Waste Audit and Waste Reduction Work Plan

University of Toronto Scarborough
1265 Military Trail
Scarborough, ON
December 8, 2022

January 11, 2023

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Dear Patricia Escobar:

Re: University of Toronto Scarborough – Waste Audit & Waste Reduction Work Plan Report

The Waste Audit and Sustainability Services Department of Wasteco is pleased to submit a copy of our report detailing observations made during the waste audit that took place at University of Toronto Scarborough on December 8, 2022 of the facility's waste and recycling streams. All waste and recycling materials generated over a 24-hour period from University of Toronto Scarborough were categorized, weighed, and recorded with 100% of materials further sorted to assess composition. Observations, discussions, recommendations, and photographs are included, as are the Waste Audit & Waste Reduction Work Plan Summary Forms as required by the Ministry of Environment, Conservation and Parks (MOE).

This report complies with Ontario Regulation 102/94 of the Environmental Protection Act. Please ensure that you sign the completed Waste Audit & Waste Reduction Work Plan Summary Form as required by the MOE. The regulation also requires that the Waste Reduction Work Plan be posted in public sight on the premises of University of Toronto Scarborough.

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

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

Sincerely,

Wasteco Team

Executive Summary

In accordance with Ontario Regulation 102/94, Wasteco conducted a waste audit for University of Toronto Scarborough in Scarborough on December 8, 2022 and developed a Waste Reduction Work Plan based on the observations.

Table 1 provides an overview of the key performance indicators for University of Toronto Scarborough based on the waste and recycling[1] weights from the audit sample period. Based on these figures, the diversion rate for this site is 6.46% and the capture rate is 50.08%. When 'Additional Recycling'[2] is added, the diversion rate for this site increases to 45.12%. Please note, cardboard pickup weights were not included in the additional diversion rate's calculation. Had cardboard been included, the additional diversion rate would be even higher.

Table 1: Overall Performance Indicators

	Current	Potential
Waste Audit Diversion Rate	6.46%	13.38%
Waste Audit Diversion Rate with 'Additional Recycling'	45.12%	49.18%
Capture Rate	50.08%	100.00%
Contamination Rate	3.78%	0.00%

Table 2 summarizes audited waste and recycling weights and 'Additional Recycling' weights for University of Toronto Scarborough.

Table 2: Waste and Recycling Weights

	Daily Weights (Actual)	Monthly Weight (Estimates)	Yearly Weight (Estimates)
Non-Recyclable Materials in Waste	131.40 kg	3,996.75 kg	47,961.00 kg
Recycling in Waste	10.50 kg	319.38 kg	3,832.50 kg
Total Waste	141.90 kg	4,316.13 kg	51,793.50 kg
Total Recyclables in Recycling	9.43 kg	286.83 kg	3,441.95 kg
Total Contamination in Recycling	0.37 kg	11.25 kg	135.05 kg
Total Recycling	9.80 kg	298.08 kg	3,577.00 kg
Total Recycling with 'Additional Recycling'	116.66 kg	3,548.33 kg	42,579.98 kg

[1] Recycling weights include the following audited materials: paper fibre, cardboard, containers (cans, bottles, plastics), and organics (pilot program). Items accepted in the recycling streams can be found in Appendix C – Material List

[2] Additional Recycling includes the following non-audited materials: scrap metal, e-waste, fluorescent tubes, and organics (Student Centre, Marketplace, & Residences).

According to the graph, approximately 7.40% of the sample waste weight was found to be divertible using the recycling programs currently in place for containers, cardboard, organics (pilot program), and paper.

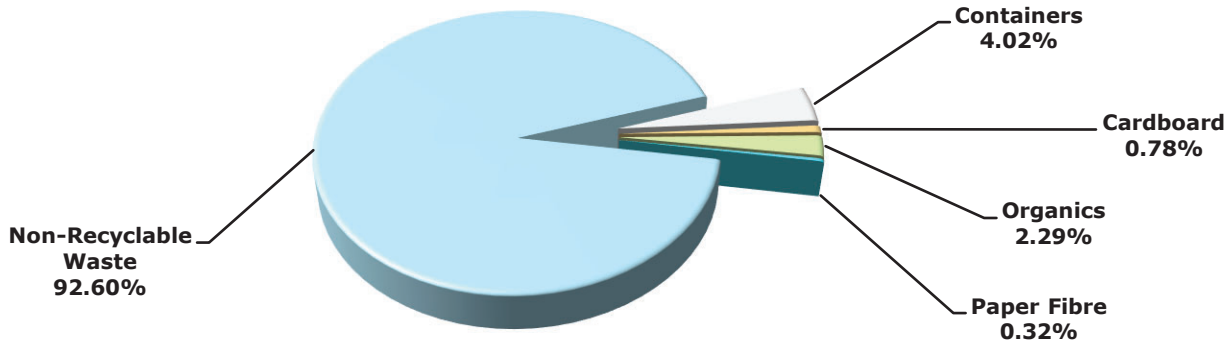

Figure 1: Composition of Material in the Waste Stream

Based on the results of this audit, the following recommendations are suggested:

1. Monitor the recycling streams for contamination.
2. Hold "Green Team" student committee meetings.
3. Educate employees about the recycling programs.

Please refer to **Section 7.0** for additional recommendations for this site.

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

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1.0 – INTRODUCTION

In recent years, companies have taken up the challenge of making their operations more environmentally sustainable. Solid waste management has proven to be a valuable starting point.

Waste audits provide the opportunity to gain a better understanding of the materials being disposed of in a facility by documenting the strengths and weaknesses of the current recycling program with a view to lowering overall environmental impact. Additionally, an efficiently operated waste management plan can contribute to lower operational costs by identifying opportunities for cost savings and can engage employees in waste reduction activities.

Solid waste reduction efforts also are being driven by Ontario Government initiatives including the Ontario Ministry of the Environment, Conservation and Parks (MOE) 3Rs (Reduce, Reuse, Recycle) regulations and their goal to increase landfill diversion in the transition to a circular economy model. These regulations also require designated educational institutions to participate in the waste audit and waste reduction planning process.

1.1 – Ontario Government 3 Rs Initiatives

In 1994, the MOE enacted environmental regulations requiring the institutional, commercial, and industrial (IC&I) sectors to address their solid waste streams. Regulations 102 and 103 require IC&I generators in designated sectors to carry out a waste audit and develop a Waste Reduction Work Plan (WRWP). The regulations also prescribe source separation requirements for specific generators.

There are two waste reduction regulations that directly impact the educational institution sector:

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

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

According to O. Reg. 102/94 Waste Audits and Waste Reduction Work Plans, a waste audit required under the regulation shall address: the amount, nature, and composition of the waste; the manner by which the waste is produced, including management decisions and policies that relate to the production of waste; and the way in which the waste is managed.

In addition to being a requirement, an audit of the solid waste stream and the accompanying action plan for waste reduction is intended to integrate the 3Rs activities into a facility's daily operations. The following is a list of other basic requirements for compliance with the provincial regulations:

- The Waste audit summary sheet and the Waste Reduction Work Plan are to be prepared on a form provided by the MOE or in a similar format;
- Waste audit and WRWP must be held on file for at least five years;
- The WRWP or a summary must be posted in a place where most employees will see it;
- Any employee who requests to see the full work plan must be allowed to do so;
- A work plan must set out who will implement each part of the plan and when, and the expected results; and
- The owner/operator of facility must submit the most recent audit and work plan within 7 days to a Ministry Director when requested to do so.

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

O. Reg. 103/94 builds upon the waste audit and waste reduction planning process by stipulating which materials a generator must recycle. In the case of the operator of an educational institution classified under O. Reg.103/94, the operator shall implement a source separation program. **Table 3** details the requirements for materials to be targeted by source separation programs and those facilities required to complete a waste audit.

Table 3: Waste Reduction Work Plan and Source Separation Program Compliance Requirements

Type of Establishment	Waste Reduction Work Plan Compliance Requirement	Required Source Separated Programs
Educational Institutions	At least 350 students at a location or campus	Aluminum food or beverage cans Cardboard (corrugated). Fine paper. Glass bottles and jars for food or beverages. Newsprint. Steel food or beverage cans.

2.0 –AUDIT SCOPE

University of Toronto Scarborough commissioned Wasteco to conduct a solid waste audit and generate a Waste Reduction Work Plan for University of Toronto Scarborough on December 8, 2022. The main objectives of the project included:

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

3.0 –METHODOLOGY

Prior to the audit, the pre-audit form, the description of the materials to be sorted, audit logistics and methodology were discussed. Stickers were provided to label the waste and recycling bags from the generation areas by floor/area. All material streams were collected from their generation areas on December 7, 2022. Construction was taking place in the building, but as contractors remove their own waste, these activities would not have altered the audit results.

The waste and recycling bags were staged on-site at University of Toronto Scarborough. All materials were weighed and categorized by material stream. 100% of the categorized waste and recycling bags were sorted, opened, and further sorted into collection bins. The materials sorted from the waste were divided into categories, described in detail in the Materials List (**Appendix C**). The recycling bags were sorted by material type and the contamination within each stream was weighed (in kilograms rounded to 0.1 kg) and recorded to provide a contamination rate.

Each material group was weighed (in kilograms rounded to 0.1 kg) using a Rubbermaid 4010-88 Digital Receiving Scale (**Appendix F**). Photographs were taken during the entire process. The pictures have been included to support observations and highlight the exact nature and composition of the materials being discarded.

All Health and Safety Regulations, as prescribed in the provincial Health and Safety Act, were held in compliance throughout the audit process. To this end, auditing teams are compromised of between two to five auditors. Wasteco's Waste Audit and Sustainability Services Department includes staff who have completed the RCO Waste Auditor Training in the Standard Waste Auditing Method as well as LEED Green Associates.

All observed weights are recorded on the Material Weights Spreadsheets (**Table 6** and **Table 9**), which use an extrapolatory methodology for annualization of audit data.

$$\frac{\text{Number of Operational Days}}{\text{Audit Sample Period in Number of Days}} \times \text{Total Audited Mass of Material Stream(kg)} = \textbf{Total Annual Mass (kg)}$$

Certain materials were not included in the audit sample but are regularly generated in the facility. The weights from these materials were provided to Wasteco by property management and are incorporated in the recycling analysis. These materials are referred to as 'Additional Recycling' and include scrap metal, e-waste, fluorescent tubes, and organics (student centre, marketplace, & residences).

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

4.0 –BUILDING AND SITE INFORMATION

University of Toronto Scarborough is an educational institution managed by University of Toronto Scarborough in Scarborough, Ontario. The building has a total area of 147,610.73 square meters. There are approximately 11,947 full time students enrolled, about 1,142 full time employees, and 5 retailers. The educational institution typically operates 24 hours per day and 7 days per week and the offices and retailers operate 5 days per week.

UTSC caretaking staff collect and store the waste and recycling in a designated area for a scheduled removal pick-up.

5.0 – OBSERVATION AND ANALYSIS

The pictures below show the waste and recycling material collected for the audit.

The total weight of the sample including all waste and recycling was 151.70 kg. The waste accounted for 93.54% of the total weight. The recyclables in the recycling streams (containers, cardboard, organics (pilot program), and paper) accounted for 6.22% of the total weight with 0.24% being contamination in the recycling (**Figure 2**).

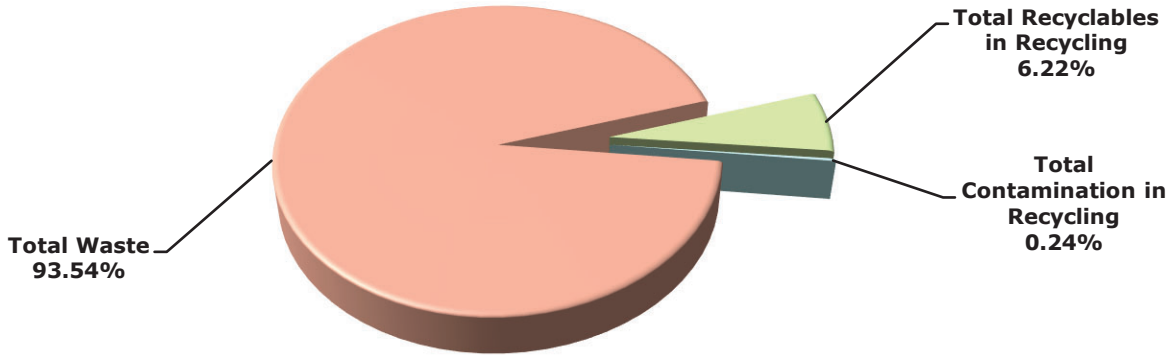

Figure 2: Total Audited Waste and Recycling with Contamination

'Additional Recycling' weights were provided by management. When this is included, the total weight increases to 258.56 kg. The total waste changes to 54.88% and the total recyclables in recycling changes to 44.98% with 0.14% being contamination in the recycling (**Figure 3**).

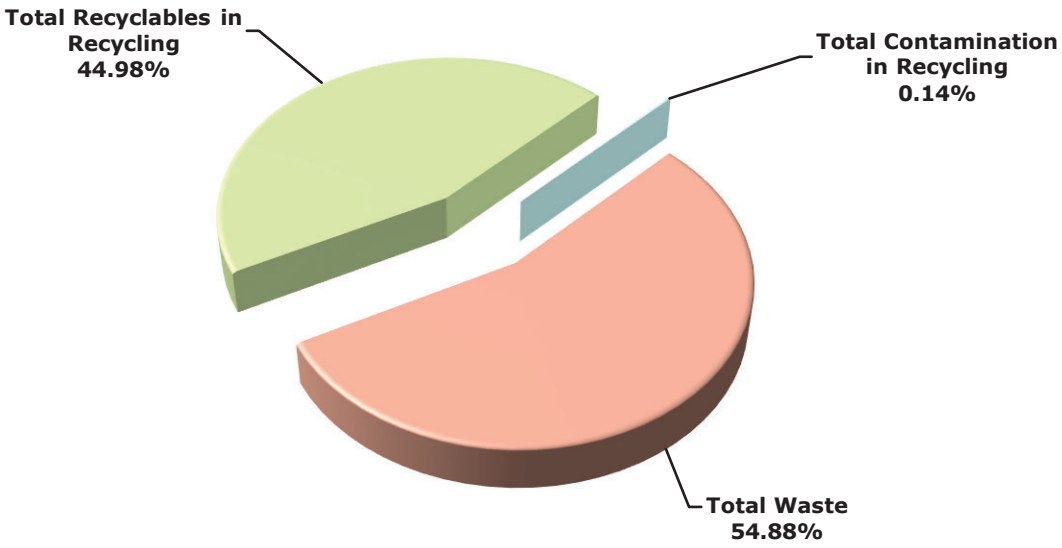

Figure 3: Total Audited Waste and Recycling with 'Additional Recycling' and Contamination

5.1 – Waste and Recycling Analysis

The materials that made up the largest percentage of waste by weight included the non-recyclable waste material with 92.60%, followed by containers with 4.02%. **Figure 4** displays the overall waste composition percentages discovered during the waste audit.

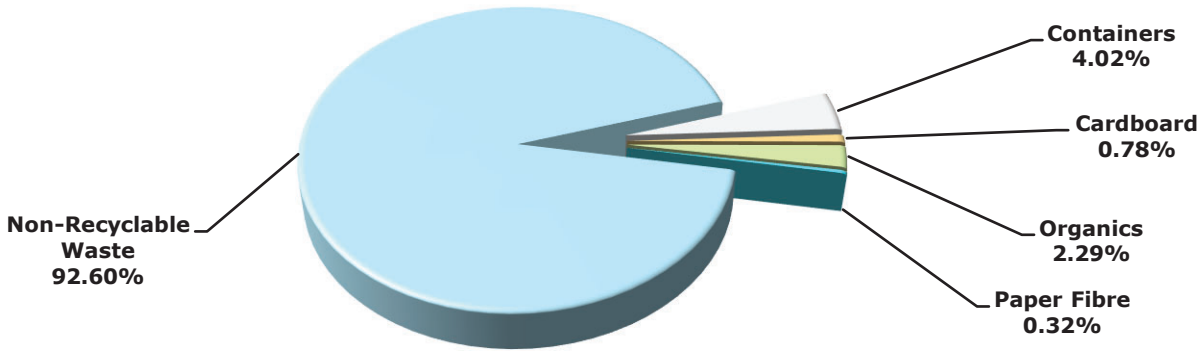

Figure 4: Composition of Material in the Waste Stream

The materials that made up the largest percentage of the recycling stream included mixed recycling (paper & containers) accounting for 75.51%, followed by organics with 24.49% (**Figure 5**).

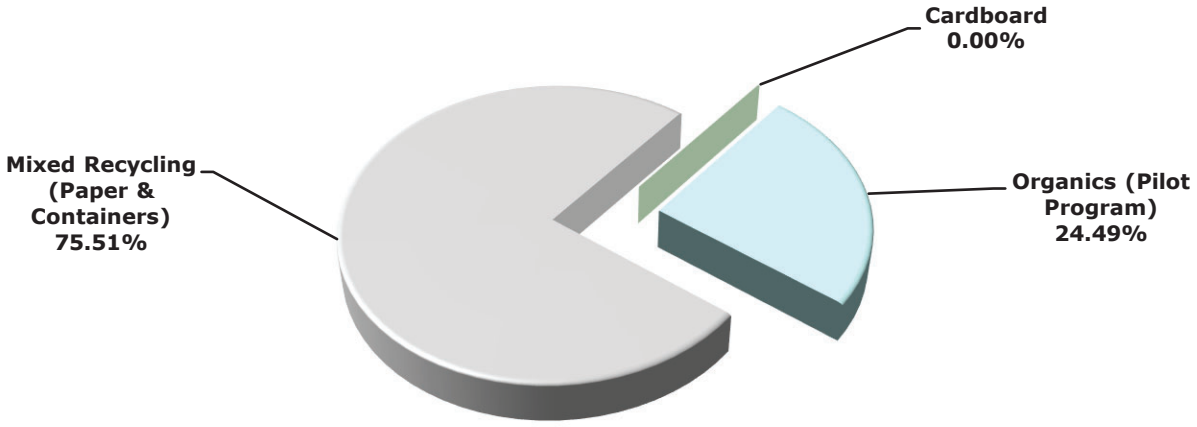

Figure 5: Composition of Material in the Recycling Stream

The inclusion of 'Additional Recycling' changes the composition of the materials. The largest percentage has been changed to additional recycling with 91.60%, followed by mixed recycling (paper & containers) with 6.34% (**Figure 6**).

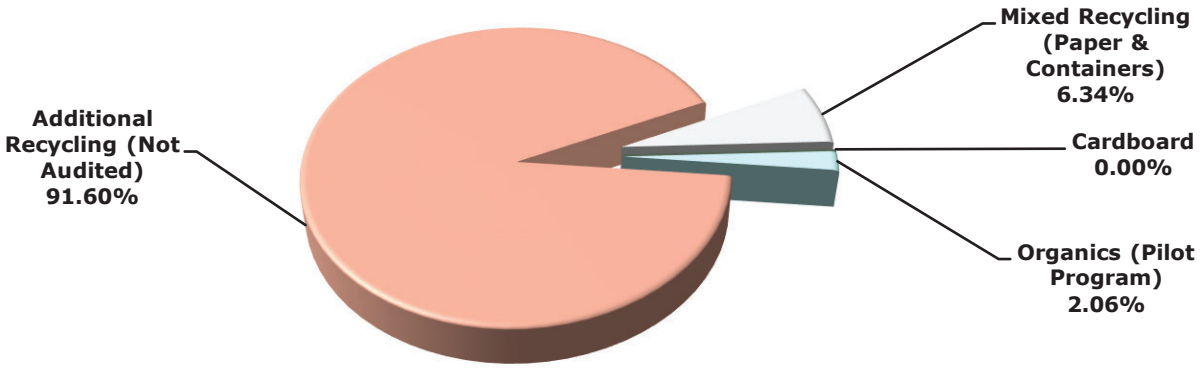

Figure 6: Composition of Materials in the Recycling Stream with 'Additional Recycling'

The capture rate for recyclable materials is shown in **Table 4**. **Table 5** shows the contamination rates of the materials collected in the recycling programs. These were derived from the Material Weights Spreadsheets (**Table 6** and **Table 9**).

Table 4: Material Capture Rates

Mixed Recycling (Paper & Containers)	Cardboard	Organics	Total Capture Rate
53.41%	-	42.27%	50.08%

Table 5: Recycling Contamination Rates

Mixed Recycling (Paper & Containers)	Cardboard	Organics	Total Contamination Rate
4.73%	-	0.83%	3.78%

5.2 – Waste Stream Analysis

Referring to the material data (**Table 6**), the weight measurements associated to each generation area were used to determine monthly and annual weight projections and material percentages.

Table 6: Waste Material Weights

All weights are in kilograms (kg)							
1265 Military Trail	**Containers**	**Cardboard**	**Organics**	**Paper Fibre**	**Non-Recyclable Waste**	**Total Weight**	**%**
S Wing - 300 Level Hallway	0.90		0.40	0.02	8.93	10.25	7.22%
H Wing - 200 Level Hallway	0.60	0.20	0.95	0.05	8.50	10.30	7.26%
BV - 4th Floor Study Area	0.80	0.20	0.80	0.01	28.14	29.95	21.11%
BV - 5th Floor Office	0.10	0.20	0.25	0.21	5.94	6.70	4.72%
Highland Hall - Krembil Student Commons	1.40	0.30	0.45	0.15	34.60	36.90	26.00%
ARC - Library	1.90	0.20	0.40	0.01	45.29	47.80	33.69%
Daily Projection	**5.70**	**1.10**	**3.25**	**0.45**	**131.40**	**141.90**	**100.00%**
%	**4.02%**	**0.78%**	**2.29%**	**0.32%**	**92.60%**	**100.00%**	**-**
Monthly Projection	**173.38**	**33.46**	**98.85**	**13.69**	**3,996.75**	**4,316.13**	**-**
Yearly Projection	**2,080.50**	**401.50**	**1,186.25**	**164.25**	**47,961.00**	**51,793.50**	**-**
Capture Rate	**53.41%**	**-**	**42.27%**	**53.41%**	**-**	**50.08%**	**-**
Insignificant amount of recyclable material in the waste stream	<0.10	<0.20	<1.00	<0.20	-	-	-
Moderate amount of recyclable material in the waste stream	>0.11 - <0.40	>0.21 - <0.50	>1.01 - <3.00	>0.21 - <0.50	-	-	-
Significant amount of recyclable material in the waste stream	>0.41	>0.51	>3.01	>0.51	-	-	-

The generation area with the heaviest waste weight was ARC - Library with 47.80 kg. **Figure 7** displays the material breakdown by weight.

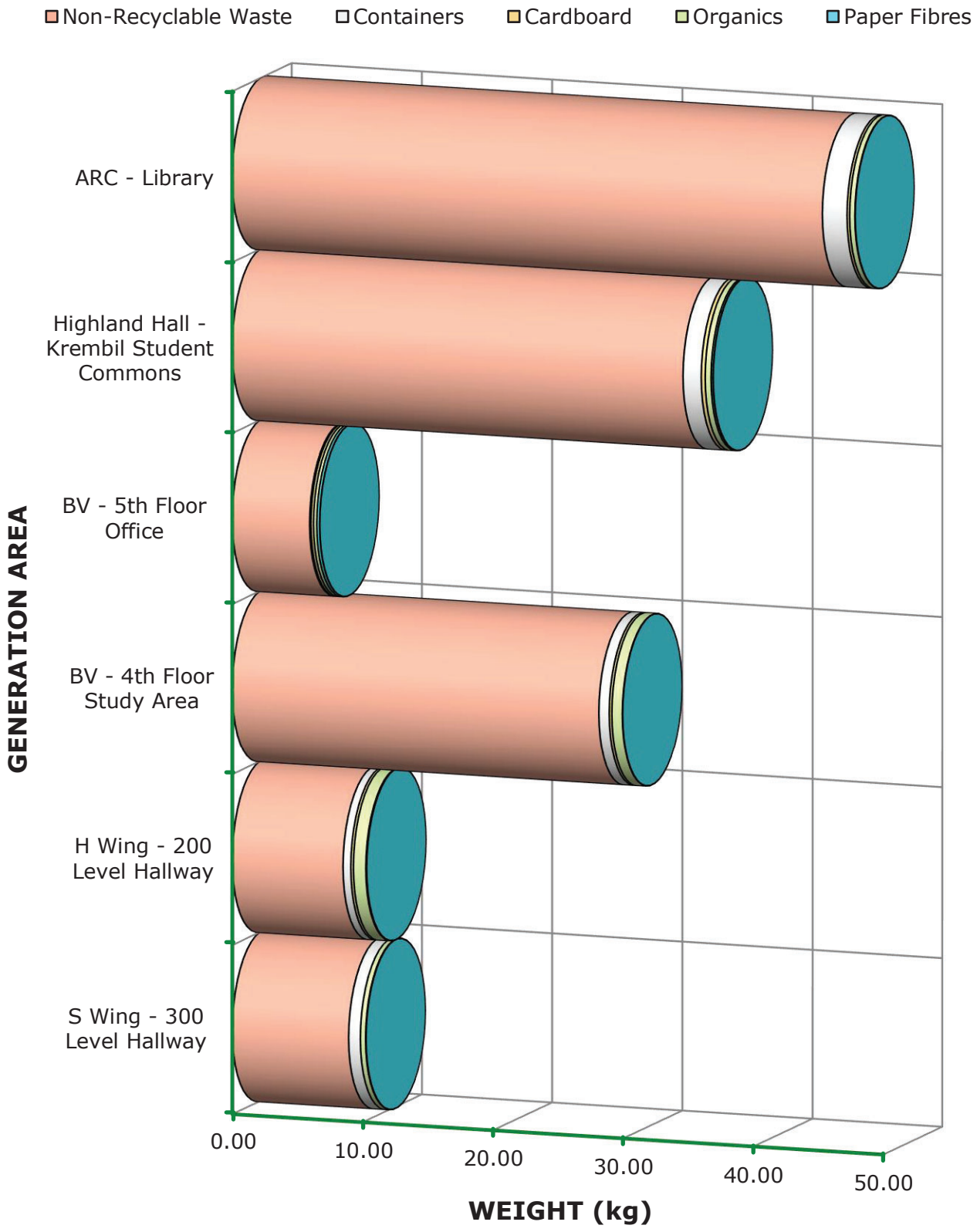

Figure 7: Material Breakdown by Generation Area

5.2.1 – Recyclables in Waste – Waste Stream Analysis

A breakdown of recyclables[3] found in the waste stream is provided below in **Table 7**:

Table 7: Summary of Recyclables in Waste

Recyclable Material Type	Total Material Weight (kg)	Percentage of Overall Composition
Containers	5.70 kg	4.02%
Cardboard	1.10 kg	0.78%
Organics	3.25 kg	2.29%
Paper Fibre	0.45 kg	0.32%
Total Recyclables in Waste	*10.50 kg*	*7.40%*

The photos below show examples of recyclables found in waste and **Table 8** lists the top generators of recyclables in the waste.


S Wing - 300 Level Hallway

H Wing - 200 Level Hallway

Table 8: Top Generators of Recyclables in the Waste

Generation Area	Weight of Material in Waste	Percentage of Material in Waste*
ARC - Library	2.51 kg	23.90%
Highland Hall - Krembil Student Commons	2.30 kg	21.90%
BV - 4th Floor Study Area	1.81 kg	17.24%

*The percentages generated in this table are calculated by taking the recyclable material weight in the waste by floor and dividing it by the sum total of all of this material in the waste multiplied by 100

Continuous monitoring and ongoing education of the employees and students will help increase landfill diversion. Signs should be posted in the building to inform and remind employees and students about the recycling programs available, in addition to using proper collection bins. The cleaners and employees and students should be trained on how to collect and stage materials separately, and should also be monitored to ensure that the recyclable materials are collected efficiently.

[3] Please refer to Appendix C for a list of materials which constitute these recycling streams

5.2.2 – Additional Recyclable & Specialized Materials Removed from the Waste

Coffee pods:
Coffee pods used with single brew machines were found in the waste. See pictures and **Appendix D** for more information on disposal options for this material.

BV - 5th Floor Office

BV - 5th Floor Office

5.2.3 – Non-recyclable waste (Single use items)

Non-recyclable waste accounted for 92.60% or 131.40 kg of the total waste sample staged for the audit. The non-recyclable waste collected included soiled paper plates, single use coffee cups, paper towels, polystyrene containers, plastic cutlery, other packaging materials, and soiled napkins.

H Wing - 200 Level Hallway

BV - 4th Floor Study Area

It should be encouraged that employees and students be mindful of single use packaging and containers, and should be reminded of the environmental impact these materials have within landfills in an effort to reduce the amount of waste generated. Employees should be encouraged to use their own reusable items, such as refillable mugs and food containers, in place of single use items.

Where possible, it is encouraged that any non-recyclable materials purchased are composed of recycled or reclaimed materials and/or which were designed to leave a minimal footprint in landfill. Biodegradable or compostable food and beverage containers are a suitable alternative when reusable options are not available.

It is also suggested that, if possible, materials used throughout the facility are sourced from suppliers that encourage sustainable practices such as using reduced packaging, extended producer responsibility or product reclamation/reuse.

5.3 – Recycling Stream Analysis

Referring to the material data (**Table 9**), the weight measurements associated to each generation area were used to determine monthly and annual weight projections and material percentages.

Table 9: Recycling Material Weights

All weights are in kilograms (kg)											
	Mixed Recycling (Paper & Containers)		Cardboard		Organics (Pilot Program)		Additional Recycling	Totals			
1265 Military Trail	Mixed Recycling (Paper & Containers)	Contamination in Paper & Containers	Cardboard	Contamination in Cardboard	Organics (Pilot Program)	Contamination in Organics (Pilot Program)	Additional Recycling (Not Audited)	Total Recyclables (Audited)	Total Contamination in Recycling (Audited)	Total Weight	%
S Wing - 300 Level Hallway								0.00	0.00	0.00	0.00%
H Wing - 200 Level Hallway	1.10	0.05			0.30	0.01		1.34	0.06	1.40	1.20%
BV - 4th Floor Study Area	5.70	0.20						5.50	0.20	5.70	4.89%
BV - 5th Floor Office								0.00	0.00	0.00	0.00%
Highland Hall - Krembil Student Commons					2.10	0.01		2.09	0.01	2.10	1.80%
ARC - Library	0.60	0.10						0.50	0.10	0.60	0.51%
Non-Audited Materials							106.86	-	-	106.86	91.60%
Daily Projection	**7.40**	**0.35**	**0.00**	**-**	**2.40**	**0.02**	**106.86**	**9.43**	**0.37**	**116.66**	**100.00%**
% of Total Recycling	**6.34%**		**0.00%**		**2.06%**		**91.60%**	**-**	**-**	**100.00%**	**-**
% of Contamination in Recycling	**4.73%**		**-**		**0.83%**		**-**	**-**	**-**	**3.78%**	**-**
Monthly Projection	**225.08**	**10.65**	**0.00**	**0.00**	**73.00**	**0.61**	**3,250.25**	**286.83**	**11.25**	**3,548.33**	**-**
Yearly Projection	**2,701.00**	**127.75**	**0.00**	**0.00**	**876.00**	**7.30**	**39,002.98**	**3,441.95**	**135.05**	**42,579.98**	**-**

The generation area with the heaviest recycling weight was BV - 4th Floor Study Area with 5.70 kg. **Figure 8** displays the material breakdown by weight.

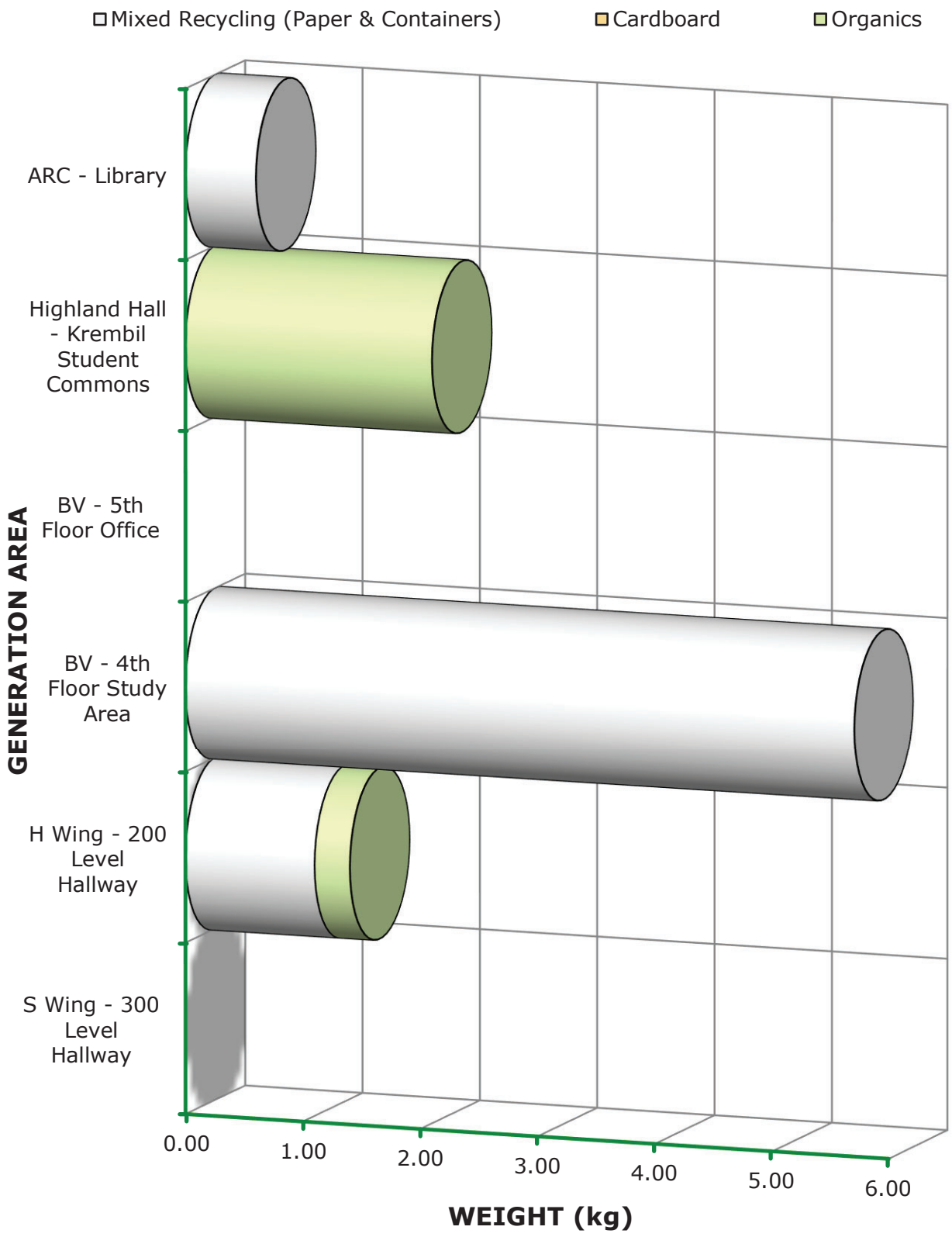

Figure 8: Recycling Weights by Generation Area

5.3.1 – Recycling Streams

Of the recycling collected during the sample period:

Mixed Recycling (Paper & Containers):
The mixed paper & containers recycling accounted for 6.34% or 7.40 kg of the total recycling weight. There were observations of contamination in the recycling stream. Recyclables accounted for 95.27% of the total containers weight shown in **Table 9**, and contaminating materials accounted for 4.73%. Contaminating materials shown below included non-recyclable waste such as single use coffee cups, paper hand towels, napkins, plastic straws and condiment containers.

H Wing - 200 Level Hallway


BV - 4th Floor Study Area

Cardboard:
The cardboard recycling program was not included in the audit. Cardboard was found in the waste and other recycling streams, which could have been diverted if collected separately. Please refer to Section 5.3.2 - Contamination in Recycling for more information.

Organics:
Organics accounted for 2.06% or 2.40 kg of the total recycling weight. There were observations of contamination in the recycling stream. Recyclables accounted for 99.17% of the total organics weight shown in **Table 9**, and contaminating materials accounted for 0.83%. Contaminating materials shown below include containers, paper, and non-recyclable waste such as napkins, paper towels, single use containers, and plastic cutlery.


H Wing - 200 Level Hallway


Highland Hall - Krembil Student Commons

Additional Recycling & Non-Audited Materials:

In addition to the materials observed during the audit, this site also has programs in place to divert scrap metal, organics (Student Centre, Marketplace, & Residences), fluorescent tubes, and e-waste. These materials were not audited. Based on the historical weight records, the volumes of these materials are presented in **Table 10**.

Table 10: Additional Recycling & Non-Audited Recycling Weights

Material Type	Daily Projection	Monthly Projections	Yearly Weight
Scrap Metal	86.33 kg	2,626.00 kg	31,512.00 kg
E-Waste	15.68 kg	477.00 kg	5,724.00 kg
Organics (Student Centre, Marketplace, & Residences)	4.35 kg	132.17 kg	1,586.00 kg
Fluorescent Tubes	0.50 kg	15.08 kg	180.98 kg
Total Weight	*106.86 kg*	*3,250.25 kg*	*39,002.98 kg*

5.3.2 - Contamination in Recycling

Of the materials staged for the audit, 31.05 kg of the bags labelled as recycling contained high levels of contamination and were counted instead as waste.

Figure 9 shows the amount of recycling bags with minimal or no contamination (Materials Counted as Recycling) compared to the bags of recycling with high levels of contamination (Contaminated Recycling). The overall contamination rate of the Materials Counted as Recycling was 3.78%. The weights of the Contaminated Recycling were added to the total waste weight in **Table 6**.

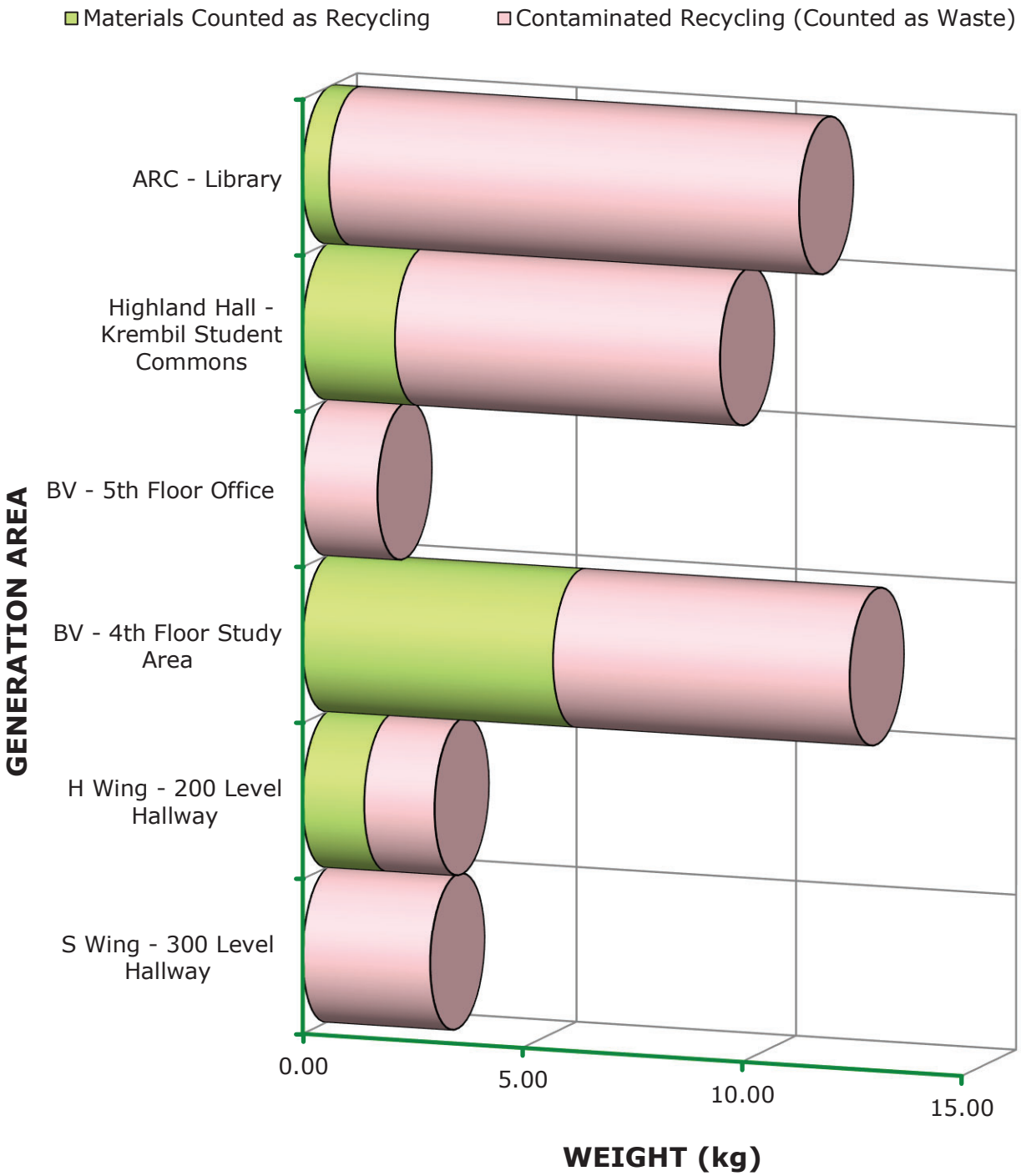

Figure 9: Recycling and Contaminated Recycling by Generation Area

Of the materials counted as recycling, **Figure 10** displays the contamination rate of each recycling stream by weight.

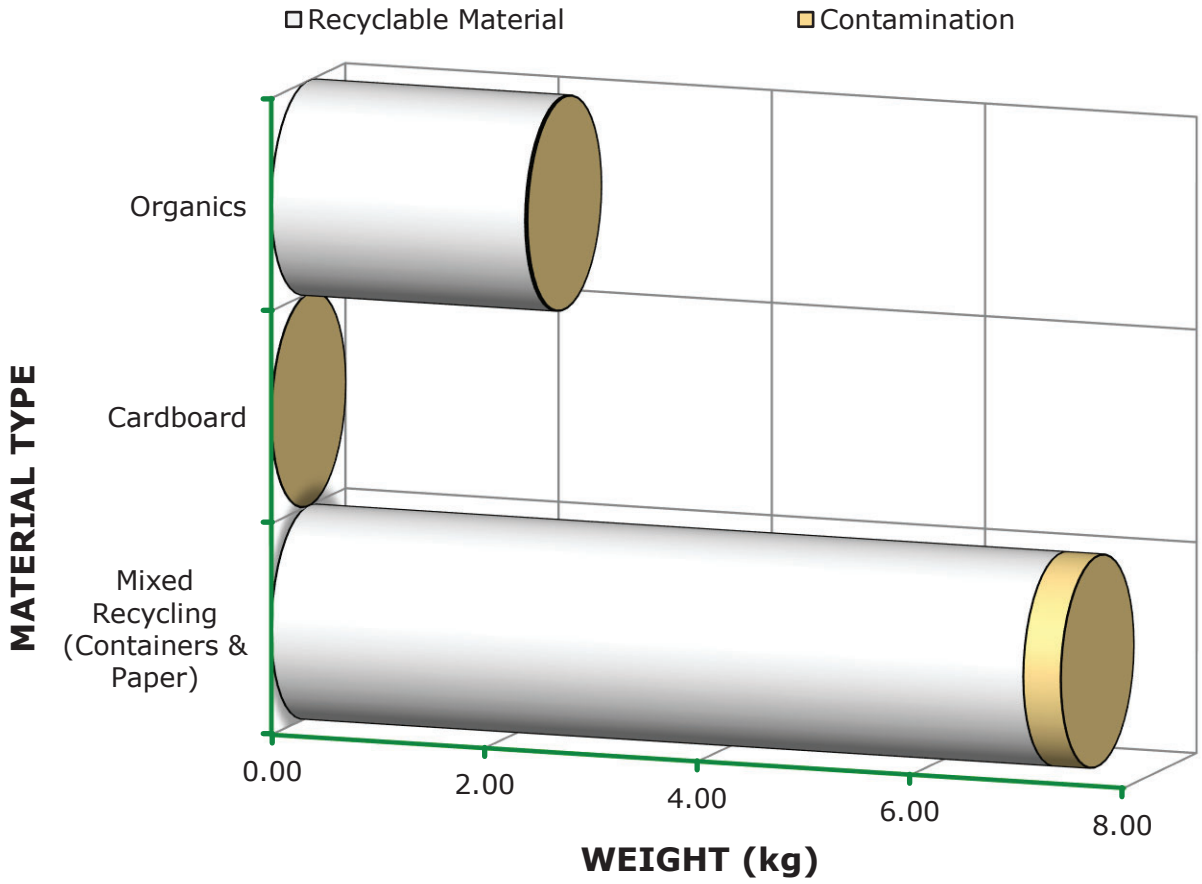

Figure 10: Contamination Rate by Recycling Stream

Mixing recyclables and disposing of waste in the recycling reduces the recyclability of paper, containers, cardboard, and organics and may result in the materials being disposed of as waste. The materials pictured below were staged as recycling but were considered waste due to the amount of contamination observed. Please refer to **Appendix C** for a list of materials accepted in the recycling.

ARC - Library

BV - 5th Floor Office

Ensuring proper signage is in place and that proper disposal bins are available will affect how much contamination enters a recycling stream. On-going cleaner, employees, and students education is recommended to ensure they are knowledgeable of the programs and acceptable materials lists.

6.0 – CONCLUSION

Overall, the findings presented within this waste audit report show that University of Toronto Scarborough is operating at a level above the MOE's interim targeted diversion rate of 50% by 2030[4].

The current diversion rate based upon the results of this report is 6.46%. This percentage increases to 45.12% when 'Additional Recycling' is included and would be even higher if cardboard material weights were included. Of the materials staged for recycling, 3.78% of the materials collected were considered to be contaminating the recycling streams.

Programs for increased waste diversion and waste reduction opportunities will be discussed in the Waste Reduction Work Plan presented alongside this report. The initiative that may have the greatest impact on waste diversion would be to capture more containers and paper from the waste stream and to reduce the amount of contamination in the recycling streams.

Combining different materials in the recycling stream should be discouraged as it reduces the quality of the recycled material. Communicating the need for greater participation and awareness with the existing recycling programs offered within this facility is also suggested. Monitoring all material programs with an intensified education and promotional campaign targeting specific department areas would improve the overall recycling program.

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

[4] Interim goals set forth in the Strategy for a Waste Free Ontario are 30% diversion by 2020, 50% diversion by 2030 and 80% diversion by 2050.

7.0 – WASTE REDUCTION WORK PLAN

A Waste Reduction Work Plan provides property managers with the ability to make continuous improvements to the facility's recycling programs and to monitor their effectiveness. However, it should be noted that recycling is just one way to reduce waste. To be effective the 3Rs should be incorporated into the daily activities of all buildings and employees, with an emphasis placed on reduction as the first option.

University of Toronto Scarborough is currently offering recycling programs for cardboard, paper, organics (pilot program), containers (cans/bottles/plastics), shredding, wood skids, scrap metal, batteries, e-waste, grease, fluorescent tubes, and C&D materials. The waste and recycling removal services are provided by **Wasteco** and third-party contractors **(Triple M Metal, GOAT Transport, Green Planet, Urban Street Organics, and others)**.

After reviewing the waste audit, the following work plan was formulated. The work plan refers to the observations and conclusions expressed within the waste audit report and opportunities for improving the waste management have been included. Please refer to **Appendix A** for the completed MOE Waste Audit and Waste Reduction Work Plan Forms and a single page summary to be posted on a public board.

Before any plan or action is undertaken, all parties associated with the waste and recycling program, including the employees and students and cleaners, should be contacted and made aware of the specifics of the change.

1. **Monitor the Recycling Streams for Contamination:** Mixing recyclables and disposing of waste in the recycling reduces the material quality and lessens the chances of materials being diverted from landfill. Working with cleaners and employees and students to ensure proper separation at the source is crucial. Spot checks of bins throughout the building and in collection areas like loading docks may help identify and reduce sources of contamination.

2. **Hold "Green Team" Meetings:** Establishing a "Green Team" with representatives from management, employees and students, and cleaning staff can increase engagement in the building's waste management and other sustainability initiatives. It is recommended that the "Green Team" should focus on educating employees and students, increasing awareness of the recycling programs in the building, and consistently monitoring the performance of the recycling programs.

3. **Educate Employees about the Recycling Programs**: The recycling programs rely on the occupants of a building to ensure proper source separation. Educating employees and students on the programs in the building and the processes of recycling can help to increase their participation and cut down on contamination at the source. Learning and engagement sessions are great opportunities to address any uncertainties regarding acceptable materials and debunk common myths and misconceptions involved in recycling and waste management.

4. **Monitor the Mixed Recycling (Paper & Containers) Recycling Program:** Mixed Recycling (Paper & Containers) accounted for 4.33% of the audited waste and could have been diverted if collected in the appropriate recycling bin. Continuous monitoring and education would help reduce the volume of recyclables going to landfill and this will in turn provide environmental and social benefits to the building.

5. **Increase Program Accountability**: Continual spot checks of the waste and recycling bins throughout the building combined with ongoing education can help keep the program current and fresh. It is beneficial to solicit feedback from cleaners and employees and students on

potential areas of improvement for the recycling programs. Once a problem area is identified continual follow-up and communication may be required to ensure that a solution is reached.

6. **Engage Cleaning Staff:** Cleaning and maintenance staff are the 'eyes' of the waste management program. They can help identify opportunities to improve recycling and note where equipment or signage is needed. Continuous education and engagement of the cleaning staff will help them with day-to-day monitoring of the waste and recycling programs. The cleaners should not be expected to separate recyclables from waste; only collect and stage the materials by stream.

7. **Communicate Program Updates to Cleaners and Employees:** What is accepted in recycling can change based on available technology and markets. Items such as coffee cups, paper towels, napkins, toilet paper, disposable masks, nitrile gloves, face shields, paper plates, coffee cup trays, biodegradable/compostable items, and soiled polystyrene food and beverage containers are not accepted in the recycling programs and should be disposed of as waste.

8. **Communicate Sustainability and Waste Management Successes with Occupants:** Linking waste audit results with University of Toronto Scarborough sustainability initiatives can help keep recycling and waste management at the forefront and reinforce sustainable practices in the facility. Material impact reports can also be posted for or shared with building occupants and can act as an ongoing tracker of the building's waste management.

9. **Consider Alternatives to Single Use Items:** Much of the waste observed during the audit included single use coffee cups, food containers, product packaging, disposable plates, and cutlery. Alternatives to single use items should be considered to decrease the amount of materials going to landfill. Employees and retailers should be encouraged to use ceramic dishware, refillable mugs and glasses, and reusable containers where possible.

10. **Promote Waste Reduction Benefits:** Reducing the amount of waste produced is by far the most effective way to counter the flow of garbage to landfill. Employees should be encouraged to purchase reusable materials in place of single use items, and use materials made of recycled materials and/or that were designed to break down easily in landfill. Moving to paperless operations or encouraging retailers to offer discounts for customers who bring in reusable containers are examples of initiatives which can reduce the amount of waste generated. If managed efficiently, waste reduction can result in cost savings, facilitate compliance with environmental legislation, improve brand reputation and improve morale.

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

APPENDICES

Appendix A

Ministry of the Environment, Conservation and Parks 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 Toronto Scarborough

Name of Contact Person:	**Telephone #:**	**Email address:**
Patricia Escobar, Sustainability Manager, University of Toronto Scarborough	647-549-4162	Patricia.escobar@utoronto.ca

Street Address(es) of Entity(ies): University of Toronto Scarborough

Municipality: Scarborough

Date: December 2022

		Type of Entity (check one)	
Retail Shopping Establishments		Hotels and Motels	
Retail Shopping Complexes		Hospitals	
Office Buildings		Educational Institutions	x
Restaurants		Large Manufacturing Establishments	

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

II. Description of Entity

Provide a brief overview of the entity(ties):

University of Toronto Scarborough is an educational institution managed by University of Toronto Scarborough in Scarborough, Ontario. The building has a total area of 147,610.73 square meters. There are approximately 11,947 full time students enrolled, about 1,142 full time employees, and 5 retailers. The educational institution typically operates 24 hours per day and 7 days per week and the offices and retailers operate 5 days per week.

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

Categories of Waste	How Is the Waste Produced and What Management Decisions/Policies Affect Its Production?
Aluminum food and beverage cans	Generated by occupants purchasing beverage containers in the building and by bringing containers from home and from purchasing outside the building.
Glass food and beverage bottles	(same as Aluminum food and beverage cans)
Steel food and beverage cans	(same as Aluminum food and beverage cans)
PET (#1) plastic food and beverage bottles	(same as Aluminum food and beverage cans)
HDPE (#2) plastic jugs, crates, totes and drums	(same as Aluminum food and beverage cans)
LDPE (#4) plastic film	(same as Aluminum food and beverage cans)
Polystyrene (#6)	(same as Aluminum food and beverage cans)
Other Plastics	(same as Aluminum food and beverage cans)
Cardboard	Cardboard is generated through occupants receiving new products from suppliers.
Paper Products Recycling Program: Fine paper, Newsprint, Boxboard shoe boxes, cereal boxes, etc., Glossy magazines, catalogues, flyers	Office paper is generated by occupants printing documents on the printers and from incoming faxes and mailings.
Paper Towels	Generated by occupants in the washrooms, washing areas and fitness areas.
Confidential Shredding	Shredding is generated by occupants when they dispose of confidential documents.
Organics	Generated by occupants eating/preparing food in the building and by food retailers, restaurants and/or food service areas.
Scrap Wood	Generated by occupants or by contractors during renovations and construction.
Wood Skids	Generated on by suppliers bringing materials into the building.
Toner Cartridges	Generated by occupants.
Scrap Metal	Generated by occupants or by contractors.
Construction/Demolition Material	Generated by contractors. Contractors must dispose of this material responsibly.
Batteries	Generated by occupants. Batteries are used in electronic equipment.
Drywall	Generated by contractors. Contractors must dispose of this material responsibly.
Furniture	Generated by occupants when furniture is no longer usable or is upgraded.
Electronic Waste	Generated by occupants.
Clothing/textiles	Generated in small volumes by cleaning staff and retailers. Employees may also occasionally dispose of clothing/textiles.
Grease	Generated by occupants eating/preparing food in the building and by food retailers, restaurants and/or food service areas.
Fluorescent Tubes	Generated throughout building.

IV. Management of Waste

Category	Waste to be Disposed	Reused or Recycled Waste
Aluminum food and beverage cans	Material is periodically disposed of as waste due to inconsistent practices by occupants within the facility.	Occupants place in designated recycling containers provided. Cleaners are responsible for collecting and staging for pickup.
Glass food and beverage bottles	(same as Aluminum food and beverage cans)	(same as Aluminum food and beverage cans)
Steel food and beverage cans	(same as Aluminum food and beverage cans)	(same as Aluminum food and beverage cans)
PET (#1) plastic food and beverage bottles	(same as Aluminum food and beverage cans)	(same as Aluminum food and beverage cans)
HDPE (#2) plastic jugs, crates, totes and drums	(same as Aluminum food and beverage cans)	(same as Aluminum food and beverage cans)
LDPE (#4) plastic film	(same as Aluminum food and beverage cans)	(same as Aluminum food and beverage cans)
Polystyrene (#6)	(same as Aluminum food and beverage cans)	(same as Aluminum food and beverage cans)
Other Plastics	(same as Aluminum food and beverage cans)	(same as Aluminum food and beverage cans)
Cardboard	Material is periodically disposed of as waste due to inconsistent practices by occupants within the facility.	Occupants place in designated recycling containers/collection areas provided. Cleaners are responsible for collecting and staging for pickup.
Paper Products Recycling Program: Fine paper, Newsprint, Boxboard shoe boxes, cereal boxes, etc., Glossy magazines, catalogues, flyers	Material is periodically disposed of as waste due to inconsistent practices by occupants within the facility.	Occupants place in designated recycling containers provided. Cleaners are responsible for collecting and staging for pickup.
Paper Towels	Material is disposed of as waste.	Material is disposed of as waste. Occupants are encouraged to reduce the use of paper towels.
Confidential Shredding	Collected separately for recycling.	Occupants place material in shredding bin to be destroyed by a secure contractor.
Organics	Material is periodically disposed of as waste due to inconsistent practices by occupants within the facility.	Occupants place in containers provided. Cleaners are responsible for collecting and staging for pickup.
Scrap Wood	Material is disposed of as waste.	Material is disposed of as waste.
Wood Skids	Collected separately for reuse or recycling.	There is a take a skid leave a skid policy in place or skids are returned to suppliers for reuse.
Toner Cartridges	Material is disposed of as waste.	Material is disposed of as waste.
Scrap Metal	Collected separately for recycling.	Scrap metal is stored for recycling until arrangements are made for

		material to be picked up by Triple M Metal.
Construction/Demolition Material	Collected separately by contractors for disposal.	If there is a construction project, contractors must dispose of this material responsibly.
Batteries	Collected separately for recycling.	Occupants place batteries in designated bins. Batteries are stored until arrangements are made for material to be picked up by a licensed collector.
Drywall	Collected separately by contractors for disposal.	If there is a construction project, contractors must dispose of this material responsibly.
Furniture	Material is disposed of as waste.	Material is disposed of as waste.
Electronic Waste	Collected separately for recycling.	Occupants place e-waste in designated bins until arrangements are made for material to be picked up by GOAT Transport.
Clothing/textiles	Material is disposed of as waste.	Material is disposed of as waste.
Grease	Collected separately for recycling.	Grease is stored until arrangements are made for material to be picked up by Green Planet.
Fluorescent Tubes	Collected separately for recycling.	Fluorescent tubes are stored until arrangements are made for material to be picked up by a licensed collector.

V. Estimated Quantity of Waste Produced Annually[5]

	Estimated Amount of Waste Produced in Metric Tonnes											
	Generated			Reused			Recycled			Disposed		
Categories of Waste	"A" Base Year 2021	"B" * Current Year 2022	"C" * Change (A-B)	"A" Base Year 2021	"B" * Current Year 2022	"C" * Change (A-B)	"A" Base Year 2021	"B" * Current Year 2022	"C" * Change (A-B)	"A" Base Year 2021	"B" * Current Year 2022	"C" * Change (A-B)
Aluminum food and beverage cans	4.88		4.88				3.61		3.61	1.27		1.27
Glass food and beverage bottles	11.38		11.38				8.42		8.42	2.96		2.96
Steel food and beverage cans	3.25		3.25				2.41		2.41	0.84		0.84
PET (#1) plastic food and beverage bottles	2.60		2.60				1.93		1.93	0.68		0.68
HDPE (#2) plastic jugs, crates, totes and drums	2.60		2.60				1.93		1.93	0.68		0.68
LDPE (#4) plastic film	0.65		0.65				0.48		0.48	0.17		0.17
Polystyrene (#6)	0.65		0.65				0.48		0.48	0.17		0.17
Other Plastics	6.50		6.50				4.81		4.81	1.69		1.69
Cardboard	1.64		1.64				0.00		0.00	1.64		1.64
Paper Products	16.04		16.04				16.04		16.04	0.00		0.00
Washroom Paper Hand Towels	0.00		0.00				0.00		0.00	0.00		0.00
Confidential Shredding	0.00		0.00				0.00		0.00	0.00		0.00
Organics	1.59		1.59				1.59		1.59	0.00		0.00
Scrap Wood	0.00		0.00				0.00		0.00	0.00		0.00
Wood Skids	0.00		0.00				0.00		0.00	0.00		0.00
Toner Cartridges	0.00		0.00				0.00		0.00	0.00		0.00
Scrap Metal	31.51		31.51				31.51		31.51	0.00		0.00
Construction and Demolition	0.00		0.00				0.00		0.00	0.00		0.00
Batteries	0.00		0.00				0.00		0.00	0.00		0.00
Drywall	0.00		0.00				0.00		0.00	0.00		0.00
Office Furniture	0.00		0.00				0.00		0.00	0.00		0.00
E-waste	5.72		5.72				5.72		5.72	0.00		0.00
Clothing/textiles	0.00		0.00				0.00		0.00	0.00		0.00
Grease	0.00		0.00				0.00		0.00	0.00		0.00
Fluorescent tubes	0.18		0.18				0.18		0.18	0.00		0.00
Non-Recyclable Waste	200.06		200.06				0.00		0.00	200.06		200.06
Total	**289.26**	**0.00**	**289.26**	**0.00**	**0.00**	**0.00**	**79.11**	**0.00**	**79.11**	**210.15**	**0.00**	**210.15**
Percent Change (total C ÷ total A x 100)			**100.00%**			**0.00%**			**100.00%**			**100.00%**

Note: When completing this form, write "n/a" in the "Estimated Amount of Waste Produced" column where the entity will not produce any waste for a category of waste.
* Fill out these columns each year following the initial Waste Audit or baseline year to determine the progress that is being made by your waste reduction program.

[5] Historical weight records have been used to populate this table. The base year period is from September 1, 2021 to August 31, 2022.

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

Please answer the following questions:

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

   Yes. University of Toronto Scarborough has 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. UTSC does not sell any bottled water on campus.

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

   Yes. UTSC is evaluating alternative packaging options for food products to reduce the use of single use plastics in packaged foods.

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

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

I hereby certify that the information provided in this Report of Waste Audit is complete and correct.		
Signature of authorized official:	**Title:**	**Date:**

Ministry of the Environment, Conservation and Parks 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 Toronto Scarborough

Name of Contact Person:	**Telephone #:**	**Email address:**
Patricia Escobar, Sustainability Manager, University of Toronto Scarborough	647-549-4162	Patricia.escobar@utoronto.ca

Street Address(es) of Entity(ies): University of Toronto Scarborough

Municipality: Scarborough

Date: December 2022

		Type of Entity (check one)	
Retail Shopping Establishments		Hotels and Motels	
Retail Shopping Complexes		Hospitals	
Office Buildings		Educational Institutions	x
Restaurants		Large Manufacturing Establishments	

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 Toronto Scarborough is an educational institution managed by University of Toronto Scarborough in Scarborough, Ontario. The building has a total area of 147,610.73 square meters. There are approximately 11,947 full time students enrolled, about 1,142 full time employees, and 5 retailers. The educational institution typically operates 24 hours per day and 7 days per week and the offices and retailers operate 5 days per week.

III. Plans to Reduce, Reuse and Recycle Waste

Waste Category (as stated in Part V of your "Report of a Waste Audit")	**Source Separation and 3Rs Program**
Aluminum food and beverage cans	**Reduce**: Occupants will be encouraged to use travel mugs and bottles, instead of single use cups. **Reuse**: Occupants will be encouraged to use ceramic mugs and glasses instead of single use plastics and paper cups. **Recycle**: Occupants will be provided with instructions via email. Receptacles will be provided. Occupants will place material into appropriate receptacle which will be collected by cleaners and staged in the building's collection area for collection by recycling company.
Glass food and beverage bottles	(Same as Aluminum food and beverage cans)
Steel food and beverage cans	(Same as Aluminum food and beverage cans)
PET (#1) plastic food and beverage bottles	(Same as Aluminum food and beverage cans)
HDPE (#2) plastic jugs, crates, totes and drums	(Same as Aluminum food and beverage cans)
LDPE (#4) plastic film	(Same as Aluminum food and beverage cans)
Polystyrene (#6)	(Same as Aluminum food and beverage cans)
Other Plastics	(Same as Aluminum food and beverage cans)
Cardboard	**Recycle**: Occupants will be provided with instructions via email. Receptacles or collection instructions will be provided to occupants. Occupants will place material into appropriate receptacle which will be collected by cleaners and staged in the building's collection area for collection by recycling company.
Paper	**Reduce:** Occupants will be encouraged to print on both sides of each sheet or move to paperless operations where possible. **Reuse:** Discarded paper with print only on one side will be used for note pads/scrap. **Recycle**: Occupants will be provided with instructions via email. Receptacles will be provided. Occupants will place material into appropriate receptacle which will be collected by cleaners and staged in the building's collection area for collection by recycling company.
Washroom Paper Hand Towels	**Reduce:** Occupants will be encouraged to reduce the use of paper hand towels where possible. Hand dryers or cloth towels may be considered as alternatives where safe and hygienic.
Confidential Shredding	**Recycle:** Occupants will place material into shredding bin to be destroyed by a secure contractor.
Organics	**Recycle**: Occupants will be provided with instructions via email. Receptacles will be provided. Occupants will place material into appropriate receptacle which will be collected by cleaners and staged in the building's collection area for collection by recycling company.
Scrap Wood	N/A
Wood Skids	**Reuse**: Contractors and suppliers are encouraged to take a skid for reuse when they leave a skid. **Recycle**: All skids that are not in reusable condition will be sent to a skid recycler.
Toner Cartridges	N/A

Scrap Metal	**Recycle**: Scrap metal is collected in a separate bin and recycled responsibly.
Construction/Demolition Material	**Recycle**: Contractors are to ensure that construction/demolition materials are collected in a bin and recycled responsibly.
Batteries	**Reuse**: Occupants will be encouraged to use rechargeable batteries. **Recycle**: Batteries are recycled through a licensed collector.
Drywall	**Recycle**: Contractors are to ensure that drywall is collected in a bin and recycled responsibly.
Furniture	N/A
Electronic Waste	**Recycle:** E-waste is recycled through a licensed collector.
Clothing/textiles	N/A
Grease	**Recycle**: Grease is recycled through a licensed collector.
Fluorescent Tubes	**Recycle**: Fluorescent tubes are recycled through a licensed collector.

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 #
Patricia Escobar Sustainability Manager University of Toronto Scarborough	Implement and monitor program	647-549-4162
Cleaning Representative	Monitor program	N/A

V. Timetable for Implementing Waste Reduction Work Plan

Source Separation and 3Rs Program	Schedule for Completion
Aluminum food and beverage cans	An equipment survey will be conducted to ensure that all occupants have the proper containers receptacles along with the proper labeling and signs. This will be completed by **May 2023**.
Glass food and beverage bottles	(Same as Aluminum food and beverage cans)
Steel food and beverage cans	(Same as Aluminum food and beverage cans)
PET (#1) plastic food and beverage bottles	(Same as Aluminum food and beverage cans)
HDPE (#2) plastic jugs, crates, totes and drums	(Same as Aluminum food and beverage cans)
LDPE (#4) plastic film	(Same as Aluminum food and beverage cans)
Polystyrene (#6)	(Same as Aluminum food and beverage cans)
Other Plastics	(Same as Aluminum food and beverage cans)
Cardboard	Memos will be sent out to ensure that all occupants know where cardboard is to be staged. This will be completed by **May 2023**.
Paper Products Recycling Program: Fine paper, Newsprint, Boxboard shoe boxes, cereal boxes,	An equipment survey will be conducted to ensure that all occupants have the proper paper receptacles along with the proper labeling and signs. This will be completed by **May 2023**.

etc., Glossy magazines, catalogues, flyers	
Washroom Paper Hand Towels	N/A
Confidential Shredding	Complete. Shredding is removed from the facility by a secure contractor.
Organics	An equipment survey will be conducted to ensure that occupants have the proper organics receptacles along with the proper labeling and signs. This will be completed by **May 2023**.
Scrap Wood	N/A
Wood Skids	Complete. Skids are taken back by contractors and suppliers. Leave a skid take a skid policy.
Toner Cartridges	N/A
Scrap Metal	Complete. Scrap metal is collected and recycled responsibly.
Construction/Demolition Material	Complete. Construction/demolition materials are collected by contractors when generated and recycled responsibly.
Batteries	Complete. Batteries are collected by a licensed collector for recycling.
Drywall	Complete. Drywall is collected by contractors when generated and recycled responsibly.
Furniture	N/A
Electronic Waste	Complete. E-waste is collected by a licensed collector for recycling.
Clothing/textiles	N/A
Grease	Complete. Grease is collected by a licensed collector for recycling.
Fluorescent Tubes	Complete. All lights and ballasts are collected by a licensed collector for recycling.

VI. Communication to Staff, Customers, Guests and Visitors

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

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

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

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

The Waste Reduction Work Plan will also be posted on a notice board in a public area on site.

VII. Estimated Waste Produced by Material Type and the Projected Amount (in Tonnes)

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**	
Aluminum Cans	4.88	Aluminum Cans	0.49	0.24	3.41	85%
Glass Bottles	11.38	Glass Bottles	1.14	0.57	7.97	85%
Steel cans	3.25	Steel cans	0.33	0.16	2.28	85%
PET (#1)	2.60	PET (#1)	0.26	0.13	1.82	85%
HDPE (#2)	2.60	HDPE (#2)	0.26	0.13	1.82	85%
LDPE (#4)	0.65	LDPE (#4)	0.07	0.03	0.46	85%
Polystyrene (#6)	0.65	Polystyrene (#6)	0.07	0.03	0.46	85%
Other Plastics	6.50	Other Plastics	0.65	0.33	4.55	85%
Cardboard	1.64	Cardboard	0.16	0.08	1.39	100%
Paper Products	16.04	Paper Products	1.60	0.80	12.84	95%
Washroom Paper Hand Towels	0.00	Washroom Paper Hand Towels	0.00	0.00	0.00	0%
Confidential Shredding	0.00	Confidential Shredding	0.00	0.00	0.00	100%
Organics	1.59	Organics	0.16	0.00	1.03	75%
Scrap Wood	0.00	Scrap Wood	0.00	0.00	0.00	100%
Wood Skids	0.00	Wood Skids	0.00	0.00	0.00	100%
Toner Cartridges	0.00	Toner Cartridges	0.00	0.00	0.00	100%
Scrap Metal	31.51	Scrap Metal	3.15	1.58	26.79	100%
Construction and Demolition	0.00	Construction and Demolition	0.00	0.00	0.00	100%
Batteries	0.00	Batteries	0.00	0.00	0.00	100%
Drywall	0.00	Drywall	0.00	0.00	0.00	100%
Furniture	0.00	Furniture	0.00	0.00	0.00	100%
Electronic waste	5.72	Electronic waste	0.57	0.29	4.87	100%
Clothing/textiles	0.00	Clothing/textiles	0.00	0.00	0.00	100%
Grease	0.00	Grease	0.00	0.00	0.00	100%
Fluorescent tubes	0.18	Fluorescent tubes	0.02	0.01	0.15	100%

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

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

Signature of authorized official:	**Title:**	**Date:**

Confidential

University of Toronto Scarborough
Waste Reduction Work Plan Summary
December 2022 – December 2023

Recently, a waste audit was conducted at University of Toronto Scarborough in order to maintain compliance with Ontario Regulation 102/94 (Waste Audits and Waste Reduction Work Plans) of the Environmental Protection Act.

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

A Waste Reduction Work Plan provides property management and the occupants with the ability to make continuous improvements to the facility's recycling programs and to monitor their effectiveness. This plan reviews ways the building can reduce, reuse, and recycle all materials disposed. This includes containers, cardboard, organics, paper, shredding, wood skids, scrap metal, batteries, e-waste, grease, fluorescent tubes, and C&D materials.

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

1. Monitor the recycling streams for contamination.
2. Hold "Green Team" student committee meetings.
3. Educate employees about the recycling programs.

If you would like to review the full Waste Reduction Work Plan for University of Toronto Scarborough, please contact property management.

Thank you for your continued efforts to reduce, reuse, and recycle.

TRIM YOUR WASTE

Appendix B

Waste and Recycling Management

Additional Recycling Programs (Wasteco and/or Third Party Collection)

Material Type	Available to Employees/Students
Shredding	Yes
Wood Skids	Yes
Scrap Metal	Yes
Batteries	Yes
E-Waste	Yes
Grease	Yes
Fluorescent Tubes	Yes
C&D Materials	Yes

*For program schedules and bin types, please contact UTSC for more information.

Appendix C

Material List (Wasteco)

Containers	**Accepted:** Glass bottles, pop cans, food cans, aluminum cans, plastic bottles, milk and drink cartons, tetra paks, plastics #1 to #2, hard plastics in clear or light colours
	Not Accepted: Coffee cups, straws, plastic cutlery, biodegrade/compostable items, plastic film, soiled polystyrene containers, black or dark plastics, plastic/mylar bags
Cardboard	**Accepted:** Corrugated boxes, pizza boxes free of organic materials, corrugated cardboard packaging
	Not Accepted: Waxed cardboard, corrugated boxes containing non-cardboard materials (i.e. packaging materials, coffee containers, organics, bottles)
Organics	**Accepted:** Pre- and post-consumer food such as fruit, vegetable scraps, meat, fish, bones, pasta, bread, cereal, dairy products, eggs, coffee grounds, coffee filters, tea bags, candies, cookies, cake
	Not Accepted: Paper towels, napkins, biodegradable/compostable items, wooden stir sticks, coffee cups, food prep materials (wax/parchment paper, food packaging, etc.), disposable plates
Paper Products	**Accepted:** Fine paper, envelopes, file folders, post-it notes, newspaper, magazines, boxboard, and kraft paper
	Not Accepted: Paper towels, napkins, coated paper products, coffee trays, egg cartons, padded envelopes, disposable plates
Waste	**Accepted:** Non-recyclable materials such as single use food and beverage containers, creamers/milkettes, plastic utensils, paper towels and napkins, soiled polystyrene, wood and plastic stir sticks, coffee trays, plastic film, plastic bags, black plastics, compostable/biodegradable containers and products
	Not Accepted: Biohazardous materials, sharps, batteries, light tubes, C&D materials, bulk items

Appendix D

Additional Recyclable Material List

Material	Recycling
Batteries: Alkaline, lead acid, lithium, mercury, nickel, cadmium and silver oxide batteries, cell phone	All batteries should be diverted from waste and staged separately from all other materials. Batteries are required to be sent to an authorized material handler and recycler.
Carpet	Usually generated when existing carpet is damaged or replaced. The material may be diverted for recycling where a solution is available.
Cigarette Butts	Cigarette butt collection programs are available to ensure the material is disposed of securely.
Coffee Pods	Individual coffee pods used with single brew coffee machines. Some suppliers will collect used pods and third-party collection programs may also be available.
Construction and Demolition (C&D) Materials: Brick, concrete, asphalt, drywall, ceiling tiles, etc.	C&D material should not be discarded with the regular disposal if in large quantities. If generated during a renovation, the contractor should be responsible for the appropriate disposal.
Electronic Waste (E-waste): Computers, fax machines, photocopiers, printers, keyboards, servers, monitors, cabling, etc.…	Electronic materials should be kept aside for appropriate disposal. This can be done through an authorized Ontario Electronic Stewardship processor.
Fluorescent Tubes: Light tubes, bulbs, ballasts, etc.	All lighting tubes, bulbs and ballasts should be diverted for appropriate disposal and recycling by a licensed collector.
Furniture: Desks, tables, chairs, etc.…	Furniture may be diverted for re-use/donation or recycling.
Grease/Oil	There are many companies that provide recycling solutions for cooking grease, oils and fats.
Media	Media items containing confidential information should be kept aside for secure disposal by a National Association of Information Destruction Inc. (NAID) certified company.
Metal (Scrap): Metal cabinets, aluminum, copper, brass	Scrap metal may be saved and staged for a designated pick-up forwarding the material to an authorized metal recycler.
Toner/Printer Cartridges: Laser, inkjet	Some suppliers offer an exchange program, removing used cartridges when new ones are delivered.
Wooden Pallets/Skid	Whenever possible, all pallets should be returned to the delivery service. If immediate unpacking is not available, a "leave a skid, take a skid" policy should be enforced. If there is a considerable volume of pallets generated monthly, a separate material stream diversion program should be implemented where the pallets are forwarded to an authorized pallet recycling company for repair and re-use.

Appendix E

Glossary of Terms

Capture Rate:
Capture rate is the percentage of recyclable materials that are diverted from landfill and captured in the recycling stream. Capture rates measure the effectiveness of a recycling program. Achieving a capture rate of 100% requires that all recyclables be placed in the appropriate recycling stream and that the waste stream consist solely of non-recyclable residual materials. The capture rate does not include Additional Recycling or Non-Audited Materials including cardboard.

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

Contamination Rate:
Contamination rate measures the degree to which materials are placed in the incorrect recycling stream. Achieving a contamination rate of 0% requires all recyclable items to be collected separately in the correct stream and be free of non-recyclable waste items.

Diversion Rate:
The diversion rate reflects the percentage of all outgoing materials diverted through recycling, reuse or recovery from those disposed of as landfill. Achieving a diversion rate of 100% requires that all outgoing material be recyclable and placed in the recycling stream or diverted from landfill by other means, in other words no residual waste materials.

$$\frac{\text{Total Weight of Recycling}}{\text{Total Weight of Recycling + Total Waste}} \times 100 = \textbf{Diversion Rate (\%)}$$

Landfill:
A site to dispose of refuse and other waste material by burying it.

Recycling:
The process by which materials otherwise destined for disposal are collected and reprocessed into a new material.

Waste:
A material, substance, or by-product eliminated or discarded as no longer useful or required.

Waste Diversion:
The redirection of waste material that was landfill bound through reuse, recycling, or recovery of that material.

Appendix F

Scale Calibration

Wasteco
Making a Material Difference

CERTIFICATE OF CALIBRATION

Date: December 2, 2022

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

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

Rubbermaid 4010-88 Digital Receiving Scale

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

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

Next calibration date: May 2, 2023

Wasteco Waste Audit and Sustainability Services Department — December 2, 2022