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# 2024 WASTE AUDIT REPORT

**February 2024**

GOLD REPORT

Prepared for
University of Toronto
UofT Scarborough
1295-1307 Military Trail
Scarborough, Ontario
M1C 1A5

Prepared by
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# EXECUTIVE SUMMARY

Waste Solutions conducted a waste audit at UofT Scarborough for University of Toronto to achieve compliance with *Ontario Regulation 102/94: Waste Audits and Waste Reduction Work Plans* (Ontario Regulation 102/94) and *Ontario Regulation 103/94* set by the Ministry of the Environment, Conservation and Parks (MECP).

The audit was conducted on February 1, 2024, and followed the Recycling Council of Ontario's (RCO) Standard Waste Audit Methodology (SWAM). Waste Solutions analyzed a 24-hour sample of waste that consisted of all the non-hazardous, solid waste generated from regular activities at the site, including waste destined for reuse, recycle, and disposal. Table 1 provides a summary of the audit findings.

*Table 1. Summary of audit findings.*

| | SAMPLE VALUE | ANNUAL VALUE |
|---|---|---|
| TOTAL WASTE GENERATED | 382.83 kg | 398,504.77 kg |
| TOTAL WASTE SENT TO LANDFILL | 126.12 kg | 284,150.00 kg |
| TOTAL WASTE DIVERTED FROM LANDFILL | 217.03 kg | 88,538.30 kg |
| TOTAL CONTAMINATION | 39.68 kg | 25,816.47 kg |
| OVERALL CONTAMINATION RATE | 22.58% | |
| OVERALL DIVERSION RATE | 22.22% | |
| OVERALL CAPTURE RATE | 37.04% | |

*See **Appendix C: Waste Audit Calculations** for the definitions and formulas for the various rates calculated within this table.*

In addition, Waste Solutions observed the site's current waste collection, handling, and storage practices, as well as the organization's culture and attitude towards sustainability and waste diversion.

Using the information gathered through the site observations and the waste audit, Waste Solutions created meaningful recommendations to increase the site's diversion and capture rates; improve on-site waste collection and handling processes; and inspire change within the culture of the organization. The following recommendations were created for University of Toronto:

1. Optimize Diversion Streams
2. Reduce Waste Generated Onsite
3. Employee Education and Engagement

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# 1.0 INTRODUCTION

On February 1, 2024, Waste Solutions conducted a waste audit of UofT Scarborough, located at 1295-1307 Military Trail, Scarborough, Ontario, on behalf of University of Toronto. Table 2 provides a description of the site.

The purpose of the audit and this waste audit report is to achieve compliance with *Ontario Regulation 102/94: Waste Audits and Waste Reduction Work Plans* (Ontario Regulation 102/94), and assess compliance with *Ontario Regulation 103/94: Industrial, Commercial and Institutional Source Separation Programs* (Ontario Regulation 103/94). Additionally, Waste Solutions evaluated whether UofT Scarborough complies with the acceptance criteria set by the site's waste haulers.

The waste audit was completed as per the Standard Waste Audit Methodology (SWAM) set by the Recycling Council of Ontario (RCO).

*Table 2. Description of the site.*

| | DESCRIPTION |
|---|---|
| Name of Site | UofT Scarborough |
| Site Address | 1295-1307 Military Trail, Scarborough, Ontario |
| Size of Site | 1,582,000 $ft^2$ |
| Type of Establishment | Educational Institution |

The following audit was designed to exceed the minimum guidelines for waste audits as set forth by Canadian provincial regulatory authorities. The conclusions, observations, and recommendations contained in the report represent the opinions of Waste Solutions. The information in this report was provided to Waste Solutions by the client, its representatives, and partners. As a result, Waste Solutions has relied on the information to be accurate and for which no assurances are intended, and no representations or warranties are made. This report and the information contained herein is produced for the expressed use of University of Toronto and the Ministry of the Environment, Conservation and Parks. Waste Solutions prohibits redistribution of this report and the material contained herein in whole or part without expressed written permission of Waste Solutions.

## 1.1 AUDIT SCOPE

Waste Solutions conducted a waste audit of UofT Scarborough, located at 1295-1307 Military Trail, Scarborough, Ontario, on February 1, 2024. Waste Solutions analyzed a 24-hour sample of waste that consisted of all the non-hazardous, solid waste generated from regular activities at the site between 7:00 a.m. on January 31 and 7:00 a.m. on February 1, 2024.

Waste excluded from the audit included:

1. hazardous waste;
2. non-solid waste; and
3. temporary waste generation not representative of a typical day at the site.

## 1.2 AUDIT OBJECTIVES

The main objectives of the audit were to:

1. Achieve compliance with Ontario Regulation 102/94 by conducting a waste audit on a representative sample of waste generated at the site under normal operating conditions.
2. Confirm effective implementation of a source separation program in compliance with Ontario Regulation 103/94.
3. Identify if the site meets the waste hauler's acceptance criteria, including the allowable contamination limits and storage methods.
4. Recommend initiatives to increase the site's diversion and capture rates; improve on-site waste collection and handling processes; and inspire change within the culture of the organization.

## 1.3 AUDIT CRITERIA: ONTARIO REGULATION 102/94 AND 103/94

Ontario Regulation 102/94 requires operator of an educational institution that at any time during the calendar year, more than 350 persons are enrolled to annually complete a waste audit and implement a waste reduction work plan.

Under Ontario Regulation 102/94, the audit must 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 (Ontario Regulation 102/94, s. 2.).

Ontario Regulation 103/94 requires the operator of an educational institution that at any time during the calendar year, more than 350 persons are enrolled to implement a source separation program for the following materials:

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 beverage
5. Newsprint
6. Steel food or beverage cans (including cans made primarily of steel)

## 1.4 WASTE STREAMS OPERATING ONSITE

The current waste collection and handling equipment utilized at the site are outlined in Table 3.

*Table 3. The site's waste collection and handling equipment.*

| EQUIPMENT | STREAM | HAULER |
|---|---|---|
| N/A | Mixed Waste | N/A |
| 1 x 20-yard bin | Cardboard Recycling Stream | Cascades |
| 1 x 20-gallon totes | Mixed Recycling Stream | City of Toronto |
| 1 x 20-yard bin | Containers (Cans & Bottles) Recycling Stream | |
| 4 x 32-gallon totes | Composting Stream | Urban Street Organics |
| 1 x 20-yard bin | Scrap Metal Recycling Stream | Triple M |
| N/A | Electronic Waste Recycling Stream | GOAT |
| | Light Bulb Recycling | N/A |
| | Clothing Donations | |
| 2 x 32-gallon oil drums | Cooking Oil | Green Planet |

## 2.0 SOURCE SEPARATION PROGRAM

University of Toronto has implemented a source separation program in compliance with Ontario Regulation 103/94. Table 4 indicates what materials are currently source separated for diversion at the site.

*Table 4. Material categories that are source separated at the site.*

| DIVERTIBLE MATERIAL CATEGORIES | IS SOURCE SEPARATION REQUIRED BY ONTARIO REGULATION 103/94? | IS THE MATERIAL CURRENTLY SOURCE SEPARATED? |
|---|---|---|
| PET #1 | | ✓ |
| HDPE #2 | | ✓ |
| LDPE #4 | | ✓ |
| PP #5 | | ✓ |
| PS-C #6 | | ✓ |
| Aluminum | ✓ | ✓ |
| Steel | ✓ | ✓ |
| Glass | ✓ | ✓ |
| Gable Top Containers | | ✓ |
| Tetra Pak Containers | | ✓ |
| OCC | ✓ | ✓ |
| Boxboard | | ✓ |
| Fine Paper | ✓ | ✓ |
| Newsprint | ✓ | ✓ |
| Food Waste | | ✓ |

# 3.0 METHODOLOGY



## 3.1 COLLECTION PERIOD

From 7:00 a.m. on January 31 to 7:00 a.m. on February 1, 2024, staff collected all the non-hazardous, solid waste generated at UofT Scarborough.

Staff were instructed to label each bag of waste with:

1. the collection location (i.e. the area of the building the bag was collected from); and
2. the waste stream (i.e. waste to landfill, mixed recycling, composting).


## 3.2 SITE REVIEW

Waste Solutions conducted a site review with University of Toronto management to gain a better understanding of how waste is generated and managed at UofT Scarborough.


## 3.3 WASTE ANALYSIS

Once on-site, Waste Solutions weighed and analyzed the 24-hour waste sample to determine the amount, nature, and composition of the waste generated at UofT Scarborough. Waste during the audit process is classified into the material categories stated in Table 5. The middle column of Table 5, “Colour,” indicates the colour used to represent each material category in the graphs within the Waste Audit Result figures.

*Table 5. The material categories used to classify waste at the audit.*

| TYPE OF WASTE | COLOUR | MATERIAL CATEGORY |
|---|---|---|
| Recyclable Material | | Polyethylene terephthalate (PET #1) |
| | | High-density polyethylene (HDPE #2) |
| | | Low-density polyethylene (LDPE #4) |
| | | Polypropylene (PP #5) |
| | | Condensed polystyrene (PS-C #6) |
| | | Aluminum |
| | | Steel |
| | | Glass |
| | | Polycoat Materials |
| | | Refundable Blue Containers |
| | | Electronic Waste |
| | | Scrap Metal |
| | | Cardboard (OCC) |
| | | Boxboard |
| | | Paper |
| Organic Material | | Tissue/Paper Towel |
| | | Solid food waste (Food waste) |
| | | Other Organics |
| Mixed Waste | | Polyvinyl chloride (PVC #3) |
| | | Other plastic (P #7) |
| | | Disposable food packaging (DFP) |
| | | Coffee cups |
| | | Textiles |
| | | Personal Protective Equipment |
| | | Non-Recyclable Packaging |
| | | Other Waste[1] |

[1]*The "Other Waste" category is comprised of: sanitary pads, foam, and label backing.*


## 3.4 ANNUAL CALCULATIONS

Following the on-site visit, Waste Solutions calculated the annual amount (in kilograms) of waste generated, diverted, and disposed of at UofT Scarborough.

The annual weights of the following streams were calculated using data provided by the hauler. The data represents the waste generated from November 2022 to October 2023.

- Waste to Landfill
- Cardboard Recycling Stream
- Mixed Recycling Stream
- Containers (Refundable) Recycling Stream
- Organics Composting Stream
- Scrap Metal Recycling Stream
- Electronic Waste Recycling Stream

*See **Appendix B: Annual Data Calculations** for a specific breakdown of Waste Solutions data annualization methods.*


## 3.5 CREATION OF RECOMMENDATIONS

Lastly, Waste Solutions created unique recommendations to increase the site's diversion and capture rates; improve on-site waste collection and handling processes; and inspire change within the culture of the organization.

## 3.6 STATEMENT OF SAMPLING LIMITATIONS

Data collected during the on-site audit are based on the samples analyzed and information reviewed. While effort was taken to ensure data was representative of a typical day, it must be noted that the accuracy of all data is limited by these assumptions and cannot be absolute.

Specifically, cardboard generation is dependent on product delivery to the tenants and the dates in which those deliveries coincide, because of this, a representative sample is difficult to obtain in a 24-hour period.

# 4.0 WASTE AUDIT RESULTS

## 4.1 SUMMARY OF RESULTS

Table 6 provides a summary of the audit findings.

*Table 6. Summary of audit findings.*

| | SAMPLE VALUE | ANNUAL VALUE |
|---|---|---|
| TOTAL WASTE GENERATED | 382.83 kg | 398,504.77 kg |
| TOTAL WASTE SENT TO LANDFILL | 126.12 kg | 284,150.00 kg |
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| OVERALL CONTAMINATION RATE | 22.58% | |
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| OVERALL CAPTURE RATE | 37.04% | |

*See **Appendix C: Waste Audit Calculations** for the definitions and formulas for the various rates calculated within this table.*

### *4.1.1 General Observations*

- Disposable food packaging (e.g., non-recyclable wrappers) was the largest material category of waste sent to landfill, with an estimated 125,425.23 kg sent annually (figure 3).
    - For recommendations, please see ***5.2 Reduce Waste Generated Onsite***.
- Despite there being a composting program onsite, food waste was the second largest material category sent to landfill, with an estimated 99,267.75 kg sent annually (figure 3).
    - Consider engaging with staff and students to understand potential barriers to compost bin usage, such as lack of signage or bins.
    - Please see section ***5.1 Optimize Diversion Streams*** for more information.
- Food waste and disposable food packaging (DFP) were the two largest material categories of contamination found within the mixed recycling stream, accounting for 48.24% and 40.90% of the contamination, respectively (figure 21).
    - This gives a contamination rate of 68.55% within the mixed recycling stream.
    - Engaging with students and staff on barriers to proper source separation and/or diversion bin usage can provide better insight into the high contamination.

## 4.2 TOTAL WASTE GENERATED

The total amount of waste generated at UofT Scarborough in a 12-month period was 398,504.77 kg. This weight includes:

- The total annual amount of waste sent to landfill.
- The total annual amount of waste diverted through the:
  - Cardboard Recycling Stream
  - Container Recycling Stream
  - Mixed Recycling Stream
  - Composting Stream
  - Electronic Waste Recycling Stream
  - Scrap Metal Recycling Stream
- The total annual amount of contamination in the various diversion streams.

A breakdown of how the waste generated at UofT Scarborough was source separated on-site, including what percentage of generated waste was sent to landfill, what percentage of generated waste was contamination, what percentage of generated waste was diverted and what diversion streams were utilized are provided in Figure 1 below. Figure 2 displays the total amount of waste generated by material category.

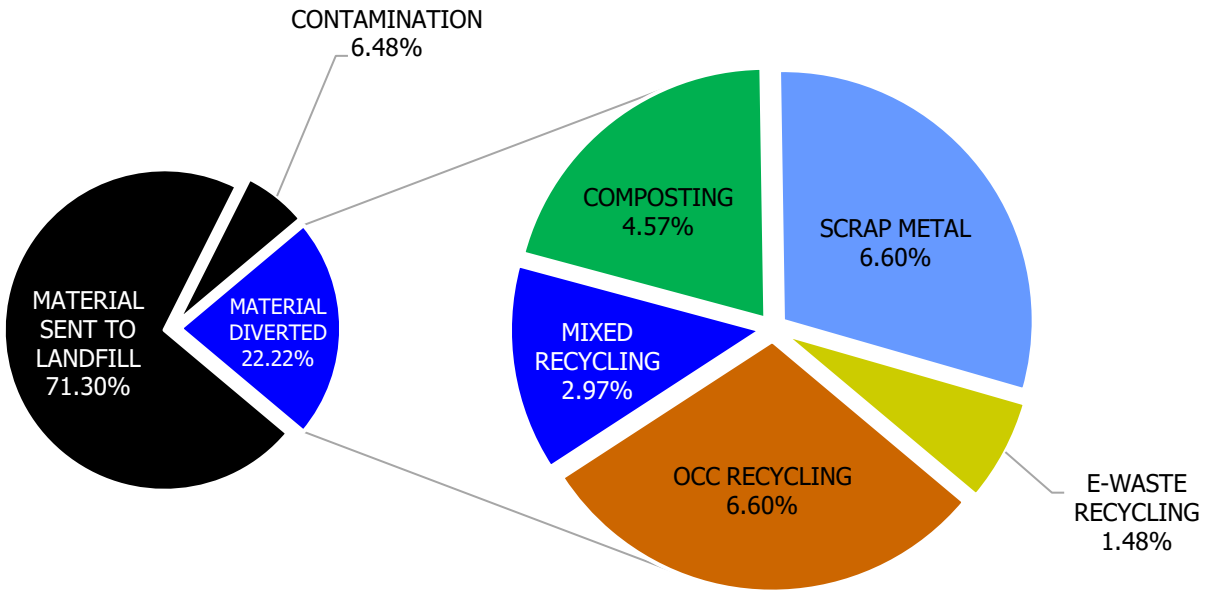



*Figure 1. A breakdown of how waste was source separated at the site.*

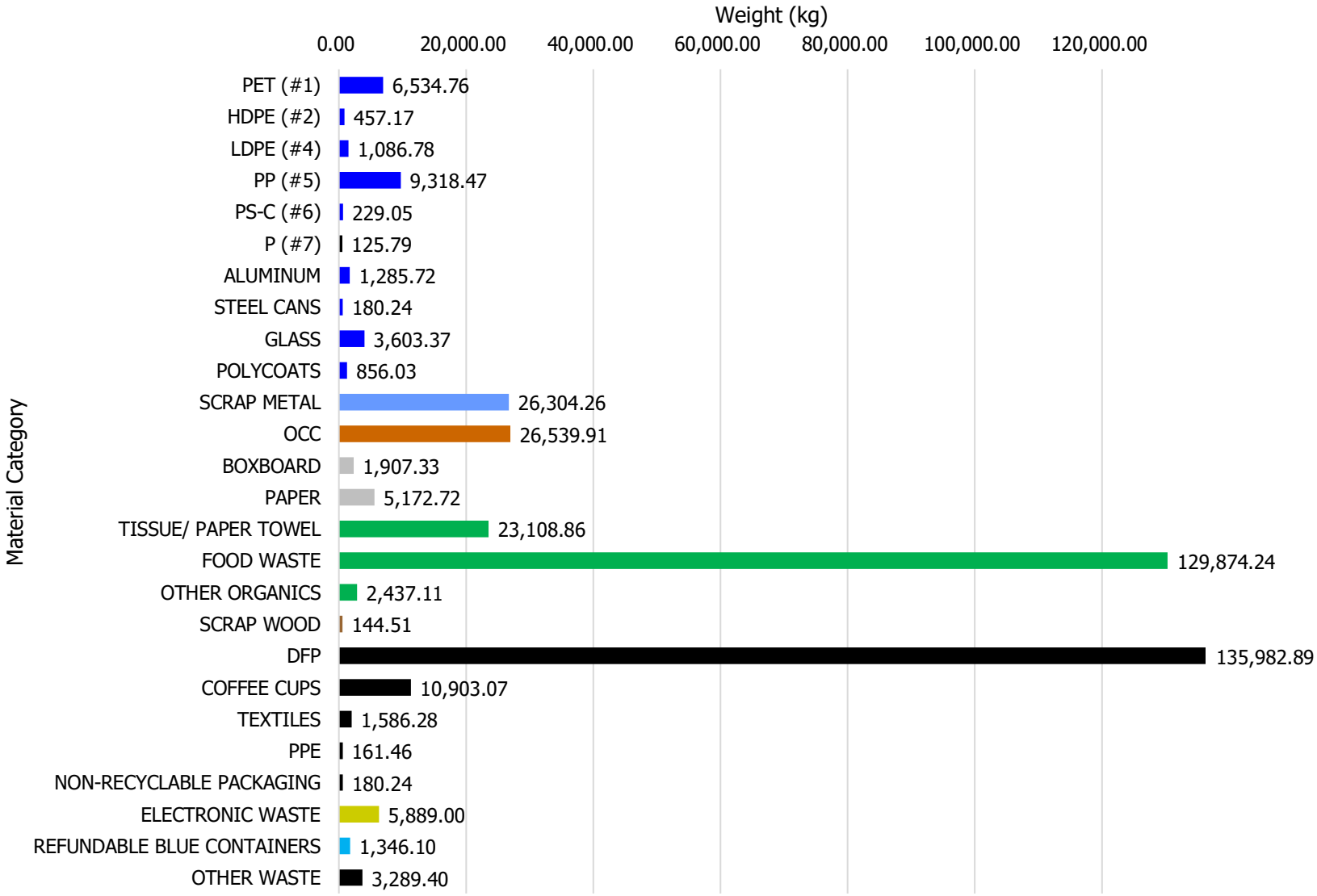



*Figure 2. Waste generated by material category, shown in kilograms.*

## 4.3 TOTAL WASTE SENT TO LANDFILL

The total amount of waste sent to landfill at UofT Scarborough in a 12-month period was 284,150.00 kg. Figure 3 displays the total amount of waste sent to landfill by material category.

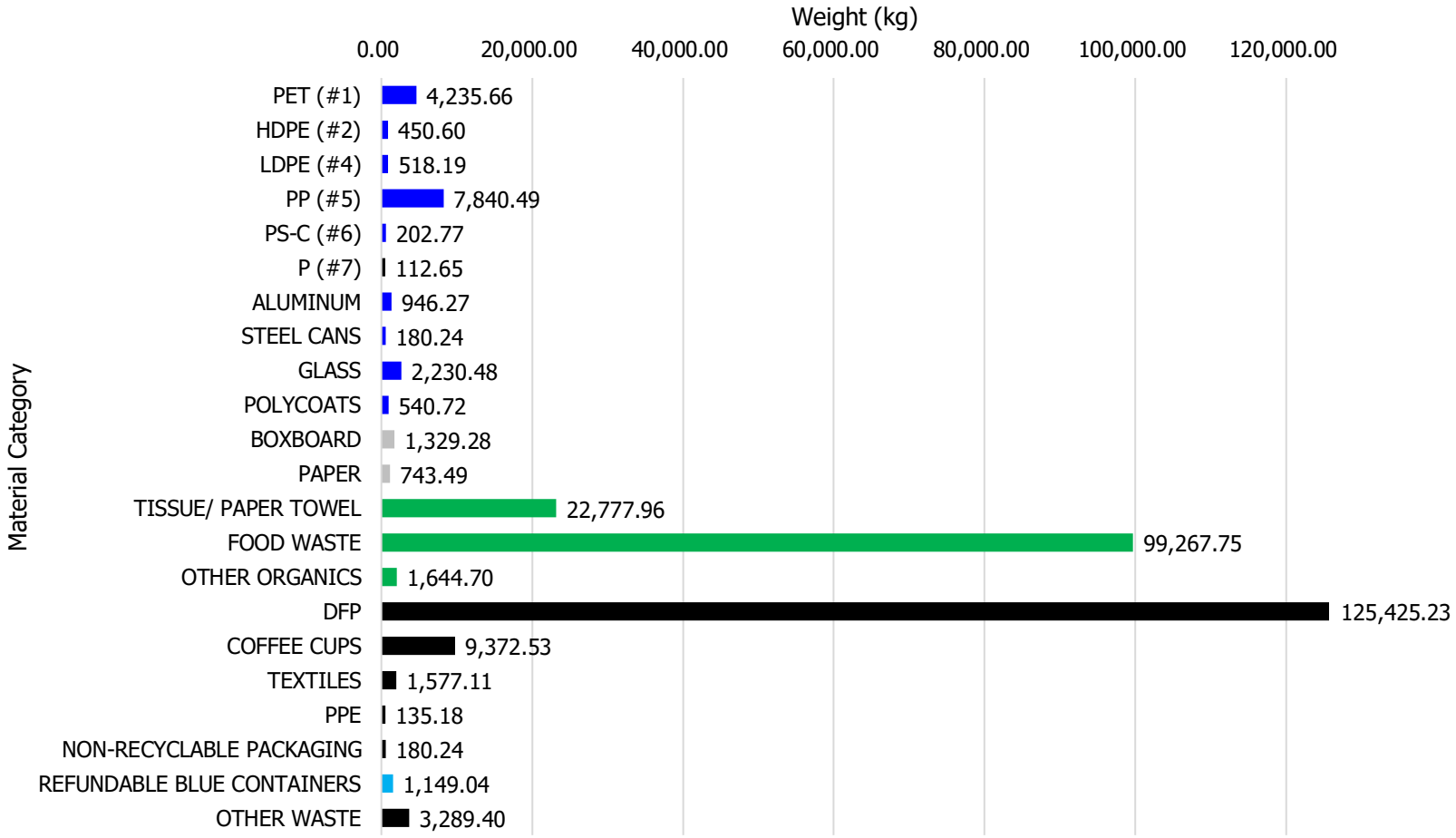



*Figure 3. Waste sent to landfill by material category, shown in kilograms.*

### *4.3.1 Waste Sent to Landfill: Breakdown by Area*

Figure 4 illustrates how much waste each area is contributing to the overall disposal of waste to landfill, providing that they generated waste during the 24-hour sample period and their waste bags were correctly labelled.

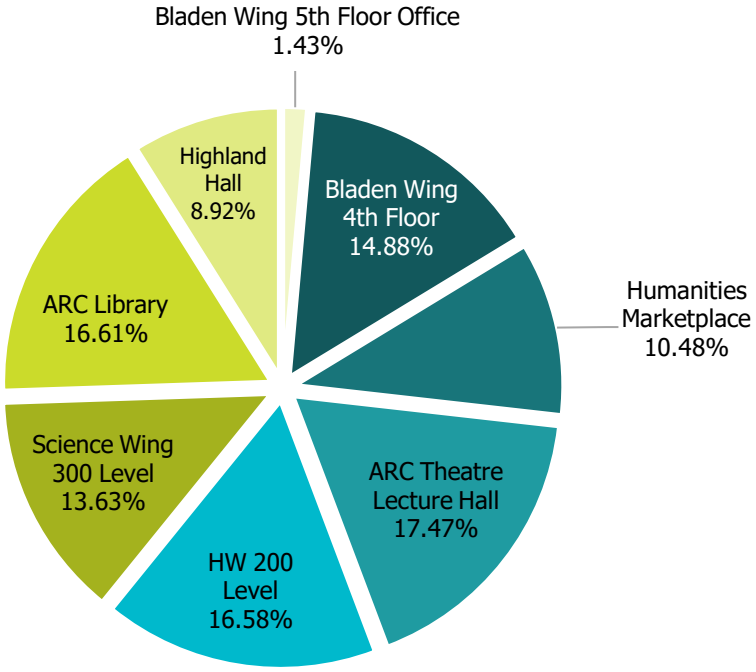



*Figure 4. Area contribution to the waste to landfill stream, shown in percent.*

The following figures (5 - 12) illustrate the composition of each individual area's waste to landfill stream, providing that they disposed of waste during the 24-hour sample period and their waste bags were correctly labelled. Material categories that contributed less than 1.00% of an area's total disposal of waste to landfill were not labelled in these figures.

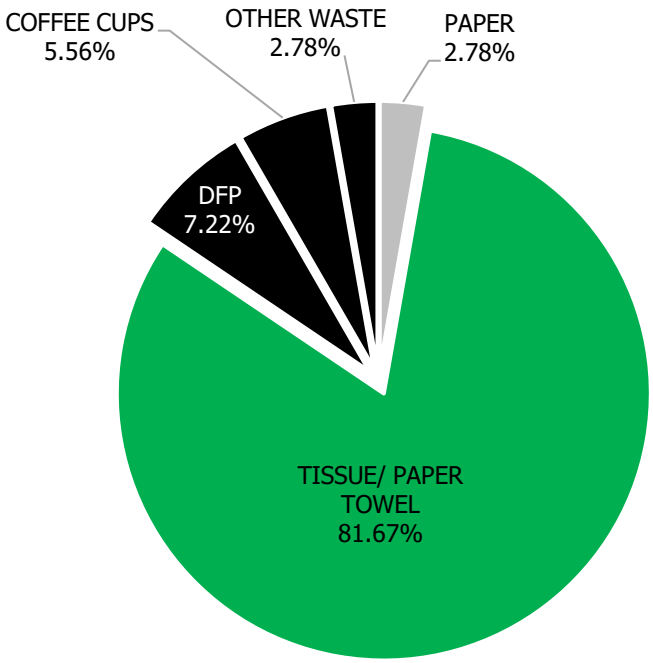



*Figure 5. Bladen Wing 5th Floor Office's waste to landfill stream, shown in percent.*

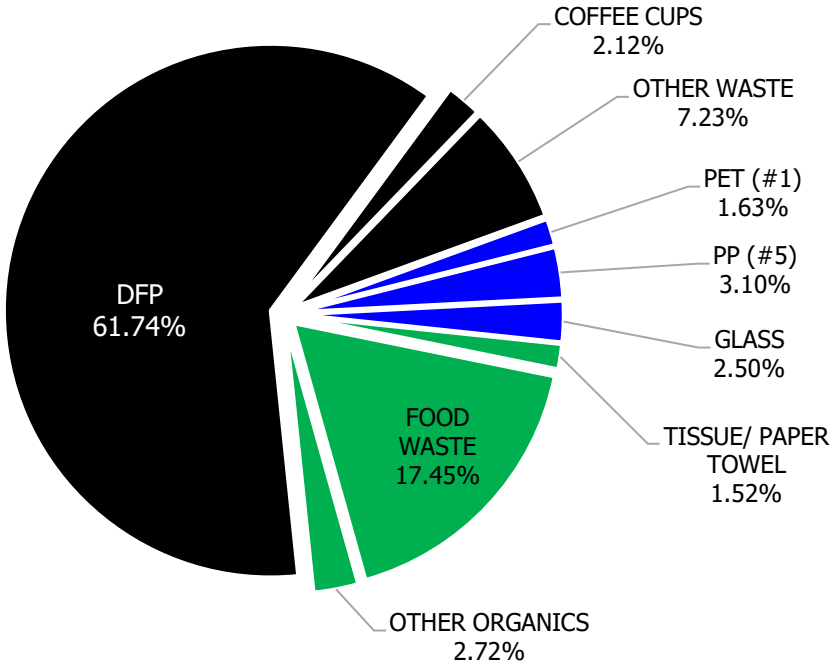



*Figure 6. Bladen Wing 4th Floor's waste to landfill stream, shown in percent.*

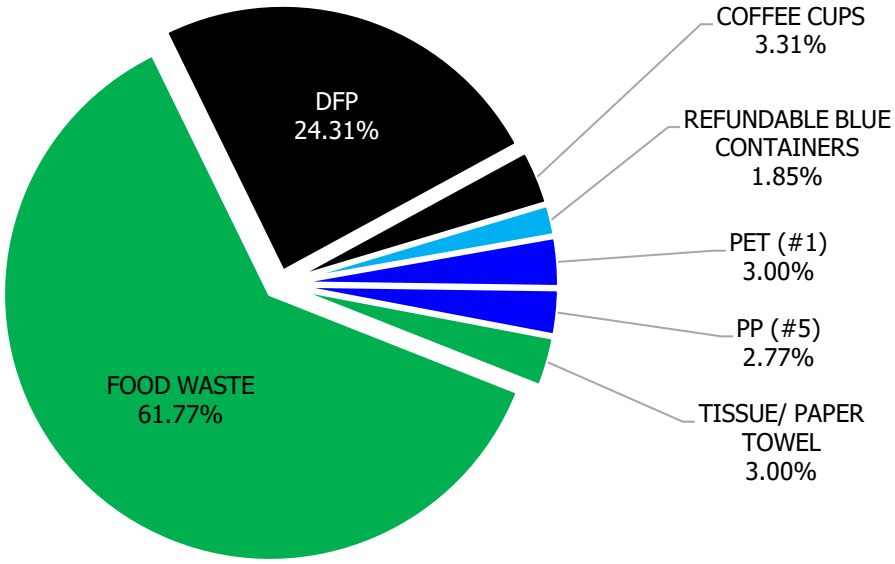



*Figure 7. Humanities Marketplace waste to landfill stream, shown in percent.*

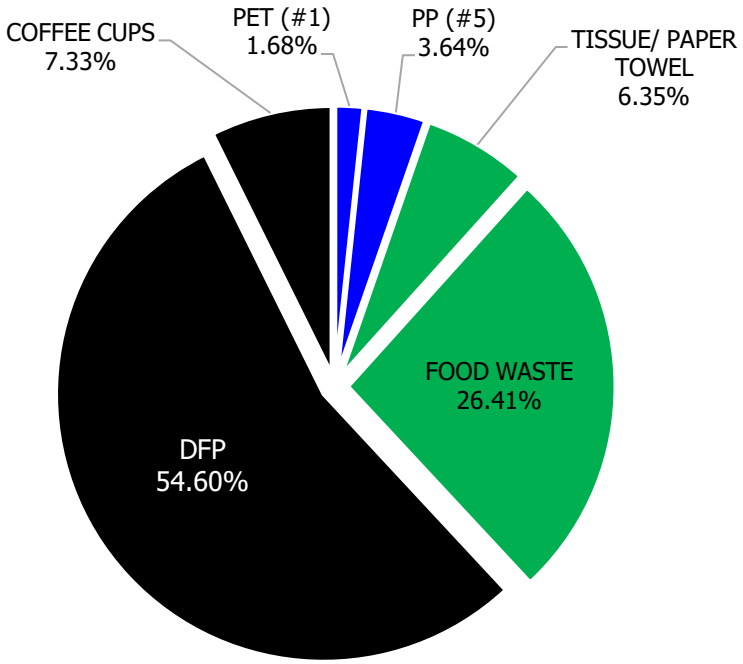



Figure 8. ARC Theatre Lecture Hall's waste to landfill stream, shown in percent.

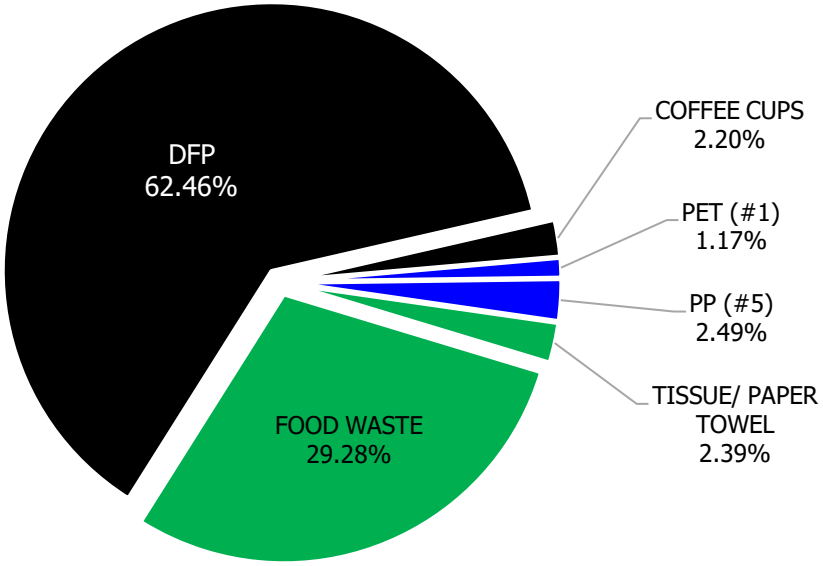



*Figure 9. HW 200 Level's waste to landfill stream, shown in percent.*

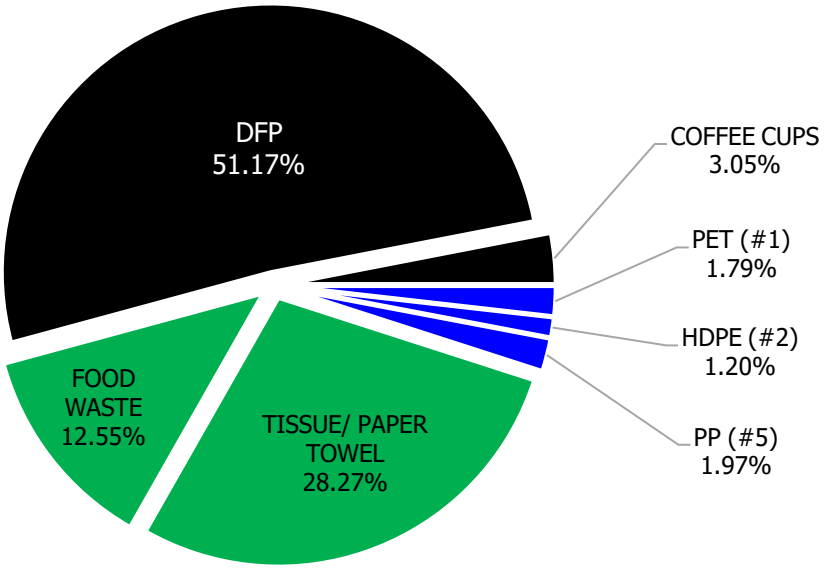



Figure 10. Science Wing 300 Level's waste to landfill stream, shown in percent.

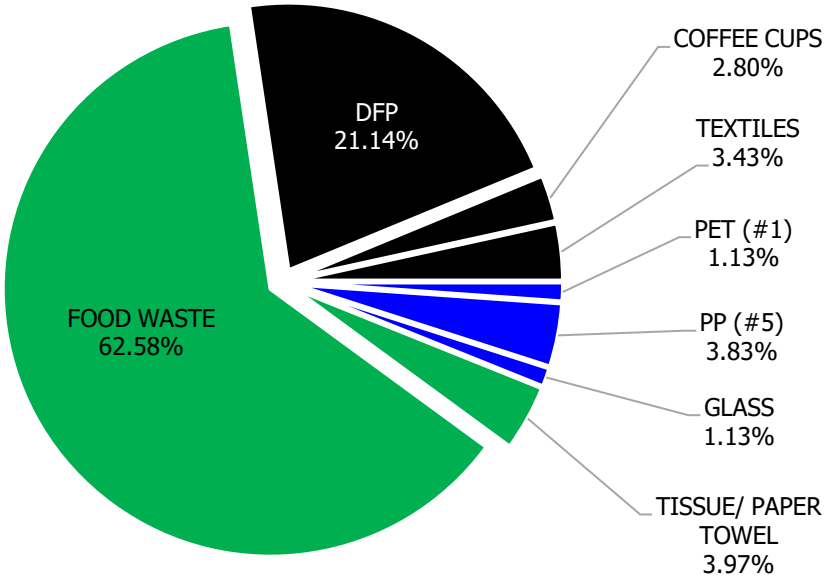



*Figure 11. ARC Library's waste to landfill stream, shown in percent.*

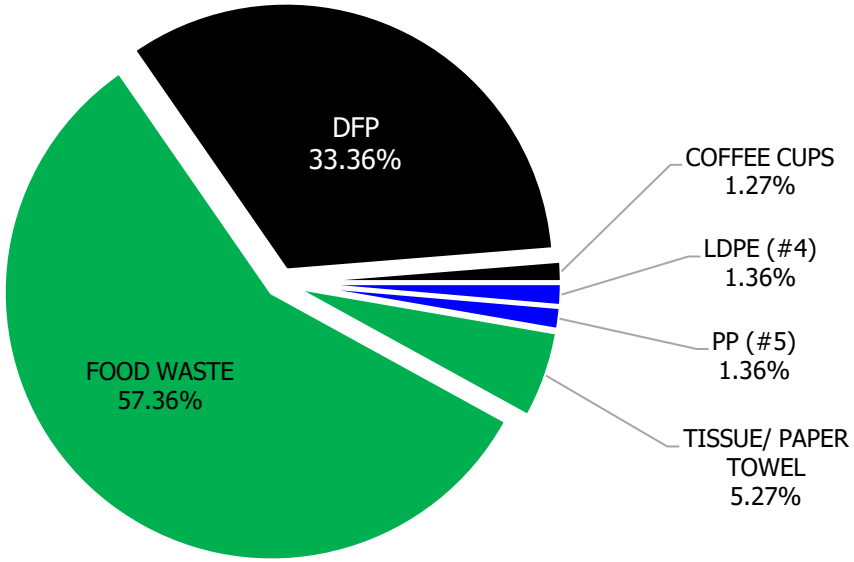



Figure 12. Highland Hall's waste to landfill stream, shown in percent.

### *4.3.2 Divertible Materials Found in the Waste to Landfill Stream*

144,057.65 kg or 50.70% of the material found in the waste to landfill stream had the potential to be diverted through a diversion stream. The percentage of recyclable materials and compostable (organic) materials sent to landfill can be seen in Figure 13.

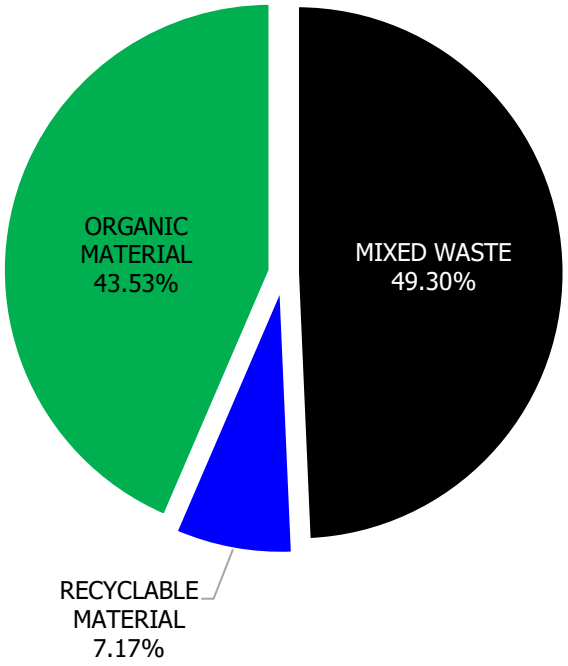



*Figure 13. The composition of the waste to landfill stream, shown in percent.*

Photographs of recyclable materials and compostable materials found in the waste to landfill stream during the waste audit can be found in ***Appendix D: Photo Log***.

20,367.24 kg or 7.17% of the material found in the waste to landfill stream was recyclable. If disposed of correctly, this material could have been diverted through the recycling streams. A breakdown of the recyclable material found in the waste to landfill stream is shown in Figure 14.

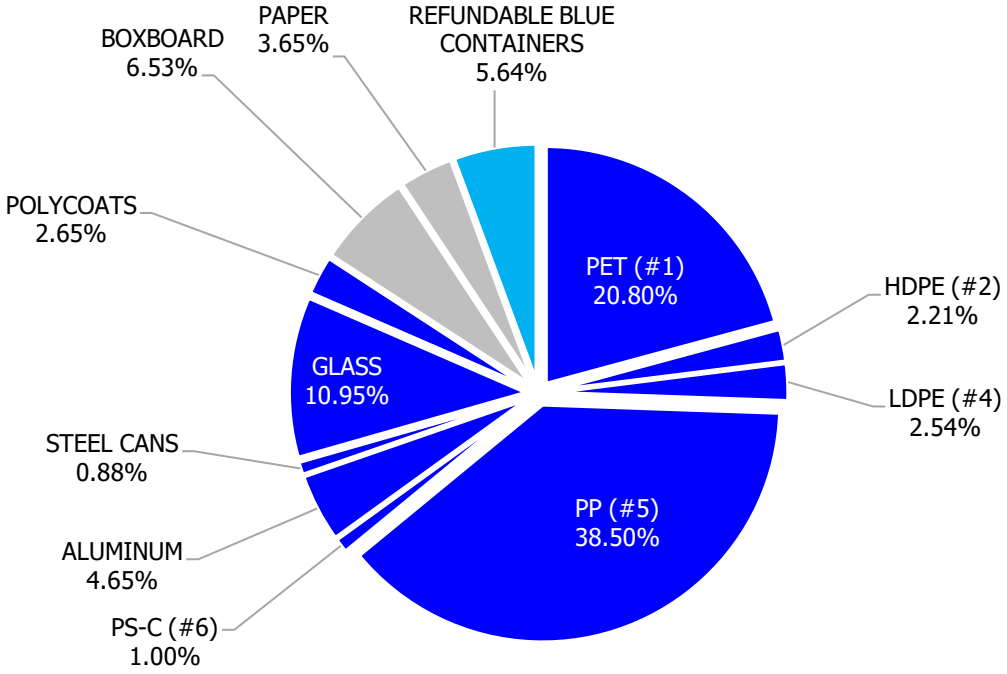



*Figure 14. Recyclable materials found in the waste to landfill stream, shown in percent.*

123,690.41 kg or 43.53% of the material found in the waste to landfill stream was compostable. If disposed of correctly, this material could have been diverted through a composting stream. A breakdown of the organic material found in the waste to landfill stream is shown in Figure 15.

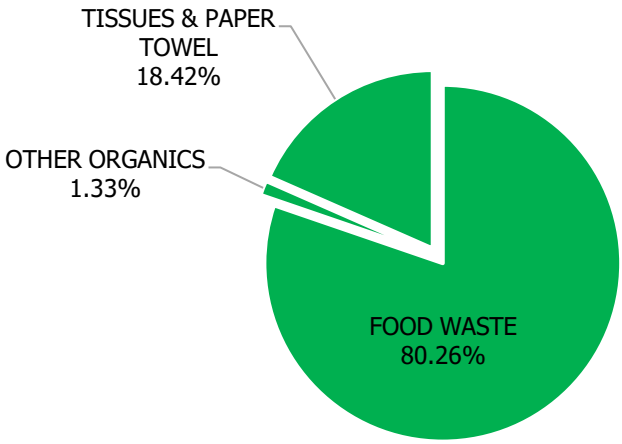



*Figure 15. Organic materials found in the waste to landfill stream, shown in percent.*

## 4.4 TOTAL WASTE DIVERTED FROM LANDFILL

The total amount of waste diverted from landfill at UofT Scarborough in a 12-month period was 88,538.30 kg. Figure 16 displays the total amount of waste diverted from landfill by material category.

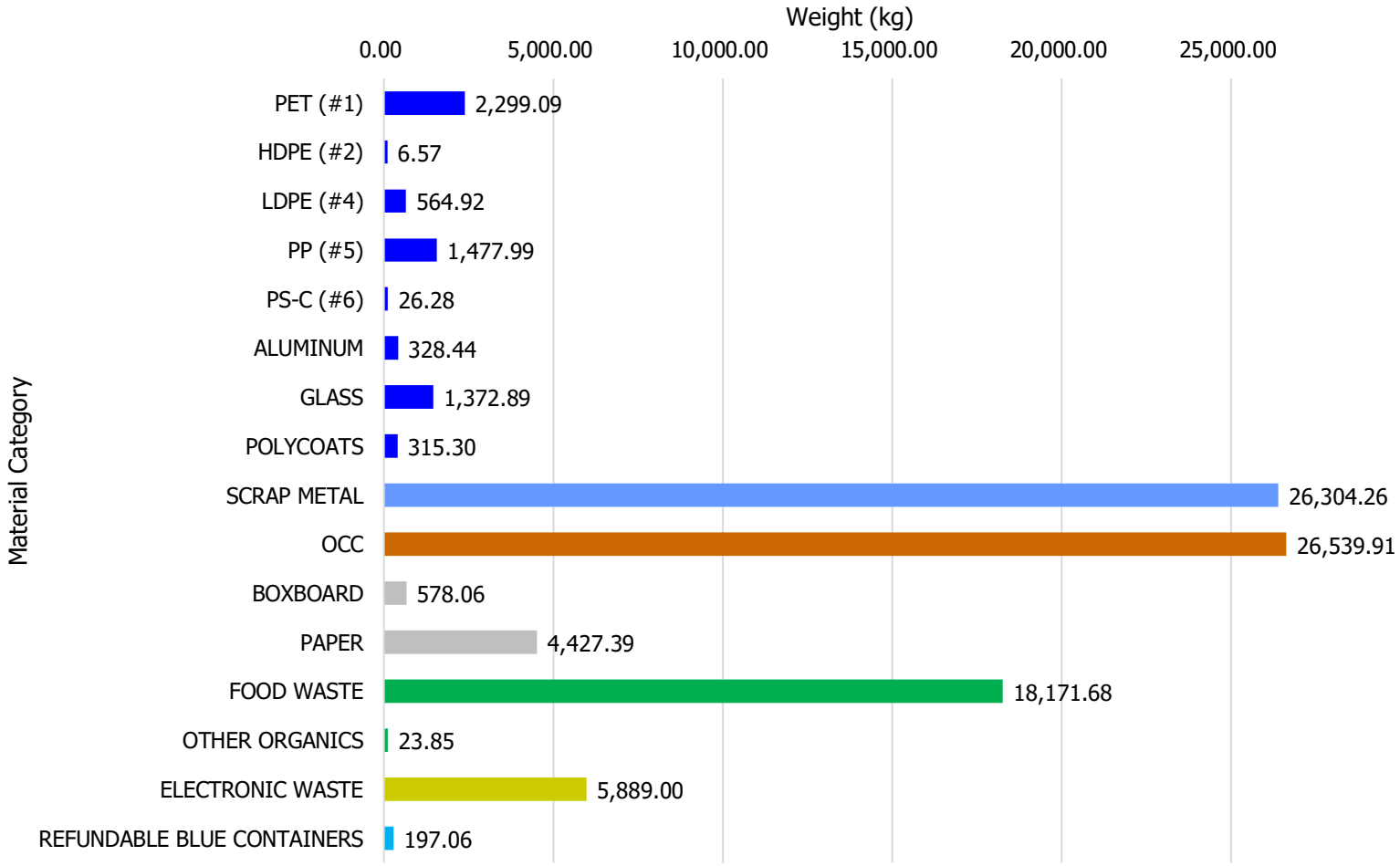



*Figure 16. Waste diverted from landfill by material category, shown in kilograms.*

### *4.4.1 Waste Diverted from Landfill through Mixed Recycling: Breakdown by Area*

Figure 17 illustrates how much recyclable material each area is contributing to the mixed recycling stream, providing that they generated waste during the 24-hour sample period and their waste bags were correctly labelled.

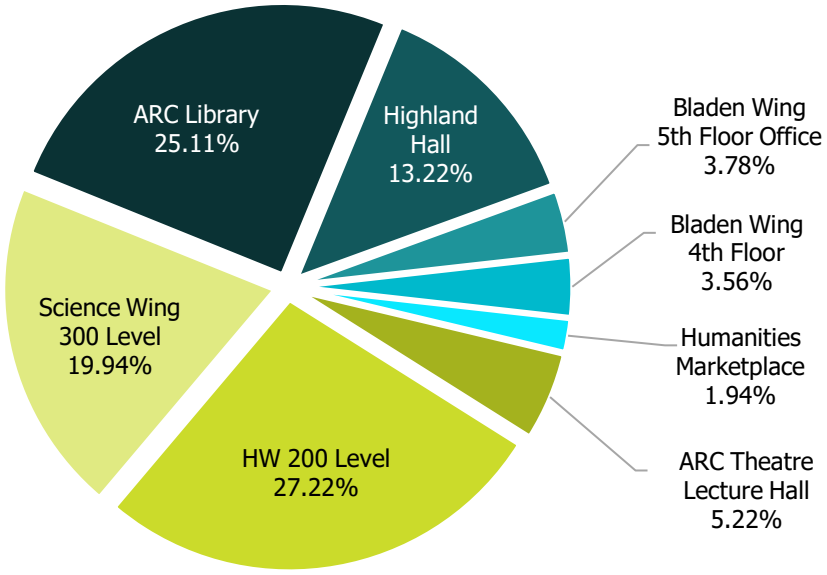



*Figure 17. Area contribution to the mixed recycling stream, shown in percent.*

### *4.4.2 Waste Diverted from Landfill through Composting Stream: Breakdown by Area*

Figure 18 illustrates how much organic material each area is contributing to the composting stream, providing that they generated waste during the 24-hour sample period and their waste bags were correctly labelled.

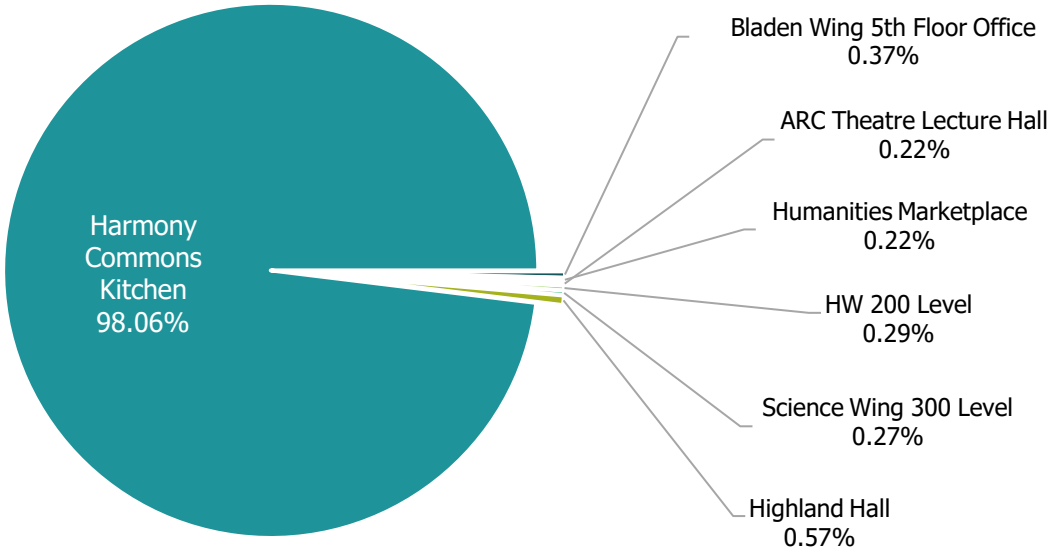
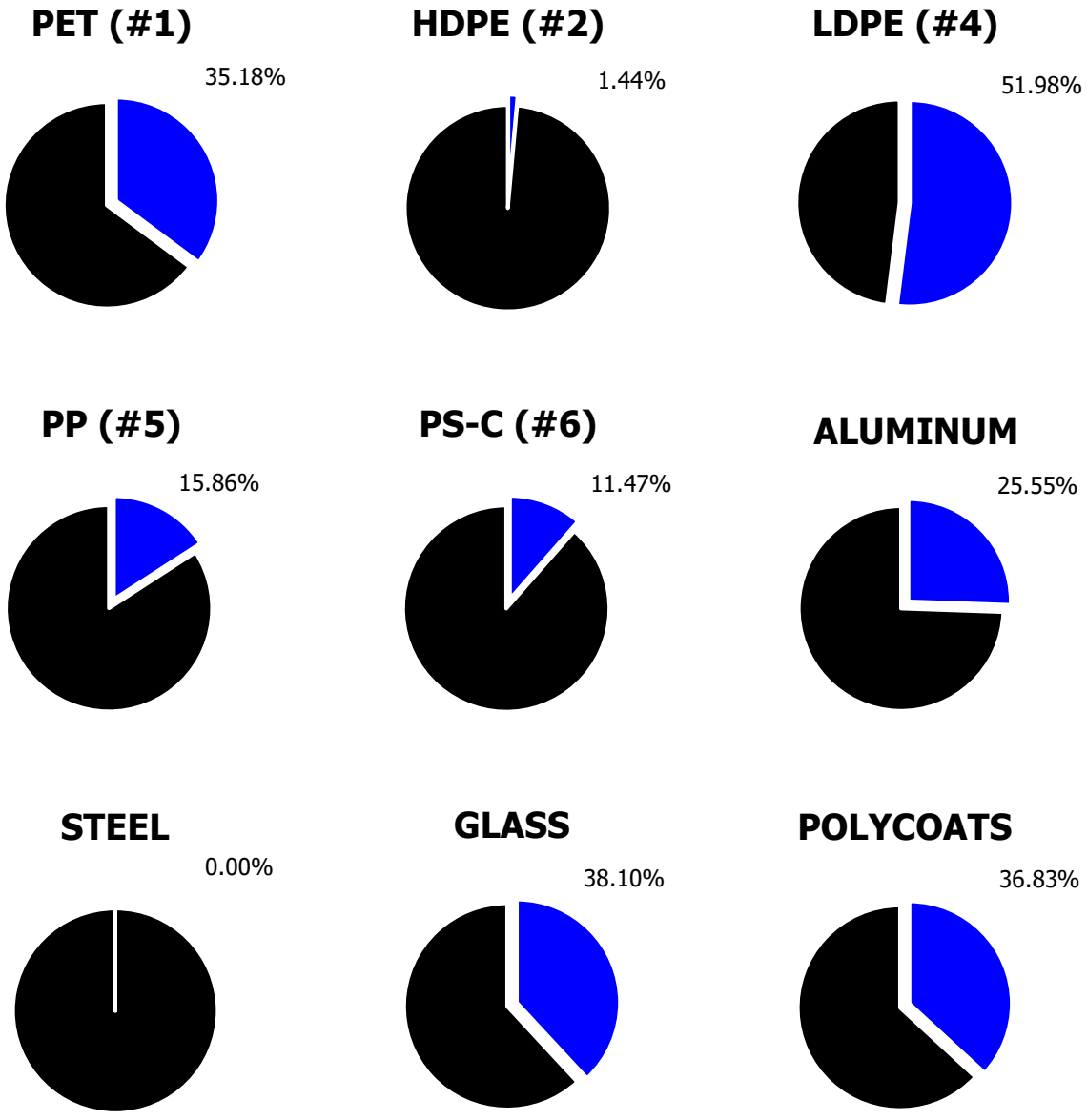



*Figure 18. Area contribution to the composting stream, shown in percent.*

## 4.5 CAPTURE RATES

Capture rate provides an indication of how well a site's diversion streams are operating. The overall capture rate at UofT Scarborough was 37.04%, meaning that 37.04% of all the divertible materials generated on-site were correctly source separated and diverted from landfill. The remaining 62.96% of divertible materials were incorrectly source separated and sent to landfill, even though they could have been diverted through one of the diversion streams currently operating at the site. Figure 19 identifies the capture rates for each divertible material category of waste.



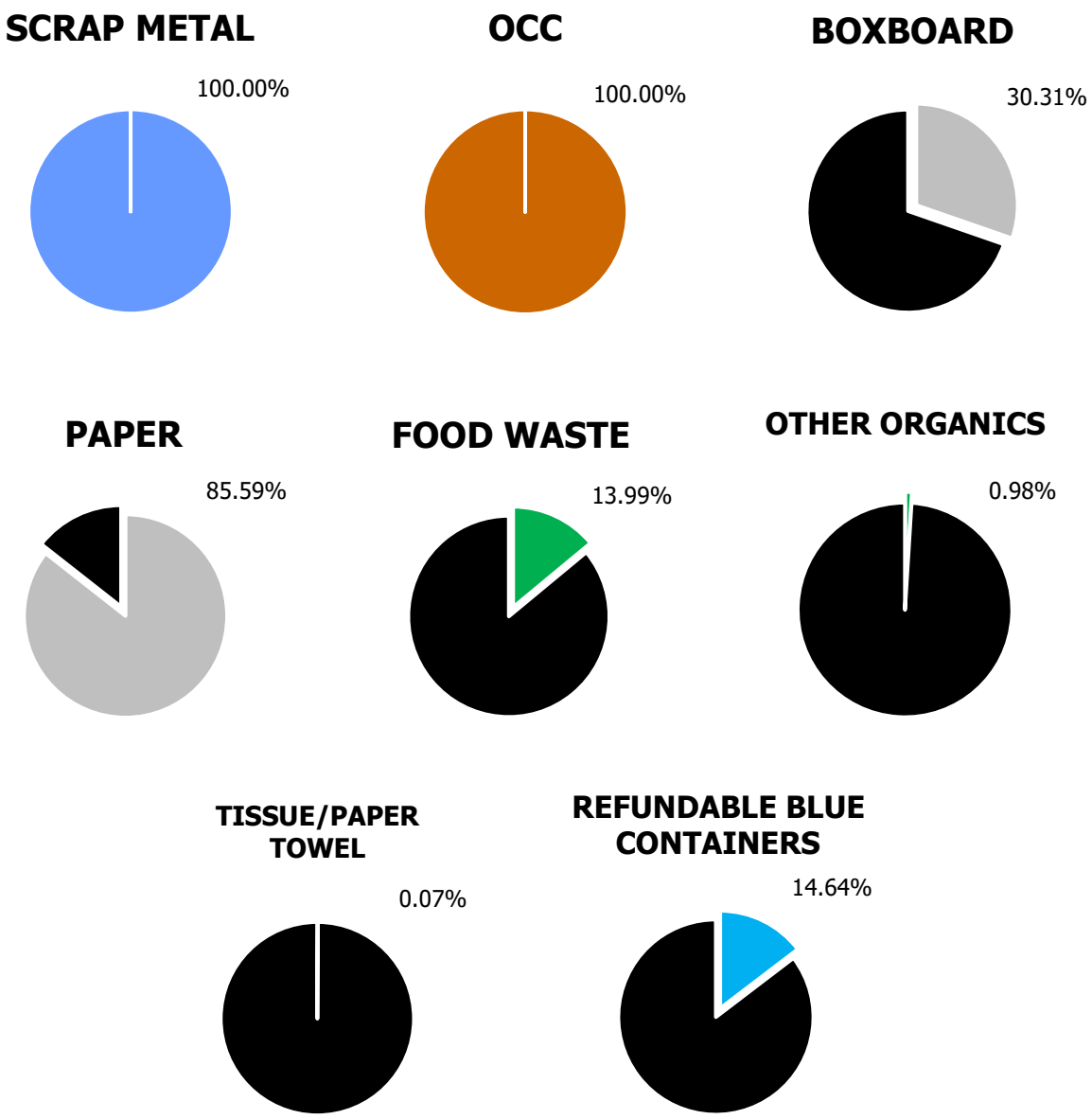



*Figure 19. The capture rates for each divertible material category, shown in percent.*

## 4.6 TOTAL CONTAMINATION FOUND IN THE DIVERSION STREAMS

In total, 25,816.47 kg of material was incorrectly disposed of in a diversion stream. Therefore, the overall contamination rate at UofT Scarborough is 22.58%. Figure 20 displays the total amount of contamination found in the diversion streams by material category.

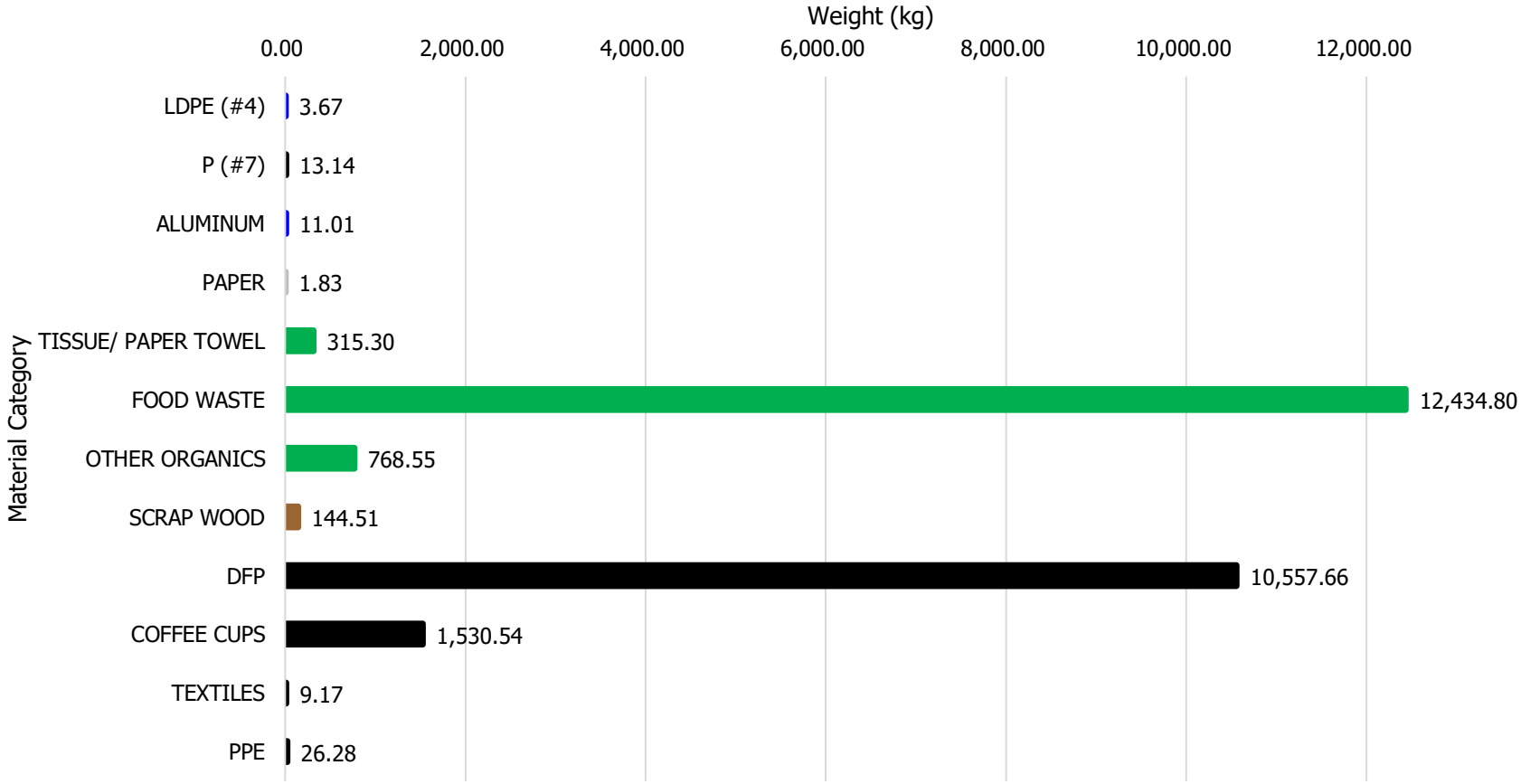



*Figure 20. Contamination by material category, shown in kilograms.*

### *4.6.1 Contamination Found in the Mixed Recycling Stream*

25,776.10 kg or 68.55% of the material found in the mixed recycling stream did not meet the hauler's acceptance criteria. Although effort was made to divert this material, items in the mixed recycling stream that do not meet the hauler's acceptance criteria are not recycled. Instead, this material reduces the efficiency and effectiveness of the recycling process and ultimately is disposed of in a landfill.

Additionally, high levels of contamination may result in new environmental charges and contamination fees on your waste invoices due to recent changes in international recycling markets. Addressing contamination at the site may reduce the risk of incurring these additional fees.

A breakdown of the contamination found in the mixed recycling stream is shown in Figure 21. Recommendations to optimize the mixed recycling program are given in Section 5.0 of this report.

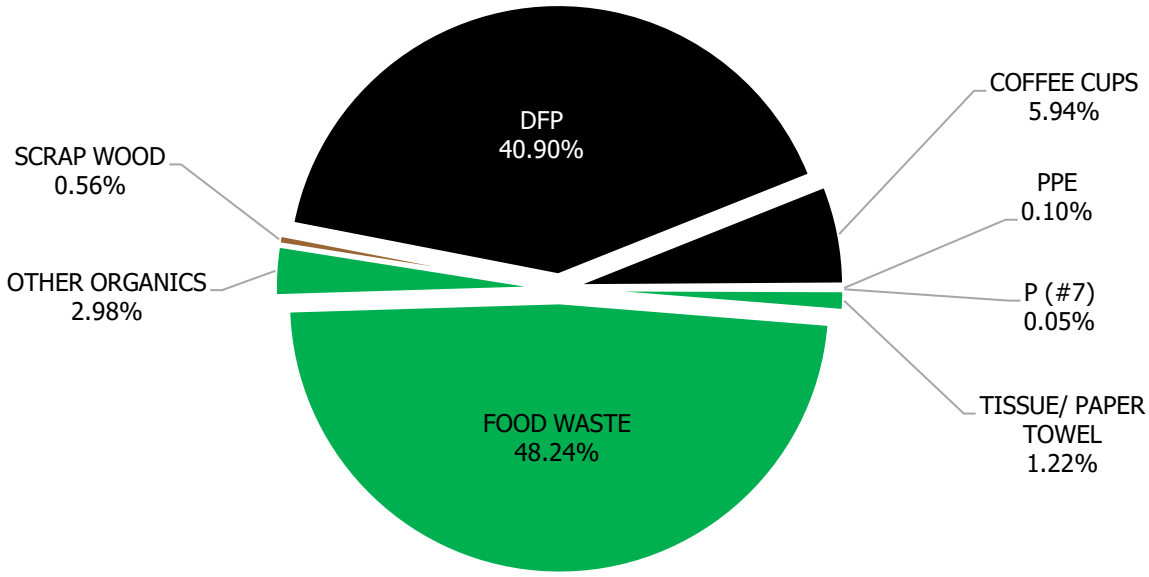



*Figure 21. Contamination found in the mixed recycling stream, shown in percent.*

Figure 22 illustrates how much contamination each area is contributing to the overall generation of contamination in the mixed recycling stream.

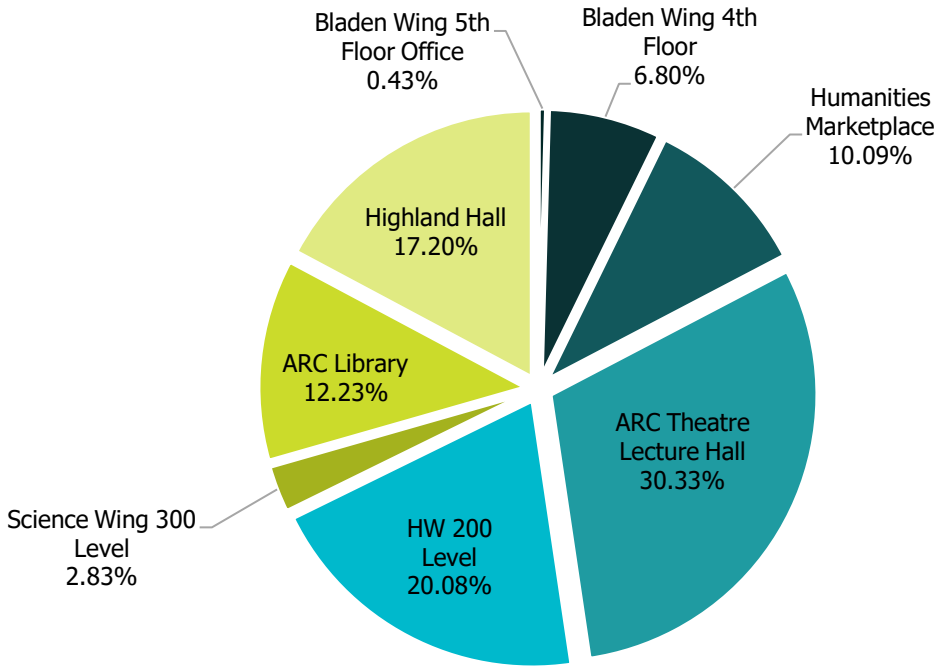



*Figure 22. Area contribution to contamination in the mixed recycling stream, shown in percent.*

### *4.6.2 Contamination Found in the Composting Stream*

40.37 kg or 0.22% of the material found in the composting stream did not meet the hauler's acceptance criteria. It is very important to understand the acceptance criteria of the composting program onsite. When incorrect materials are disposed of in the composting bin, this decreases the quality of the compost created, and especially decreases the efficiency and effectiveness of the diversion stream. A breakdown of the contamination found in the composting stream is shown in Figure 23. Recommendations to optimize the composting program operating onsite are given in Section 5.0 of this report.

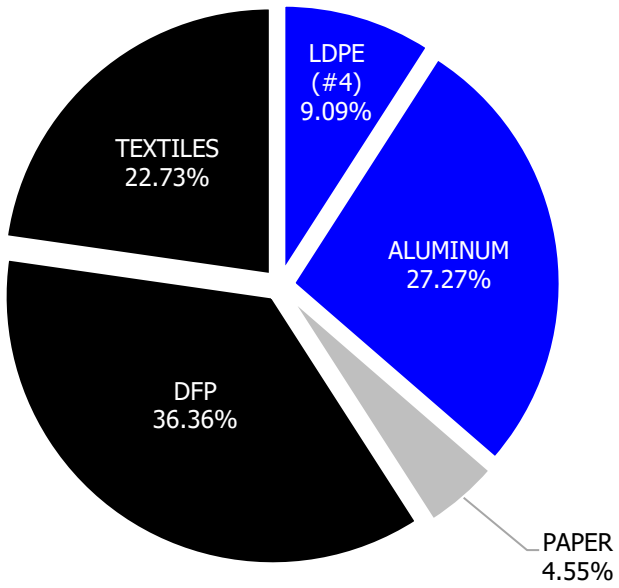



*Figure 23. Contamination found in the composting stream, shown in percent.*

Figure 24 illustrates how much contamination each area is contributing to the overall generation of contamination in the composting stream.

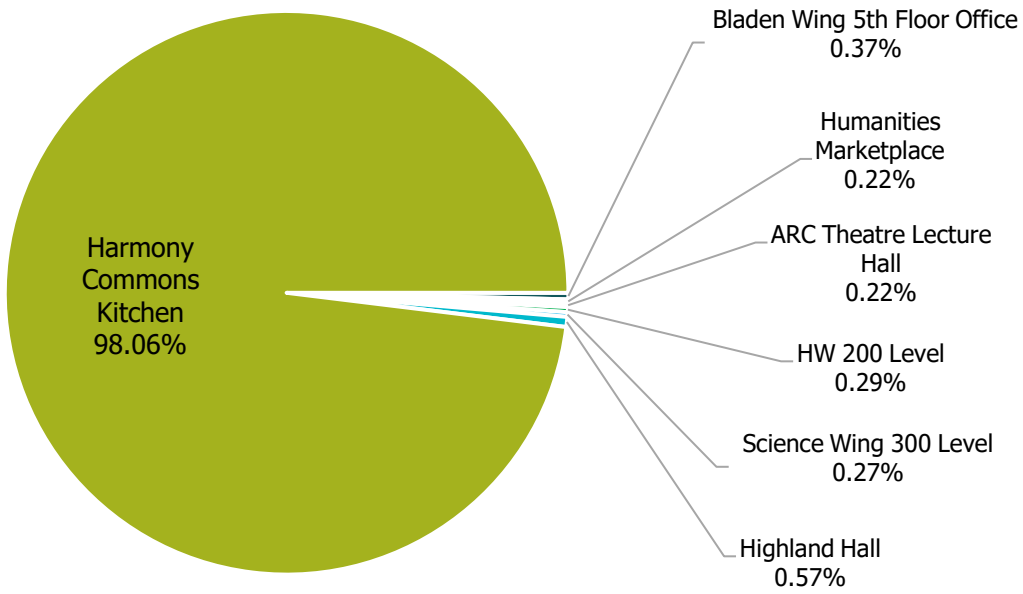
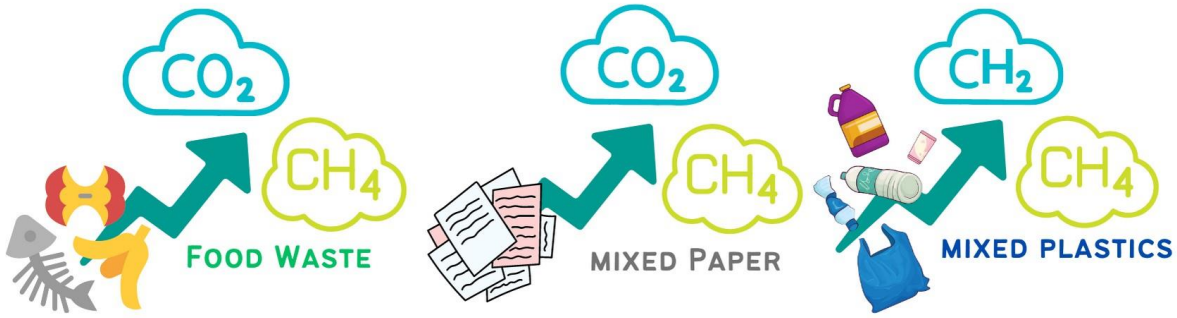



*Figure 24. Area contribution to contamination the composting stream, shown in percent.*

## 4.7 GREENHOUSE GAS EMISSIONS

The waste management sector is considered one of the largest contributors of greenhouse gas (GHG) emissions due to the transportation to, and the disposal and decay of waste in landfills. According to the National Inventory Report[1], the waste sector was responsible for 4.1% of the total emissions in Canada in 2020. The most prominent greenhouse gases are methane ($CH_4$) and carbon dioxide ($CO_2$) which are a primary result of the decomposition of various divertible materials, as seen in the graphic below. Landfill gas emissions can be captured and destroyed through flares or recovered to produce energy, but those that are not captured are released into the atmosphere as unwanted emissions.




When recycled, materials such as cardboard, paper and plastics can reduce emissions by decreasing the need to extract natural resources to make new products and by avoiding gas emission that would have occurred if these materials were sent to landfill. Diverting organics from landfill can also achieve significant GHG reductions as large quantities of methane emissions are avoided. Therefore, a life-cycle evaluation provides the most accurate quantification of the GHG reduction benefits associated with recycling and composting inside this complex system of variables.




[1] National Inventory Report 1990-2020: Greenhouse Gas Sources and Sinks in Canada
https://publications.gc.ca/site/eng/9.816345/publication.html

The U.S Environmental Protection Agency (EPA) has created the Waste Reduction Model (WARM) which enables users to calculate the GHG emission from a life-cycle perspective. By analyzing the amount of waste generated and the method of disposal (landfill, recycling, and composting), Waste Solutions can calculate the GHG emissions produced at UofT Scarborough. The value refers to $CO_2$ equivalent ($CO_2e$) which is the most common unit used to measure GHG emissions.

Using the WARM method, it was determined that the overall GHG emission at UofT Scarborough is **25.98 MT $CO_2e$** with the largest contributor being mixed waste, followed by food waste in second.

If 50% of the food waste that was sent to landfill was correctly composted, the site's GHG emissions would be 0.64 times less than the current emissions generated onsite from 23.64 $MTCO_2e$ to 8.43 $MTCO_2e$.

Additionally, the site could further reduce GHG by improving the recycling programs currently operating on site.

Figure 25 illustrates the potential GHG reduction by applying the recommendations presented in **Section 5.0** of this report. Please note that negative values mean that gases were avoided from being released into the atmosphere due to diversion practices.

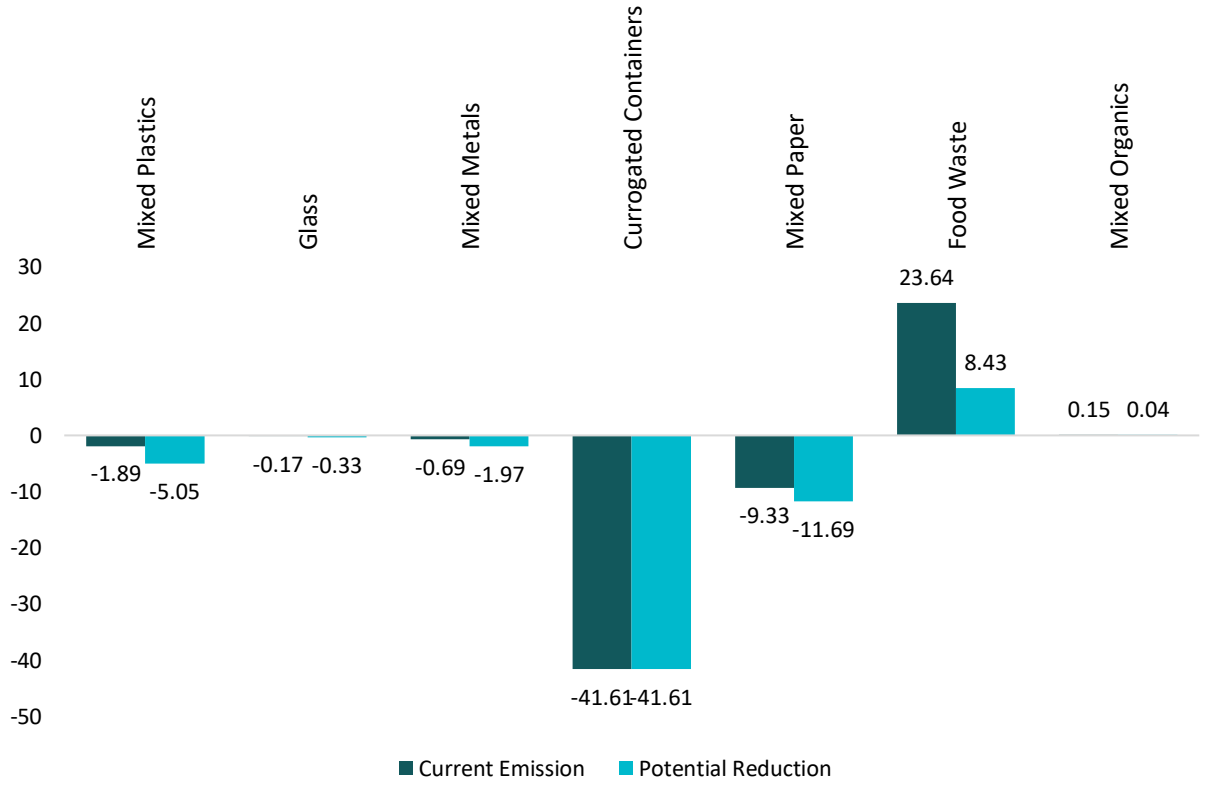



*Figure 25: Potential reduction of GHG emission per divertible material category in $MTCO_2e$.*

To better understand what the total GHG emissions at UofT Scarborough corresponds to, conversion factors can be applied to translate the $CO_2e$ emission into relatable statistics. This analysis is based on the Greenhouse Gas Equivalencies Calculator from EPA.

Therefore, the current emission of 25.98 MT $CO_2e$ from the landfill stream onsite is equivalent to:

**6** gasoline-powered passenger cars driven for **1** year.

**3** homes' energy use for **1** year.

**60** barrels of oil consumed.

If University of Toronto implement strategies to improve composting and recycling onsite, UofT Scarborough could potentially reduce its GHG emission by 22.28 MT $CO_2e$. The reduction of GHG emissions due to this change would be equivalent to:

Taking **5** gasoline-powered passenger vehicles off the road for **1** year.

**3** homes energy use for **1** year.

**51.5** barrels of oil consumed.

## 4.8 CONCLUSION

Table 7 below shows the results of this waste audit in comparison to benchmark data extrapolated from waste audits conducted by Waste Solutions at educational institutions across Canada in 2023.

- A **green** *% difference* indicates a rate at which this site is operating better than the benchmark.
- A **red** *% difference* is a rate at which this site is below the benchmark data and could be improved through the recommendations presented in this report.

*Table 7. Waste data in comparison to 2023 national benchmark data collected by Waste Solutions.*

| | UOFT SCARBOROUGH | 2023 BENCHMARK DATA | % DIFFERENCE |
|---|---|---|---|
| OVERALL CONTAMINATION RATE | 22.58% | 9.94% | **12.64%** |
| OVERALL DIVERSION RATE | 22.22% | 34.62% | **12.40%** |
| OVERALL CAPTURE RATE | 37.04% | 51.78% | **14.74%** |

### ORGANIC WASTE

Better utilization of UofT Scarborough's composting program would result in the largest contribution to improving diversion from landfill performance. In total, **155,420.21 kg** of organic material was generated at the site, including: food waste, compostable food packaging, and tissue/paper towel. This represents **39.00%** of all the waste generated at the site.

Only **11.72%** of organic material was correctly source separated in the composting stream. The remaining **88.28%** was incorrectly source separated and sent to landfill.

If the management team at UofT Scarborough implemented strategies to better utilize the composting program, the site's diversion and capture rates would likely increase. For example, if 50% of the organic material currently being sent to landfill was correctly diverted through the composting stream, the site's diversion rate would increase by **15.52%**, from **22.22%** to **37.74%**.

## RECYCLABLE MATERIALS

The site's diversion from landfill performance could be improved by addressing the recyclable materials sent to landfill. In total, **84,966.43 kg** of recyclable material was generated at the site, including: PET #1, HDPE #2, LDPE #4, PP #5, PS-C #6, aluminum, steel, glass, gable top containers, Tetra Pak containers, cardboard, boxboard, and paper.

**82.77%** of recyclable material was correctly source separated in the recycling streams. The remaining **17.23%** was incorrectly source separated and sent to landfill.

If the management team at UofT Scarborough implemented strategies to better utilize the recycling programs, the site's diversion and capture rates would likely increase. For example, if 50% of the recyclable material currently being sent to landfill was correctly diverted through the recycling streams, the site's diversion rate would increase by **2.56%**, from **22.22%** to **24.77%**.

# 5.0 RECOMMENDATIONS

## 5.1 OPTIMIZE DIVERSION STREAMS

Improving waste collection efficiency can lead to cost savings and a reduced environmental impact. Here are some recommendations for increasing waste collection efficiency:


### OPTIMIZE BIN AND SIGNAGE PLACEMENT

- Place waste bins strategically to maximize convenience for employees. Ensure that recycling and compost bins are easily accessible and well-marked to promote proper waste disposal.
- Instead of having waste bins standing alone, make sure all waste-to-landfill disposal locations are also accompanied by diversion streams. This will encourage source separation practices.
- If the contamination rate is high and/or capture rates are low, consider optimizing signage locations by placing them where employees and/or visitors frequent, such as in elevators and washrooms.

### RIGHT SIZE WASTE BINS

- Match the size of waste bins to the volume of waste generated in specific areas. Right-sizing bins can prevent unnecessary collections and reduce costs associated with waste removal.
- By continuously monitoring the waste bins before collection, it can be determined whether the bins are full on collection day.

## EXPLORE TECHNOLOGY SOLUTIONS

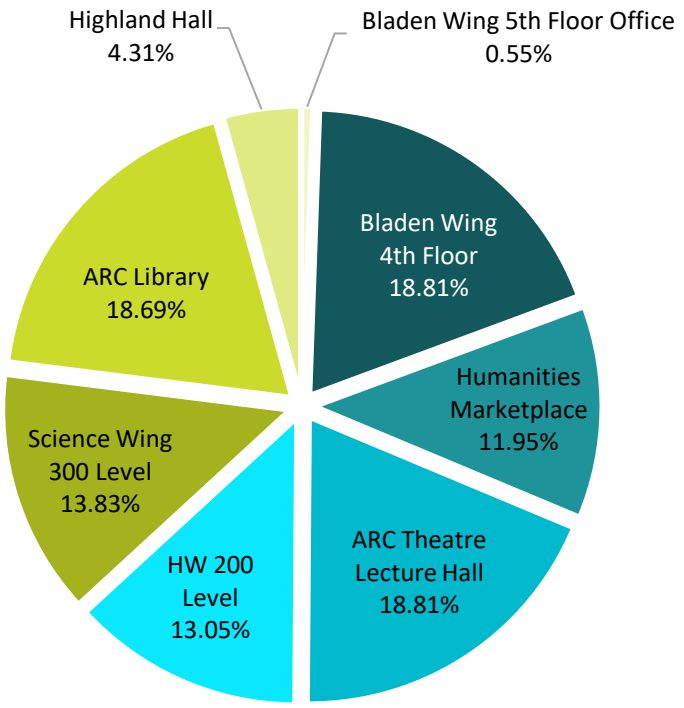
- Consider implementing smart waste management solutions that use sensors to monitor fill levels in front-end waste bins. This technology can optimize collection routes and timing, reducing unnecessary pickups.
- Waste Solutions provides smart sensors as a value add for our clients to ensure the highest level of efficiency for material collection. For more information follow this link: https://waste.solutions/technology/smart-sensors/

## EVALUATE WASTE HAULER CONTRACTS

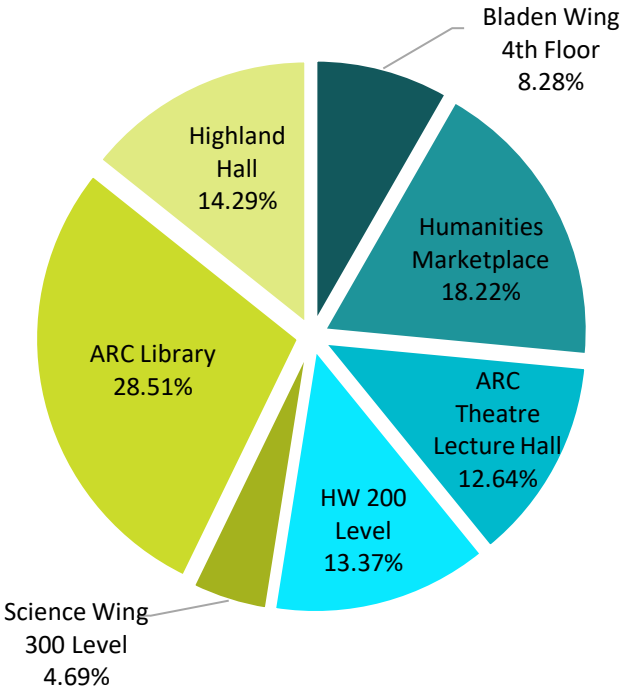
- Regularly review and negotiate waste hauling contracts to ensure they align with the specific needs of UofT Scarborough. Look for opportunities to optimize costs and services based on changing waste generation patterns.
- Waste Solutions provides this service for our clients to find ways to improve the sustainability of waste management practices onsite while reducing costs. Please visit the following link if you are interested in an assessment of your current hauler contract: https://waste.solutions/get-started/

## AREA SPECIFIC ANALYSES

While the audit team was onsite, they observed recycling in the waste-to-landfill stream, accounting for **7.17%** of the total waste being sent to landfill onsite, despite having a recycling program operating onsite accepting these divertible materials. The chart below displays the percentage of recyclables that each area is discarding into the waste-to-landfill stream annually.



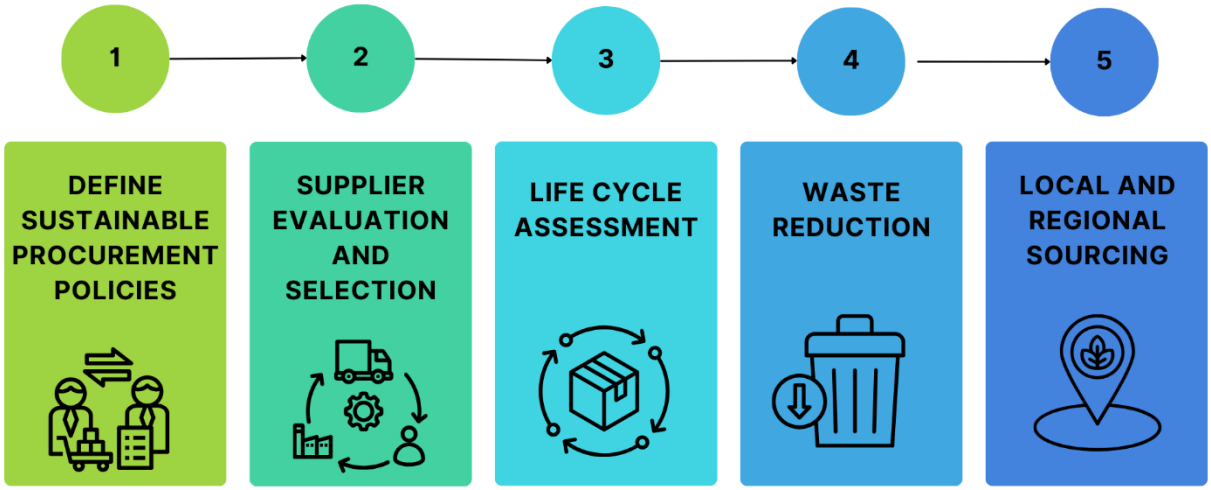
In addition, compostable materials accounting for **43.53%** of the total waste being sent to landfill onsite, despite having a composting program operating onsite accepting these divertible materials. The chart below displays the percentage of compostable materials that each area is discarding into the waste-to-landfill stream annually.




Therefore, it is recommended that the areas with the highest levels of divertible materials within their waste-to-landfill streams are specifically targeted to analyse the bin placement. As previously mentioned, by making sure all waste-to-landfill disposal locations are also accompanied by diversion streams, this will encourage source separation practices by employees onsite. When the waste-to-landfill stream is easier to access than diversion streams, this leaves little incentive for employees to divert materials.

## 5.2 REDUCE WASTE GENERATED ONSITE

Implementing sustainable procurement practices at UofT Scarborough can significantly contribute to reducing the waste onsite and increasing environmental responsibility and social impact. Here are some recommendations for adopting sustainable procurement practices:




### 1. DEFINE SUSTAINABLE PROCUREMENT POLICIES

- Develop and implement clear sustainable procurement policies that prioritize environmentally friendly, ethically sourced, and socially responsible products and services.
- For example, some materials have a lower environmental impact, such as materials with recycled content, biodegradable materials, or those sourced from a sustainable renewable source.

### 2. SUPPIER EVALUATION AND SELECTION

- Evaluate and select suppliers based on their environmental and social performance. Consider factors such as their commitment to reducing carbon emissions, use of eco-friendly materials, and fair labor practices.
- Conducting a pilot program can test the performance of materials, ensuring they meet the standards of durability protection and other functional requirements.

## 3. LIFE CYCLE ASSESSMENT

- Conduct life cycle assessments of products and services to understand their environmental impact from production to disposal. This can help in making informed decisions about the sustainability of different options.
- A free life cycle assessment tool for beginners: https://www.openlca.org/

## 4. WASTE REDUCTION

- Opt for products with minimal packaging or those using recycled and recyclable materials. Encourage suppliers to adopt waste reduction practices and consider packaging waste in the procurement decision-making process.
- By using the results of this audit as a baseline for improvement, reduction targets can be implemented. Goals should be measurable, achievable, relevant, and time bound for reduction of waste. For example, setting a specific goal of reducing the overall waste of packaging by a certain percentage within a specific timeline.
- Consider the use of biodegradable or compostable materials for packaging. These materials break down naturally and can be accepted into specialized composting programs.

## 5. LOCAL AND REGIONAL SOURCING

- Give preference to local and regional suppliers to reduce the environmental impact of transportation and support the local economy. This can also enhance relationships with nearby businesses.
- Fostering collaboration with suppliers and engaging stakeholders at various levels enables your organization to create a more inclusive and impactful approach to sustainable procurement and ensures that all key participants in the supply chain are aligned with your organization's environmental goals.

## SITE-SPECIFIC ANALYSES

While onsite, the audit team observed some low hanging fruit for waste materials that can be reduced through sustainable procurement and waste reduction efforts. These include packaging, paper towels, plastics and coffee cups observed onsite. The materials and annual weights are listed in Table 8 below.

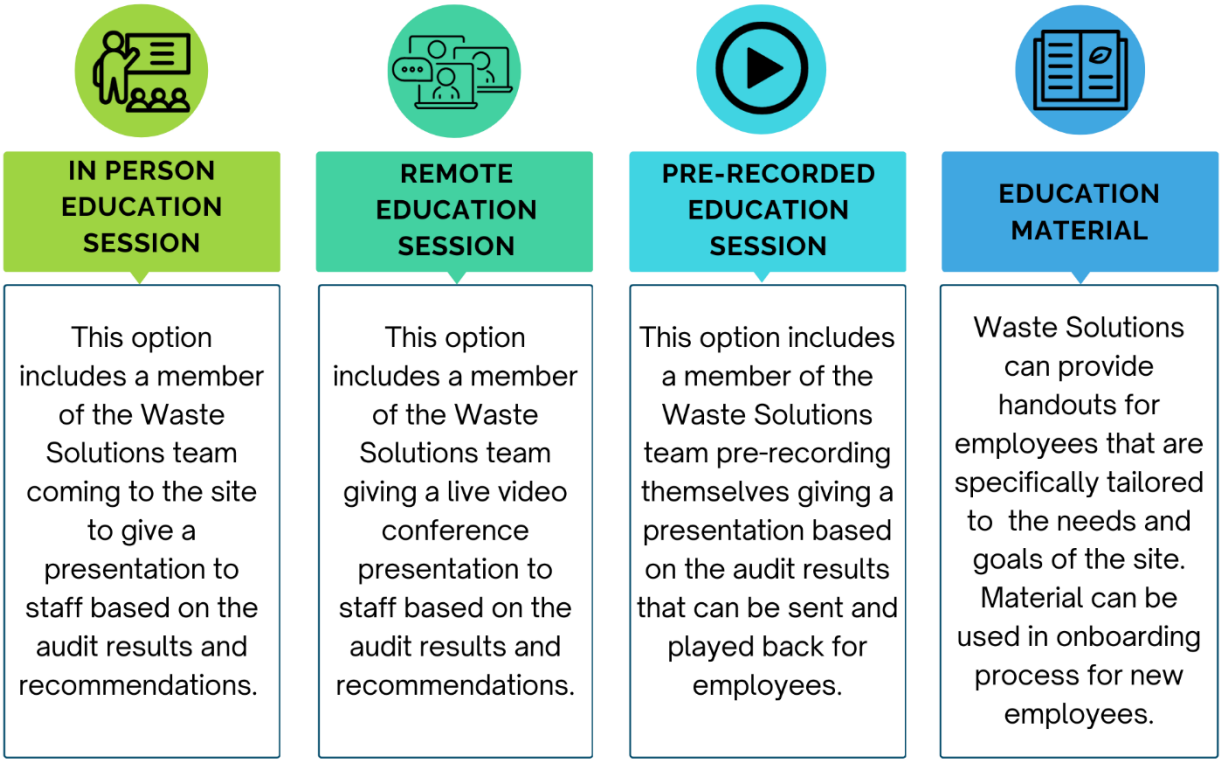
*Table 8. Annual amount of waste materials sent to the landfill.*

| WASTE MATERIAL | ANNUAL AMOUNT SENT TO LANDFILL (KG) |
|---|---|
| PET (#1) | 4,235.66 |
| HDPE (#2) | 450.60 |
| LDPE (#4) | 518.19 |
| PP (#5) | 7,840.49 |
| PS-C (#6) | 202.77 |
| P (#7) | 112.65 |
| Disposable Food Packaging (DFP) | 125,425.23 |
| Coffee Cups | 9,372.53 |
| Tissue Toweling | 22,777.96 |
| Non-Recyclable Packaging | 180.24 |
| **TOTAL** | **171,116.34 kg** |

## 5.3 EMPLOYEE EDUCATION AND ENGAGEMENT

### 5.3.1 EDUCATION OPPORTUNITIES

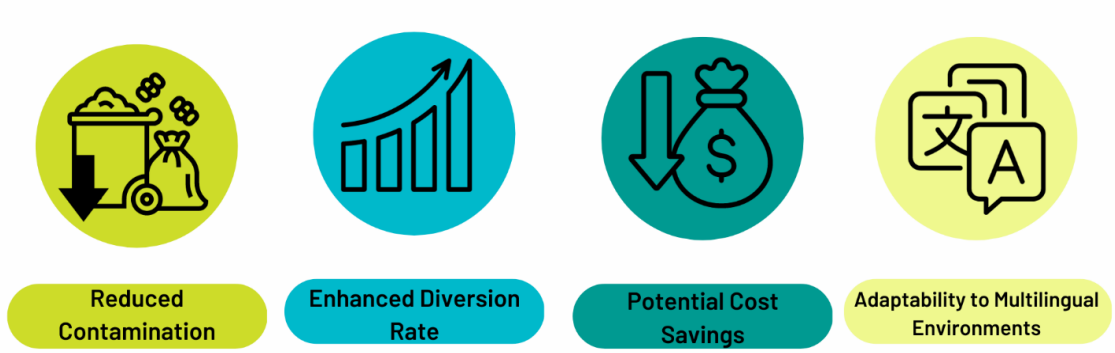
Waste Solutions recommends that UofT Scarborough provide employees with a waste education session. Waste Solutions are experts in waste and can provide educational materials to improve the company culture around waste management as well as give a better understanding of the importance of sustainable waste disposal practices. The options Waste Solutions provides are listed below:




If you are interested in one of the options listed above, please contact the Waste Solutions team at the following address: wasteaudit@waste.solutions to get started on your journey towards a more sustainable culture within UofT Scarborough.

### 5.3.2 IMPLEMENTING SIGNAGE

The easiest way to engage staff in diversion programs is to clearly communicate the acceptance criteria of these programs through clear signage accompanying waste receptacles. The benefits of implementing waste signage onsite are listed below.




#### REDUCED CONTAMINATION

- **Proper Disposal Guidance:** Clear waste signage helps prevent contamination of recycling and composting streams by guiding users on what items are accepted in each bin. This improves the quality of recycled and composted materials.

#### ENHANCED DIVERSION RATE

- **Promoting Recycling:** Informative waste signage encourages individuals to participate in recycling programs by clearly indicating which items are recyclable. This can lead to increased recycling rates within a community, workplace, or public space.

#### POTENTIAL COST SAVINGS

- **Efficient Waste Collection:** Proper waste signage contributes to efficient waste collection processes, reducing the time and resources required for sorting at later stages. This can result in cost savings for waste management operations.

#### ADAPTABILITY TO MULTILINGUAL ENVIRONMENTS

- **Inclusivity:** Multilingual friendly waste signage accommodates diverse populations, ensuring that individuals who speak different languages can understand and follow proper waste disposal procedures. This includes the use of pictures and graphics to convey the message.

Waste Solutions can curate specific signage for the site, which will increase the employee understanding of the waste management practices onsite. Examples of waste signage include:





Please contact Waste Solutions at wasteaudit@waste.solutions if you are interested in learning more about these additional services.

# APPENDIX A: DEFINITIONS

### ACCEPTANCE CRITERIA

Specifications set by the process for materials management that when met, facilitate optimum processing results as planned, such as commingling and contamination thresholds.

### ANNUALIZE

To calculate the mass of materials generated for an entire year based on any sample size.

### BLACK PLASTICS

Plastic that has been dyed black. This material can be difficult to recycle, as many Material Recovery Facilities use optical sensors in their processes, and these sensors cannot easily detect materials that have been dyed black.

### CAPTURE RATE

The proportion of a divertible waste, expressed as a percentage, which is successfully diverted from disposal.

### CONDENSED POLYSTYRENE (PS-C #6):

A type of plastic commonly used to make compact disc cases, coffee cup lids, yogurt cups, coffee pods, and disposable plastic plates and cups.

### CONTAINERS RECYCLING

A diversion program where containers are source separated on-site, placed in designated bins, and collected by a waste hauler to be recycled and diverted from landfill disposal. This program can also be referred to as a “cans and bottles” recycling stream. Although the acceptance criteria for these programs can change from region to region, a container recycling stream typically accepts the following materials: PET #1, HDPE #2, LDPE #4, PP #5, PS-C #6, aluminum, steel, glass, gable top containers, and Tetra Pak containers.

### CONTAMINATION

Material found in a diversion stream that is not considered divertible as it does not meet the acceptance criteria outlined by the site's waste hauler. This material reduces the efficiency and effectiveness of the diversion process and ultimately is disposed of in a landfill.

### DISPOSABLE FOOD PACKAGING (DFP)

Single-use, disposable, packaging material often originating from fast food restaurants, takeout restaurants, and catering establishments. The disposable food packing material category is typically comprised of: poly coated paper plates and bowls; wax coated fountain drink cups; cardboard and boxboard packaging soiled with food waste or grease (i.e. soiled pizza box, French fry holders, etc.); chip bags; and assorted wrappers from burgers, sandwiches, granola bars, and candy bars.

### DIVERSION

The following activities are considered diversion actions: actions to prevent waste materials from being generated, actions to reduce material generation, reuse (internal or external), source-separated recycling, composting (on-site or off-site). Post-collection sorting, such as recyclable material removed from a commingled waste bin at the transfer station, does not qualify as a source-separated diversion activity for the original generator of the waste even though the hauler or processor may ultimately diver the discarded material from disposal.

### DIVERSION RATE

The proportion by weight of all material diverted from disposal to the total weight of all waste material generated, expressed as a percentage.

### EXPANDED POLYSTYRENE (PS-E #6)

A type of plastic commonly referred to as "Styrofoam," that is used to make take-out food containers, packing peanuts, and other foam packaging inserts used to protect product during shipping and handling processes.

### HIGH-DENSITY POLYETHYLENE (HDPE #2)

A type of plastic commonly used to make milk jugs, household cleaner containers, meal-replacement bottles, protein powder containers, shampoo bottles, detergent bottles, and toiletries bottles.

### LOW-DENSITY POLYETHYLENE (LDPE #4)

A type of plastic commonly used to make squeezable bottles, shopping bags, shrink wrap, bread bags, and food wraps. Also referred to as “soft plastics.”

### MIXED RECYCLING STREAM

A diversion program where recyclable materials are source separated on-site, placed in designated bins, and collected by a waste hauler to be recycled and diverted from landfill disposal. Mixed recycling programs accept both containers and fibre-based materials in a single stream. Although the acceptance criteria for these programs can change from region to region, a mixed recycling stream typically accepts the following materials: PET #1, HDPE #2, LDPE #4, PP #5, PS-C #6, aluminum, steel, glass, polycoats, cardboard, boxboard, and mixed paper.

### MIXED WASTE

The category of waste comprised of materials that are not typically considered to be recyclable, and therefore are usually disposed of in a waste to landfill or waste-to-energy (incineration) stream.

### ORGANIC COMPOSTING STREAM

A diversion program where organic materials are source separated on-site, placed in designated bins, and collected by a waste hauler to be composted and diverted from landfill disposal. Although the acceptance criteria for these programs can change from region to region, an organic composting stream typically accepts the following material: food waste, yard waste, paper towel, compostable food packaging, and small quantities of wood (i.e. wooden stir sticks and chop sticks).

### OTHER PLASTIC (P #7)

The generic name for other plastic material usually comprised of a variety of other types of plastics. This material is commonly used to make blister packaging, sunglasses, toys, and single-use plastic items like straws, cutlery, and single pots that hold milk, cream, and butter.

### PAPER RECYCLING STREAM


A diversion program where fibre-based materials are source separated on-site, placed in designated bins, and collected by a waste hauler to be recycled and diverted from landfill disposal. Although the acceptance criteria for these programs can change from region to region, a paper recycling stream typically accepts the following materials: cardboard, boxboard, and mixed paper.

### POLYETHYLENE TEREPHTHALATE (PET #1)

A type of plastic commonly used to make water bottles, soda bottles, salad dressing containers, mouthwash bottles, clamshell food packaging, and peanut butter containers.

### POLYPROPYLENE (PP #5):

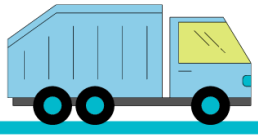
A type of plastic commonly used to make yogurt containers, ketchup bottles, syrup bottles, iced coffee cups, and medicine bottles.

## APPENDIX B: ANNUAL DATA CALCULATIONS

# Annual Data Calculations

## Hauler Data

After bins are emptied, material collected is disposed of at local waste facilities, and this material is weighed and reported monthly by the haulers.
Waste Solutions sums a 12-month period of hauler weights to annualize the 24-hour sample of waste audited at the site.



## Service Schedule

Annual weight of waste streams are calculated multiplying the following variables:

- Number of Bins
- Bin Size
- Waste Solutions Standardized Waste Estimate
- Pick-ups per Week
- # Weeks per Year
- Bin Fullness (%)

## Operating Days

Annual weight of waste streams is calculated by multiplying the 24-hour sample of waste audited by the number of operating days onsite.

## APPENDIX C: WASTE AUDIT CALCULATIONS

# Waste Audit Calculations

## Diversion Rate

The percentage of waste diverted from the landfill through the diversion streams operating onsite.

$$\left\{ \frac{\text{Total Waste Diverted}}{\text{Total Waste Generated}} \right\} \text{X } 100$$


## Capture Rate

Proportion of all waste diverted from the landfill to the total of all waste material that could have been diverted.

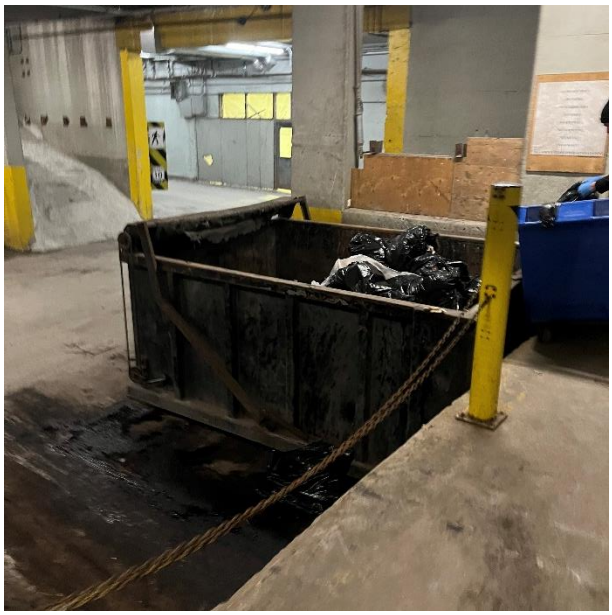
$$\left\{ \frac{\text{Total Waste Diverted}}{\text{Total Divertible Materials Generated}} \right\} \text{X } 100$$

## Contamination Rate

Proportion of all unacceptable materials found in diversion streams onsite.

$$\left\{ \frac{\text{Total Contamination}}{\text{Total Contamination + Total Waste Diverted}} \right\} \text{X } 100$$

# APPENDIX D: PHOTO LOG





*Images 1-3. On-site methods to handle, collect, and store waste.*

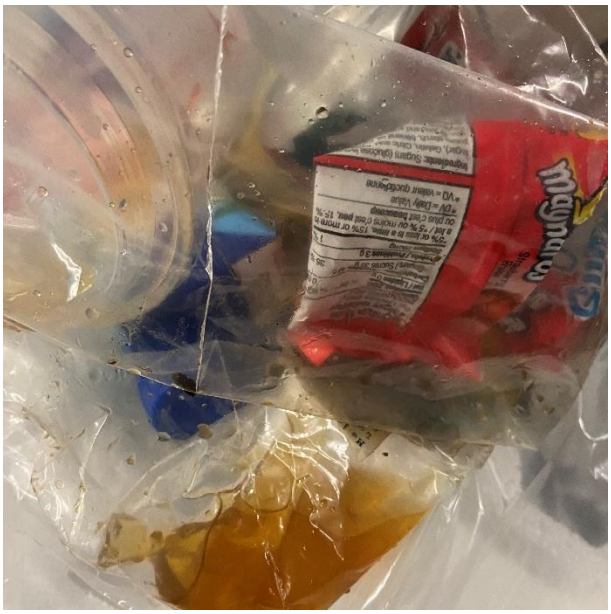
*Images 4-7. The staged waste sample representing 24-hours of waste generation.*



*Images 8-11. Recyclable materials found in the waste to landfill stream that could have been diverted through the mixed recycling stream.*

*Images 12-15. Organic materials found in the waste to landfill stream that could have been diverted through the composting stream.*


*Images 16-19. Mixed waste and organic material contaminating the mixed recycling stream.*




*Images 20-21. Mixed waste and organic material contaminating the mixed recycling stream.*

*Image 22. Mixed waste and recyclable material contaminating the composting stream.*

# APPENDIX E: REPORT OF A WASTE AUDIT FORM

Ministry of the Environment, Conservation and Parks
Report of a Waste Audit
Industrial, Commercial and Institutional Establishments
As required by Ontario Regulation 102/94

## I. General Information

| **Name of Owner and/or Operator of Entity(ies) and Company Name:** | | |
|---|---|---|
| UofT Scarborough care of University of Toronto | | |
| **Name of Contact Person:** | **Telephone Number:** | **Email Address:** |
| Patricia Escobar | 416-460-0678 | patricia.escobar@utoronto.ca |
| **Street Address of Entity(ies):** | | |
| 1295-1307 Military Trail | | |
| **Municipality:** | | |
| Scarborough, Ontario | | |
| **Type of Entity:** | | |
| Educational Institution | | |

## II. Description of Entity

| **Provide a brief overview of the entity(ies):** |
|---|
| The University of Toronto Scarborough is one of three campuses that make up the tri-campus system of the University of Toronto. It is located in the Scarborough district, Toronto, Canada. |

## 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?** |
|---|---|
| Polyethylene Terephthalate (PET #1) | Waste is generated when materials are brought to the site by students and employees, or when the material is purchased for daily operations onsite. Waste is commonly generated from water bottles or condiment bottles. |
| High-Density Polyethylene (HDPE #2) | Waste is generated when materials are brought to the site by students and employees, or when the material is purchased for daily operations onsite. Waste is commonly generated from cleaning bottles or soap bottles. |
| Low-Density Polyethylene (LDPE #4) | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. Waste is commonly generated from shopping bags, clear food containers, squeezable bottles, and general “soft plastics”. |
| Polypropylene (PP #5) | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. Waste is commonly generated from yogurt containers or butter containers. |

| | |
|---|---|
| Condensed Polystyrene (PS-C #6) | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. Waste is commonly generated from coffee cup lids, and disposable plates and cups. |
| Other Plastic (#7) | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. Waste is commonly generated from single use plastic items. |
| Aluminum Food and Beverage Cans | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. |
| Steel Food and Beverage Cans | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. |
| Glass Bottles & Jars for Food & Beverage | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. |
| Polycoats | Waste is generated when materials are brought to the site by students and employees. Waste is commonly generated from juice boxes, soup boxes or gable top cartons. |
| Scrap Metal | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. |
| Cardboard (Corrugated) | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. Waste is commonly generated through the packaging associated with the purchase or consumption of products. |
| Boxboard | Waste is generated when materials are brought to the site by students and employees. Waste is commonly generated through the packaging associated with the purchase or consumption of products. |
| Mixed Paper (Fine Paper & Newsprint) | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. |
| Tissues & Paper Towel | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. Waste is commonly generated when product is used for cleaning purposes onsite. |
| Solid Food Waste | Waste is generated during the consumption of food products onsite by employees and students. |
| Other Organics | Waste is generated when organic materials are brought to the site by students and employees. |
| Scrap Wood | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. |
| Disposable Food Packaging | Waste is generated during the consumption of food products onsite by employees and students. |
| Coffee Cups | Waste is generated when single-use coffee cups are brought to the site by students and employees. |
| Clothing and Textiles | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. |

| | |
|---|---|
| Personal Protective Equipment | Waste is generated when the material is purchased for protection against hazardous conditions at the site. |
| Non-Recyclable Packaging | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. |
| Electronic Waste | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. |
| Refundable Blue Containers | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. |
| Other Waste | Waste is generated when materials are brought to the site by students and employees or when the material is purchased for daily operations onsite. |

## IV. Management of Waste

| Category: | Waste to be Disposed: | Reused or Recycled Waste: |
|---|---|---|
| Polyethylene Terephthalate (PET #1) | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current recycling program. | Employees and students place this material in the recycling bins to be recycled. |
| High-Density Polyethylene (HDPE #2) | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current recycling program. | Employees and students place this material in the recycling bins to be recycled. |
| Low-Density Polyethylene (LDPE #4) | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current recycling program. | Employees and students place this material in the recycling bins to be recycled. |
| Polypropylene (PP #5) | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current recycling program. | Employees and students place this material in the recycling bins to be recycled. |
| Condensed Polystyrene (PS-C #6) | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current recycling program. | Employees and students place this material in the recycling bins to be recycled. |
| Other Plastic (#7) | This material is handled as mixed waste and is placed in a bin for disposal. | This material is not recycled or reused. Occasionally, it is incorrectly disposed of in the recycling totes by employees and students. |
| Aluminum Food and Beverage Cans | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current recycling program. | Employees and students place this material in the recycling bins to be recycled. |
| Steel Food and Beverage Cans | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current recycling program. | Employees and students place this material in the recycling bins to be recycled. |

| | | |
|---|---|---|
| Glass Bottles & Jars for Food & Beverage | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current recycling program. | Employees and students place this material in the recycling bins to be recycled. |
| Polycoats | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current recycling program. | Employees and students place this material in the recycling bins to be recycled. |
| Scrap Metal | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current recycling program. | Employees and students place this material in the recycling bins to be recycled. |
| Cardboard (Corrugated) | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current recycling program. | Employees and students place this material in the recycling bins to be recycled. |
| Boxboard | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current recycling program. | Employees and students place this material in the recycling bins to be recycled. |
| Mixed Paper (Fine Paper & Newsprint) | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current recycling program. | Employees and students place this material in the recycling bins to be recycled. |
| Tissues & Paper Towel | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current composting program. | Employees and students place this material in the bins to be composted. |
| Solid Food Waste | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current composting program. | Employees and students place this material in the bins to be composted. |
| Other Organic Material | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current composting program. | Employees and students place this material in the bins to be composted. |
| Scrap Wood | This material is handled as mixed waste and is placed in a bin for disposal. | Not applicable. |
| Disposable Food Packaging | This material is handled as mixed waste and is placed in a bin for disposal. | Not applicable. |
| Coffee Cups | This material is handled as mixed waste and is placed in a bin for disposal. | This material cannot be recycled or reused. Occasionally, it is incorrectly disposed of in the recycling totes by employees and students. |

| | | |
|---|---|---|
| Clothing and Textiles | This material is handled as mixed waste and is placed in a bin for disposal. | Not applicable. |
| Personal Protective Equipment | This material is handled as mixed waste and is placed in a bin for disposal. | Not applicable. |
| Non-Recyclable Packaging | This material is handled as mixed waste and is placed in a bin for disposal. | Not applicable. |
| Electronic Waste | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current recycling program. | Employees and students place this material in the recycling bins to be recycled. |
| Refundable Blue Containers | Material is occasionally disposed of as waste by employees and students due to non-compliance with the current recycling program. | Employees and students place this material in the recycling bins to be recycled. |
| Other Waste | This material is handled as mixed waste and is placed in a bin for disposal. | Not applicable. |

| Part V | Estimated Amount of Waste Produced in Kilograms (kg) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Generated | | | Reused | | | Recycled | | | Disposed | | |
| **Waste Categories:** | "A" Base Year | "B" Current Year | "C" Change (A-B) | "A" Base Year | "B" Current Year | "C" Change (A-B) | "A" Base Year | "B" Current Year | "C" Change (A-B) | "A" Base Year | "B" Current Year | "C" Change (A-B) |
| Polyethylene Terephthalate (PET #1) | | 6,534.76 | | | | | | 2,299.09 | | | 4,235.66 | |
| High-Density Polyethylene (HDPE #2) | | 457.17 | | | | | | 6.57 | | | 450.60 | |
| Low-Density Polyethylene (LDPE #4) | | 1,086.78 | | | | | | 564.92 | | | 521.86 | |
| Polypropylene (PP #5) | | 9,318.47 | | | | | | 1,477.99 | | | 7,840.49 | |
| Condensed Polystyrene (PS-C #6) | | 229.05 | | | | | | 26.28 | | | 202.77 | |
| Other Plastic (#7) | | 125.79 | | | | | | 0.00 | | | 125.79 | |
| Aluminum Food and Beverage Cans | | 1,285.72 | | | | | | 328.44 | | | 957.28 | |
| Steel Food and Beverage Cans | | 180.24 | | | | | | 0.00 | | | 180.24 | |
| Glass Bottles & Jars for Food & Beverage | | 3,603.37 | | | | | | 1,372.89 | | | 2,230.48 | |
| Polycoats | | 856.03 | | | | | | 315.30 | | | 540.72 | |
| Scrap Metal | | 26,304.26 | | | | | | 26,304.26 | | | 0.00 | |
| Cardboard (Corrugated) | | 26,539.91 | | | | | | 26,539.91 | | | 0.00 | |
| Boxboard | | 1,907.33 | | | | | | 578.06 | | | 1,329.28 | |
| Mixed Paper (Fine Paper & Newsprint) | | 5,172.72 | | | | | | 4,427.39 | | | 745.33 | |
| Tissues & Paper Towel | | 23,108.86 | | | | | | 15.60 | | | 23,093.27 | |
| Solid Food Waste | | 129,874.24 | | | | | | 18,171.68 | | | 111,702.55 | |
| Other Organic Materials | | 2,437.11 | | | | | | 23.85 | | | 2,413.25 | |
| Scrap Wood | | 144.51 | | | | | | 0.00 | | | 144.51 | |
| Disposable Food Packaging | | 135,982.89 | | | | | | 0.00 | | | 135,982.89 | |
| Coffee Cups | | 10,903.07 | | | | | | 0.00 | | | 10,903.07 | |
| Clothing and Textiles | | 1,586.28 | | | | | | 0.00 | | | 1,586.28 | |
| Personal Protective Equipment | | 161.46 | | | | | | 0.00 | | | 161.46 | |
| Non-Recyclable Packaging | | 180.24 | | | | | | 0.00 | | | 180.24 | |
| Electronic Waste | | 5,889.00 | | | | | | 5,889.00 | | | 0.00 | |
| U of T Blue Refundable Food Containers | | 1,346.10 | | | | | | 197.06 | | | 1,149.04 | |
| Other Waste | | 3,289.40 | | | | | | 0.00 | | | 3,289.40 | |
| **Total** | | **398,504.77** | | | | | | **88,538.30** | | | **309,966.47** | |
| **Percent Change (total C/ total A x 100)** | | | | | | | | | | | | |

## VI. Extent to which Materials or Products used or sold by the Entity Consist of Recycled or Reused Materials or Products.

| | |
|---|---|
| **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, University of Toronto does not currently have a policy in place that promotes the purchasing or use of products that consist of recycled or reused materials. |
| **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 - currently have a reusable container pilot in food retail locations. Additionally, a U of T procurement sustainable purchasing policy is in the works. |

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

| **I hereby certify that the information provided in this Report of a Waste Audit is complete and correct.** | | |
|---|---|---|
| **Signature of Authorized Official:** | **Title:** | **Date:** |
| | | |

# APPENDIX F: REPORT OF A WASTE REDUCTION WORK PLAN

Ministry of the Environment, Conservation and Parks
Report of a Waste Reduction Work Plan
Industrial, Commercial and Institutional Establishments
As required by Ontario Regulation 102/94

## I. General Information

| **Name of Owner and/or Operator of Entity(ies) and Company Name:** | | |
|---|---|---|
| UofT Scarborough care of University of Toronto | | |
| **Name of Contact Person:** | **Telephone Number:** | **Email Address:** |
| Patricia Escobar | 416-460-0678 | patricia.escobar@utoronto.ca |
| **Street Address of Entity(ies):** | | |
| 1295-1307 Military Trail | | |
| **Municipality:** | | |
| Scarborough, Ontario | | |

| **Type of Entity:** | | | |
|---|---|---|---|
| Retail Shopping Establishment | | Hotel and Motel | |
| Retail Shopping Complex | | Hospital | |
| Office Building | | Educational Institution | X |
| Restaurant | | Large Manufacturing Establishment | |

## II. Description of Entity

| **Provide a brief overview of the entity(ies):** |
|---|
| The University of Toronto Scarborough is one of three campuses that make up the tri-campus system of the University of Toronto. It is located in the Scarborough district, Toronto, Canada. |

## III. Plans to Reduce, Reuse and Recycle Waste

| **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.** | |
|---|---|
| Polyethylene Terephthalate (PET #1) | Reduce: No plans<br>Reuse: No plans<br>Recycle: Mixed recycling stream or Container recycling stream<br>Students and employees will be encouraged to use recycling bins to source separate PET (#1). Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |

| | |
|---|---|
| High-Density Polyethylene (HDPE #2) | Reduce: No plans<br>Reuse: No plans<br>Recycle: Mixed recycling stream or Container recycling stream<br>Students and employees will be encouraged to use recycling bins to source separate HDPE (#2). Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |
| Low-Density Polyethylene (LDPE #4) | Reduce: No plans<br>Reuse: No plans<br>Recycle: Mixed recycling stream or Container recycling stream m<br>Students and employees will be encouraged to use recycling bins to source separate LDPE (#4). Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |
| Polypropylene (PP #5) | Reduce: No plans<br>Reuse: No plans<br>Recycle: Mixed recycling stream or Container recycling stream<br>Students and employees will be encouraged to use recycling bins to source separate PP (#5). Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |
| Condensed Polystyrene (PS-C #6) | Reduce: No plans<br>Reuse: No plans<br>Recycle: Mixed recycling stream or Container recycling stream<br>Students and employees will be encouraged to use recycling bins to source separate PS-C (#6). Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |
| Other Plastic (P #7) | No plans to reduce, reuse, or recycle P (#7). |
| Aluminum Food and Beverage Cans | Reduce: No plans<br>Reuse: No plans<br>Recycle: Mixed recycling stream or Container recycling stream<br>Students and employees will be encouraged to use recycling bins to source separate aluminum. Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |
| Steel Food and Beverage Cans | Reduce: No plans<br>Reuse: No plans<br>Recycle: Mixed recycling stream or Container recycling stream<br>Students and employees will be encouraged to use recycling bins to source separate steel. Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |
| Glass Bottles & Jars for Food & Beverage | Reduce: No plans<br>Reuse: No plans<br>Recycle: Mixed recycling stream or Container recycling stream<br>Students and employees will be encouraged to use recycling bins to source separate glass. Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |
| Polycoats | Reduce: No plans<br>Reuse: No plans<br>Recycle: Mixed recycling stream or Container recycling stream<br>Employees will be encouraged to use recycling bins to source separate polycoat containers. Bins have been provided in offices and staff areas for employees. |

| | |
|---|---|
| Scrap Metal | Reduce: No plans<br>Reuse: No plans<br>Recycle: Scrap metal recycling stream<br>Students and employees will be encouraged to use recycling bins to source separate scrap metal. Bins have been provided in the appropriate spaces for students and employees. |
| Cardboard (Corrugated) | Reduce: No plans<br>Reuse: No plans<br>Recycle: Cardboard recycling stream<br>Students and employees will be encouraged to use recycling bins to source separate cardboard. Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |
| Boxboard | Reduce: No plans<br>Reuse: No plans<br>Recycle: Mixed recycling stream<br>Students and employees will be encouraged to use recycling bins to source separate boxboard. Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |
| Mixed Paper (Fine Paper & Newsprint) | Reduce: No plans<br>Reuse: No plans<br>Recycle: Mixed recycling stream<br>Students and employees will be encouraged to use recycling bins to source separate paper. Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |
| Tissues and Paper Towel | Reduce: No plans<br>Reuse: No plans<br>Recycle: Composting stream<br>Students and employees will be encouraged to use recycling bins to source separate tissues and paper towels. Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |
| Solid Food Waste | Reduce: No plans<br>Reuse: No plans<br>Recycle: Composting stream<br>Students and employees will be encouraged to use recycling bins to source separate solid food waste. Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |
| Other Organic Materials | Reduce: No plans<br>Reuse: No plans<br>Recycle: Composting stream<br>Students and employees will be encouraged to use recycling bins to source separate solid food waste. Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |
| Scrap Wood | No plans to reduce, reuse, or recycle scrap wood. |
| Disposable Food Packaging | No plans to reduce, reuse, or recycle disposable food packaging. |
| Coffee Cups | No plans to reduce, reuse, or recycle coffee cups. |

| | |
|---|---|
| Clothing and Textiles | No plans to reduce, reuse, or recycle clothing and textiles. |
| Personal Protective Equipment | No plans to reduce, reuse, or recycle personal protective equipment. |
| Non-Recyclable Packaging | No plans to reduce, reuse, or recycle non-recyclable packaging. |
| Electronic Waste | Reduce: No plans<br>Reuse: No plans<br>Recycle: Electronic waste recycling stream<br>Employees will be encouraged to use recycling bins to source separate electronic waste. Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |
| Refundable Blue Containers | Reduce: No plans<br>Reuse: No plans<br>Recycle: Mixed recycling stream or Container recycling stream<br>Students and employees will be encouraged to use recycling bins to source separate refundable blue containers. Bins have been provided in public spaces for students, as well as in offices and staff areas for employees. |
| Other Waste | No plans to reduce, reuse, or recycle other waste items. |

## 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 Number:** |
| Patricia Escobar | Source Separation and 3R Program Implementation | 416-460-0678 |

## 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:** |
| **Optimize the Diversion Streams:** Consider optimizing diversion streams through the use of signage and engagement with stakeholders onsite.<br><br>**Reduce Waste Materials:** Consider reducing the disposal of single-use products onsite through stakeholder engagement and participation in re-use programs onsite. | **Ongoing –** UofT Scarborough/University of Toronto will continuously work towards a more sustainable waste management strategy onsite through optimizing diversion streams, increasing stakeholder engagement in the waste management programs, and reducing waste where possible. |

## VI. Communication to Staff and Students

| **Explain how the Waste Reduction Work Plan will be communicated to employees, students, tenants, and students:** |
|---|
| The waste reduction work plan will be posted for students and staff to review. Students and staff will be briefed on new changes to diversion programs. |

## VII. Estimated Waste Produced by Material Type and the Projected Amount

| Material Categories (as stated in Part III) | Estimated Annual Waste Produced* (kgs) | Name of Proposed 3Rs Program (as stated in Part III) | Projections to Reduce, Reuse or Recycle Waste (kgs) | | | Estimated Annual Amount to be Diverted** (%) |
|---|---|---|---|---|---|---|
| | | | Reduce | Reuse | Recycle | |
| Polyethylene Terephthalate (PET #1) | 6534.76 | Container/ Mixed Recycling Stream | | | 2299.09 | 35.18% |
| High-Density Polyethylene (HDPE #2) | 457.17 | Container/ Mixed Recycling Stream | | | 6.57 | 1.44% |
| Low-Density Polyethylene (LDPE #4) | 1086.78 | Container/ Mixed Recycling Stream | | | 564.92 | 51.98% |
| Polypropylene (PP #5) | 9318.47 | Container/ Mixed Recycling Stream | | | 1477.99 | 15.86% |
| Condensed Polystyrene (PS-C #6) | 229.05 | Container/ Mixed Recycling Stream | | | 26.28 | 11.47% |
| Other Plastic (#7) | 125.79 | Mixed Waste Stream | | | 0.00 | 0.00% |
| Aluminum Food and Beverage Cans | 1285.72 | Container/ Mixed Recycling Stream | | | 328.44 | 25.55% |
| Steel Food and Beverage Cans | 180.24 | Container/ Mixed Recycling Stream | | | 0.00 | 0.00% |
| Glass Bottles & Jars for Food & Beverage | 3603.37 | Container/ Mixed Recycling Stream | | | 1372.89 | 38.10% |
| Polycoats | 856.03 | Container/ Mixed Recycling Stream | | | 315.30 | 36.83% |
| Scrap Metal | 26304.26 | Scrap Metal Recycling Stream | | | 26304.26 | 100.00% |
| Cardboard (Corrugated) | 26539.91 | Cardboard Recycling Stream | | | 26539.91 | 100.00% |

| | | | | | | |
|---|---|---|---|---|---|---|
| Boxboard | 1907.33 | Mixed Recycling Stream | | | 578.06 | 30.31% |
| Mixed Paper (Fine Paper & Newsprint) | 5172.72 | Mixed Recycling Stream | | | 4427.39 | 85.59% |
| Tissues & Paper Towel | 23108.86 | Organics Composting Stream | | | 15.60 | 0.07% |
| Solid Food Waste | 129874.24 | Organics Composting Stream | | | 18171.68 | 13.99% |
| Other Organic Materials | 2437.11 | Organics Composting Stream | | | 23.85 | 0.98% |
| Scrap Wood | 144.51 | Scrap Wood Recycling Stream | | | 0.00 | 0.00% |
| Disposable Food Packaging | 135982.89 | Mixed Waste Stream | | | 0.00 | 0.00% |
| Coffee Cups | 10903.07 | Mixed Waste Stream | | | 0.00 | 0.00% |
| Clothing and Textiles | 1586.28 | Mixed Waste Stream | | | 0.00 | 0.00% |
| Personal Protective Equipment | 161.46 | Mixed Waste Stream | | | 0.00 | 0.00% |
| Non-Recyclable Packaging | 180.24 | Mixed Waste Stream | | | 0.00 | 0.00% |
| Electronic Waste | 5889.00 | Electronic Waste Recycling Stream | | | 5889.00 | 100.00% |
| U of T Blue Refundable Food Containers | 1346.10 | Container/ Mixed Recycling Stream | | | 197.06 | 14.64% |
| Other Waste | 3289.40 | Mixed Waste Stream | | | 0.00 | 0.00% |

* 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:** |
| | | |