

WM | Advisory Services

Waste to Resource Assessment



Prepared for:



Unity Health - St. Michael's Hospital
30 Bond St, Toronto, ON
August 7, 2025

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This assessment is designed to exceed the minimum guidelines for performing waste assessments as set forth by the US EPA and Canadian provincial regulatory authorities. This report has been prepared for the specific purpose(s) contained herein. To the extent that statements and information provided by the client, its representatives, or partners have been used in the preparation of this report, Sustainability Services and WM of Canada Corporation relied upon the same to be accurate, and for which no assurances are intended, and no representations or warranties are made. Sustainability Services and WM of Canada Corporation make no certification and gives no assurances except as explicitly set forth in this report. This report and the information contained herein, is produced for the expressed use of Unity Health - St. Michael's Hospital , Toronto, ON. Sustainability Services and WM of Canada Corporation specifically prohibit redistribution of this report and the material contained herein in whole or part without expressed written permission of Sustainability Services and WM of Canada Corporation.






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Executive Summary

On August 7, 2025, Advisory Services conducted a Waste to Resource™ assessment for Unity Health - St. Michael's Hospital located at 30 Bond St in Toronto, ON. A few goals of the assessment were as follows:

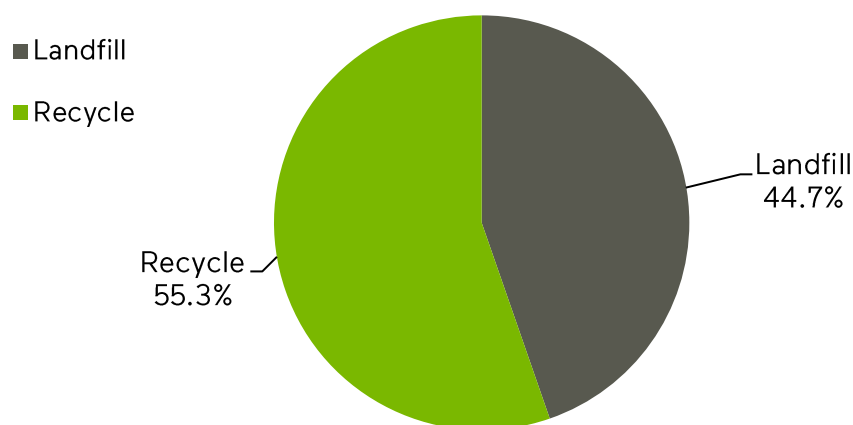
-  **Update baseline inventories for waste generation at Unity Health - St. Michael's Hospital**
-  **To identify and quantify waste composition and commodity**
-  **To determine the recovery performance of existing programs**
-  **Identify opportunities to further increase diversion and reduce cost**
-  **Develop strategies that could be implemented throughout the facility**

Our goal is to provide Unity Health - St. Michael's Hospital with strategies that will maximize the efficiency of your waste diversion system. During the waste assessment conducted by Advisory Services, visual inspections of waste generation points throughout the facility resulted in the discovery of additional diversion opportunities. The assessment identified five primary opportunities that should occur to improve your overall waste diversion rate. The following are our recommendations:







-  **Increase Awareness of Current Diversion Programs**
-  **Employee, Contractor, and Visitor Education and Engagement**
-  **Ensure Effective Diversion Infrastructure**
-  **Organization Wide Guidelines and Labelling**
-  **Continual Improvement and Additional Recommendations**

The facility generated a combined 2,181.35 tonnes of waste and diverted materials in the last year. The current diversion rate for your facility is 55.3%.

Figure 1- Current Diversion Rate at Unity Health - St. Michael's Hospital



A team of sustainability consultants performed an assessment that involved a walkthrough of the facility and a targeted sort and weigh analysis of the waste stream. The following is a summary of key findings identified during the assessment:

-  **The current diversion rate is 55.3%**
-  **Annually, it is estimated that 974.65 tonnes of waste and 1,206.70 tonnes of diverted materials will be generated from your facility**
-  **Of all the material generated on site, up to 68.0% potentially could have been diverted through currently available diversion programs**
-  **Plastics account for 24.2% of the waste sent to landfill**
-  **Papers account for 18.7% of the waste sent to landfill**
-  **Organics account for 6.5% of the waste sent to landfill**

Assessment Findings and Goals Alignment

Facility Information

Table 1 – Facility Information








Item	Comments
Facility Name:	Unity Health - St. Michael's Hospital
Description:	St. Michael's Hospital is a leading teaching hospital and research centre based in downtown Toronto. The facility is 245,000 sq.ft. with approximately 460 patient beds.
Address:	30 Bond St, Toronto, ON
Contact Name:	Douglas Johnson <i>Joseph Raab</i>
Contact Number:	416-864-6060 x6390

Table 2 – Assessment Summary

Item	Comments
Performed By:	Kirthan Sathananthan
Performed On:	August 7, 2025
Report Written:	Kirthan Sathananthan
Report Reviewed:	Christopher Doyle
Assessment Type:	Waste to Resource Assessment
Assessment Level:	<input checked="" type="checkbox"/> Basic Material Characterization <input type="checkbox"/> Detailed Material Characterization <input checked="" type="checkbox"/> Basic Options Analysis <input checked="" type="checkbox"/> Detailed Option Analysis <input type="checkbox"/> Carbon Analysis <input type="checkbox"/> Material Process Mapping <input checked="" type="checkbox"/> Implementation Feasibility Analysis <input checked="" type="checkbox"/> Action Plan
Account Manager:	Keira Toscan

Goals, Objectives, and Other Factors

The following is a list of company goals, objectives, or other factors considered during this assessment.

-  **Apply findings from the waste assessment to reduce waste, maximize collection of recycling materials and optimize material management efficiencies**
-  **Set goals, monitor waste generation, and track recovery levels on a regular basis**
-  **Streamline and standardize handling routines of materials throughout the facility**
-  **Reduce waste spend and disposal costs**
-  **Provide ongoing and improved employee training and education avenues**
-  **Identify areas of new or enhanced diversion opportunity**
-  **Increase capture rate of divertible materials and reduce overall generation of non-recyclable materials**

Regulatory Requirements

The facility took initiative to conduct a solid nonhazardous waste audit in effort to adhere to Ministry of the Environment, Conservation and Parks Regulations 102/94 and 103/94. Under O.Reg. 102/94, all waste audits must address:

- Identify the amount, nature and composition of the waste generated in designated functional areas of the facility;
- How the waste is produced, including relevant management decisions and policies;
- How the waste is managed; and
- The extent to which materials or products used or sold consist of recycled or reused materials or products.

According to O.Reg. 102/94, the Waste Reduction Work Plans or a summary of the plan must be posted at the facility in a place where it can be viewed. If a summary of the work plan is posted, the full Work Plan must be made available for review upon request by any employee.

- The waste audit report and waste reduction work plan must be retained on file for a minimum of five years;
- A waste audit report and waste reduction work plan must be conducted and updated annually.

Please see Appendix 5 – Ontario’s 3Rs Regulations for more details or <https://www.ontario.ca/laws/regulation/940103> and <https://www.ontario.ca/laws/regulation/940102> for the full regulations.

**PART IX
HOSPITALS**

46. This Part applies to the operator of a public hospital classified as a class A, B or F hospital in Regulation 964 of the Revised Regulations of Ontario, 1990. O. Reg. 102/94, s. 46.

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

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

(3) In every year following the initial waste audit, the operator shall update the audit and prepare an updated written report. O. Reg. 102/94, s. 47.

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

(2) In every year following the preparation of the initial waste reduction work plan, the operator shall prepare an updated written plan. O. Reg. 102/94, s. 48.

49. The operator shall implement the waste reduction work plan as updated. O. Reg. 102/94, s. 49.

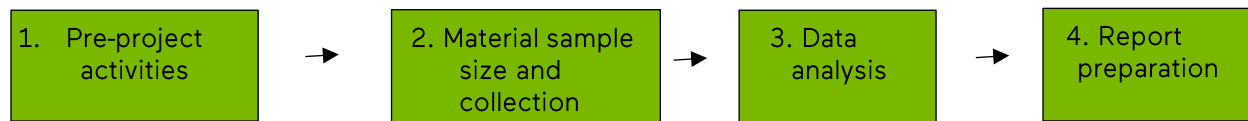
Options Overview

Five options were identified during the assessment. The table below lists key options that represent the most significant opportunities.

Table 3 – Options Summary Table

Option	Description	Benefit	Rationale
Increase Awareness of Current Diversion Programs	Improve understanding of the materials entering the landfill stream.	<ul style="list-style-type: none"> ✓ Increases diversion and capture rates ✓ Reduced waste spends 	Majority of the materials generated throughout the hospital can be diverted from landfill though current reuse, recycling, or compost programs.
Employee, Contractor, and Visitor Education and Engagement	All stakeholders need to receive consistent messages about current diversion programs available to them.	<ul style="list-style-type: none"> ✓ Increases awareness on environmental programs and issues ✓ Increased efficiencies ✓ Ensures effective education is offered 	<p>All stakeholders need to be encouraged and re-educated regarding waste and recycling procedures within the hospital.</p> <p>Dedicated and knowledgeable staff will create the opportunity for the hospital to achieve superior capture rates and manage an effective program.</p>
Organization Wide Guidelines and Labelling	Create signage to aid all program users.	<ul style="list-style-type: none"> ✓ Customized to be most effective ✓ Provides resources for employees 	Implement signage to improve hospital-wide capture rate.
Ensure Effective Diversion Infrastructure	Ensure receptacles and signage is present.	<ul style="list-style-type: none"> ✓ Increases efficiencies in program and reduces gaps 	Take measures to help users and set up the diversion program for success.
Continual Improvement and Additional Recommendations	Continually improve the waste diversion program on site. Monitor and effectively manage all programs and methods in place at the hospital.	<ul style="list-style-type: none"> ✓ Expands programs available ✓ Ensures the tools and infrastructure are in place to support diversion goals 	<p>Control decision-making and input regarding materials brought into the hospital.</p> <p>Determine how best to capture non-traditional materials for recycling or reuse.</p>

Sampling Methodology



- 1. Pre-project activities** - Collecting background information (such as identifying occupancy rate, changes in collection services), historical data, diversion reports, receptacle service information, etc. Establishing the plan for the assessment. Conducting a site tour of the facility to review procedures and current infrastructure.
- 2. Waste assessment and sample size** - To characterize the material stream, visual observations, and waste samples (non-hazardous solid waste) were obtained from various collection areas throughout the facility. These collection areas were identified from labels placed on the waste bags or collection receptacle. For the purposes of this assessment, a sample **generation area** is a combination of a specific collection area or department and/or waste generating process. The sample material was collected in a safe and designated location separate from other waste collection areas for the assessment.

During this assessment, samples were collected from 5 unique generation areas throughout the facility over a 24-hour period. For the purposes of this project, it is assumed that the sample period chosen is a fair representation of typical activities and waste generation at the site, although daily variances are possible. The materials were sorted and divided into up to 10 waste categories and weights of each material sub-category (up to 90) were recorded.
- 3. Data analysis** – Analysis of on and off-site data provided by WM and the client. Calculation of diversion and capture rate for the site.
- 4. Report preparation** - Full report prepared including site specific recommendations and Ministry of the Environment, Conservation and Parks - Audit and Workplan forms.

Limitations

Hazardous, Industrial, and Liquid Industrial Wastes were not included within the scope of this assessment. These materials are not typically included in MOE Reg. 102/94 solid waste audits and specialized processes are required to handle these materials due to the health and safety concerns associated.

Staff may occasionally dispose bulk materials (e.g., broken furniture) in landfill. These materials were not included in the assessed sample. Projections were included in the assessment report.

A portion of the sample bags included diapers and medical fluids, auditors conducted limited or simple sorting of these sample bags.

Material Composition Breakdown

Landfill Waste Material Comparison by Category

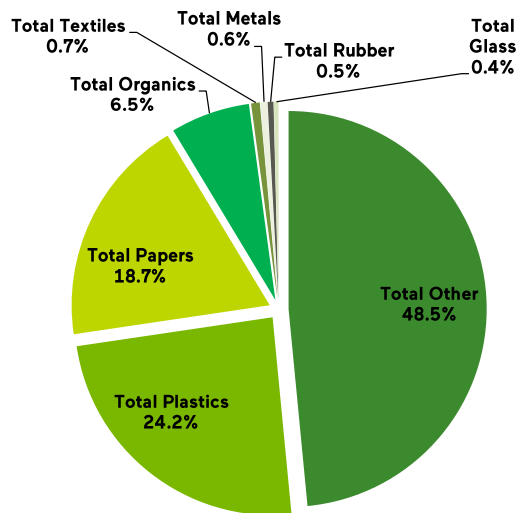
This section displays a breakdown of general material categories by weight and volume. The largest category by weight was Other materials which represented 48.5% of the landfill waste stream.

Table 4 – Landfill Waste Material Comparison

Waste Category	Total Audited Waste Material (kg)	Material Composition (%)	Annual Projected Volume Generated (kg)
Total Other	144.94	48.5%	472,461
Total Plastics	72.31	24.2%	235,709
Total Papers	55.96	18.7%	182,413
Total Organics	19.39	6.5%	63,206
Total Textiles	2.11	0.7%	6,878
Total Metals	1.72	0.6%	5,607
Total Rubber	1.41	0.5%	4,596
Total Glass	1.16	0.4%	3,781
Total	299.00	100.0%	974,650

Figure 2 below represents the generation areas at the facility.

Figure 2 – Landfill Waste Material by Category



Audited Waste Material Composition by Sample Collection Area

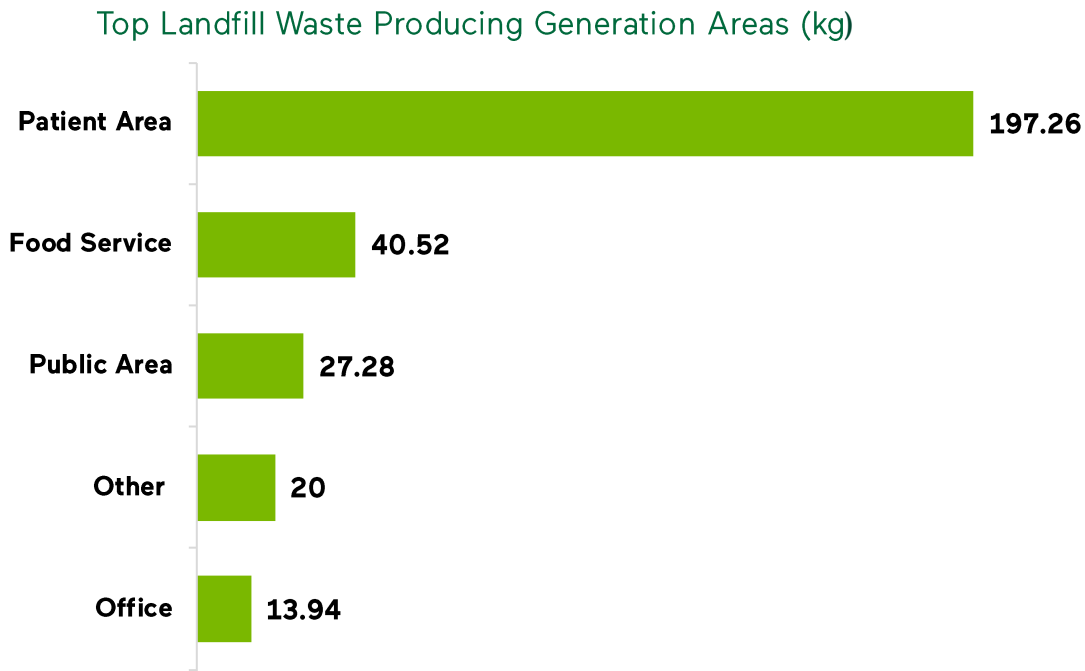
The following table displays a breakdown of the waste sources/ generation areas identified during the assessment. For further in-depth analysis of the generation areas identified, consult Appendices and (if requested) Supplementary Data. The largest generation source/ area identified was the Patient Area generation area representing 66.0% of the audited sample.

Table 5 – Audited Waste Sources

Generation Area	Total Audited Waste (kg)	Generation Composition (%)	Annual Projected Volume (kg)
Patient Area	197.26	66.0%	643,008
Food Service	40.52	13.6%	132,083
Public Area	27.28	9.1%	88,925
Other	20.00	6.7%	65,194
Office	13.94	4.7%	45,440
Grand Total	299.00	100.0%	974,650

Figure 3 below represents the top five generation areas identified at the facility and some smaller areas are not specifically noted.

Figure 3 – Waste Generation by Collection Area



Diversion Opportunities

Increased diversion opportunities represent the largest potential cost savings and landfill diversion opportunity for Unity Health - St. Michael's Hospital. While diversion programs are currently in operation, the audit shows that they are not working at their optimal efficiency.

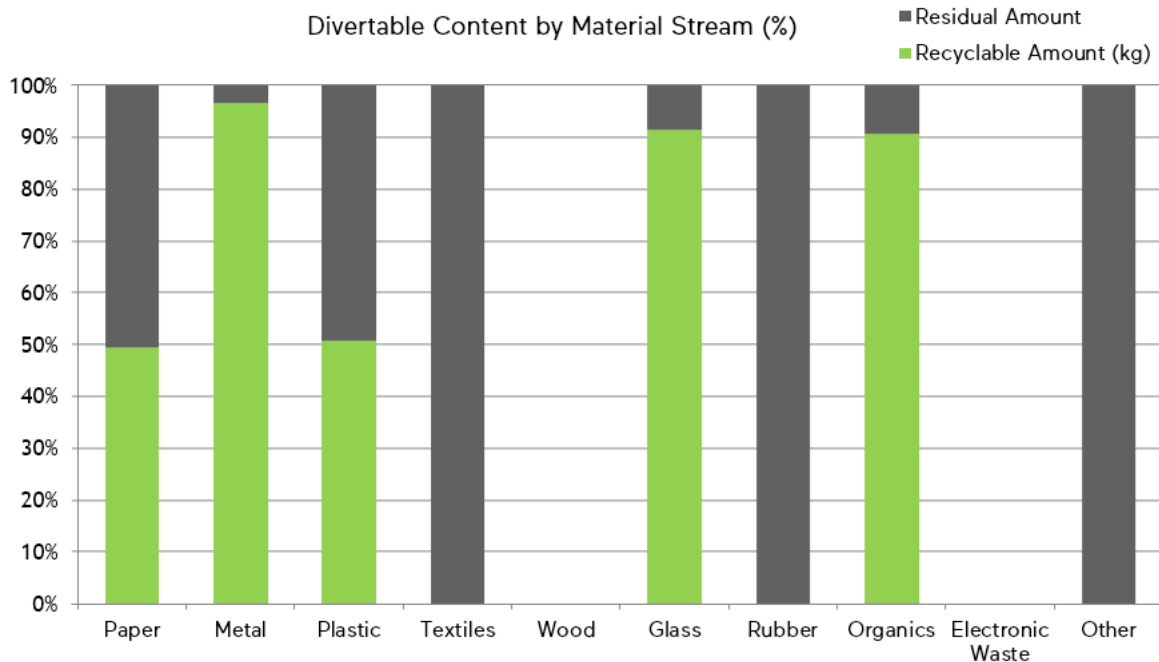
Diversion rate is calculated as follows:

$$\text{Diversion Rate} = \frac{\text{Weight of recovered material}}{\text{Total weight of material generated on-site}} \times 100\%$$

The current diversion rate at the facility is 55.3%. Based on the diversion program currently in place, 68.0% of the material generated at the facility is recyclable or divertible. Therefore, there is room for improvement within the diversion program where most employees in the facility handle their waste.

Figure 4 outlines the material in each category which could potentially be diverted.

Figure 4 - Diversion Opportunity by Material Category



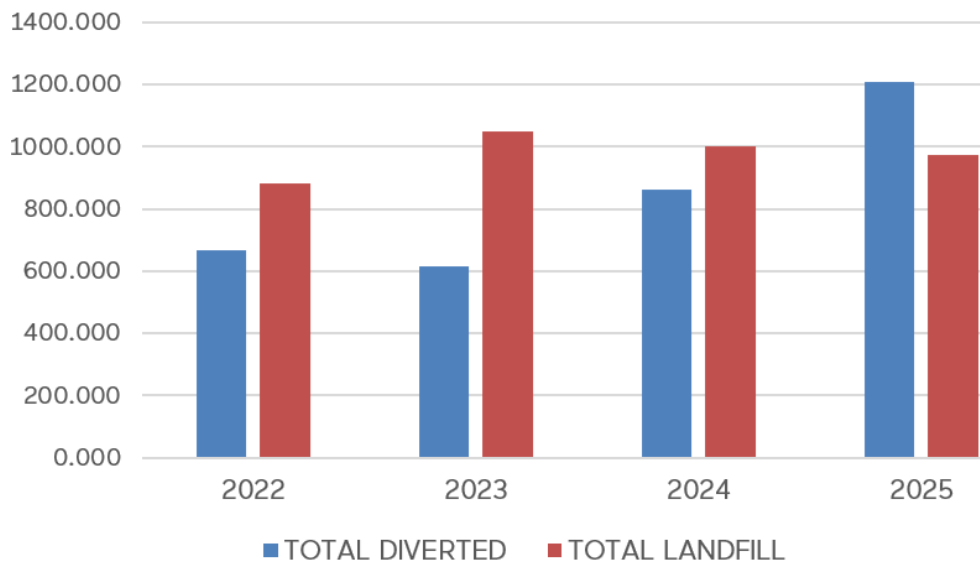
Year Over Year Audit Comparison

An assessment was completed at the facility on an annual basis since 2022. It was determined that the diversion rate has improved from 46.2% in 2024 to 55.3% in 2025.

The facility has seen a decrease in their total material generation over this period. The facility the amount of landfill generated. The facility generated 1,002.15 MT of landfill waste in 2024, compared to the current 974.65.

The facility captured 1206.70 MT of material for diversion (recycling, reuse, or organics) in the current assessment compared to 861.34 MT in 2024.

Figure 5 – Comparison of 2022 to 2025 results (MT)



Diverted Material Comparison by Category

The following table displays a breakdown of assessed diverted, recycled, reused, and composted materials. The facility currently has programs in place to capture the following waste streams:

Table 6 – Facility Service Information

Diversion Program	Service Provider/s	Container Type	Note
Cardboard	WM	14-yard bin	Until December 2024.
Mixed Paper and Beverage Containers	WM	96-gallon totes	
Confidential Paper Shredding	Shred-It	Shredding consoles, totes	2023 data.
Organics	Urban Street	32-gallon totes	
E-Waste	G.B. Scrap Metal	Not identified	Service information not available at time of assessment.
Scrap Metal	G.B. Scrap Metal	Not identified	Service information not available at time of assessment.
Skids	Happy Pallets Inc	Not identified	Service information not available at time of assessment.

Landfill at the facility was collected in a 40-yard compactor.

Table 7 – Diverted Material Comparison

Diverted Material	Annual Projected Volume (kg)	Percentage of all Diverted Materials (%)
Mixed Recycling	474,930	39.4%
Confidential Paper Shredding	334,833	27.7%
Organics	316,800	26.3%
Cardboard	80,140	6.6%
Total	1,206,703	100.0%

Capture Rate

The **capture rate** indicates the percentage of a material (i.e., office paper, organics) that is being disposed of via one of the sites recovery programs (i.e., single stream, mixed recycling, organics). A 100% capture rate indicates that all recoverable materials being produced on-site has been placed in the correct receptacle and the landfill garbage contains no recoverable materials.

$$\text{Capture Rate} = \frac{\text{Recovered material (e.g. paper in mixed recycling)}}{\text{Recovered material (e.g. paper in mixed recycling)} + \text{Waste material (e.g. paper in garbage)}} \times 100\%$$

Based on the assessment findings, of the 2,181,353 kg of material generated at the facility in the last 12 months, 1,482,408 kg of that material is potentially divertible in the available diversion programs. As 1,206,703 kg of material was captured for recycling or compost, the facility wide capture rate was determined to be 81.4%. Table 8 below outlines the capture rate per material.






Table 8 – Capture Rate Calculations by Material

Diverted Material	Total Generated (kg)	Captured for Diversion (kg)	Landfilled (kg)	Capture Rate (%)
Aluminum food and beverage cans	23,496	18,997	4,498	80.9%
Cardboard	182,615	168,794	13,821	92.4%
Fine paper	401,743	398,157	3,586	99.1%
Glass food and beverage bottles/jars	10,114	6,332	3,781	62.6%
Newsprint	6,984	6,332	652	90.7%
Steel food and beverage cans	13,578	12,665	913	93.3%
PET (#1) plastic	52,728	37,994	14,734	72.1%
HDPE (#2)	51,937	31,662	20,275	61.0%
LDPE (#4) plastic film	51,275	-	51,275	0.0%
PP (#5) plastic containers	61,382	25,330	36,052	41.3%
Polystyrene (#6)	61,104	12,665	48,439	20.7%
Organics	380,006	316,800	63,206	83.4%
Boxboard	103,370	75,989	27,381	73.5%
Glossy magazines, catalogues, flyers	15,142	12,665	2,477	83.6%
Steel	196	-	196	0.0%
Paper towels	60,435	-	60,435	0.0%
Furniture	8,964	-	8,964	0.0%
Building/renovation material	7,334	-	7,334	0.0%
Disposable food packaging (incl. polycoat)	105,921	82,321	23,600	77.7%
Diapers	140,037	-	140,037	0.0%
Clothing/textiles	6,878	-	6,878	0.0%
Other: Mixed materials, misc.	436,115	-	436,115	0.0%



Recommendations Overview

Five options have been identified that can help Unity Health - St. Michael's Hospital make its operations more sustainable. Each option should be carefully reviewed for operational, financial, social, and strategic fit.

-  **Increase Awareness of Current Diversion Programs**
-  **Employee, Contractor and Visitor Education and Engagement**
-  **Ensure Effective Diversion Infrastructure**
-  **Organization Wide Guidelines and Labelling**
-  **Continual Improvement and Additional Recommendations**

Photographs 1 to 2 – Landfill Sample Collected During Assessment Period



Landfill Sample Material Category Breakdown

Increase Awareness of Current Diversion Programs:

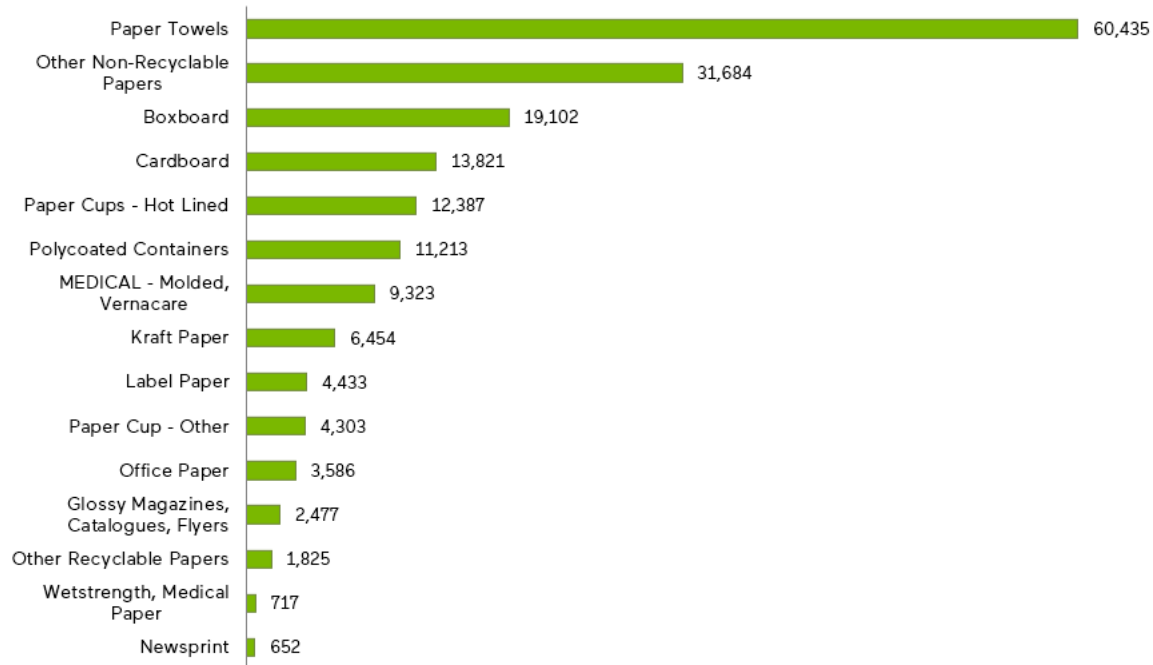
Below is a breakdown of the composition of the audited landfill material generated on site based on the analysis of the audited sample. As well as recommendations for selected sub-category material types.



Papers

Paper materials sent to landfill accounted for 18.7% of your total waste; nearly 182,413 kg of paper is projected to be sent to landfill annually. The facility currently has programs in place to capture confidential paper shredding, cardboard, and mixed paper for recycling.

Figure 6 - Annual Papers Disposed in Landfill (in kg)



Paper towel (e.g., hand towels, facial tissue, and similar materials) represented 6.2% of the landfill waste sample. These materials were generated throughout the facility.

Paper towel is typically accepted in organic collection programs and could be included in the program already in place at the facility in certain areas. Receptacles in washroom areas can be labelled as organic only bins and lined with compostable bags. Staff would then be trained to capture these bags and place them in the organic totes for collection.

Other non-recyclable papers (e.g., wax paper and soiled food packaging) this material subcategory accounted for 3.3% of the disposal weight. These materials are not accepted in mixed recycling programs.

Boxboard (e.g., tissue or nitrile glove boxes) accounted for 2.0% of the landfill sample. These materials are accepted in the existing mixed recycling program. Examples should be included on educational signage to increase awareness.

Cardboard (e.g., corrugated containers) accounted for 1.4% of the landfill sample. The facility should encourage staff to separate these materials throughout their workday for collection.

Paper cups – hot lined (e.g., coffee cups) accounted for 1.3% of the audited landfill sample. These materials are not accepted in mixed recycling in this jurisdiction.

Polycoated containers (e.g., milk carton) included 1.2% of the landfill sample. These materials found predominantly in the food services generation area. Education and signage should include these materials to increase awareness that they are recyclable.

Medical – moulded, vernacare (e.g. bed pans) accounted for 1.0% of the disposal weight. Specialized vernacare programs are available to divert this material from landfill. In some cases, these materials are destined for landfill.

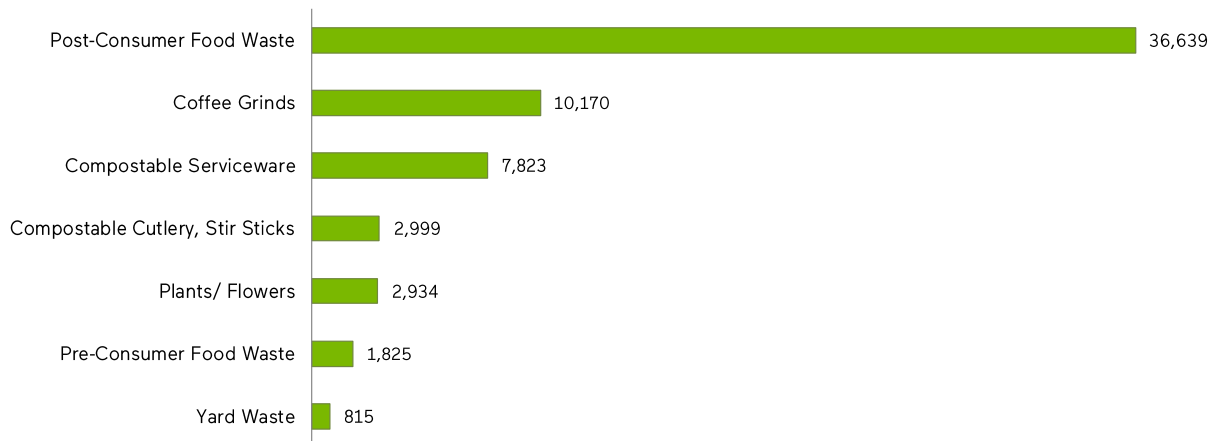
**Photographs 3 to 6 – Paper Material Examples in Landfill Sample
(Paper Towel, Non-Recyclable Food Packaging, Boxboard, Moulded Bed Pans)**



Organics

Organic materials sent to landfill accounted for 6.5% of your total waste; nearly 63,206 kg of organics is projected to be sent to landfill annually. A program currently exists at the facility to capture organic materials for compost.

Figure 6 - Annual Organics Disposed in Landfill (in kg)



Post-consumer food waste (e.g. food scraps) represented 3.8% of the audited landfill sample.

Coffee grounds (e.g., grinds) represented 1.0% of the landfill waste stream.

Compostable serviceware (e.g., fibre-based food containers, plates) accounted for 0.8% of the audited landfill sample.

The material categories above could be diverted from landfill through the organics collection program in place.

Photograph 7 – Organic Material Examples in Landfill Sample (Food Scraps)

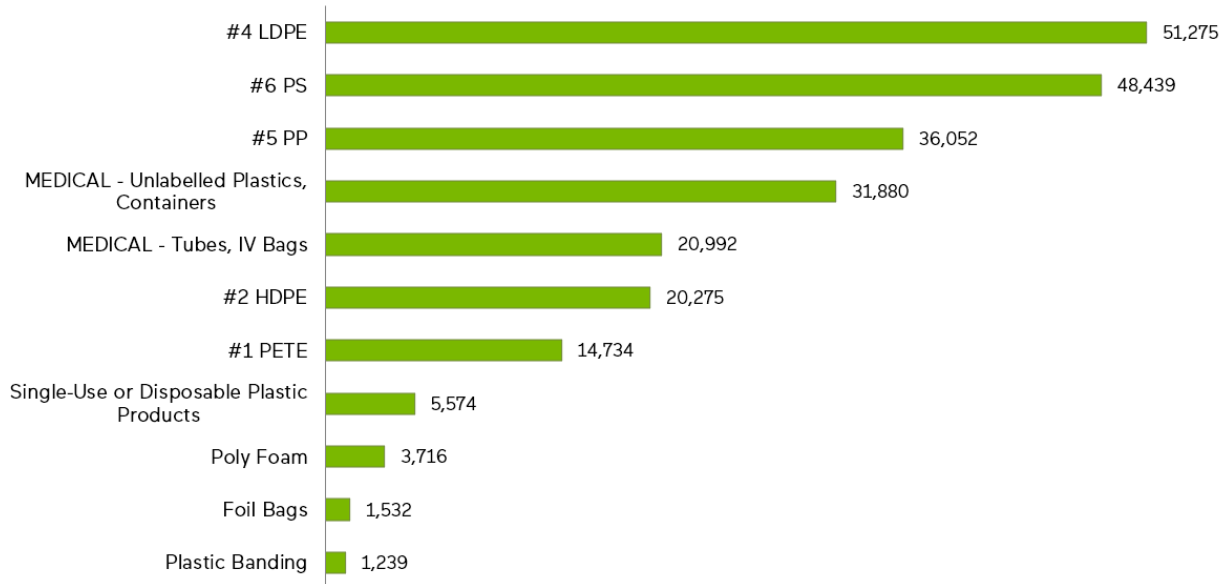




Plastics

Plastic materials account for 24.2% of your waste stream composition; 235,709 kg of plastic materials is projected to be sent to landfill this year from your facility. The facility currently has programs in place to capture bottles and containers plastics #1-7.

Figure 7 - Annual Plastics Disposed in Landfill (in kg)



#4 LDPE (e.g., soft plastic, film bags & packaging) accounted for 5.3% of landfilled materials. LDPE materials are not accepted in mixed recycling programs.

PS#6 (e.g., beverage, and food containers – excluding polyfoam) represented 5.0% of the overall sample. If clean, these are often accepted as part of mixed recycling programs. Food vendors should be encouraged to provide recyclable or compostable options for the products they bring onto on facility.

PP #5 (e.g., take-out beverage, yogurt/ food containers) accounted for 3.7% of the landfill sample. Users should be aware that these products are recyclable, examples of these materials should be included in educational signage.

Medical – Unlabelled Plastics, Containers (e.g. plastic bed pan, beaker, syringe) accounted for 3.3% of the disposal weight. Due to health and safety issues most, medical plastics are single use plastics that are not accepted in the facility’s diversion programs. These materials were identified in patient areas.

Medical – Tubing, IV Bags accounted for 2.2% of all landfilled materials. Due to health and safety issues most, medical plastics are single use plastics that are not accepted in the facility’s diversion programs. These materials were identified in patient areas.

HDPE#2 (e.g., cleaning or food containers) represented 2.1% of the landfill waste stream. These are commonly accepted in mixed recycling programs. HDPE #2 examples should be included in educational signage.

PETE#1 (e.g., water, beverage, and food containers) represented 1.5% of the landfill sample. Most users are aware that these types of products are recyclable, but these items are being found in the waste stream. Engagement and accessible receptacles are beneficial to capture these items.

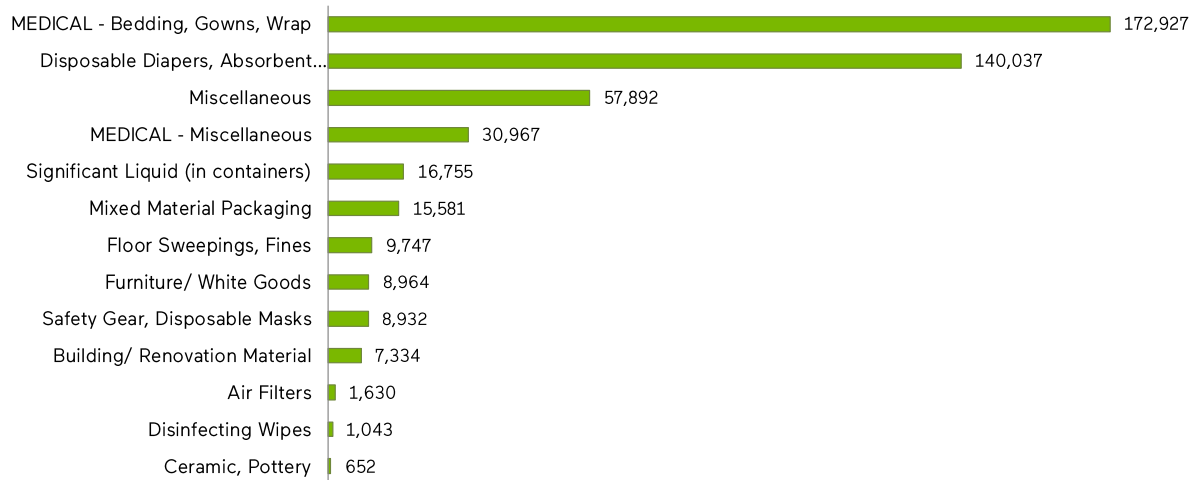
Photographs 8 to 10 – Plastic Material Examples in Landfill Sample (#4 LDPE, Medical Tubing, #2 HDPE)



Other Materials

Other materials sent to landfill accounted for 48.5% of your total waste; nearly 472,461 kg of this category of material is projected to be sent to landfill annually. Currently, there are no programs in place to capture most of these materials from the landfill.

Figure 8 - Annual Other Disposed in Landfill (in kg)



Medical – beddings, gowns, wrap accounted for 17.7% of the audited sample. These materials are not accepted in the facility’s diversion programs due to the material involved and contact with patients.

Disposable diapers, absorbent padding represented 14.4% of the audited sample. These materials are not accepted in mixed recycling programs.

The **miscellaneous category** (e.g. mixed parts, office supplies, gifts, toys) represented 5.9% of the audited sample. These items are not accepted in mixed recycling programs but there may be specialized programs available in some cases.

Medical – miscellaneous (e.g. medical tools, cast, gauze) represented 4.4% of the disposal weight. These materials are destined for landfill.

Significant liquids (e.g., soaps, water, and other beverages) represented 1.7% of the facility’s disposal weight. Commonly liquids were found unfinished in their original containers. Employees may be encouraged to empty containers to ensure the container may be captured for recycling.

Mixed material packaging (e.g. blister packs, pharmaceutical packaging) accounted for 1.6% of all landfilled materials. These materials are destined for landfill.

Floor sweepings (e.g., sweepings, hair, fines, floor dust) accounted for 1.0% of the audited sample. These are not recyclable materials.

**Photographs 11 to 12 – Other Material Examples in Landfill Sample
(Bedding, Diapers)**

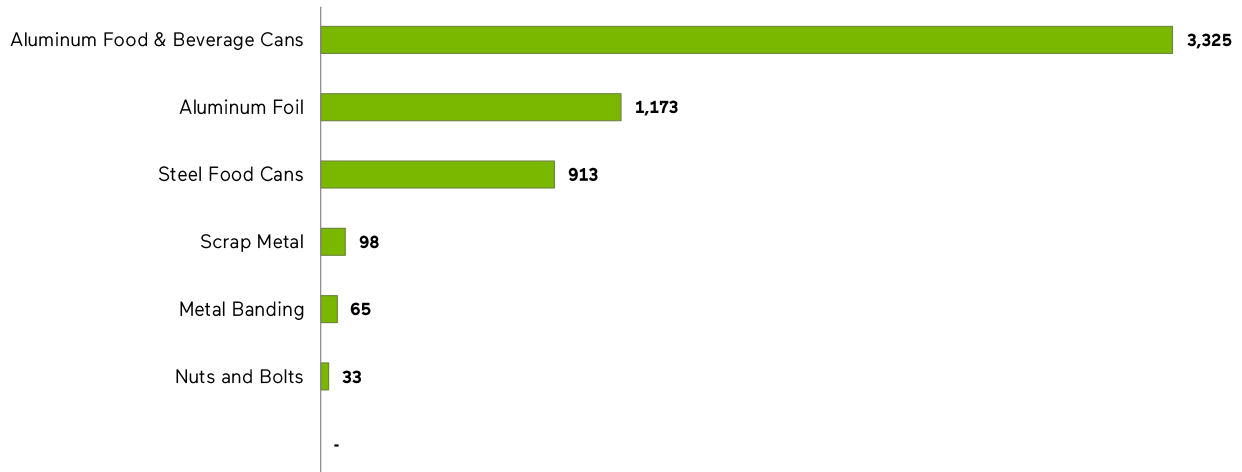




Metals

Metal materials sent to landfill accounted for 0.6% of your total waste; nearly 5,607 kg of metals is projected to be sent to landfill annually. The facility has programs in place to capture most metal food and beverage containers in the mixed recycling program. Scrap metal collection may be available on an as needed basis.

Figure 9 - Annual Metals Disposed in Landfill (in kg)



Aluminum cans (e.g., beverage and food containers) were present at 0.3% of the landfill sample. These are recyclable materials and could be accepted in mixed recycling programs. Clearly labeled and easily accessible recycling receptacles are key to capture materials where generated.

Aluminum foil (e.g., wrap and food trays) was identified in minimal amounts. If clean, these items could be captured in the facility's mixed recycling program.



Glass

Glass materials sent to landfill accounted for 0.4% of your total waste; nearly 3,781 kg of glass is projected to be sent to landfill annually. The facility has programs in place to capture most glass food and beverage containers in the mixed recycling program.

Figure 10 - Annual Glass Disposed in Landfill (in kg)



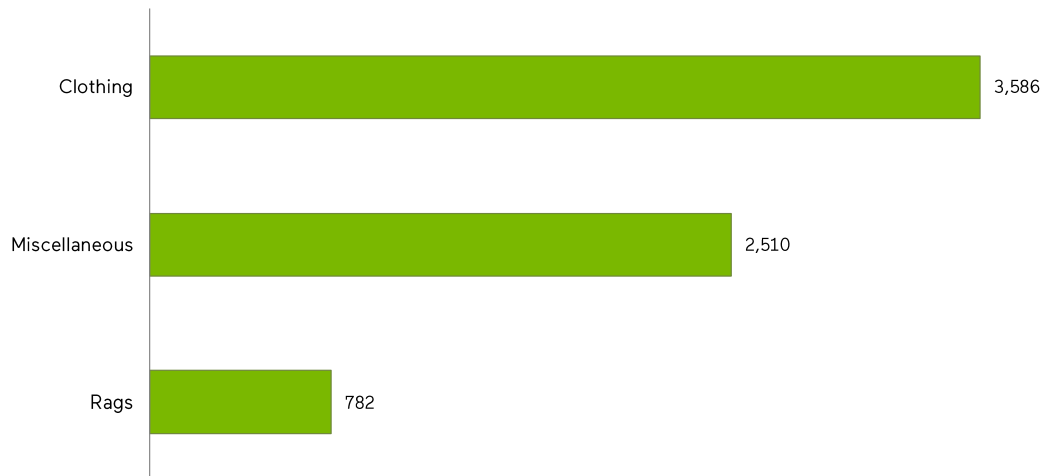
Clear glass (e.g., beverage bottles) represented 0.3% of the landfill sample. Clear bottles are recyclable materials in mixed recycling programs. Clearly labeled and easily accessible recycling receptacles are key to ensure that employees and visitors can participate.



Textiles

Textile materials sent to landfill accounted for 0.7% of your total waste; nearly 6,878 kg of textiles is projected to be sent to landfill annually. The facility has program to capture some linen material for cleaning and reuse.

Figure 11 - Annual Textiles Disposed in Landfill (in kg)



Clothing (e.g., pants) accounted for 0.4% of the landfill sample. These materials are not accepted in mixed recycling programs. The facility should consider a donation collection program collect clothing in good condition for reuse.

Miscellaneous (e.g., reusable bags) accounted for 0.3% of the landfill sample. These materials are not accepted in mixed recycling programs.



Rubber

Rubber materials sent to landfill accounted for 0.5% of your total waste; nearly 4,596 kg of rubber is projected to be sent to landfill annually. There are currently no programs in place to capture these items.

Figure 12 - Annual Rubber Disposed in Landfill (in kg)



Nitrile work gloves (e.g., nitrile, latex disposable gloves) accounted for 0.3% of the landfill sample. These are not accepted in mixed recycling programs. The facility should consider implementing a targeted program from a recycler such as a Terracycle or Go Zero. These vendors can offer programs for diverting unique materials not typically recycled.

Employee, Contractor, and Visitor Education and Engagement

The success of a diversion program is driven by user participation. If those who generated the waste are not utilizing diversion programs, success will never be achieved as it is not enough to simply implement programs and expect those programs to be effective. There are two critical factors necessary to ensure that diversion programs are effective. These factors are education and engagement.

As many different stakeholders are involved and contribute to the waste and diversion program it is important to target education towards each group.

1. Communication Program - The hospital could maintain a communication program to communicate to educate all stakeholders. The following are all methods that can ensure stakeholders understand the steps that are being taken to achieve environmental sustainability within the hospital and feel included in its successes.

Promotion - The hospital could use internal communication such as newsletters, internal emails, and educational boards to relay their message. As well as Earth Day or Environment Days to promote the diversion program through promotional materials or information booths; Waste Reduction Week in October is another opportunity for communication around waste reduction.



As well, the hospital could create a **slogan or branding** to help promote their diversion program and create continuity for all promotional or educational materials.

Information can be tailored to reflect the findings of this assessment. For example, create a campaign to encourage employees to take a moment to put their mixed paper in the correct receptacle, no matter where they are on site.

Green information boards, similar to health and safety boards, can be a centralized place for relevant environmental information and reference material, example below.

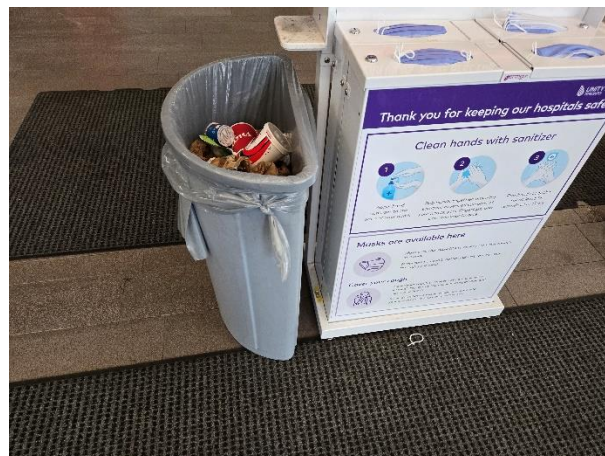


Site Observations

- Below are examples of receptacles identified in public areas of the hospital.
- The facility should consider including pictorial signage that highlight commonly accepted materials in each stream.



- To improve the facility-wide capture rate, all garbage receptacles should be paired with a recycling receptacle.
- Below is an example of a garbage receptacle at the front entrance with no recycling receptacle in the immediate area.



Ensure Effective Diversion Infrastructure

The infrastructure of a diversion program, including the receptacles and education materials, play an integral role in its success. If containers are not present, or accessible to collect recyclable material, users will not be able to participate.

- Hospital Managers should, as part of their duties, routinely tour the facilities to monitor the infrastructure. By ensuring recycling stations are available, clean, and orderly. This will aid in their effectiveness. This will also ensure that receptacles, equipped with labelling and signage, are in place for ease of use by employees, contractors, and visitors.
- Recycling receptacles should be accessible and the largest receptacles and the most available in terms of numbers.
 - As described in this report, most of the materials generated at the hospital are recyclable; therefore, waste receptacles should be less prominent to encourage the use of the recycling receptacles.



- Apply a colour coding system (e.g., blue receptacles and blue labelling for mixed recycling) will help users recognize the recycling containers in different areas of the hospital.



- Receptacles should be labeled (e.g., stickers, printing labels, posters, magnets) to identify what stream they are intended to collect.
 - This is a straightforward way to update current receptacles without the capital costs of new containers.



- Pictures, with simple easily recognizable images, should be used to indicate recyclable materials to those not familiar with the language or for young readers.



- Below are examples directly from other healthcare facilities:



- Recycling receptacles should never be lined with black bags, as they may be confused for landfill and misplaced, during disposal; It should be requested that the maintenance team use clear bags to collect recyclables to ensure that recyclable or compostable materials are directed to the correct receptacle. Different bags are not as easily confused in carts.



- Promotional materials help educate and increase awareness in the necessity of the 3 Rs.



Organization Wide Guidelines and Labelling

Recycling receptacles identified during the site visit were often not labeled and not equipped with guidelines to help staff or visitors understand which specific materials they can recycle.

It is recommended that the hospital develop educational signage and receptacle labelling to help facilitate the diversion program. Ideally the program designed is developed and approved by top managers. This approach will ensure that a consistent standard is applied and could increase buy-in throughout the organization.

Such a program could include:

- Reference posters, indicating a list of acceptable recyclable materials common at stores. For back of house and common spaces such as breakrooms;
- Labels directly for receptacles and collection bins, indicating what they are designated to collect;
- Educational/motivational materials, including companywide slogans, branding, and imagery may be applied;
- Applying a colour coding system (e.g., blue receptacles/ labelling for bottles and cans) will significantly aid users in disposing of their waste easily and understanding what goes where;

Where necessary the program should set out a recommended set up procedure, including photo examples, to advise each department how to best set up infrastructure.

It is recommended that:

- Older receptacles may be updated with labels (e.g., stickers, printing labels, posters, magnets) to remain consistent and effective, saving capital costs purchasing new receptacles;
- Pictorial recycling guidelines should be available at all recycling stations (posted on the wall or receptacles) providing recyclable examples and where appropriate, 'non-acceptable' materials; simple, easily recognizable images should be used to educate user and convey the message to those less familiar with English;
- Reference signage outlining all diversion programs should be placed on employee health and safety boards and in back-of-house areas, with a longer list of all the materials generated on site;
- Simple terms and bright colours are used as they are most effective to draw attention;

✓ **Colour coded pictorial signage and receptacles**

✓ **Labels used to update older receptacles**



Continual Improvement and Additional Recommendations

The following are suggested actions to help the facility improve their internal processes and strive to reach higher diversion rates while maintaining a strong, efficient diversion program.

It is recommended that the facility regularly check with their waste hauler to confirm what materials are recyclable in their jurisdiction. As some of these materials may be integral to the operations of the facility, it is recommended that you regularly review opportunities to reduce or substitute these materials in your operations.

i. Capture Additional Materials

Some non-traditional recyclable materials were identified in the landfill waste sample. This included nitrile gloves and safety gear. Programs are available from companies like TerraCycle or Go Zero in to provide the resources to set up a collection station at your facility.

<https://www.terracycle.ca/en-CA/brigades/writing-instrument-retail-based-brigade>

<https://gozerorecycle.com/pages/recyclingboxes>

Example of Go Zero collection box



In addition, TerraCycle or Go Zero offer other recycling programs for common non-conventional materials which were identified during the audit. These include single use beverage pods, creamer containers and plastic wrappers.

ii. Educate Staff on 'Easy Targets' for Diversion

The hospital should target specific recyclable materials used throughout the facility, particularly in active patient areas.

Examples of materials include:

- Boxboard such as Kleenex boxes or latex gloves used by cleaning staff and medical staff.
- HDPE containers of cleaning products including sanitary wipe containers, soap dispensers, and other cleaning products used by cleaning staff, vendors, and medical staff. Some of these containers may be unique to the hospital environment and may not be commonly understood as recyclable blue box items.

Examples of materials that could be easy targets for diversion. (HDPE, Boxboard)



The following is an example of a customized signage used in a medical setting.

Reminder:
Recycle Plastics whenever Possible.

It's in your hands ♡

Please separate items into bins provided

DO'S			DONT'S			
			<ul style="list-style-type: none"> • Large Cardboard Boxes should be flattened and left near any office recycling containers • Environmental Services will also pick up paper for recycling at work stations and offices in containers provided • Used Batteries and Printer/Toner Cartridges may be packaged and must be given to Environmental Service Staff OR delivered to Material Management for recycling. • For compostable and non-recyclable items, please take your items to one of the recycling stations 			

iii. Purchasing Power

Unity Health should use its purchasing power to influence its tenants/ employees, suppliers, and contactors to follow the same recommendations. A commitment to waste diversion should be a significant aspect within future contracts with service providers.

- The facility should establish a vendor selection protocol to reflect a commitment to the 3R's: reduction, reuse, and recycling;
- The facility should conduct "vendor pre-qualifications" to evaluate the protocol and vendor environmental track records;
- Contract language should reflect the facility's objectives and allow periodic reviews to determine if those objectives are being met throughout the life of the contract;
- Get buy-in and support from contractors and service providers who work on site. All service providers, vendors or contractors should be aware of the environmental goals and be active participants, including education programs and purchasing decisions.

iv. Green Team

A good way to ensure engagement and consistency is to set up a Green Team, comprised of representatives from all departments of the facility. This team will be able to monitor, evaluate and provide to the group recommendations and consultation on the recycling program and other environmental issues.

Members of the team will be able to monitor receptacles; signage required and perform spot checks on all phases of the waste diversion program.

It is recommended that green team leaders have a system in place to review the infrastructure on site monthly, including:

- Identify gaps & areas of improvement;
- Ensure recycling receptacles available and replace missing bins;
- Ensure signage or labelling is present;
- Have a protocol in place to ask for replacements for missing signage or to notify management if receptacles are damaged or missing;
- Have a protocol in place for staff suggestions on how to increase participation.
 - Have a protocol in place for staff suggestions on how to increase participation.

v. Bin Assessment

Managers should, as part of their duties, periodically and routinely tour the facility to monitor the infrastructure of the material management program. By ensuring recycling stations are present, and conveniently available throughout the facility, the recycling participation rate will improve. Ensuring that there are recycling receptacles in every area of the facility, where waste is generated, will allow for the proper source separation of materials.

The manager should ensure that all receptacles are clearly labelled, and pictorial guidelines are present to educate staff, as described above.

Black bags should never be used in recycling receptacles as they can often be confused as landfill waste and there is a risk that already sorted recyclables are disposed incorrectly.

vi. Data Management

Each facility should continually review the waste services on site, including the number and the size of waste bins, location, and frequency. Should the receptacles be found to be at less than capacity on their service day, or filled up before service day, services should be adjusted, as required, to match the amount of material generated and to be most cost effective.

It is only possible to measure the performance of the waste and recycling programs if they are measured. Each facility should set up a regular program to map the materials generated on site and regularly track progress over time, including batteries, fluorescent light tubes, etc. All managers, who arrange for these services, should track, and provide the information to a centralized location or person. By reviewing this information on a monthly or quarterly basis, the company will be able to better track the success of the material management program.

This is vital if successes are to be communicated to staff and stakeholders, and further necessary to understand the opportunities that exist within the waste and recycling systems at the facility.

Supplementary Information

Appendix 1 - Detailed Waste Breakdown by Generation Area

Area	Paper	Metal	Plastic	Textile	Glass	Rubber	Organic	Other	Total
Patient Area	27.28	0.83	45.37	1.76	0.34	0.77	10.88	110.03	197.26
Food Service	13.36	0.72	16.84	0.04	0.28	0.00	6.12	3.16	40.52
Public Area	10.40	0.00	6.82	0.20	0.40	0.00	0.66	8.80	27.28
Other	0.00	0.00	0.50	0.00	0.00	0.00	0.25	19.25	20.00
Office	4.92	0.17	2.78	0.11	0.14	0.64	1.48	3.70	13.94
Grand Total	55.96	1.72	72.31	2.11	1.16	1.41	19.39	144.94	299.00

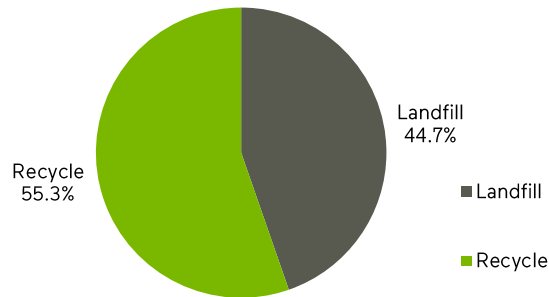
Appendix 2 – Diversion Report



Diversion Overview Unity Health - St. Michael's Hospital , Toronto, ON

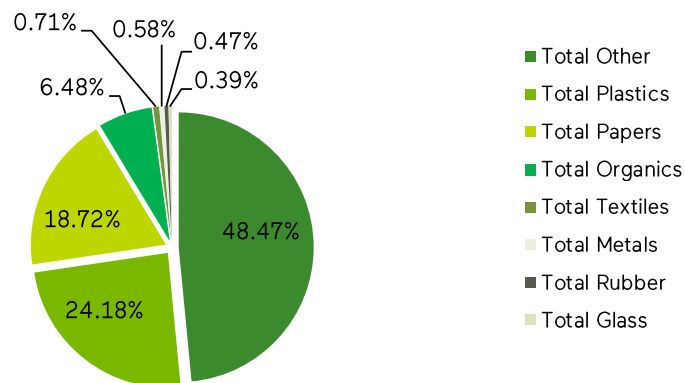
Diverted Materials	Annual Projected Volume (kg)	% Of Diverted Materials
Mixed Recycling	474,930	39.4%
Confidential Paper Shredding	334,833	27.7%
Organics	316,800	26.3%
Cardboard	80,140	6.6%
Total	1,206,703	100.0%

Diversion Summary



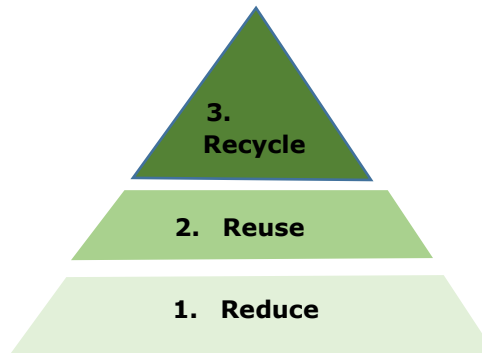
Waste Category	Material Composition (%)	Annual Projected Volume (kg)
Total Other	48.5%	472,461
Total Plastics	24.2%	235,709
Total Papers	18.7%	182,413
Total Organics	6.5%	63,206
Total Textiles	0.7%	6,878
Total Metals	0.6%	5,607
Total Rubber	0.5%	4,596
Total Glass	0.4%	3,781
Total	100.0%	974,650

Waste Material By Category



Appendix 3 – Three R’s Waste Hierarchy

The three R’s waste hierarchy gives an order of priority of actions to be taken to reduce the overall amount of waste generated at the site.



Studies indicate that between 2 and 5 percent of waste streams are reusable. There are many ways to prevent waste, at the source, and reuse products to reduce waste, including:

	Material	Reduction Strategies	Reuse Strategies	Recycling Strategies
Papers	Cardboard / boxboard	Encourage suppliers to use reusable packaging (e.g., plastic totes) Purchase reusable products	Re-use of cardboard for storage and packaging	Provide enough receptacles, information and signposting for OCC and mixed recycling programs
	Office paper	Encourage use of electronic communications Encourage staff to print two sided	Encourage one sided printed paper for scrap paper Creation of scrap pads Utilize centralized notice boards	
	Paper towels	Install hand-dryers in washrooms and dish cloths in kitchens		
	Newsprint / Magazines	Provide communal newspapers in break out areas and spaces	Encourage staff to share magazines and newspapers Donate used magazines and newsprint Use newsprint for packaging materials	
	Paper cups	Place reusable coffee cups in kitchen areas Encourage users to bring reusable coffee cups Incentivize the use of own cups (discounts, loyalty cards)	Provide coffee making facilities in kitchens and encourage users to refill reusable coffee cups	
Plastics	PETE	Encourage building users to bring reusable water bottles Ensure sufficient water fountains for building users	Encourage building users to reuse plastic bottles Use refundable recycling schemes at the site	Provide enough receptacles, information, and signposting for mixed
	HDPE	Encourage bulk buying of goods to reduce volume of packaging		

		Purchase products with minimal packaging		recycling programs
	LDPE	Train custodial staff to empty individual waste receptacles into single black garbage bag		
	Polystyrene	Develop procurement policies which require on-site retailers to use compostable and recyclable packaging and cutlery		
	Organics	Set up partnerships and donation programs with local charities		Implement organics program
Containers	Beverage Cans	Encourage use of drinks dispensers at food courts and in kitchens	Use refundable recycling schemes at the site	Provide enough receptacles, information, and signposting for mixed recycling programs
	Glass Bottles/Jars	Encourage use of drinks dispensers at food courts and in kitchens		
	Single Use Beverage Pods	Encourage use alternative coffee making facilities (i.e., filter coffee, pod free coffee machines)	Use reusable k-cups	Set up k-cup recycling programs with local supply companies
	Office supplies	Set up communal stationary points in offices for building users	Establish donation programs with local schools	Set up recycling programs with specialist companies such as Teracycle

Appendix 4 – Material Descriptions

Material	General Descriptions	Waste Stream
#1 PETE	Polyethylene Terephthalate, Water Bottles, Soft Drink Bottles	Recycle
#2 HDPE	High Density Polyethylene Containers, Chemical Containers or Jugs; High Density Polyethylene Bags or Film, Strong "crispy" Bags	Recycle
#3 PVC	Plastic pipes, Cleaning Supply Jugs, Pool Liners, Sheeting, Twine, Carpet Backing	Landfill
#4 LDPE	Low Density Polyethylene Bags and Film, Garbage Bags, Shopping Bags	Landfill
#5 PP	Poly Propylene, Yogurt Containers, Straws	Recycle
#6 PS	Poly Styrene, Beverage Containers, Packaging Materials, Take-out Food Containers, Packing Popcorn	Recycle
#7 Other (Bottles and Containers only)	Bottles and Containers Labeled #7	Recycle
#7 Other	Products Parts, Unlabeled Plastic Items	Landfill
Courier and Shipping Bags	Poly Mailer Bags	Landfill
Misc. Plastics	Plastic Utensils	Landfill
Plastic Cutlery	Plastic Forks, Spoons, Knives, Stirring Sticks	Landfill
Plastic Strapping	Plastic Shipping Straps, Plastic Banding	Landfill
Polycoat	Milk Cartons, Tetra Packs	Recycle
Polyfoam	Foam Protective Packaging Materials, Styrofoam	Landfill
Shrink Wrap	Shrink Wrap, Plastic Film	Landfill
OCC	Old Corrugated Cardboard	Recycle
Boxboard	Cereal, Tissue Box Material	Recycle
Cores and Tubes	Paper-Based Cores and Tubes	Recycle
Kraft Paper	Paper Bags, Heavy Brown Paper	Recycle
Label Paper	Sticker Paper	Landfill
Magazines	Glossy Magazines and Newspapers	Recycle
Napkins	Paper Napkins and Tissues	Organics
Newsprint	Newspapers, Weekly Flyers	Recycle
Molded Pulp	Drink Trays, Egg Cartons, Product Packaging	Recycle
Paper Cups	Paper or Polycoated Cups	Landfill
Paper Plates	Paper Food Plates	Landfill
Paper Towels	Paper Hand Towels	Organics
Tetra Pak Containers	Juice Boxes, Liquid Beverage Containers	Recycle
Tissue Paper	Thin Packing Paper	Landfill
Wax Paper	Paper for Wrapping or Packaging	Landfill
Wet Strength Paper	Wet Strength Kraft Paper, Medical Paper	Landfill
White/ Ledger/ Office Paper	White Paper, Printer Paper	Recycle
Aerosol Cans	Spray Cans	Recycle
Aluminum Cans	Aluminum Food and Beverage Cans, Pop Cans	Recycle
Aluminum Foil / Wrappers	Food Wrappers and Packaging	Recycle
Misc. Metal	Metal Straps, Nuts & Bolts	Scrap Metal
Scrap Metal	Aluminum, Copper, Steel Parts	Scrap Metal
Paint Cans	Empty Paint Cans	Landfill

Steel Cans	Steel Food Cans	Recycle
Coloured Glass	Coloured Beverage Bottles and Jars	Recycle
Clear Glass	Clear Beverage Bottles and Jars	Recycle
Drinking Glass	Glass Cups, Wine Glass	Landfill
Lab, Medical Glass	Flasks, Beaker, Dropper, Measuring Cylinder, Test Tubes, Jars	Landfill / Special
Pallets and Skids	Wooden Pallets and Skids	Special
Scrap Wood	Construction Materials, Misc. Wood Pieces	Special
Wood Shavings	Scrap Construction Shavings and Debris	Landfill
Wooden Crates	Shipping Crates	Landfill
Stir or Chop Sticks	Wooden Stir or Chop Sticks	Landfill
Batteries	Dry Cell Batteries, Large Batteries	Special
Electronics	Cables, Computer Equipment, Toasters, TVs, Phones, Printers	Special
IT Equipment	IT Visual and Audio Equipment, Wires, Cords	Special
Light Bulbs	CFL, LED, Fluorescent Bulbs and Tubes	Special
Printer Cartridges	Used Printer or Ink Cartridges	Special
Coffee Grounds	Used Coffee Grounds	Organics
Cooking Grease	Fats, Oils and Grease	Organics
Plants / Flowers / Yard Waste	Indoor and Outdoor Plants, Flowers, Leaves, Yard Waste	Landfill
Post-Consumer Waste	Scrap Food Waste	Organics
Pre-Consumer Waste	Food Preparation Waste	Organics
Compostable Containers	Compostable Take-Out Containers, Paper Plates	Organics
Rubber Tubing	Cable Protection, Metal Coverings, Pipe Fittings	Landfill
Nitrile and Latex Gloves	Nitrile and Latex Gloves	Landfill
Rags	Used Rags and Cloths	Landfill
Shoes and Boots	Assorted Footwear	Landfill
Personal Clothing	Used Shirts, Uniforms, Hats	Landfill
Misc. Textiles	Rags, Mop Heads, Cloth Gloves	Landfill
Hospital Linen	Hospital Linen, Sheets	Special
Air Filters	Furnace Filters, Vehicle Filters	Landfill
Building Material	Construction Material, Drywall, Insulation	Special
Ceramics	Objects Formed with Clay (e.g., Pottery)	Landfill
Drywall	Regular or White Board Drywall	Special
Disposable Diapers	Disposable Diapers	Landfill
Face Coverings	Surgical Masks, Dust Masks, N95 Masks	Landfill
Floor Sweepings	Debris, Dust	Landfill
Furniture	Chairs, Desks, Lamps, Shelves	Special
Hygiene Materials	Feminine Hygiene Materials	Landfill
Liquid in Container	Significant Liquid in Bottle, Container or Cup	Landfill
Medical	Bedding, plastics, miscellaneous	Landfill
Mixed Material Packaging	Condiment Containers, Envelope with Window, Miscellaneous Product Packaging	Landfill
Safety Gear	Safety Vests, Jackets, Harness, Safety Toe Covers, Work Gloves	Landfill
Single Use Beverage Pods	K-Cups and Pods	Landfill

Appendix 5 – Ontario’s 3Rs Regulations



Ontario’s 3Rs Regulations

Ontario’s 3Rs Regulations governing non-hazardous solid waste from residential, industrial, commercial and institution sources became law in March 1994. Designated IC&I organizations are now required to conduct annual waste audits and update annual waste reduction work plans. This documents overviews the regulatory requirements for IC&I sector organizations.

Regulation	Intent	Requirements	Who Must Comply
<p>Ontario Regulation 102/94</p> <p><i>Waste Audits Waste Reduction Work Plans</i></p>	<p>To understand the amount and composition of all waste produced, how the waste is produced including relevant management policies and practices, and how the waste is managed</p> <p>A waste reduction work plan seeks to establish concrete goals to reduce waste</p>	<p>Annual waste audit must be completed in which the types of waste and quantities of waste are assessed.</p> <p>A waste reduction work plan must contain a strategy for reducing, reusing and recycling waste, identify who is responsible for implementation and provide a summary of timing and expected results from the waste reduction projects. This plan must be communicated with all employees</p>	<ul style="list-style-type: none"> • Retail shopping complexes of 10,000+ m² floor area • Class A, B or F hospitals under Ontario Reg. 964 • Schools with 350+ students at a location or campus • Restaurants with gross annual sales of \$3,000,000+ • Office buildings with 10,000m² of floor area • Hotels and motels with 75+ units • Building construction projects of 2,000+ m² • Building demolition projects of 2,000+ m² • Manufacturing sites with 16,000 employee hours per month
<p>Ontario Regulation 103/94</p> <p><i>Source Separation Programs</i></p>	<p>To promote the source separation of materials throughout the facility</p>	<p>Handling and storage facilities must be provided for recyclable materials. Efforts must be made to ensure the system is used and that source-separated materials are reused or recycled.</p> <p>Employees must be instructed on the use of the program</p>	
<p>Ontario Regulation 104/94</p> <p><i>Packaging Audits Packaging Reduction Work Plans</i></p>	<p>To examine the impact of packaging on the waste management system and identify waste reduction plans.</p> <p>Packaging refers to all materials used to protect, contain or transport a product.</p>	<p>Bi-annual audit must address; types and quantities of packaging used, reusability or recyclability of packaging, the environmental impact of the waste and the lifecycle of the packaging materials.</p> <p>Reduction work plan must identify ways to reduce packaging used, increase reuse or recyclability content, reduce the environmental impact and reduce the burden of waste for the consumer.</p>	<ul style="list-style-type: none"> • Manufactures or packagers of packaged food, beverage, paper or chemical products with total employee hours of 16,000+ per month • Importers of packaged food, beverage, paper or chemical products for sale in Ontario with value of goods imported \$20,000,000 per year

THINK GREEN!