

WM | Advisory Services

Waste to Resource Assessment



Prepared for:



HPCDSB - St. Michael Catholic Secondary School
240 Oakdale Ave, Stratford, ON
May 21, 2026

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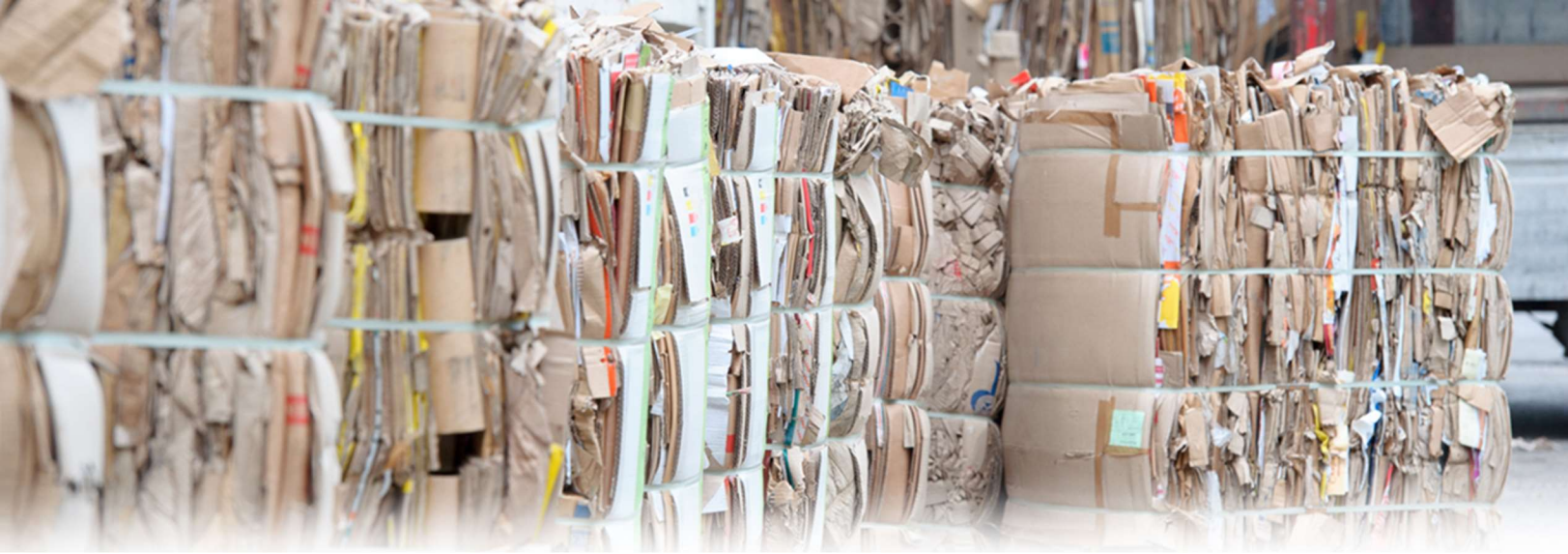
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Executive Summary

On May 21, 2026, Advisory Services conducted a Waste to Resource™ assessment for HPCDSB - St. Michael Catholic Secondary School located at 240 Oakdale Ave in Stratford, ON. A few goals of the assessment were as follows:

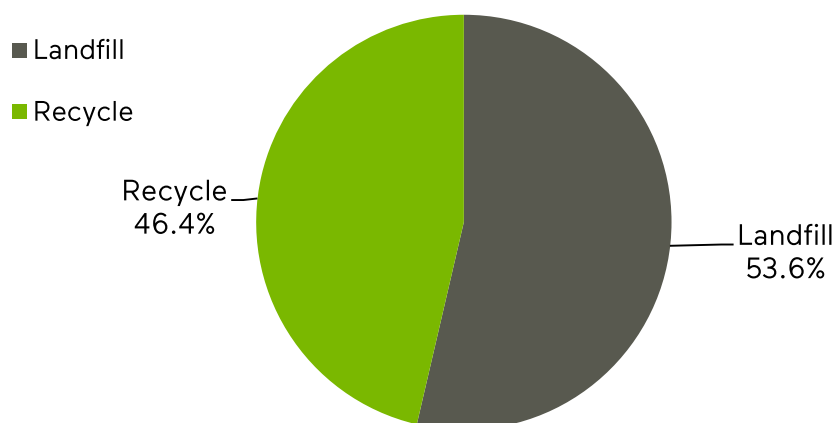
- **Update baseline inventories for waste generation at HPCDSB - St. Michael Catholic Secondary School**
- **To identify and quantify waste composition and commodity**
- **To determine the recovery performance of existing programs**
- **Identify opportunities to further increase diversion and reduce cost**
- **Develop strategies that could be implemented throughout the school**

Our goal is to provide HPCDSB - St. Michael Catholic Secondary School with strategies that will maximize the efficiency of the waste diversion system. During the waste assessment conducted by Advisory Services, visual inspections of waste generation points throughout the school resulted in the discovery of additional diversion opportunities. The assessment identified six primary opportunities that should occur to improve the overall waste diversion rate. The following are our recommendations:

- **Increase Awareness of Current Diversion Programs**
- **Ensure Effective Diversion Infrastructure**
- **Implement an Organics Collection Program**
- **Removal of Waste Bins from Classrooms & Meeting Rooms ('All-In-The-Hall')**
- **Staff and Student Education and Engagement**
- **Continual Improvement and Additional Recommendations**

The school generated a combined 44.89 tonnes of waste and diverted materials in the last year. The current diversion rate for the school is 46.4%.

Figure 1– Current Diversion Rate at HPCDSB - St. Michael Catholic Secondary School



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

-  **The occupancy of the school is approximately 900 students and staff**
-  **The current diversion rate is 46.4%**
-  **Annually, it is estimated that 24.08 tonnes of waste and 20.81 tonnes of diverted materials will be generated from the facility**
-  **Of all the material generated on site, up to 57.9% potentially could have been diverted through currently available diversion programs**
-  **Papers account for 35.1% of the waste sent to landfill**
-  **Organics account for 26.5% of the waste sent to landfill**
-  **Plastics account for 15.1% of the waste sent to landfill**

Assessment Findings and Goals Alignment

Facility Information

Table 1 – Facility Information

Item	Comments
Facility Name:	HPCDSB - St. Michael Catholic Secondary School
Description:	HPCDSB - St. Michael Catholic Secondary School was built in 1990 and has approximately 800 students and 100 staff.
Address:	240 Oakdale Ave, Stratford, ON
Contact Name:	Dave Garrick
Contact Number:	(519) 345-2440

Table 2 – Assessment Summary

Item	Comments
Performed By:	Christopher Doyle
Performed On:	May 21, 2026
Assessment Type:	Waste to Resource Assessment
Assessment Level:	☒ Basic Material Characterization ☐ Detailed Material Characterization ☒ Basic Options Analysis ☒ Detailed Option Analysis ☐ Carbon Analysis ☐ Material Process Mapping ☒ Implementation Feasibility Analysis ☒ Action Plan
Account Manager:	Luiza Furtado

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 campus;
- 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.

According to O.Reg. 103/94, Educational Institutions must make reasonable efforts to divert the following materials:

PART X EDUCATIONAL INSTITUTIONS

(referred to in section 14)

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

Please see Ontario's 3Rs Regulations for the full regulations.
<https://www.ontario.ca/laws/regulation/940103>
<https://www.ontario.ca/laws/regulation/940102>. and

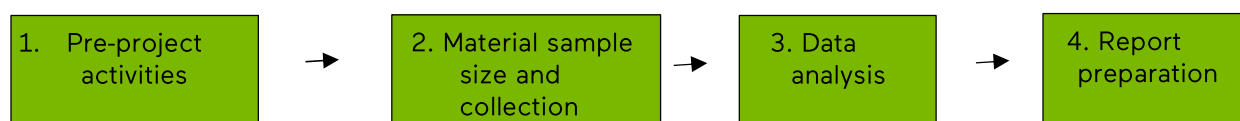
Options Overview

Six 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	Stakeholders need to receive consistent messages about current diversion programs.	✓ Increases diversion and capture rates ✓ Reduced waste spends	Majority of the materials generated throughout the school can be diverted from landfill through current reuse, recycling programs.
Ensure Effective Diversion Infrastructure	Ensure receptacles and signage is present.	✓ Increases efficiencies in program and reduces gaps	Take measures to help users and set up the diversion program for success.
Removal of Waste Bins from Classrooms & Meeting Rooms ('All-In-The-Hall')	Removing individual classroom and meeting room waste bins and shifting to centralized hallway stations to improve diversion, reduce contamination, and significantly lower custodial and operational costs.	✓ Reduced custodial labour demands through fewer bins to service, empty, and clean. ✓ Lower operational and material costs by eliminating the need for numerous in-room bins and plastic liners.	Centralizing waste collection in hallway stations improves sorting accuracy by creating a consistent, easy-to-use system that encourages staff and students to pause and dispose of items correctly. Removing in-room bins also reduces custodial workload and eliminates unnecessary material costs, making the system both operationally efficient and financially sustainable.
Student and Staff Education and Engagement	All stakeholders need to receive consistent messages about current diversion programs available to them.	✓ Increases awareness on environmental programs and issues ✓ Increased efficiencies ✓ Ensures effective education is offered	All stakeholders need to be encouraged and re-educated regarding waste and recycling procedures within the school. Dedicated and knowledgeable staff will create the opportunity for the school to achieve superior capture rates and manage an effective program.
Implement an Organics Collection Program	Collect a large quantity of organics through a new program.	✓ Reduces the amount of material sent in landfill	Put structures in place to have staff and students participate in the collection of organics.
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 school.	✓ Expands programs available ✓ Ensures the tools and infrastructure are in place to support diversion goals	Control decision-making and input regarding materials brought into the school. Determine how best to capture non-traditional materials for recycling or reuse.

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 14 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. Annual projection calculations were determined using the weights of the samples projected against the school’s operational days.
- 4. Report preparation** - Full report prepared including site specific recommendations and Ministry of the Environment, Conservation and Parks - Audit and Workplan forms.

Limitations

Not all diverted materials were available and collected during the sample period. Examples include confidential shredding, light bulbs, scrap wood, scrap metal, batteries, printer cartridges, skids, and E-waste, which are collected on a sporadic basis.

Hazardous, Industrial, and Liquid Industrial Wastes were not included within the scope of this assessment. These materials are not typically included in MECP 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 may not be collected in the assessed sample and as a result are not included in the assessment.

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

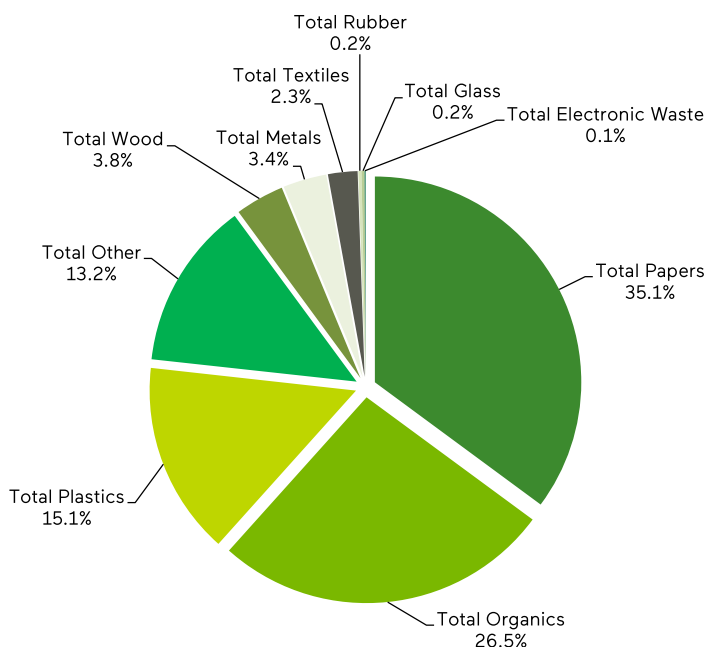
This section displays a breakdown of general material categories by weight and volume. The largest category by weight was paper materials which represented 35.1% of the landfill waste stream.

Table 4 – Landfill Waste Material Comparison

Waste Category	Total Audited Waste Material (kg)	Material Composition (%)	Annual Projected Volume Generated (kg)
Total Papers	14.84	35.1%	8,460
Total Organics	11.19	26.5%	6,379
Total Plastics	6.39	15.1%	3,643
Total Other	5.56	13.2%	3,170
Total Wood	1.62	3.8%	924
Total Metals	1.44	3.4%	821
Total Textiles	0.97	2.3%	553
Total Rubber	0.10	0.2%	57
Total Glass	0.10	0.2%	57
Total Electronic Waste	0.03	0.1%	17
Total	42.24	100.0%	24,080

Figure 2 below represents the generation areas at the facility.

Figure 2 – Landfill Waste Material by Category



Diversion Opportunities

Increased diversion opportunities represent the largest potential cost savings and landfill diversion opportunity for HPCDSB - St. Michael Catholic Secondary School. 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:

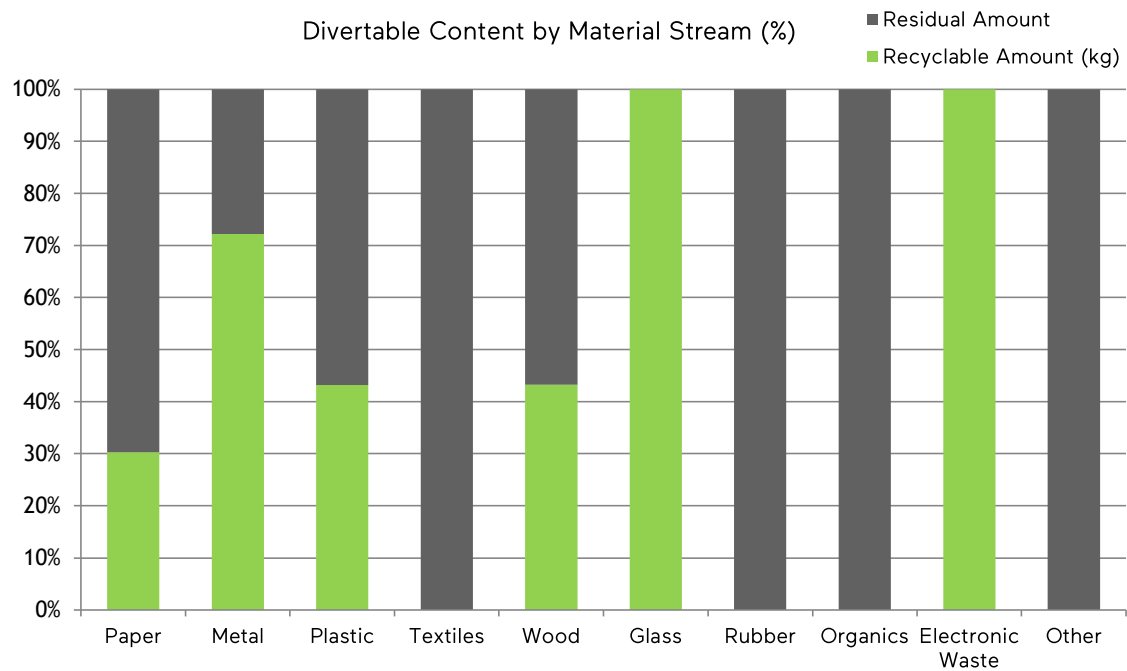
$$\text{Diversion Rate} = \frac{\text{Weight of recovered material}}{\text{Total weight of material generated on-site}} \times 100\%$$

The current diversion rate at the facility is 46.4%. Based on the diversion program currently in place, 57.9% 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.

Should an organic program be implemented at the facility the potential diversion would jump to a significant 84.3% diversion rate. This represents a notable opportunity to increase waste diversion.

Figure 3 outlines the material in each category which could potentially be diverted.

Figure 3 - Diversion Opportunity by Material Category



Diverted Material Comparison by Category

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

Table 5 – Facility Service Information

Diversion Program	Service Provider/s	Container Type	Note
Mixed recycling	WM	6-yard bin	
Confidential paper shredding	Shred-it	Consoles, totes	Estimate included in calculations.
E-Waste	School board, centralized	Various containers	Estimate included in calculations.
Batteries	Not identified	Not identified	Estimate included in calculations.
Scrap metals	Municipal, Joseph Co.	Not identified	Estimate included in calculations.
Scrap wood	Municipal	Not identified	Estimate included in calculations.
Skids	Vendor	Loose	Estimate included in calculations.
Light bulbs	Board, centralized	Not identified	Data Not Provided.
Printer cartridges	Xerox	Not identified	Estimate included in calculations.
Construction & demolition	Unknown	Not identified	As needed program.

Landfill at the school was collected in a 8-yard front end container.

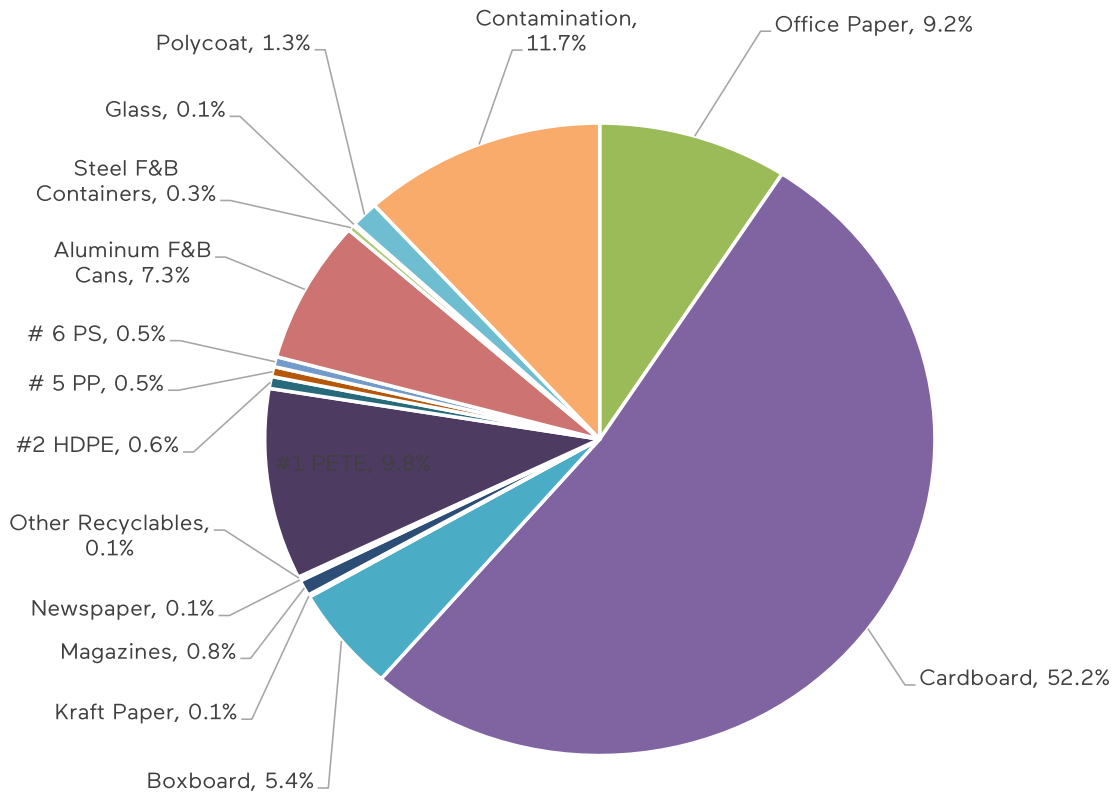
Table 6 – Diverted Material Comparison

Diverted Material	Annual Projected Volume (kg)	Percentage of all Diverted Materials (%)
Mixed Recycling	18,060	86.8%
Confidential Paper Shredding	1,080	5.2%
Scrap Metal	750	3.6%
Scrap Wood	750	3.6%
Skids	100	0.5%
E-Waste, Batteries	55	0.3%
Printer Cartridges	12	0.1%
Total	20,807	100.0%

Contamination Identified in Recycling Stream

A sample of the materials collected for the recycling programs was reviewed during the assessment. It was determined that approximately 11.7% of the sample was various forms of contamination. This included excess liquids, food, polyfoam, tape, rag, label paper, and LDPE plastic wrap identified in the recycling bags.

Figure 4 – Breakdown of Audited Material Collected for Recycling



The **capture rate** indicates the percentage of a material (i.e., office paper) that is being disposed of via one of the sites recovery programs (i.e., single stream, mixed recycling). 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 44,887 kg of material generated at the school in the last 12 months, 26,006 kg of that material is potentially divertible in the available diversion programs. As 20,807 kg of material was captured for recycling, the facility wide capture rate was determined to be 80.0%. Table 7 below outlines the capture rate per material.

Table 7 – Capture Rate Calculations by Material

Diverted Material	Total Generated (kg)	Captured for Diversion (kg)	Landfilled (kg)	Capture Rate (%)
Aluminum food and beverage cans	2,074	1,498	576	72.2%
Cardboard	11,084	10,674	410	96.3%
Fine paper	3,751	2,953	798	78.7%
Glass food and beverage bottles/jars	78	21	57	26.7%
Newsprint	27	21	6	78.5%
Steel food and beverage cans	80	62	17	78.5%
PET (#1) plastic	2,619	1,997	621	76.3%
HDPE (#2)	336	125	211	37.2%
LDPE (#4) plastic film	1,226	-	1,226	0.0%
PP (#5) plastic containers	549	104	445	19.0%
Polystyrene (#6)	400	104	296	26.0%
Organics	6,379	-	6,379	0.0%
Boxboard	2,026	1,103	924	54.4%
Glossy magazines, catalogues, flyers	172	166	6	96.7%
Wood	1,674	750	924	44.8%
Steel	875	750	125	85.7%
Drywall	285	-	285	0.0%
Skids	100	100	-	100.0%
Paper towels	4,726	-	4,726	0.0%
Printer cartridges	12	12	-	100.0%
IT equipment/audio-visual equipment	61	55	6	90.6%
Disposable food packaging (incl. polycoat)	705	312	393	44.2%
Diapers	171	-	171	0.0%
Clothing/textiles	553	-	553	0.0%
Other: Floor sweepings, significant liquids, miscellaneous, arts & crafts, etc.	4,925	-	4,925	0.0%



Recommendations Overview

Six options have been identified that can help HPCDSB - St. Michael Catholic Secondary School make its operations more environmentally responsible. Each option should be carefully reviewed for operational, financial, social, and strategic fit.

-  **Increase Awareness of Current Diversion Programs**
-  **Ensure Effective Diversion Infrastructure**
-  **Implement an Organics Collection Program**
-  **Removal of Waste Bins from Classrooms & Meeting Rooms ('All-In-The-Hall')**
-  **Staff and Student Education and Engagement**
-  **Continual Improvement and Additional Recommendations**

Photographs 1 to 2 – Landfill and recycling sample collected during sample period



Increase Awareness of Current Diversion Programs

Landfill Sample Material Category Breakdown:

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

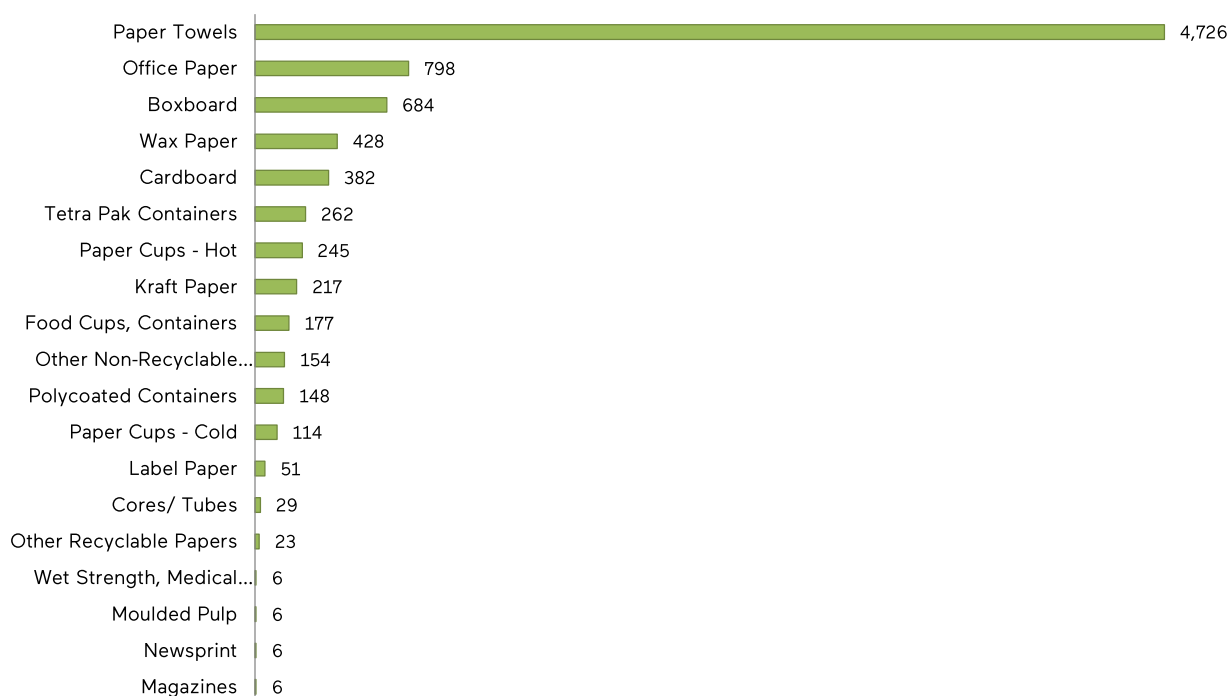


Papers

Paper materials sent to landfill accounted for 35.1% of the school's landfill waste; nearly 8,460 kg of paper is projected to be sent to landfill annually.

- ❖ The school has programs in place to capture mixed paper for recycling, confidential paper shredding, and cardboard.

Figure 5 - Annual Papers Disposed in Landfill (in kg)



Paper towel (e.g., hand towels, facial tissue, and similar materials) represented 19.6% of the landfill waste sample.

- This material could be captured through an organic compost collection program should one be implemented at the school targeted at staff and student food waste.
- The school should consider providing alternatives including hand dryers to reduce these materials in washrooms.

Office paper (e.g., white paper, printer paper) represented 3.3% of all landfilled materials audited.

- Education for students and staff should be provided to ensure engagement and to capture these materials in the mixed recycling program.

Boxboard (e.g., tissue or nitrile glove boxes) accounted for 2.8% of the landfill sample.

- These materials are accepted in the existing mixed recycling program.

Wax paper (e.g., wax paper and food packaging) this material subcategory accounted for 1.8% of the landfill sample.

- These materials are not accepted in the existing mixed recycling program.

Cardboard (e.g., corrugated containers) accounted for 1.6% of the landfill sample.

- These materials are accepted in the existing mixed recycling program.

TetraPak containers (e.g., juice boxes carton) included 1.1% of the landfill sample.

- These materials are accepted in the existing mixed recycling program.

Paper cups – hot (e.g., lined hot beverage cups) accounted for 1.0% of the landfill sample.

- These materials are not accepted in the existing mixed recycling program.

Kraft paper (e.g., brown paper bags) accounted for 0.9% of the landfill sample.

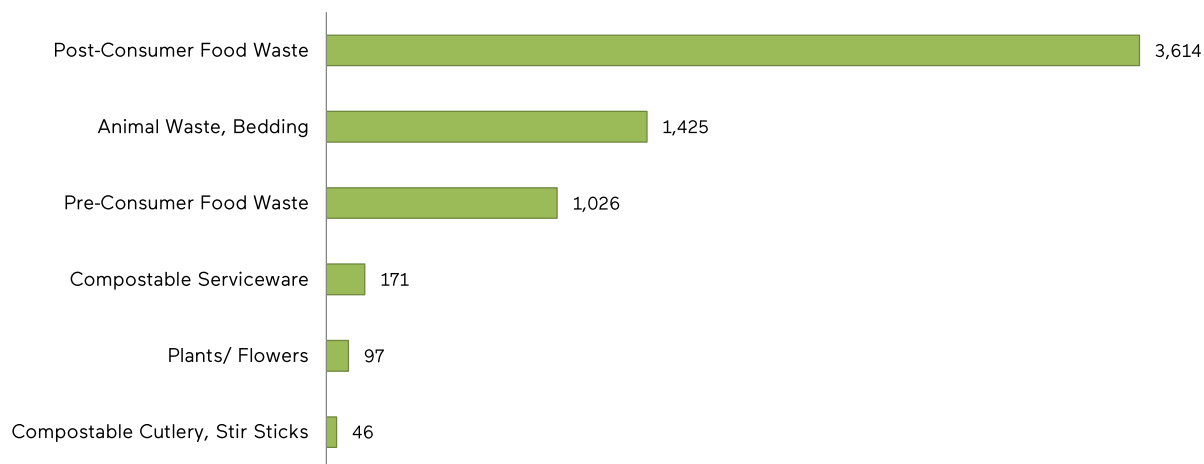
- These materials are accepted in the existing mixed recycling program.

Organics

Organic and compostable materials accounted for 26.5% of the school's landfill waste; nearly 6,379 kg of organics is projected to be sent to landfill annually.

- ❖ No program currently exists at the school to capture organic materials for compost.

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



Post-consumer food waste (included food scraps) which represented 15.0% of the audited landfill waste stream.

- These materials are not currently accepted in school program. These materials could be captured in a compost program if implemented in the future.

Animal waste, bedding (e.g., shavings) represented 5.9% of the audited landfill sample.

- These materials are not currently accepted in school program. These materials could be captured in a compost program if implemented in the future.

Pre-consumer food waste (included pre-purchased food and prep waste) represented 4.3% of the audited landfill sample. This material was primarily generated in the cafeteria kitchen, and specialized classroom kitchens.

- These materials are not currently accepted in school program. These materials could be captured in a compost program if implemented in the future.

Compostable service ware (e.g. fibre-based takeout containers) and **compostable cutlery** represented 0.7% of the audited landfill sample.

- These materials could be captured in a compost program if implemented in the future.

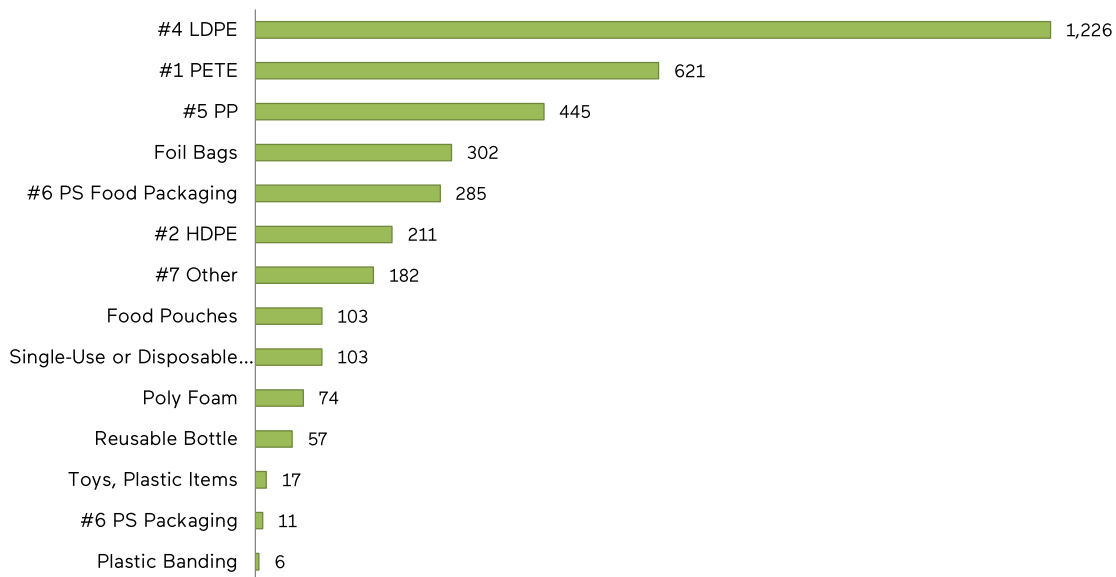


Plastics

Plastic materials account for 15.1% of the school's landfill waste; 3,643 kg of plastic materials is projected to be sent to landfill this year from the school.

- ❖ The school currently has programs in place to capture bottles, containers and plastics labelled #1-7 throughout the school through the recycling program.
- ❖ Limited recycling programs exist for #3, #4 and #6 plastics due to limited end market demand. And are not currently available at the school.

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



LDPE #4 (e.g., soft plastic, film bags & packaging) accounted for 5.1% of audited landfilled materials when combined.

- At this time, LDPE materials are not accepted in mixed recycling programs.

PETE #1 (e.g., water, beverage, and food containers) represented 2.6% of the audited landfill sample.

- These materials are accepted in the existing mixed recycling program.
- Engagement and accessible receptacles are beneficial to capture these items.

PP #5 (e.g., take-out beverage, yogurt/ food containers) represented 1.8% of the audited landfill sample.

- These materials are accepted in the existing mixed recycling program.

Foil bags (e.g., snack or coffee packaging) accounted for 1.3% of the audited sample.

- These materials are not accepted in mixed recycling programs due to packaging composition.

PS #6 (e.g., take-out beverage, yogurt/ food containers – excluding polyfoam) accounted for 1.2% of the audited sample.

- If clean, these materials are accepted in the existing mixed recycling program.

HDPE #2 (e.g., cleaning or food containers) accounted for 0.9% of the audited sample.

- These materials are accepted in the existing mixed recycling program.

Other #7 plastics (e.g., hard scrap plastic parts, plastic covers, unlabeled plastic items) represented 0.8% of the audited sample.

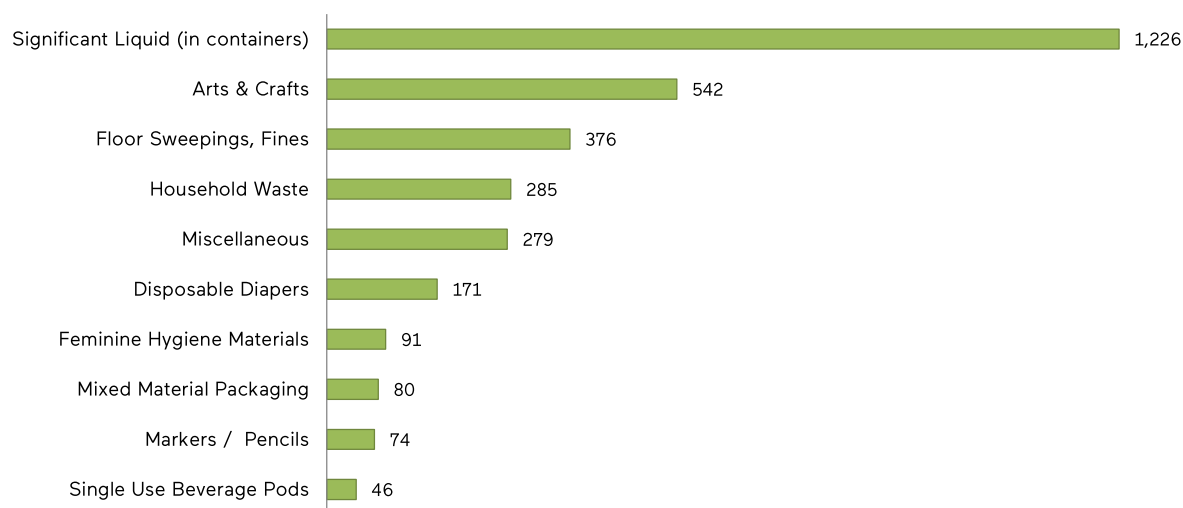
- These materials are not accepted in mixed recycling programs. Each of these materials should be reviewed on an individual basis regarding their recyclability.

Other Materials

Other materials sent to landfill accounted for 13.2% of the school's landfill waste; nearly 3,170 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;
- ❖ Programs may be available for construction & demolition on an as needed basis.

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



Significant liquids (e.g., soaps, water, and other beverages) represented 5.1% of the audited landfill sample.

- Commonly liquids were found unfinished in their original containers. Staff and students may be encouraged to empty containers to ensure the container may be captured for recycling.

Arts & crafts (e.g., mixed material art projects) represented 2.2% of the audited landfill sample.

- These materials are not accepted in mixed recycling programs due to varied content types.

Floor sweepings (e.g., sweepings, hair, fines, floor dust) represented 1.6% of the audited landfill sample.

- These are not recyclable materials.

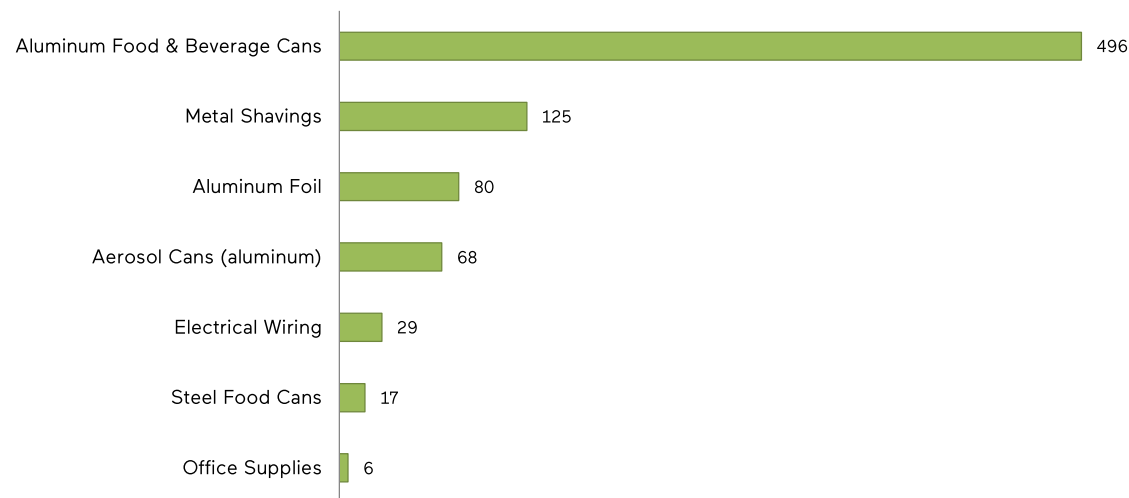


Metals

Metal materials sent to landfill accounted for 3.4% of the school's landfill waste; nearly 821 kg of metals is projected to be sent to landfill annually.

- ❖ The school has programs in place to capture most metal food and beverage containers in the mixed recycling program.
- ❖ Scrap metal collection is available on-site.

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



Aluminum cans (e.g., beverage and food containers) accounted for 2.1% of landfilled materials.

- 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.

Metal shavings (e.g., small scrap metal pieces) accounted for 0.5% of landfilled materials.

- These materials are not accepted in the recycling program but are accepted in the scrap metal program.

Aluminum foil (e.g., wrap and food trays) accounted for 0.3% of landfilled materials.

- These are recyclable materials and are accepted in mixed recycling programs, when clean.



Glass

Glass materials sent to landfill accounted for 0.2% of the school's landfill waste; nearly 57 kg of glass is projected to be sent to landfill annually.

- ❖ The school has programs in place to capture 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 0.2% of the audited landfill sample.

- Education for students and staff should be provided to ensure engagement and to capture these materials in the mixed recycling program.

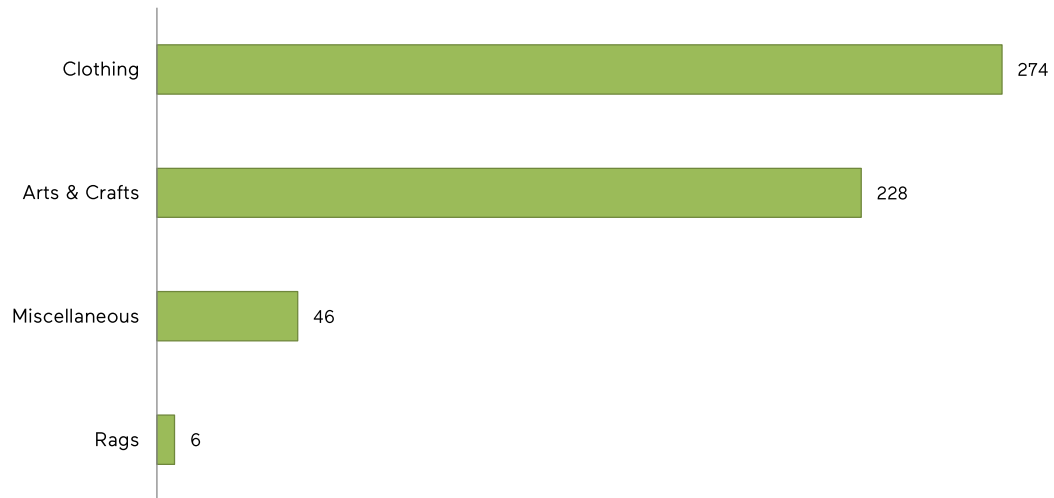


Textiles

Textile materials sent to landfill accounted for 2.3% of the school's landfill waste; nearly 553 kg of textiles is projected to be sent to landfill annually.

- ❖ There is currently no program in place to capture most textile materials for diversion.
- ❖ A designated lost and found area is in place at the school.

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



Clothing (e.g., shirt, socks, pants) accounted for 1.1% of the landfill sample.

- These materials are not accepted in mixed recycling programs.
- The school should consider advancing the current donation or Lost & Found collection program for items in good condition.



Rubber

Rubber materials sent to landfill accounted for 0.2% of the school's landfill waste; nearly 57 kg of rubber is projected to be sent to landfill annually.

- ❖ There are currently no programs in place to capture these items for diversion.

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



Nitrile work gloves (e.g., nitrile, latex disposable gloves) accounted for 0.2% of the audited landfill sample.

- These are not accepted in mixed recycling programs.
- The school 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.

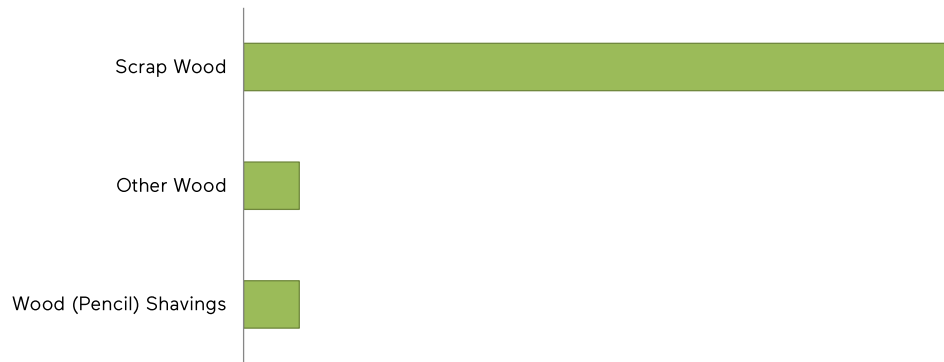


Wood

Wood materials accounted for 3.8% of the school's landfill waste; nearly 924 kg of wood is projected to be sent to landfill annually.

- ❖ Wood items are not accepted in mixed recycling programs.
- ❖ Scrap wood materials may be captured through a dedicated program in specific areas of the school such as technical classrooms.

Figure 13 - Annual Wood Disposed in Landfill (in kg)



Scrap wood (e.g., broken wood parts) represented 3.3% of the audited sample.

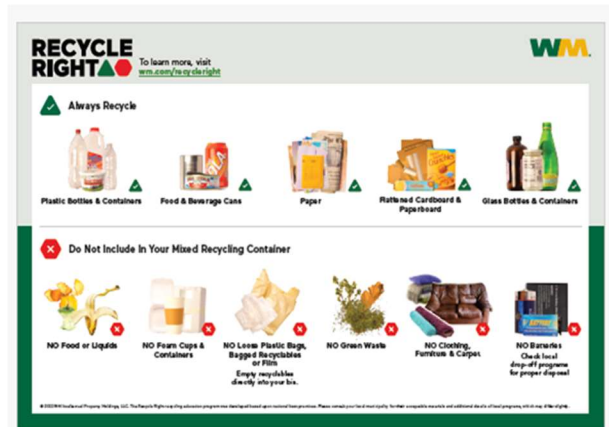
- These materials should be placed in the scrap wood collection program available at the school.

Continual Improvement Recommendations

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.

- Custodial 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 staff and students, 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 school 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 school.



- 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.



- 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.



- Paired Receptacles landfill containers should always be accompanied with a recycling container so that staff, students, and visitors are able to sort any item they are handling into the appropriate receptacle.



- Recycling Centre, create a central location known to staff and students where divertible materials can be collected or reusable materials can be dropped off. This can include less common divertible materials such as batteries, printer cartridges, markers which are collected by specialized haulers. Additionally, this can be location to place educational reference material or promotional posters.



- Below is an example of a central sorting area in an outdoor event setting. Pairing bins together allows for optimal diversion rates and reduced contamination.



Implement an Organics Collection Program

Compostable materials sent to landfill accounted for 26.5% of your total waste; nearly 6,379 kg of this category of material will be sent to landfill annually. Currently there are no programs in place to capture these materials from landfill.

Many material categories above could be diverted from landfill through an organics collection program should one be implemented in the future at the school. Additional materials such as paper towels, coffee grinds, yard waste, stir sticks could potentially be diverted through an organics program.

Additional cost of an organics program could be partially offset with reduced garbage collection and overage fees. Please contact the account manager for more information.

It is recommended that organic collection bins be placed in easy to reach areas where these materials are most often generated, such as cafeteria food service, specialized classrooms, and lunchrooms. Staff and students should be able to reach the containers without too much movement or disruption to ensure that the bins can be incorporated into their routines. Once full organic bins can be very heavy, therefore the size should be appropriate to the location where it is in use and keeping in mind how it will be transferred throughout the school to where it will be stored for later collection.

Organic bins should have a distinct look from recycling or garbage bins, such as a green colour of the container itself or in addition to signage and labelling, to help staff identify the bin quickly. Examples below:



The Ministry of Environment, Conservation and Parks released the “Preserving and Protecting our Environment for Future Generations: A Made in Ontario Environment Plan” in 2018. This policy statement builds on Bill 151, Waste-Free Ontario Act, 2016 that developed a framework to reduce the volume of food and organic waste going to landfill.

- The province is working with municipalities and haulers to expand organics collection programs.
- The policy statement directed municipalities, business, and institutions to reduce their food and organic waste and meet sector specific targets by 2025.
- The province is reviewing feedback from stakeholder groups to clarify and amend the categories of food and organic waste and update the direction of the management of compostable products and packaging.
- The province is consulting with stakeholders on a proposal to phase out food and organic waste from landfill by 2030.

Removal of Waste Bins from Classrooms & Meeting Rooms ('All-In-The-Hall')

Implementing an '**All-In-The-Hall**' collection model—removing individual waste bins from classrooms and meeting spaces and directing users to centralized hallway stations has proven to significantly improve diversion outcomes, reduce contamination, and lower custodial and operational costs. This approach aligns with best practices already adopted across several post-secondary schools.

Under this effective model, smaller waste and recycling bins are removed from individual classrooms, and users are expected to carry their waste to centralized multi-stream stations located in hallways or common areas. Custodial staff continue to service classrooms and offices as usual, but waste collection is limited to these central stations. This shift creates consistency, simplifies servicing, and promotes correct sorting.

Positive Impacts on User Behavior & Litter Reduction:

Contrary to concerns about convenience, litter is driven largely by social norms and expectations, not user laziness. When students understand, they are expected to bring their waste to central stations, and trust those stations exist, compliance is high. In fact:

- Social cues and visible hallway stations reinforce proper behavior and reduce reliance on in-room bins as the “default” disposal option.

Additionally, requiring individuals to carry items even briefly increases the likelihood that they pause to identify correct streams, improving sorting accuracy.

Many institutions also pair bin removal with upgrades to hallway infrastructure, new signage, standardized streams, and compost additions which further enhance success.



Behavioral Theory Supporting the Model:

Traditional assumptions focus on convenience, motivation, and recycling knowledge. However, behavioral evidence suggests that momentary distraction (e.g., rushing between classes) is a stronger predictor of incorrect disposal. Carrying an item for a short period—such as the 60–90 seconds it takes to exit a room—creates a moment of attention when users reach a hallway station, making proper sorting more likely.

Operational & Financial Benefits:

Beyond sustainability improvements, the All-In-The-Hall model offers substantial custodial and budgetary efficiencies:

- Reduced Capital and Operational Costs
- There is no need to purchase or replace several small classroom bins.
- Eliminates the ongoing purchase of plastic liners for those bins.

Student and Staff 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.

For teaching staff:

Regular training demonstrates the school's commitment to recycling programs, update staff on policy changes and accounts for changes in workforce.

- Staff should be trained on all the current waste streams available in the school diversion program and where they can access them, and staff should be able to communicate the program to students;
- Targeted training sessions and regular reminders can ensure that staff understands the steps that are being taken to achieve environmental sustainability and their roles to achieve success;
- Staff should be trained to notify a point of contact if receptacles or signage is missing;

Incorporating sustainability into the curriculum is key tool teaching staff can utilize in educating and engaging students.

- Upcycling materials for arts and crafts projects would allow opportunities for the school to divert their waste while also instilling the value of materials to students;
- Teaching staff can also support students by sponsoring and encouraging the efforts of environmental clubs;
- Encourage environmental themed games, such as on Kahoot programs.

For administrative staff:

Provide teachers and students with the tools to carry out waste reduction initiatives.

- The school should endorse, and support teacher or student-led initiatives relating to waste reduction and participate in campaigns;
- Create opportunities for class tours of local (municipal or private) recycling centres;
- Review Eco Schools Canada Certification as a school wide goal;
- The school board should create a **slogan** or **branding** to help promote their recycling program and create continuity for all promotional or educational materials;
- Establish a **Reuse Centre** on site to provide opportunities for staff and students to reuse furniture, binders, office supplies etc.

For students:

- Awareness posters should be placed on bulletin boards to increase engagement;
- For **courses that include environmental themes**, students should be encouraged to participate in environmental events at school such as waste audits or to take field trips to recycling plants for hands on education;
- Encourage participation in community and global events focusing on waste reduction by allowing time for during school hours. Some examples include:
 - a) Earth Day, globally celebrated on April 22nd of each year;
 - b) Waste Reduction Week, celebrated across Canada in October of each year;
 - c) Plastic Free July is an initiative many local communities participate in bringing attention to the plastics in use.

There are several activities, events and practices that educational institutions have implemented, which have proven to work well to promote environmental efforts in a campus setting. The following are some examples of campus wide activities involving students:

- A.** A student run Environmental Committee and Campus Green Team can take the lead and provide energy and ideas to the campus.
 - a. Booth displays or events on campus can help engage students this may include an Orientation Week Promotion to educate new students. An Environmental Themed Day/ Assembly, for Earth Day in April, or Waste Reduction Week in October are other examples to increase and maintain awareness on campus;
 - b. The Green Team may also as part of their duties ensure that the infrastructure described in this report is in place;
- B.** Waste Free Lunches - Events or specific days can be arranged for students and staff to bring their own lunches in reusable containers. Those who bring their own containers and purchase their meals from an onsite food vendor may receive a modest price discount.
- C.** Charity Drives - where students collect refundable bottles and use the proceeds as donations to charity.
- D.** Fundraise through TerraCycle Recycling Programs by capturing specific materials such as snack packaging, and drink pouches.

Green Sporting Events¹ - The school may set up green events during well-attended sporting or community events. All food vendors for the event must provide compostable plates, containers, cutlery for food service or easily recyclable containers. During the event, volunteers may help attendees to sort materials into the correct receptacles.

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

¹ Source: <http://gamedaychallenge.org/>

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 the operations.

i. Prepare for End of Year Clear Out

At the end of the school year, it is common for students to clear their lockers, teachers to clear their classrooms, and office staff to dispose of files. It is recommended that the school provides additional recycling bins for paper and recyclables. Additional service for confidential shredding consoles, and donation containers for clothing, books, or furniture. Such services can be announced in advance through morning announcements or monthly meetings to staff to create awareness.

ii. Bin Assessment

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

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

iii. Data Management

Each school 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 school 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 staffs, 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 school will be able to better track the success of the waste 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 school.

iv. Continual Review

It is recommended that the school 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 school, it is recommended that you regularly review opportunities to reduce or substitute these materials in your operations. As well updated signage may be available for distribution.

v. 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 school.

<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.

vi. Alternatives to Recycling: Reuse Programs

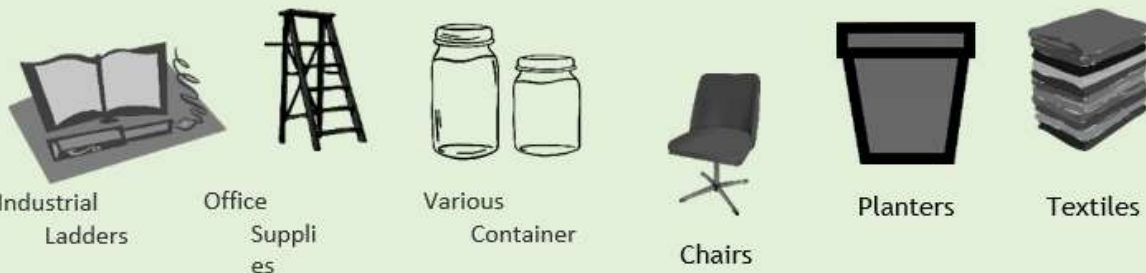
According to the waste hierarchy, recycling should be considered after reduction, and reuse programs have been considered. Materials that are still usable, do not need to be disposed of, could be donated, or sold for reuse.



Several options for donations exist in the region for materials such as used furniture (ReStore, Habitat for Humanity) or bulk containers in good condition. Materials can also be bought and sold on online platforms such as Kijiji Canada, Facebook Marketplace, and Craigslist. These platforms can be used to sell items no longer serving the school and could be repurposed. As well, there are organizations such as the Material Exchange Program that can facilitate that help facilitate reuse or repurposing of materials.

Material Exchange Program, operated by Partners in Project Green, is a circular economy focused platform that allows businesses and non-profit organizations access to an inventory of materials that have been donated. Conversely, the facility can also donate their reusable materials toward this inventory.

Common materials accepted in the inventory include:



[Material Exchange - Partners in Project Green: Partners in Project Green](#)

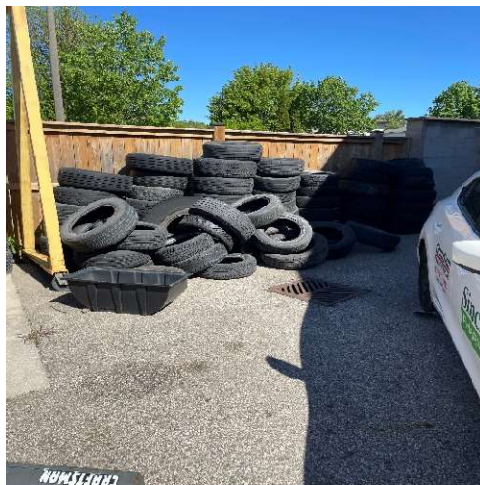
Supplementary Information

Appendix 1 – Facility Photos

Photographs 3 to 11 – Example of waste, recycling collection services

- Below are examples of the recycling and waste collection container.
- The school currently has a specialized recycling program set in place for diversion of specific materials such as scrap wood, scrap metal, e-waste, batteries, printer cartridges, paper shredding, used tires, etc.





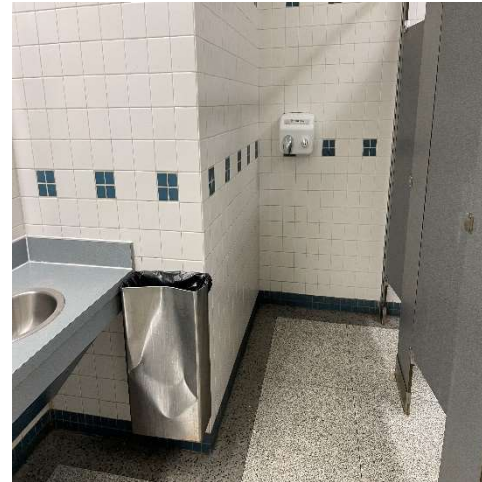
Photographs 12 to 16 – Example of landfill, recycling receptacles

- Throughout the site tour, it was identified that several landfill waste and recycling receptacles were found on their own and without a complementary receptacle.
- It is always recommended that both waste and recycling receptacles be paired together to allow staff and students the opportunity to properly dispose of their materials throughout the school day, limiting contamination rates found in the recycling bins.



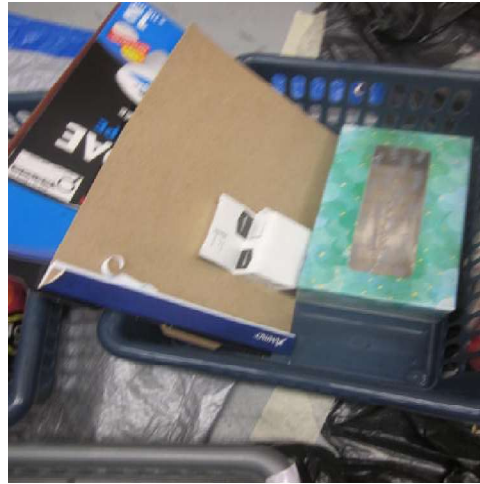
Photographs 17 to 20 – Example of landfill, recycling receptacles

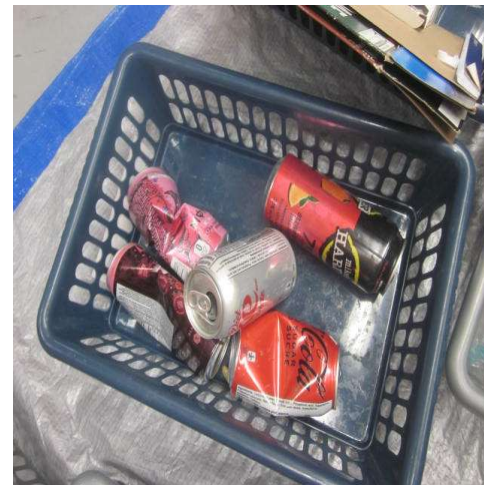
- Below are examples of a landfill and a recycling receptacle in the school. Large bold visual signage may be beneficial to educate user about which recyclable materials are accepted in the diversion program.
- Recycling and landfill receptacles in a hallway and classroom setting. Additional labeling may be beneficial to identify the landfill receptacle and remind users to direct recycling materials to the correct container.



Appendix 2 – Audit Sample Photos

Photographs 21 to 40 – Sorted examples from landfill waste sample

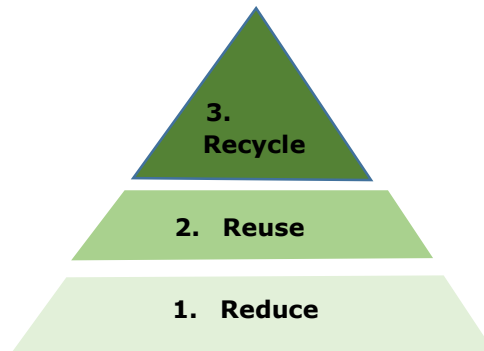






Appendix 3 – Three R's Waste Hierarchy

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	Encourage staff to use compostable and recycling coffee cups which are accepted in organics/mixed recycling programs
Plastics	PETE	Encourage staff to bring reusable water bottles Ensure sufficient water fountains for building users	Encourage staff to reuse plastic bottles Use refundable recycling schemes at the site	Provide enough receptacles, information, and signposting for mixed recycling programs
	HDPE	Encourage bulk buying of goods to reduce volume of packaging Purchase products with minimal packaging		

	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
Foil Bags	Coffee Bags, Chip Bags, Snack Packaging	Landfill
Plastic Banding	Plastic Shipping Straps	Landfill
Polyfoam	Foam Protective Packaging Materials, Styrofoam	Landfill
Shrink Wrap	Shrink Wrap, Plastic Film	Landfill
Single-Use or Disposable Plastic Products	Plastic Utensils, Straws, Lids and Condiment Packaging	Landfill
Boxboard	Cereal, Tissue Box Material	Recycle
Cardboard	Old Corrugated Cardboard (OCC)	Recycle
Cores and Tubes	Paper-Based Cores and Tubes	Recycle
Glossy Magazines, Catalogues, Flyers	Glossy Paper	Recycle
Kraft Paper	Paper Bags, Heavy Brown Paper	Recycle
Label Paper	Label Backing, Sticker Paper	Landfill
Moulded Pulp	Drink Trays, Egg Cartons, Product Packaging	Recycle
Newsprint	Newspapers, Weekly Flyers	Recycle
Office Paper	White Paper, Printer Paper	Recycle
Other Recyclable Paper	Packaging Paper, Construction Paper	Recycle
Other Non-Recyclable Paper	Wax Paper, Soiled Food Packaging	Landfill
Paper Cups	Hot-lined Beverage Cups	Landfill
Paper Towels	Paper Hand Towels, Napkins, Tissues	Landfill
Polycoated Containers	Milk Cartons, Aseptic Containers	Recycle
Tetra Pak Containers	Juice Boxes, Liquid Beverage Containers	Recycle
Wax Paper	Wax Coated Food Packaging	Landfill
Wet Strength Paper	Wet Strength Kraft Paper, Medical Paper	Landfill
Aerosol Cans	Spray Cans	Special
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
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
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	Landfill
Cooking Grease	Fats, Oils and Grease	Landfill
Plants / Flowers / Yard Waste	Indoor and Outdoor Plants, Flowers, Leaves, Yard Waste	Landfill
Post-Consumer Waste	Scrap Food Waste	Landfill
Pre-Consumer Waste	Food Preparation Waste	Landfill
Compostable Cutlery	Wooden Cutlery, Wooden Stir or Chop Sticks	Landfill
Compostable Service ware	Compostable Take-Out Containers, Paper Plates	Landfill
Elastics	Rubber Band	Landfill
Rubber	Misc. Rubber Parts and Pieces	Landfill
Rubber Tubing	Cable Protection, Metal Coverings, Pipe Fittings	Landfill
Nitrile and Latex Gloves	Nitrile and Latex Gloves	Landfill
Clothing	Used Shirts, Pants, Uniforms, Hats	Landfill, lost & found
Rags	Used Rags and Cloths	Landfill
Shoes and Boots	Assorted Footwear	Landfill, lost & found
Work Gloves	Cloth Gloves, Safety Gloves, Kevlar Sleeves	Landfill
Misc. Textiles	Mop Heads, Reusable Bags	Landfill
Absorbent Pads	Universal Sorbent Pads, Oil Absorbing Pads	Landfill
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