	2.1%
	PP (#5)	2.58	1.1%	6.79	3.9%	2.10	2.0%	4.10	5.9%	0.48	0.7%	0.00	0.0%	2.00	6.7%	2.83	5.3%	3.99	10.8%	1.50	3.6%	26.36	3.2%
	PS (#6)	0.99	0.4%	3.00	1.7%	0.40	0.4%	0.18	0.3%	0.02	0.0%	0.00	0.0%	2.40	8.0%	0.03	0.1%	0.43	1.2%	0.05	0.1%	7.51	0.9%
	Glass	0.00	0.0%	2.50	1.4%	0.80	0.8%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	3.30	0.4%
	Aluminum	0.96	0.4%	3.09	1.8%	1.10	1.0%	0.70	1.0%	0.05	0.1%	0.00	0.0%	0.40	1.3%	0.03	0.1%	0.38	1.0%	0.50	1.2%	7.21	0.9%
	Steel	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
	Gable Top	0.48	0.2%	2.00	1.1%	2.79	2.6%	0.00	0.0%	0.24	0.4%	0.00	0.0%	1.60	5.3%	0.00	0.0%	0.14	0.4%	0.00	0.0%	7.25	0.9%
Aseptic	0.75	0.3%	4.00	2.3%	0.80	0.8%	0.40	0.6%	0.00	0.0%	0.00	0.0%	1.20	4.0%	0.17	0.3%	0.09	0.3%	0.00	0.0%	7.41	0.9%	
Mixed Papers	Fine Paper	3.12	1.3%	6.49	3.7%	2.19	2.1%	1.24	1.8%	1.44	2.2%	0.00	0.0%	0.48	1.6%	1.72	3.2%	0.28	0.8%	1.50	3.6%	18.46	2.2%
	Newspaper	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.08	0.2%	0.08	0.0%
	Boxboard	2.79	1.2%	16.67	9.6%	6.76	6.4%	5.31	7.6%	0.96	1.4%	0.00	0.0%	1.20	4.0%	1.12	2.1%	1.76	4.8%	1.20	2.9%	37.77	4.6%
	Other Fibres	1.35	0.6%	8.49	4.9%	5.17	4.9%	1.77	2.5%	0.96	1.4%	0.20	1.7%	2.00	6.7%	2.20	4.1%	1.00	2.7%	0.50	1.2%	23.64	2.9%
Cardboard	1.11	0.5%	11.88	6.8%	10.34	9.8%	5.10	7.3%	0.96	1.4%	0.00	0.0%	0.40	1.3%	0.34	0.6%	0.00	0.0%	3.50	8.4%	33.64	4.1%	
Paper Towels	27.63	11.9%	13.27	7.6%	7.56	7.2%	14.15	20.3%	6.24	9.4%	1.10	9.4%	0.40	1.3%	7.87	14.7%	5.51	15.0%	2.10	5.0%	85.83	10.5%	
Coffee Cups	1.44	0.6%	8.49	4.9%	1.00	1.0%	3.54	5.1%	3.84	5.8%	0.00	0.0%	0.44	1.5%	5.07	9.5%	8.76	23.8%	1.80	4.3%	34.37	4.2%	
Cold Beverage Cups	0.84	0.4%	5.25	3.0%	0.25	0.2%	1.10	1.6%	0.00	0.0%	0.00	0.0%	0.04	0.1%	0.35	0.7%	0.23	0.6%	0.04	0.1%	8.10	1.0%	
Organics	158.55	68.5%	46.01	26.4%	38.19	36.3%	19.45	28.0%	1.92	2.9%	0.00	0.0%	10.80	36.0%	7.83	14.7%	2.93	8.0%	3.05	7.3%	288.75	35.2%	
LDPE Plastic Films	15.39	6.6%	16.67	9.6%	5.17	4.9%	5.31	7.6%	16.32	24.5%	2.20	18.9%	5.60	18.6%	4.77	8.9%	7.57	20.6%	0.89	2.1%	79.88	9.7%	
Styrofoam	0.87	0.4%	2.00	1.1%	0.00	0.0%	0.25	0.4%	6.11	9.2%	1.60	13.7%	0.00	0.0%	0.00	0.0%	0.00	0.0%	21.50	51.6%	32.33	3.9%	
Plastic Strapping	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	
Scrap Metal	0.00	0.0%	0.50	0.3%	0.30	0.3%	0.18	0.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.87	3.5%	0.00	0.0%	0.00	0.0%	2.85	0.3%	
Scrap Wood	0.63	0.3%	1.20	0.7%	0.04	0.0%	0.05	0.1%	0.12	0.2%	0.00	0.0%	0.08	0.3%	0.10	0.2%	0.01	0.0%	1.00	2.4%	3.23	0.4%	
Electronic Waste	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	
Bulbs	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	
Batteries	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	
Printer Toners	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	
PPE	0.81	0.3%	1.25	0.7%	0.60	0.6%	0.25	0.4%	0.05	0.1%	0.05	0.4%	0.00	0.0%	0.39	0.7%	0.02	0.1%	0.05	0.1%	3.47	0.4%	
Textiles	0.00	0.0%	0.00	0.0%	3.22	3.1%	3.54	5.1%	0.00	0.0%	0.00	0.0%	0.20	0.7%	5.11	9.6%	0.00	0.0%	0.08	0.2%	12.14	1.5%	
Other/Nonrecyclable	4.14	1.8%	3.00	1.7%	5.57	5.3%	1.10	1.6%	26.84	40.3%	6.50	55.8%	0.80	2.7%	6.15	11.5%	0.64	1.7%	1.30	3.1%	56.04	6.8%	
QAQC Check	231.60	100.0%	174.42	100.0%	105.10	100.0%	69.55	100.0%	66.68	100.0%	11.65	100.0%	30.04	100.0%	53.42	100.0%	36.80	100.0%	41.63	100.0%	820.88	100.0%	
Mixed Containers	13.77	5.9%	38.51	22.1%	18.98	18.1%	8.33	12.0%	0.91	1.4%	0.00	0.0%	7.64	25.4%	8.86	16.6%	8.32	22.6%	3.10	7.4%	108.41	13.2%	
Mixed Papers	7.26	3.1%	31.65	18.1%	14.13	13.4%	8.31	12.0%	3.36	5.0%	0.20	1.7%	3.68	12.3%	5.05	9.4%	3.05	8.3%	3.28	7.9%	79.95	9.7%	
Mandatory Recyclables (Reg103)	5.19	2.2%	23.96	13.7%	14.43	13.7%	7.04	10.1%	2.45	3.7%	0.00	0.0%	1.28	4.3%	2.09	3.9%	0.66	1.8%	5.58	13.4%	62.68	7.6%	
Other Recyclables	219.15	94.6%	135.73	77.8%	80.28	76.4%	53.83	77.4%	27.39	41.1%	3.50	30.0%	27.32	90.9%	34.60	64.8%	26.73	72.6%	11.33	27.2%	619.86	75.5%	
Non-Recyclable	7.26	3.1%	14.74	8.4%	10.39	9.9%	8.67	12.5%	36.84	55.3%	8.15	70.0%	1.44	4.8%	16.72	31.3%	9.41	25.6%	24.73	59.4%	138.35	16.9%	
QAQC Check	TRUE	100.0%	TRUE	100.0%	TRUE	100.0%	TRUE	100.0%	TRUE	100.0%	TRUE	100.0%	TRUE	100.0%	TRUE	100.0%	TRUE	100.0%	TRUE	100.0%	TRUE	100.0%	

Note: Highlighted cells are those >5% as summarized in Table 4 of report.

Table B3: Garbage Sample Summary - By Functional Area

Waste Generating Area	Library		Washrooms		Public		Classroom/Lecture		Kitchenette/Break		Total		
Sample Size	49.22		7.30		28.88		4.35		2.45		92.20		
Percent of Sample Size	53.4%		7.9%		31.3%		4.7%		2.7%		100.0%		
	kg	%	kg	%	kg	%	kg	%	kg	%	kg	%	
Mixed Containers	PET (#1)	1.70	0.7%	0.08	0.0%	2.82	2.7%	0.15	0.2%	0.01	0.1%	4.77	0.6%
	HDPE (#2)	3.75	1.6%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	3.75	0.5%
	PP (#5)	2.73	1.2%	0.10	0.1%	3.77	3.6%	0.22	0.3%	0.00	0.0%	6.81	0.8%
	PS (#6)	0.03	0.0%	0.00	0.0%	0.28	0.3%	0.15	0.2%	0.00	0.0%	0.47	0.1%
	Glass	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
	Aluminum	0.03	0.0%	0.00	0.0%	0.38	0.4%	0.00	0.0%	0.00	0.0%	0.41	0.1%
	Steel	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
	Gable Top	0.00	0.0%	0.00	0.0%	0.14	0.1%	0.00	0.0%	0.00	0.0%	0.14	0.0%
Aseptic	0.17	0.1%	0.00	0.0%	0.09	0.1%	0.00	0.0%	0.00	0.0%	0.26	0.0%	
Mixed Papers	Fine Paper	1.70	0.7%	0.02	0.0%	0.28	0.3%	0.00	0.0%	0.00	0.0%	2.00	0.2%
	Newspaper	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
	Boxboard	1.02	0.4%	0.20	0.1%	1.41	1.3%	0.25	0.4%	0.20	1.7%	3.08	0.4%
	Other Fibres	1.70	0.7%	0.50	0.3%	0.94	0.9%	0.05	0.1%	0.01	0.1%	3.20	0.4%
Cardboard	0.34	0.1%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.34	0.0%	
Paper Towels	4.77	2.1%	5.50	3.2%	2.82	2.7%	0.09	0.1%	1.30	11.2%	14.48	1.8%	
Coffee Cups	4.77	2.1%	0.42	0.2%	7.06	6.7%	1.55	2.3%	0.33	2.8%	14.13	1.7%	
Cold Beverage Cups	0.34	0.1%	0.01	0.0%	0.19	0.2%	0.04	0.1%	0.01	0.1%	0.59	0.1%	
Organics	7.83	3.4%	0.15	0.1%	1.88	1.8%	0.80	1.2%	0.15	1.3%	10.82	1.3%	
LDPE Plastic Films	4.77	2.1%	0.20	0.1%	6.59	6.3%	0.75	1.1%	0.04	0.3%	12.35	1.5%	
Styrofoam	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	
Plastic Strapping	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	
Scrap Metal	1.87	0.8%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.87	0.2%	
Scrap Wood	0.10	0.0%	0.00	0.0%	0.01	0.0%	0.00	0.0%	0.00	0.0%	0.11	0.0%	
Electronic Waste	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	
Bulbs	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	
Batteries	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	
Printer Toners	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	
PPE	0.34	0.1%	0.05	0.0%	0.02	0.0%	0.00	0.0%	0.00	0.0%	0.41	0.0%	
Textiles	5.11	2.2%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	5.11	0.6%	
Other/Nonrecyclable	6.13	2.6%	0.07	0.0%	0.19	0.2%	0.30	0.4%	0.40	3.4%	7.09	0.9%	
QAQC Check	49.22	21.3%	7.30	4.2%	28.88	27.5%	4.35	6.5%	2.45	21.0%	92.20	11.2%	
Mixed Containers	8.75	17.8%	0.19	2.6%	7.67	26.6%	0.57	13.0%	0.02	0.8%	17.20	18.7%	
Mixed Papers	4.43	9.0%	0.72	9.9%	2.64	9.1%	0.30	6.9%	0.21	8.6%	8.29	9.0%	

Table B4: Overall Garbage Composition (Ranked)

Composition	%	Annual		Divert?	Est.
		1665.25	MT	Y/N	Amount ¹
Organics	35.2%	585.75	MT	Yes	351.45
Mixed Containers	13.2%	219.92	MT	Yes	131.95
Paper Towels	10.5%	174.11	MT	Yes	104.47
Mixed Papers	9.7%	162.19	MT	Yes	97.31
LDPE Plastic Films	9.7%	162.05	MT	Yes	97.23
Other/Nonrecyclable	6.8%	113.68	MT	No	
Coffee Cups	4.2%	69.72	MT	No	
Cardboard	4.1%	68.23	MT	Yes	40.94
Styrofoam	3.9%	65.59	MT	No	
Textiles	1.5%	24.63	MT	No	
PPE	0.4%	7.04	MT	No	
Scrap Wood	0.4%	6.56	MT	Yes	3.93
Scrap Metal	0.3%	5.78	MT	Yes	3.47
QAQC Check	100.0%	1665.25	MT		830.76

¹ Assumed 60% capture rate of materials in garbage stream.

Table B5: Mixed Container Summary

Material	Garbage Sample	Garbage Sample	Disposed	Recycled
	kg	%	MT	MT
			219.92	5.89
PET (#1)	23.85	22.0%	48.39	1.30
HDPE (#2)	17.42	16.1%	35.34	0.95
PP (#5)	26.36	24.3%	53.47	1.43
PS (#6)	7.51	6.9%	15.23	0.41
Cold Beverage Cups	8.10	7.5%	16.43	0.44
Glass	3.30	3.0%	6.69	0.18
Aluminum	7.21	6.6%	14.62	0.39
Steel	0.00	0.0%	0.00	0.00
Gable Top	7.25	6.7%	14.70	0.39
Aseptic	7.41	6.8%	15.04	0.40
Total	108.41	100.0%	219.92	5.89

Table B6: Mixed Paper Summary

Material	Garbage Sample	Garbage Sample	Disposed	Recycled
	kg	%	MT	MT
			162.19	8.57
Fine	18.46	23.1%	37.45	1.98
Newsprint	0.08	0.1%	0.15	0.01
Boxboard	37.77	47.2%	76.63	4.05
Other	23.64	29.6%	47.96	2.53
Total	79.95	100.0%	162.19	8.57

Waste Audit Report

University of Guelph

Waste Reduction Group Project P1343

Table B7: Annual Waste Management & Diversion Summary

Material Stream	3Rs or Disposed	2018 Total ¹			2021 Total ¹		
		kg	MT	%	kg	MT	%
Waste/Garbage - to Landfill	Disposed		2050.74	100.0%		1665.25	100.0%
Sub-Total			2050.74	45.3%		1665.25	86.6%
Cardboard	Recycled		46.92	1.9%		9.25	3.6%
Mixed Recycling	Recycled		315.62	12.8%		9.82	3.8%
Papers (Incl. Confidential)	Recycled		123.50	5.0%	4,640	4.64	1.8%
Scrap Metals	Recycled		53.26	2.2%		51.35	19.9%
Scrap Wood	Recycled		15.42	0.6%		18.95	7.4%
Electronic Wastes	Recycled		14.98	0.6%	14,901	14.90	5.8%
Bulbs & Ballasts	Recycled		0.31	0.01%	1,679	1.68	0.7%
Batteries	Recycled		1.06	0.04%	2,624	2.62	1.0%
Contaminated Wood/Paint	Recycled		28.14	1.1%		5.71	2.2%
Oil & Grease	Recycled		18.14	0.7%	21,555	21.56	8.4%
Large Appliances	Recycled				4,064	4.06	1.6%
Car & Motor	Recycled				3,900	3.90	1.5%
Tires	Recycled				1,227	1.23	0.5%
Textbooks	Reused		8.35	0.3%	1,250	1.25	0.5%
Beverage Bottles	Reused		3.85	0.2%	3,102	3.10	1.2%
Wood Pallets	Reused				1,694	1.69	0.7%
Printer Toner Cartridges	Reused				543	0.54	0.2%
Used Furniture/Donations	Reused					82.00	31.8%
Food Share	Reduce/Reuse				3,070	3.07	1.2%
Manure	Composted		1812.90	73.2%	2,000	2.00	0.8%
Organics	Composted		33.00	1.3%	14,310	14.31	5.6%
Sub-Total			2475.45	54.7%		257.64	13.4%
Total Generated			4526.19	100.0%		1922.89	100.0%
Total Recycled			617.35	13.6%		149.67	7.8%
Total Reduced/Reused			12.20	0.3%		91.66	4.8%
Total Composted			1845.90	40.8%		16.31	0.8%
Total Disposed			2050.74	45.3%		1665.25	86.6%
Achieved Waste Diversion Rate				54.7%	13.4%		
Additioanl Recyclable Materials in Wastes Disposed to Landfill (MT)				603.5	830.8		
Potential Waste Diversion Rate				68.0%	56.6%		

Note 1: Annual data provided by University of Guelph.

Annual Data provided by University of Guelph

Weight	Status	Organization	Materials	Stream	Contact	Email	Number	Active?
1,632.28 MT	Sent	City of Guelph	Waste/Garbage	Landfill	Asia Murphy	asia.murphy@guelph.ca	(519) 822-1260 ext.2061	Yes
32.97MT	Done	Wasteco	Waste Contracted	Landfill	Pat Dejean	pdejean@wasteco.com	(519) 836-1611	Yes
9.25 MT	Done	WasteCo	Cardboard (compactor)	Recycle	Pat Dejean	pdejean@wasteco.com	(519) 836-1610	Yes
9.82 MT	Sent	City of Guelph	Mixed Recycling (Bottles, Cans, paper etc.)	Recycle	Asia Murphy	asia.murphy@guelph.ca	(519) 822-1260 ext.2061	Yes
4640 kg	Done	Cascades	Fine White Paper (Office, news, etc)	Recycle	Geli Gamboa	geli_gamboa@cascades.com	(416) 292-5149 ext. 62150	Yes
42.88 MT	Done	Wasteco	Scrap Metals	Recycle	Pat Dejean	pdejean@wasteco.com	(519) 836-1610	Yes
8468 kg	Done	Benmet Steel	Metal	Recycle	Jordan Nael	jnael@benmetsteel.com	(519) 763-1209	Yes
18.95MT	Done	Wasteco	Wood- Recycle	Recycle	Pat Dejean	pdejean@wasteco.com	(519) 836-1610	Yes
5.71MT	Done	Wasteco	Wood - Contaminated	Recycle	Pat Dejean	pdejean@wasteco.com	(519) 836-1610	Yes
1694kg	Done	JC Pallets	Wood skids/pallets (Reuse)	Reuse	Susan	sales@jcpallets.com	(519) 580-7724	Yes
2321 kg	Done	QuantumLifeCycle	Network Equipment, Mixed Ewaste, Steel, Wire	E-waste	David Reid	dreid@quantumlifecycle.com		
12,580kg	Sent	TechWreckers	Electronics	Recycle	Peter Lewis	plewis@techwreckers.com	(519) 500-5585	Yes
1654 kg	Done	RPR Environmental	Fluorescent Bulbs	Recycle	Agnes Zielinska	agnes@rpr-environmental.com	(905) 662-0062	Yes
25kg	Done	RPR Environmental	Ballasts	Recycle	Agnes Zielinska	agnes@rpr-environmental.com	(905) 662-0062	Yes
1,634kg	Done	RPR Environmental	Batteries	Recycle	Agnes Zielinska	agnes@rpr-environmental.com	(905) 662-0062	Yes
745 kg	Done	Benmet Steel	Battery	Recycle	Jordan Nael	jnael@benmetsteel.com	(519) 763-1209	Yes
245kg	Sent	TechWreckers	Batteries	Recycle	Peter Lewis	plewis@techwreckers.com	(519) 500-5585	Yes
543kg	Sent	TechWreckers	Toner	Recycle	Peter Lewis	plewis@techwreckers.com	(519) 500-5585	Yes
10,415 kg	Done	Hospitality Services	Oil & Grease & alcohol bottles	Recycle	Cathy O'Donnell	codonnell@hrs.uoguelph.ca	(519) 824-4120 ext.58668	Yes
10,415 kg	Done	Sanimax	Used Cooking Oil	Organics	Cathy O'Donnell	codonnell@hrs.uoguelph.ca		Yes
3,120L	Done	Brass Taps	Brass Taps Fryer Oil	organics				
1250 kg	Done	Textbooks for Change	Text Books	Reuse	Ben Page	ben@textbooksforchange.ca	519.635.8076	Yes
66 liquor bottles, 57 kegs, 170 beer cans	Done	The Lookout, Brass Taps	LCBO/Beer Store Returns	Recycle	Mike Calvert	mike.calvert@uoguelph.ca	(519) 824-4120 ext.58751	Yes
250 cans	Done	The Bullring	LCBO/Beer Store Returns	Recycle	Katrina Lindsay	thering@uoguelph.ca	(519) 824-4120 ext.58115	Yes
1440 glass bottles	Done	Hospitality Services	LCBO/Beer Store Returns	Recycle	Christine Zulauf	cgraha01@uoguelph.ca	519-824-4120 ext. 54652	Yes
3,070 kg	Done	MealCare Guelph	Food Share	Reuse/Reduction	Sayan Ladhani	ladhani@uoguelph.ca		Yes
4064kg	Done	Benmet Steel	large appliances	Recycle	Jordan Nael	jnael@benmetsteel.com	(519) 763-1209	Yes
3900kg	Done	Benmet Steel	Car & motor	Recycle	Jordan Nael	jnael@benmetsteel.com	(519) 763-1209	Yes
14310kg	Done	UofGuelph	Food Waste	Organics	Natalie Vasilivetsky	nvasiliv@pr.uoguelph.ca	(519) 824 4120 x58129	Yes
2000kg (approx)	Done	Grounds	Manure Composting	Organics	John Reinhart	johnre@pr.uoguelph.ca		Yes
150 (approximate)	Done	Detmer Tire	Tires	Recycle	N/a	N/a	519 763 8473	
82 MT (approximate)	Done	UofGuelph - PR	Used furniture/equipment	Reuse	Brandon Raco	braco@pr.uoguelph.ca	(519) 760-9320	Yes
	Done	Shredit	Confidential papers/Shredding	Recycle	Adam Small	adam.small@stericycle.com	(519) 521-0549	Yes
0kg	Done	Chemistry Storage	Lab Coat Recycling	Reuse	Dan D'Aoust	chemistrystockroom@uoguelph.ca	519-824-4120 x52266	Yes
0kg	Done	Chemistry Storage	Lab Glove Recycling	Recycle	Dan D'Aoust	chemistrystockroom@uoguelph.ca	519-824-4120 x52266	Yes
	Pending	Grounds	Soil & plant	Organics	John Reinhart	johnre@pr.uoguelph.ca		Yes
	N/A	Hospitality Services	Refillable coffee mug program	Reduction	Mark Kenny	mkenny@uoguelph.ca		Yes
	N/A	Hospitality Services	Jamreusable Green Container Program	Reduction	Mark Kenny	mkenny@uoguelph.ca		Yes
	N/A	Waste Reduction Group	Lab Glass Recycling (non-haz)	Recycle	Anthony Cromie	anthony@wastereductiongroup.ca		No
	N/A	Waste Reduction Group	#2 HDPE Plastics (i.e. large pails)	Recycle	Anthony Cromie	anthony@wastereductiongroup.ca		No
	N/A	Waste Reduction Group	#4 LDPE Plastic Films	Recycle	Anthony Cromie	anthony@wastereductiongroup.ca		No
	N/A	Waste Reduction Group	Pipette and Lab Plastic	Recycle	Anthony Cromie	anthony@wastereductiongroup.ca		No

Appendix C

Waste Audit Summary

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: University of Guelph			
Name of Contact Person:		Telephone #:	Email address:
Street Address(es) of Entity(ies): 50 Stone Road East			
Municipality: Guelph, Ontario, N1G 2W1			
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

<p>Provide a brief overview of the entity(ties):</p> <p>University of Guelph is an educational institution with approximately 25,643 FTE students which satisfies Part X of Ontario Regulation 102/94 & 103/94. O.Reg. 102/94 requires operators of educational institutions with more than 350 full- or part-time students enrolled during the calendar year to conduct an annual waste audit and implement a waste reduction work plan. O.Reg. 103/94 requires that source separation programs be implemented and maintained for fine papers, newsprint, aluminum cans, steel cans, glass beverage containers and corrugated cardboard. University of Guelph undertook this audit in order to comply with the required Regulations as well as assist them in reducing wastes generated on campus and/or disposed to landfill.</p>

III. HOW WASTE IS PRODUCED AND DECISIONS AFFECTING THE PRODUCTION OF WASTE

For each category of waste that is produced at the entity(ies), explain how the waste will be produced and how management decisions and policies will affect the production of waste.

Categories of Waste	How Is the Waste Produced and What Management Decisions/Policies Affect Its Production?
PET (#1) plastic food and beverage bottles	<i>Brought onto campus or generated on campus by staff/students.</i>
HDPE (#2) Containers	<i>Brought onto campus/generated on campus by staff/students.</i>
Polypropylene (#5) Containers	<i>Brought onto campus or generated on campus by staff/students.</i>
Polystyrene (#6) Containers	<i>Brought onto campus/generated on campus by staff/students.</i>
Glass food and beverage bottles/jars	<i>Brought onto campus or generated on campus by staff/students.</i>
Aluminum food and beverage cans	<i>Brought onto campus or generated on campus by staff/students.</i>
Steel food and beverage cans	<i>Brought onto campus or generated on campus by staff/students.</i>
Gable Top Containers	<i>Brought onto campus or generated on campus by staff/students.</i>
Aseptic Containers	<i>Brought onto campus or generated on campus by staff/students.</i>
Fine paper	<i>Brought onto campus or generated on campus by staff/students.</i>
Newsprint	<i>Brought onto campus or generated on campus by staff/students.</i>
Boxboard shoe boxes, cereal boxes, etc.	<i>Brought onto campus or generated on campus by staff/students.</i>
Glossy magazines, catalogues, flyers	<i>Brought onto campus or generated on campus by staff/students.</i>
Cardboard	<i>Brought onto campus, shipping/generated on campus by staff/students.</i>
Paper towels	<i>Generated by staff/students on campus</i>
Coffee cups	<i>Brought onto campus/generated on campus by staff/students.</i>
Cold drink cups	<i>Brought onto campus/generated on campus by staff/students.</i>
Organics / Food Waste	<i>Brought onto campus/generated on campus by staff/students.</i>
LDPE (#4) plastic film	<i>Brought onto campus/generated on campus by staff/students.</i>
Styrofoam	<i>Brought onto campus/generated on campus by staff/students.</i>
Plastics Strapping	<i>Brought onto campus/generated on campus by staff/students.</i>
Scrap Metals	<i>Generated on campus by operations</i>
Scrap Woods/Pallets	<i>Generated on campus by operations</i>
Electronic Wastes	<i>Generated on campus by operations</i>
Bulbs & Ballasts	<i>Generated on campus by operations</i>
Batteries	<i>Brought onto campus/generated on campus by staff/students.</i>
Printer Toners	<i>Generated on campus by operations</i>
PPE	<i>Generated by staff/students on campus</i>
Textiles	<i>Generated by staff/students on campus</i>
Oil & Grease	<i>Generated on campus by operations</i>
Contaminated Wood/Paint	<i>Generated on campus by operations</i>
Textbooks	<i>Brought onto campus/generated on campus by staff/students.</i>
Beverage Bottles	<i>Brought onto campus/generated on campus by staff/students.</i>
Large Appliances	<i>Generated on campus by operations</i>
Car & Motor	<i>Generated on campus by operations</i>
Tires	<i>Generated on campus by operations</i>
Used Furniture	<i>Generated on campus by operations</i>
Manure	<i>Generated on campus by operations</i>
Other / Non-Recyclable	<i>Brought onto campus/generated on campus by staff/students.</i>

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

For each category of waste listed below, indicate which waste items will be disposed or reused/recycled and how each item will be managed at the entity(ies).

Category	Waste to be Disposed	Reused or Recycled Waste
PET (#1) plastic food and beverage bottles	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
HDPE (#2) Containers	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Polypropylene (#5) Containers	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Polystyrene (#6) Containers	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Glass food and beverage bottles/jars	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Aluminum food and beverage cans	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Steel food and beverage cans	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Gable Top Containers	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Aseptic Containers	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Fine paper	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Newsprint	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Boxboard shoe boxes, cereal boxes, etc.	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Glossy magazines, catalogues, flyers	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Cardboard	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Paper towels	<i>Staff/Students place in garbage</i>	<i>No recycling program implemented.</i>
Coffee cups	<i>Staff/Students place in garbage</i>	<i>No recycling program implemented.</i>
Cold drink cups	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Organics / Food Waste	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
LDPE (#4) plastic film	<i>Staff/Students place in garbage</i>	<i>No recycling program implemented.</i>
Styrofoam	<i>Staff/Students place in garbage</i>	<i>No recycling program implemented.</i>
Plastics Strapping	<i>Staff/Students place in garbage</i>	<i>No recycling program implemented.</i>
Scrap Metals	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Scrap Woods/Pallets	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Electronic Wastes	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Bulbs & Ballasts	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Batteries	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Printer Toners	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
PPE	<i>Staff/Students place in garbage</i>	<i>No recycling program implemented.</i>
Textiles	<i>Staff/Students place in garbage</i>	<i>No recycling program implemented.</i>
Oil & Grease	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Contaminated Wood/Paint	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Textbooks	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Beverage Bottles	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Large Appliances	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Car & Motor	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Tires	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Used Furniture	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Manure	<i>Staff/Students may place in garbage</i>	<i>3Rs program implemented</i>
Other / Non-Recyclable	<i>Staff/Students place in garbage</i>	<i>No recycling program implemented.</i>

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

Categories of Waste	Estimated Amount of Waste											
	Generated			Reduced/Reused			Recycled			Disposed		
	"A"	"B" Current	"C" *	"A"	"B" Current	"C" *	"A"	"B" Current	"C" *	"A"	"B" Current	"C" *
	Base Year	Year	Change (A - B)	Base Year	Year	Change (A - B)	Base Year	Year	Change (A - B)	Base Year	Year	Change (A - B)
Tonnes												
PET (#1) plastic food and beverage bottles	103.32	49.69	53.64	0.00	0.00	0.00	42.26	1.30	40.96	61.07	48.39	12.67
HDPE (#2) Containers	21.80	36.29	-14.50	0.00	0.00	0.00	12.37	0.95	11.42	9.43	35.34	-25.91
Polypropylene (#5) Containers	54.34	54.91	-0.56	0.00	0.00	0.00	33.22	1.43	31.79	21.12	53.47	-32.35
Polystyrene (#6) Containers	9.71	15.63	-5.92	0.00	0.00	0.00	3.07	0.41	2.66	6.64	15.23	-8.58
Glass food and beverage bottles/jars	43.71	6.87	36.84	0.00	0.00	0.00	20.24	0.18	20.06	23.47	6.69	16.78
Aluminum food and beverage cans	12.62	15.02	-2.40	0.00	0.00	0.00	5.63	0.39	5.24	6.99	14.62	-7.63
Steel food and beverage cans	9.52	0.00	9.52	0.00	0.00	0.00	9.13	0.00	9.13	0.40	0.00	0.40
Gable Top/Milk Containers	20.53	15.09	5.43	0.00	0.00	0.00	4.42	0.39	4.02	16.11	14.70	1.41
Aseptic Containers	9.32	15.44	-6.12	0.00	0.00	0.00	2.65	0.40	2.25	6.67	15.04	-8.37
Fine paper	225.89	39.43	186.46	0.00	0.00	0.00	173.09	1.98	171.11	52.80	37.45	15.35
Newsprint	2.36	0.16	2.20	0.00	0.00	0.00	0.99	0.01	0.99	1.37	0.15	1.21
Boxboard shoe boxes, cereal boxes, etc.	142.45	80.67	61.78	0.00	0.00	0.00	27.74	4.05	23.69	114.71	76.63	38.08
Glossy magazines, catalogues, flyers	4.41	50.49	-46.09	0.00	0.00	0.00	4.10	2.53	1.57	0.30	47.96	-47.66
Corrugated Cardboard	91.13	77.48	13.65	0.00	0.00	0.00	68.28	9.25	59.03	22.85	68.23	-45.38
Paper Towels	113.59	174.11	-60.52	0.00	0.00	0.00	0.00	0.00	0.00	113.59	174.11	-60.52
Coffee Cups	92.51	69.72	22.79	0.00	0.00	0.00	0.00	0.00	0.00	92.51	69.72	22.79
Cold Drink Cups	0.00	16.87	-16.87	0.00	0.00	0.00	0.00	0.44	0.00	0.00	16.43	-16.43
Organics	579.19	603.13	-23.94	0.00	3.07	-3.07	33.00	14.31	18.69	546.19	585.75	-39.56
LDPE (#4) Plastic Films	0.42	162.05	-161.63	0.00	0.00	0.00	0.00	0.00	0.00	0.42	162.05	-161.63
Styrofoam (#6) Plastic	2.59	65.59	-62.99	0.00	0.00	0.00	0.00	0.00	0.00	2.59	65.59	-62.99
Plastic Strapping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrap Metal	54.68	57.13	-2.45	0.00	0.00	0.00	53.26	51.35	1.91	1.42	5.78	-4.37
Scrap Wood/Pallets	15.69	27.20	-11.51	0.00	1.69	-1.69	15.42	18.95	-3.53	0.27	6.56	-6.29
Electronic Wastes	14.98	14.90	0.08	0.00	0.00	0.00	14.98	14.90	0.08	0.00	0.00	0.00
Fluorescent Bulbs	0.31	1.68	-1.37	0.00	0.00	0.00	0.31	1.68	-1.37	0.00	0.00	0.00
Batteries	1.06	2.62	-1.56	0.00	0.00	0.00	1.06	2.62	0.00	0.00	0.00	0.00
Printer Toners	0.00	0.54	-0.54	0.00	0.54	-0.54	0.00	0.00	0.00	0.00	0.00	0.00
PPE	0.00	7.04	-7.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.04	-7.04
Textiles	0.00	24.63	-24.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.63	-24.63
Oil & Grease	18.14	21.56	-3.42	0.00	0.00	0.00	18.14	21.56	-3.42	0.00	0.00	0.00
Contaminated Wood/Paint	28.14	5.71	22.43	0.00	0.00	0.00	28.14	5.71	22.43	0.00	0.00	0.00
Textbooks	8.35	1.25	7.10	8.35	1.25	7.10	0.00	0.00	0.00	0.00	0.00	0.00
Beverage Bottles	3.85	3.10	0.75	3.85	3.10	0.75	0.00	0.00	0.00	0.00	0.00	0.00
Large Appliances	0.00	4.06	-4.06	0.00	0.00	0.00	0.00	4.06	-4.06	0.00	0.00	0.00
Car & Motor	0.00	3.90	-3.90	0.00	0.00	0.00	0.00	3.90	-3.90	0.00	0.00	0.00
Tires	0.00	1.23	-1.23	0.00	0.00	0.00	0.00	1.23	-1.23	0.00	0.00	0.00
Used Furniture/Donations	0.00	82.00	-82.00	0.00	82.00	-82.00	0.00	0.00	0.00	0.00	0.00	0.00
Manure	1812.90	2.00	1810.90	0.00	0.00	0.00	1812.90	2.00	1810.90	0.00	0.00	0.00
Other/Nonrecyclable	1028.68	113.68	915.00	0.00	0.00	0.00	78.85	0.00	78.85	949.83	113.68	836.15
Total	4526.19	1922.89	2603.30	12.20	91.66	-79.46	2463.25	165.98	2299.28	2050.74	1665.25	385.49
Percent Change (C ÷ A x 100)			57.5%			-651.3%			93.3%			18.8%

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.

Base year taken as 2018

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.

No formal "green" purchasing policy is in place at University of Guelph. However, the different purchasing departments at University of Guelph do consider environmental impacts of their purchases whenever options are available and feasible.

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.

Not applicable.

* 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:

Appendix D

Waste Reduction Work Plan

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: University of Guelph			
Name of Contact Person:		Telephone #:	Email address:
Street Address(es) of Entity(ies): 50 Stone Road East			
Municipality: Guelph, Ontario, N1G 2W1			
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): University of Guelph is an educational institution with approximately 25,643 FTE students which satisfies Part X of Ontario Regulation 102/94 & 103/94. O.Reg. 102/94 requires operators of educational institutions with more than 350 full- or part-time students enrolled during the calendar year to conduct an annual waste audit and implement a waste reduction work plan. O.Reg. 103/94 requires that source separation programs be implemented and maintained for fine papers, newsprint, aluminum cans, steel cans, glass beverage containers and corrugated cardboard. University of Guelph undertook this audit in order to comply with the required Regulations as well as assist them in reducing wastes generated on campus and/or disposed to landfill.

III. PLANS TO REDUCE, REUSE AND RECYCLE WASTE

<p>For each category of waste described in Part V of “Report of a Waste Audit” (on which this plan is based), explain what your plans are to Reduce, Reuse and Recycle the waste, including: 1) how the waste will be source separated at the establishment, and 2) the programs to reduce, reuse and recycle all source separated waste.</p>	
Waste Category (as stated in Part V of your “Report of a Waste Audit”)	Source Separation and 3Rs Program
Mixed Containers (PET, HDPE, LDPE, PP, PS, Aluminum, Steel, Glass, Aseptic, Cold drink cups)	<p><u>“Mixed Recycling 3Rs Program”</u> <i>Reduce:</i> Staff/Students will be encouraged to bring reusable containers food/beverage containers for lunch and breaks. University of Guelph will encourage suppliers to reduce the amount of polystyrene used to transport supplies. University of Guelph will encourage suppliers to reduce the amount of plastic film and wrapping materials used to transport supplies. <i>Reuse:</i> Staff/Students will be encouraged to reuse plastic crates and totes wherever possible. <i>Recycle:</i> Staff/Students will be provided with recycling bins in high waste generating areas and food service areas for mixed containers/plastics. Staff/Students will be encouraged to place mixed containers/plastics in appropriate recycling bins with appropriate signage affixed to the receptacle. Receptacles will be emptied on a regular basis before they become full into large roll away bins for collection as required.</p>
Mixed Papers (Fine Paper, newsprint, boxboard, magazines, molded papers, kraft, catalogues, flyers, etc)	<p><u>“Mixed Recycling 3Rs Program”</u> <i>Reduce:</i> Staff/Students will be encouraged to print on both sides of each piece of paper as well as not print when it is unnecessary. Staff/Students will be encouraged to take reading materials home with them after they are finished with them. Staff and students will be sent, via email, news sources that are available online opposed to purchasing paper copies of news. <i>Reuse:</i> Discarded paper with print only on one side will be used for note pads/scrap paper. Staff/Students will be encouraged to leave newspapers they are finished reading in common areas for others to read. <i>Recycle:</i> Staff/Students will be provided with instructions via email. Receptacles will be provided in each office, classroom and high waste generating areas. Staff/Students will be encouraged to place newsprint, fine paper, boxboard, magazines, molded papers, etc in appropriate recycling receptacles. Staff/Students will empty receptacles into centralized containers. Custodial Staff/Students will empty centralized containers into bulk container in designated area for collection as required.</p>
Confidential Papers	<p><u>“Confidential Paper 3Rs Program”</u> <i>Reduce:</i> None. <i>Reuse:</i> None. <i>Recycle:</i> Staff/Students will be reminded of the existing program. Receptacles will be provided in each designated office area as required. Staff/Students will be encouraged to place all confidential paper in the designated consoles. Contactor will empty consoles appropriately for shredding and recycling as required.</p>
Cardboard	<p><u>“Cardboard 3Rs Program”</u> <i>Reduce:</i> Suppliers will be encouraged to make use of reusable containers for the shipment of supplies to University of Guelph. <i>Reuse:</i> Cardboard boxes will be reused for shipments when appropriate. <i>Recycle:</i> Staff/Students will be reminded of the existing program. Cleaners will be trained on where to dispose of waste correctly.</p>
Paper Towels	No 3Rs Program
Organics	<p><u>“Organics 3Rs Program”</u> <i>Reduce:</i> Students will be encouraged to bring uneaten food items home after lunch breaks or uneaten. Non-perishable food items can be donated to a local food drive. <i>Reuse:</i> Staff/Students provided with reusable china in some food service areas. <i>Recycle:</i> Staff/Students will be continually reminded of the existing program. Kitchen staff & cleaners trained on where to dispose of waste correctly. Additional bins added to the university food service areas to capture organic materials. Signs improved relating to organics program to assist staff/students in sorting organic stream correctly. Selling of disposable food containers</p>

	<i>discouraged on campus, and if sold, containers should be compostable. Updated organics handouts for staff/student education/training program. Training of food service staff regarding improvements to organics program.</i>
Coffee Cups, LDPE (#4) films, Plastic Strapping	<i>No 3Rs Programs</i>
Styrofoam, PPE, Textiles	<i>No 3Rs Program</i>
Scrap Metals	<i><u>“Scrap Metals 3Rs Program”</u> <u>Reduce:</u> None. <u>Reuse:</u> None. <u>Recycle:</u> Staff will be reminded of the existing program.</i>
Wood Pallets/Scrap Woods	<i><u>“Wood Pallets 3Rs Program”</u> <u>Reduce:</u> Staff to monitor use of Pallet to eliminate/reduce broken pallets. <u>Reuse:</u> Staff will be reminded of the existing program. Staff/Students will be encouraged to use scrap wood before new wood is purchased for use at the University. <u>Recycle:</u> Staff will be reminded of scrap wood recycling program.</i>
Electronic Wastes	<i><u>“Electronic Wastes 3Rs Program”</u> <u>Reduce:</u> None. <u>Reuse:</u> Staff/students will be encouraged to reuse/donate electronic wastes if possible. . <u>Recycle:</u> Staff/Students will be reminded of the existing program, continue collecting for proper recycling of waste materials.</i>
Bulbs & Ballasts	<i><u>“Bulbs & Ballasts 3Rs Program”</u> <u>Reduce:</u> None. <u>Reuse:</u> None. <u>Recycle:</u> Staff/Students will be reminded of the existing program.</i>
Batteries	<i><u>“Batteries 3Rs Program”</u> <u>Reduce:</u> None. <u>Reuse:</u> None. <u>Recycle:</u> Staff/Students will be reminded of the existing program.</i>
Printer Toners	<i><u>“Printer Toners 3Rs Program”</u> <u>Reduce:</u> None. <u>Reuse:</u> Staff/Students will be reminded of the existing program. <u>Recycle:</u> Staff/Students will be reminded of the existing program.</i>
Oil & Grease	<i><u>“Oil & Grease 3Rs Program”</u> <u>Reduce:</u> None. <u>Reuse:</u> None. <u>Recycle:</u> Staff/Students will be reminded of the existing program.</i>
Contaminated Wood/Paint	<i><u>“Contaminated Wood/Paint 3Rs Program”</u> <u>Reduce:</u> None. <u>Reuse:</u> None. <u>Recycle:</u> Staff will be reminded of the existing program.</i>
Textbooks	<i><u>“Textbooks 3Rs Program”</u> <u>Reduce:</u> None. <u>Reuse:</u> Staff will be reminded of the existing program. <u>Recycle:</u> Staff will be reminded of the existing program.</i>
Beverage Bottles	<i><u>“Beverage Bottles 3Rs Program”</u> <u>Reduce:</u> None. <u>Reuse:</u> Staff will be reminded of the existing program. <u>Recycle:</u> Staff will be reminded of the existing program.</i>
Large Appliances	<i><u>“Large Appliances 3Rs Program”</u> <u>Reduce:</u> None. <u>Reuse:</u> Staff will be reminded of the existing program. <u>Recycle:</u> Staff will be reminded of the existing program.</i>
Car & Motor	<i><u>“Car & Motor 3Rs Program”</u> <u>Reduce:</u> None. <u>Reuse:</u> None. <u>Recycle:</u> Staff will be reminded of the existing program.</i>
Tires	<i><u>“Tires 3Rs Program”</u> <u>Reduce:</u> None.</i>

	<u>Reuse:</u> None. <u>Recycle:</u> Staff will be reminded of the existing program.
Used Furniture	<u>“Used Furniture 3Rs Program”</u> <u>Reduce:</u> None. <u>Reuse:</u> Staff will be reminded of the existing program. <u>Recycle:</u> Staff will be reminded of the existing program.
Manure	<u>“Manure 3Rs Program”</u> <u>Reduce:</u> None. <u>Reuse:</u> None. <u>Recycle:</u> Staff will be reminded of the existing program.

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 #
	All 3Rs programs or will direct to appropriate person.	

.../2

V. TIMETABLE FOR IMPLEMENTING WASTE REDUCTION WORK PLAN

Provide a timetable indicating when each Source Separation and 3Rs program of the Waste Reduction Work Plan will be implemented.	
Source Separation and 3Rs Program	Schedule for Completion
Cardboard	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Mixed Recycling	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Papers (Incl. Confidential Papers)	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Organics	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Scrap Metals	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Scrap Wood/ Wood Pallets	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Electronic Waste	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Bulbs & Ballasts	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Batteries	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Printer Toners	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Oil & Grease	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Contaminated Wood/Paint	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Textbooks	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Beverage Bottles	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Large Appliances	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Car & Motor	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>

	<i>promotional campaigns to be considered.</i>
Tires	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Used Furniture	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>
Manure	<i>3Rs Program currently in place. Continual improvement to signage and additional promotional campaigns to be considered.</i>

VI. COMMUNICATION TO STAFF, CUSTOMERS, GUESTS AND VISITORS

Explain how the Waste Reduction Work Plan will be communicated to employees, customers, tenants, guests/visitors and students:
Explain how the Waste Reduction Work Plan will be communicated to employees, customers, tenants, guests/visitors and students. Sustainability committee will review and develop a work plan to be posted on campus for staff and students. Additional promotional campaigns will also be considered to target specific audiences for specific programs. Continue to improve educational materials (hand-outs, flyers) and signage across campus as required.

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VII. ESTIMATED WASTE PRODUCED BY MATERIAL TYPE AND THE PROJECTED AMOUNT

Material Categories (as stated in Part III)	Estimated 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	
PET (#1) plastic food and beverage bottles	49.69	Mixed Recycling 3Rs Program			32.30	65%
HDPE (#2) Containers	36.29	Mixed Recycling 3Rs Program			23.59	65%
Polypropylene (#5) Containers	54.91	Mixed Recycling 3Rs Program			35.69	65%
Polystyrene (#6) Containers	15.63	Mixed Recycling 3Rs Program			10.16	65%
Glass food and beverage bottles/jars	6.87	Mixed Recycling 3Rs Program			4.47	65%
Aluminum food and beverage cans	15.02	Mixed Recycling 3Rs Program			9.76	65%
Steel food and beverage cans	0.00	Mixed Recycling 3Rs Program			0.00	65%
Gable Top Containers	15.09	Mixed Recycling 3Rs Program			9.81	65%
Aseptic Containers	15.44	Mixed Recycling 3Rs Program			10.04	65%
Fine paper	39.43	Mixed Recycling 3Rs Program; Paper 3Rs Program			33.51	85%
Newsprint	0.16	Mixed Recycling 3Rs Program			0.10	65%
Boxboard shoe boxes, cereal boxes, etc.	80.67	Mixed Recycling 3Rs Program			52.44	65%
Glossy magazines, catalogues, flyers	50.49	Mixed Recycling 3Rs Program			32.82	65%
Cardboard	77.48	Cardboard 3Rs Program			69.73	90%

Paper towels	174.11	No 3Rs Program				NA
Coffee cups	69.72	No 3Rs Program				NA
Cold drink cups	16.87	Mixed Recycling 3Rs Program			10.96	65%
Organics / Food Waste	603.13	Organics 3Rs Program			301.57	50%
LDPE (#4) plastic film	162.05	No 3Rs Program				NA
Styrofoam	65.59	No 3Rs Program				NA
Plastics Strapping	0.00	No 3Rs Program				NA
Scrap Metals	57.13	Scrap Metals 3Rs Program			51.35	90%
Scrap Woods/Pallets	27.20	Scrap Woods/Pallets 3Rs Program			20.64	76%
Electronic Wastes	14.90	Electronic Wastes 3Rs Program			14.90	100%
Bulbs & Ballasts	1.68	Bulbs & Ballasts 3Rs Program			1.68	100%
Batteries	2.62	Batteries 3Rs Program			2.62	100%
Printer Toners	0.54	Printer Toner 3Rs Program				NA
PPE	7.04	No 3Rs Program				0%
Textiles	24.63	No 3Rs Program				0%
Oil & Grease	21.56	Oil & Grease 3Rs Program			21.56	100%
Contaminated Wood/Paint	5.71	Contaminated Wood/Paint 3Rs Program			5.71	100%
Textbooks	1.25	Textbooks 3Rs Program		1.25		100%
Beverage Bottles	3.10	Beverage Bottles 3Rs Program		3.10		100%
Large Appliances	4.06	Large Appliances 3Rs Program			4.06	100%
Car & Motor	3.90	Car & Motor 3Rs Program			3.90	100%
Tires	1.23	Tires 3Rs Program			1.23	100%
Used Furniture	82.00	Used Furniture 3Rs Program		82.00		100%
Manure	2.00	Manure 3Rs Program			2.00	100%
Other / Non-Recyclable	113.68	No 3Rs Program				NA

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

** $Estimated\ Waste\ Diversion\ Rate = Amount\ of\ Waste\ Diverted\ (3Rs) \div Estimated\ Waste\ Produced \times 100\%$

I hereby certify that the information provided in this Waste Reduction Work Plan is complete and correct.		
Signature of authorized official:	Title:	Date: