

City of Saskatoon 2023 to 2025 City-Wide Waste Characterization Study 2023 Annual Report



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EXECUTIVE SUMMARY

Tetra Tech Canada Inc. (Tetra Tech) was retained by the City of Saskatoon (City) to conduct a multi-season City-Wide Waste Characterization Study. The scope of the study consists of nine (9) seasonal waste sorting events over a three-year period from 2023 to 2025. This report summarizes the sorting events conducted for garbage, recycling, and organics streams from the single family (SF) residential sector in Fall 2023, Winter 2023, and Spring 2024.

Section 1 of the report identifies the scope of work, project limitations, and an overview of waste collection services in the City.

Section 2 identifies the methodology that was undertaken for the study, including waste collection, sorting, and data analysis. A detailed description of material categories is included in Appendix C.

Section 3 includes an overview of set-out rates, types and amounts of materials collected, and an estimate of cart fullness. Waste composition results for garbage, recycling, and organics are summarized in Section 3 along with diversion potential, contamination rates, capture rates, and a bag count for the organics stream. The following are general results found:

- Over the three sampling events, the average percentage of carts set-out for collection every other week was 86%, 80%, and 60% for the garbage, recycling, and organics stream, respectively.
- On average, the total amount of materials disposed every two weeks was approximately 19 kg/household, 5 kg/household and 10 kg/household for the garbage, recycling, and organics stream, respectively, for a total of 34 kg of materials disposed of every two weeks.
- On average, carts that were set out were 70%, 73% and 49% full for the garbage, recycling, and organics stream, respectively.
- The organic fraction of materials accounted for 38% to 46% of the garbage stream.
- The diversion potential for the garbage stream based on existing programs and services was 56% to 63%.
- The contamination rate in the recycling stream ranged from 14% to 15%.
- The contamination rate in the organics stream ranged from 2% to 7%.

Section 4 summarizes the interesting finds in the study.

Section 5 includes comments and preliminary recommendations based on the findings from the three sampling events:

- The once every two weeks collection frequency appears to be effective for residents' needs, however, it may be a higher level of service than required in the winter months for the organics stream.
- The 360 L cart size worked well for most households. Only 1% to 6% of carts were overfilled; however, approximately 21% to 30% of carts were only filled to half capacity or below.
- Additional education and communication on the new green cart program may be beneficial to:
 - Reduce the amount of food waste in the garbage stream, which was comprised of 38% to 46% organic material.

- Remind residents that only biodegradable products institute (BPI) certified compostable bags are permitted in the green cart program.
- Increase resident participation or set-out rates. On average, 60% of residents set-out their green cart for collection.
- Additional education and communication on the recycling program may be beneficial to reduce the amount of contamination in the recycling stream.
- Additional diversion programs are recommended for materials that can be diverted from the landfill, including construction and demolition waste. Approximately 7% to 9% of material in the garbage stream was construction and demolition waste.

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ACRONYMS & ABBREVIATIONS

Acronyms/Abbreviations	Definition
BPI	Biodegradable Products Institute
City	City of Saskatoon
HDPE	High-density Polyethylene
Landfill	Saskatoon Regional Waste Management Centre
LDPE	Low-density Polyethylene
SF	Single Family
Tetra Tech	Tetra Tech Canada Inc.
WEEE	Waste Electrical and Electronic Equipment

LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of the City of Saskatoon and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than the City of Saskatoon, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

NOTE TO THE READER

The samples collected and characterized for this study are “snapshots” in time, meaning the reported quantities are estimates and only represent the conditions for the period in which they were collected. Annual variability, weather, and other factors can affect the amount and composition of waste and recyclables generated by the various sectors at any given time. Even with combined educational, regulatory, and financial initiatives, the reader should not assume that it is necessarily easy, practical, or economical to recover a substantial portion of a disposed material from a mixed waste stream or at its source.

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by the City of Saskatoon (City) to conduct a multi-season City-Wide Waste Characterization Study from 2023 to 2025. The purpose of this study was to identify trends and changes in the City's waste profile and provide benchmarks as new programs are introduced. The following programs implemented in the City include:

- In 2023, the City launched a mandatory curbside organics (green) cart program and a mandatory organics diversion program for the industrial, commercial, and institutional sector.
- In 2024, the City implemented a variable rate fee structure for curbside garbage (black) carts.

It is understood that results from the study are intended to improve understanding of program use, identify changes over time, identify areas for program improvement, and inform public communication campaigns.

The scope of the study consists of nine seasonal waste sorting events over a three-year period. The first waste sort was conducted in October 2023 (Fall 2023), the second was conducted in December 2023 (Winter 2023), and the third was conducted in April 2024 (Spring 2024). This report summarizes the first three sampling events conducted for the single family (SF) residential sector. Table 1-1 summarizes the dates when the sorting events occurred.

Table 1-1: Timeframe of Sorting Events

#	Season	Dates
1	Fall 2023	October 16 to October 27, 2023
2	Winter 2023	December 4 to December 15, 2023
3	Spring 2024	April 15 to April 26, 2024

1.1 Overview of Garbage, Recycling, and Organics Collection

The following section provides an overview of the City's services for garbage, recycling, and organics collection for SF households.

Garbage (black cart) is collected once every two weeks year-round. The default cart size is 360 L; however, households have the option to request a 240 L or a 120 L cart size. Collection operations are conducted by the City. In 2023, garbage collection was funded through property taxes; however, as of 2024, the City has implemented a utility fee and variable cart sizes for garbage collection. During the Spring 2024 sorting event, new carts were concurrently being delivered to select SF households that requested a smaller cart size as part of the waste utility rollout. All carts that were included in the Spring 2024 audit were noted to still be the default 360 L cart size, however, for other sorting events, the cart size at some households may be smaller than what was observed in previous sorting events.

Recycling (blue cart) is collected once every two weeks year-round. The default cart size is 360 L. Collection operations are conducted under contract with a third-party service provider. Recycling collection is funded through a recycling utility fee and residents have the option to pay for an additional cart.

Organics (green cart) is collected once every two weeks year-round and includes yard and food waste. The default cart size is 360 L, and collection operations are conducted by the City. Prior to 2023, the green cart program was a voluntary, subscription-based program. However, in the spring of 2023, the green cart program was expanded to a city-wide program for all SF households receiving cart collections. In 2023, organics collection was funded through property taxes; however, as of 2024, the City has implemented a utility fee for organics collection.

All three waste streams are collected on different days of the week (e.g., no more than one cart is placed out for collection on any given day). Set-out locations for carts vary depending on the location in the City but include both front street and back lane. Front street collections occur on both sides of the street; however, back lane collections occur on only one side of the lane. Overfilled carts and/or materials placed outside the carts were not collected.

1.2 Scope of Work

This study characterized the composition of solid waste in the garbage, recycling, and organics streams from SF households that receive curbside collection. The fieldwork involved the following:

- Collected garbage, recycling, and organics from select households;
- Documented waste stream set-outs, and fullness of the materials in the carts collected;
- Transported collected materials to a designated sorting area; and
- Characterized (sorted and weighed) collected waste materials.

The objectives of this study include the following:

- Document the amount and types of materials discarded in the garbage, recycling, and organics waste streams to establish a baseline for the SF residential sector.
- Determine the amount of contamination found in the recycling and organic streams, and the amount of divertible materials in the garbage.
- Determine the capture rates for recyclables and organic materials relative to the generation rate.
- Document the estimated cart fullness prior to collection.
- Estimate waste generation rates for the three waste streams.
- Estimate diversion potential for other waste streams (such as those that have diversion programs) that could be diverted through depots such as household hazardous waste, construction waste, and textiles.
- Assess service level suitability (i.e., collection frequency and cart size) for SF residents.

A sampling plan was prepared in conjunction with City staff. A total of 106 households were selected from ten neighbourhoods, and included the same households that were selected for the Fall 2023, Winter 2023, and Spring 2024 sorting events. Table 1-2 summarizes the selected neighbourhoods, collection route number and code, number of households selected, cart set out location and description.

Table 1-2: Single Family Households Characterized

Neighbourhood	Collection Route	Route Code	Number of Homes	Set Out Location	Description
Eastview	1	EAS	10	Back Lane	10 homes in a row
Parkridge	2	PAR	11	Front Street	11 homes in a row
Rosewood	3	ROS	10	Front Street	10 homes in a row
Mount Royal	4	MOU	14	Front Street	14 homes in a row
Holliston	5	HOL	11	Back Lane	11 homes in a row
City Park	6	CIT	10	Back Lane	10 homes in a row
Nutana	7	NUT	10	Back Lane	10 homes in a row
Silverwood Heights	8	SIL	10	Front Street	10 homes in a row
Willowgrove	9	WIL	10	Front Street	10 homes in a row within a cul-de-sac and adjacent road
Dundonald	10	DUN	10	Front Street	10 homes in a row with one set-out around the corner
Total			106		

1.3 Project Limitations

The findings of this study may be limited by the following factors:

- **Sampling Methodology:** Results from this sampling methodology are directly correlated to the 10 to 14 households that were selected for collection in each neighbourhood. It was assumed that these households would be representative of the entire neighbourhood.
- **Residential Behaviour:** Samples were collected from the same households for all three seasons. Residents may have recognized the collection team, and this may have affected resident's behaviour patterns with respect to waste disposal practices due to their awareness of the waste characterization study.
- **Diversion Potential:** The diversion potential is calculated based on an ideal scenario where residents are correctly utilizing all waste diversion options that were available at the time of the study. Diversion potential is considered a theoretical maximum and represents the upper boundary of what could be possible given the current waste composition and waste diversion programs.
- **Set-Out Rates:** The noted set-out rates for carts in back lane collection locations could potentially be skewed higher. Carts at these locations are not always returned to the resident's yard or property and are all placed on one side of the alley, increasing the potential of an extra collected cart if they were not labelled correctly.
- **Waste Produced Per Household Estimation:** The amount of waste produced every two weeks per household is calculated by dividing the total weight collected by the total number of possible households. It does not take into account the set-out rate.

2.0 METHODOLOGY

The following section describes the methodology that was undertaken to conduct this study. Appendix B includes photos that highlight some of the activities.

2.1 Health and Safety

A Health and Safety Plan was developed for this project to identify potential hazards in advance of the waste composition study. The Health and Safety Plan was reviewed and updated to account for seasonal changes (e.g., fluctuating weather conditions in the spring) as well as inputs and lessons learned from past sorting events. Tetra Tech staff conducting field work for this study were required to have up-to-date safety certifications and training for waste sorting activities. Personal protective equipment, including face masks, safety goggles, gloves, steel toe boots, coveralls, and hi-vis vests, was worn by all field staff according to Tetra Tech's Health and Safety Plan.

As the waste sorting was conducted at the Saskatoon Regional Waste Management Centre (Landfill), all Tetra Tech staff completed a Landfill safety orientation required by the City, to understand site-specific hazards, controls, and expectations. A safe working location was selected and clearly demarcated. Safety meetings were conducted by Tetra Tech at the beginning of each day to review and identify key concerns, and hazard mitigation strategies, including how to handle material hazards such as sharps or hazardous materials, safe lifting of heavy material, working around and driving vehicles.

2.2 Sample Collection Methodology

Each day, Tetra Tech arrived at the first collection location no earlier than 7:30 a.m. (note that carts are required to be placed out at the curb for collection by 7:00 a.m. as per the Waste Bylaw). Prior to material collection, Tetra Tech field staff recorded the number of garbage, organics, or recycling carts that were set out from the selected households as well as the estimated percent cart fullness. If there was a low number of carts set out (e.g., less than 50%), staff recorded this and returned at a later time that morning to collect materials from any additional carts set out. During collection, staff also recorded general observations and resident encounters. Recorded observations would include any additional materials placed outside of the garbage cart or if there was a large amount of contamination (e.g., building materials) in or around the cart. All carts recorded during the three sampling events were noted to be the default 360 L size (e.g., no smaller cart sizes were noted).

Tetra Tech field staff collected all contents from each household's carts. Only materials that were placed inside the carts were collected and characterized. Materials collected from carts in each neighbourhood were mixed and represented a single sample. Tetra Tech labelled material while collecting to make sure samples were not mixed or co-mingled. All home addresses were confidential and were only provided to the field supervisor for coordination purposes. Measures were taken to ensure all data collected remained anonymous, and results were aggregated.

Once the samples were collected, Tetra Tech staff transported the materials to the designated sorting area at the Landfill. Samples were then unloaded, and the sorting team organized the materials to make sure samples were not mixed or co-mingled.

2.3 Hand Sorting

For all three waste streams, staff weighed each sample to determine the pre-weight. For the garbage stream, the field team took a subsample that was approximately 100 kg for hand sorting, collecting material from each collection bag to minimize potential bias. For the recycling and organics streams, the entire samples were sorted. Each sample was then hand sorted into its respective material categories.

All samples were sorted as per the categories agreed upon with the City. Each categorized item was placed into respective bins. The contents of each bin were then weighed and recorded to determine the weight for each secondary category. Details of the sorting categories are included in Appendix C, along with their description, and preferred diversion/disposal method.

The waste streams were characterized into 13 primary categories which were then further divided into 67 secondary categories. Primary categories include the following:

- Paper.
- Metals.
- Food waste.
- Yard waste.
- Bulky waste.
- Paper packaging.
- Glass.
- Construction and demolition waste.
- Household hygiene.
- Plastics.
- Household hazardous waste.
- Waste Electrical and Electronic Equipment (WEEE).
- Other materials.

Note that the term “household hazardous waste” is an industry term that refers to household products that may be flammable, corrosive, or toxic under certain conditions, but are generally safe to handle under normal conditions.

The “household hygiene” category includes materials such as diapers, sanitary products, and pet waste.

The “other materials” primary category includes materials such as textiles, tires and other rubber, other waste, and wooden utensils.

2.4 Data Analysis

Data analysis was performed using Tetra Tech’s spreadsheet analysis tool. Data was compiled into primary and secondary categories by weight. The composition for each stream was calculated as weighted averages.

The types of data analysis undertaken by Tetra Tech include the following:

- Set-out rates and fullness of curbside carts.
- Generation rates.
- Composition of materials by material type and weight.
- Diversion potential or contamination rate of materials.
- Capture rates of recyclable and organic materials.
- Counts of plastic film bags (non-packaging) and compostable/biodegradable bags.
- Notable items.

3.0 RESULTS

3.1 Single Family Garbage

The following summarizes the waste composition results for the SF garbage stream over the first three sampling events (Fall 2023, Winter 2023, Spring 2024).

3.1.1 Set-Out Rates

Table 3-1 summarizes the set-out rates from each season in SF residential garbage carts. The average total percentage of carts set-out was 86% for all three seasons, and the average set-out rates in Fall 2023, Winter 2023, and Spring 2024 was 88%, 84%, and 87%, respectively. The average range of set-out rates for all routes was between 70% and 97%.

Table 3-1: Garbage Cart Set-Out Rates

Route	Set Out Location	Fall 2023 (%)	Winter 2023 (%)	Spring 2024 (%)	Average (%)
Eastview	Back Lane	100%	90%	100%	97%
Parkridge	Front Street	73%	64%	73%	70%
Rosewood	Front Street	80%	70%	70%	73%
Mount Royal	Front Street	86%	71%	79%	79%
Holliston	Back Lane	100%	91%	91%	94%
City Park	Back Lane	70%	80%	80%	77%
Nutana	Back Lane	100%	90%	100%	97%
Silverwood Heights	Front Street	100%	90%	83%	91%
Willowgrove	Front Street	80%	100%	100%	93%
Dundonald	Front Street	90%	90%	90%	90%
Average		88%	84%	87%	86%

3.1.2 Material Collected

Table 3-2 summarizes the amount of material collected from each season in SF residential garbage carts. The average amount of materials collected was 197 kg for all three seasons, and the average amount of materials collected in Fall 2023, Winter 2023, and Spring 2024 was 215 kg, 169 kg, and 206 kg, respectively. The range for all three seasons for a given route was 132 kg to 265 kg.

Table 3-2: Amount of Garbage Collected

Route	Set Out Location	Fall 2023 (kg)	Winter 2023 (kg)	Spring 2024 (kg)	Average (kg)
Eastview	Back Lane	192.02	129.25	190.10	170.46
Parkridge	Front Street	182.60	89.05	128.10	133.25
Rosewood	Front Street	239.00	129.80	231.85	200.22
Mount Royal	Front Street	212.50	239.52	257.95	236.66
Holliston	Back Lane	209.80	179.25	263.70	217.58
City Park	Back Lane	167.30	161.80	198.75	175.95
Nutana	Back Lane	179.80	95.05	120.45	131.77
Silverwood Heights	Front Street	290.55	174.35	96.26	187.05
Willowgrove	Front Street	279.80	223.95	258.15	253.97
Dundonald	Front Street	206.15	270.20	319.05	265.13
Average		215.95	169.22	206.44	197.20

3.1.3 Material Collected Per Household

Table 3-3 summarizes the amount of material collected per household from each season in SF residential garbage carts. The average amount of materials per household was 18.94 kg/household for all three seasons, and the average amount of materials per household in Fall 2023, Winter 2023, and Spring 2024 was 21 kg/household, 16 kg/household, and 20 kg/household, respectively. The generation rate range for all three seasons was between 12 kg/household to 27 kg/household per two-week period.

Table 3-3: Amount of Garbage Material Disposed per Household per Two Week Period

Route	Set Out Location	Fall 2023 (kg/household)	Winter 2023 (kg/household)	Spring 2024 (kg/household)	Average (kg/household)
Eastview	Back Lane	19.20	12.93	19.01	17.05
Parkridge	Front Street	16.60	8.10	11.65	12.11
Rosewood	Front Street	23.90	12.98	23.19	20.02
Mount Royal	Front Street	15.18	17.11	18.43	16.90
Holliston	Back Lane	19.07	16.30	23.97	19.78
City Park	Back Lane	16.73	16.18	19.88	17.60
Nutana	Back Lane	17.98	9.51	12.05	13.18
Silverwood Heights	Front Street	29.06	17.44	16.04	20.84
Willowgrove	Front Street	27.98	22.40	25.82	25.40
Dundonald	Front Street	20.62	27.02	31.91	26.51
Average		20.63	15.99	20.19	18.94

3.1.4 Cart Fullness

Table 3-4 summarizes the average cart fullness from each season in SF residential garbage carts. The average fullness of carts was 70% for all three seasons, and the average cart fullness in Fall 2023, Winter 2023, and Spring 2024 was 73%, 65%, and 70%, respectively. The range of cart fullness for all routes was between 53% and 83%.

Table 3-4: Garbage Cart Fullness

Route	Set Out Location	Fall 2023 (%)	Winter 2023 (%)	Spring 2024 (%)	Average (%)
Eastview	Back Lane	76%	54%	74%	68%
Parkridge	Front Street	58%	51%	51%	53%
Rosewood	Front Street	86%	73%	81%	80%
Mount Royal	Front Street	64%	62%	65%	64%
Holliston	Back Lane	63%	67%	84%	71%
City Park	Back Lane	68%	75%	60%	68%
Nutana	Back Lane	63%	52%	48%	54%
Silverwood Heights	Front Street	79%	61%	76%	72%
Willowgrove	Front Street	92%	80%	76%	83%
Dundonald	Front Street	81%	78%	91%	83%
Average		73%	65%	70%	70%

3.1.5 SF Garbage Waste Composition Results

Figure 3-1 presents the average garbage waste composition across the three sorting events from Fall 2023 to Spring 2024. The largest category was food waste (28%), followed by household hygiene (19%), and plastics (12%).

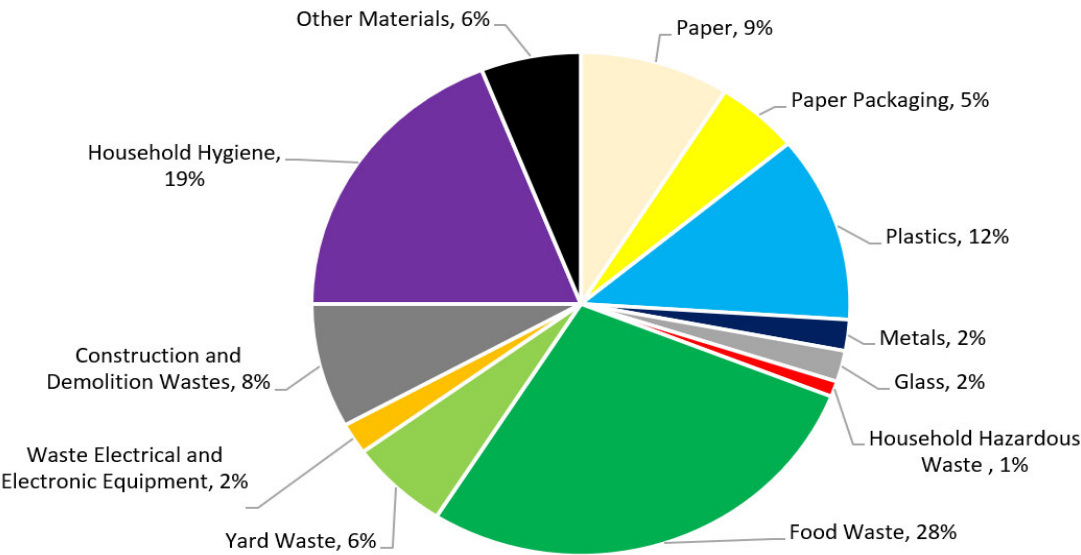


Figure 3-1: SF Garbage Average Composition

Figure 3-2 compares the garbage waste composition across the three sorting events from Fall 2023 to Spring 2024.

The largest primary category was food waste (Fall: 28%, Winter: 31%, Spring: 24%). The next largest primary category was household hygiene (Fall: 14%, Winter: 18%, Spring: 24%), followed by plastics (Fall: 13%, Winter: 12%, Spring: 11%), paper (Fall: 10%, Winter: 9%, Spring: 7%), and construction and demolition wastes (Fall: 8%, Winter: 9%, Spring: 7%). These five categories (food waste, household hygiene, plastics, paper, construction and demolition wastes) made up between 73% to 79% of the garbage stream each season.

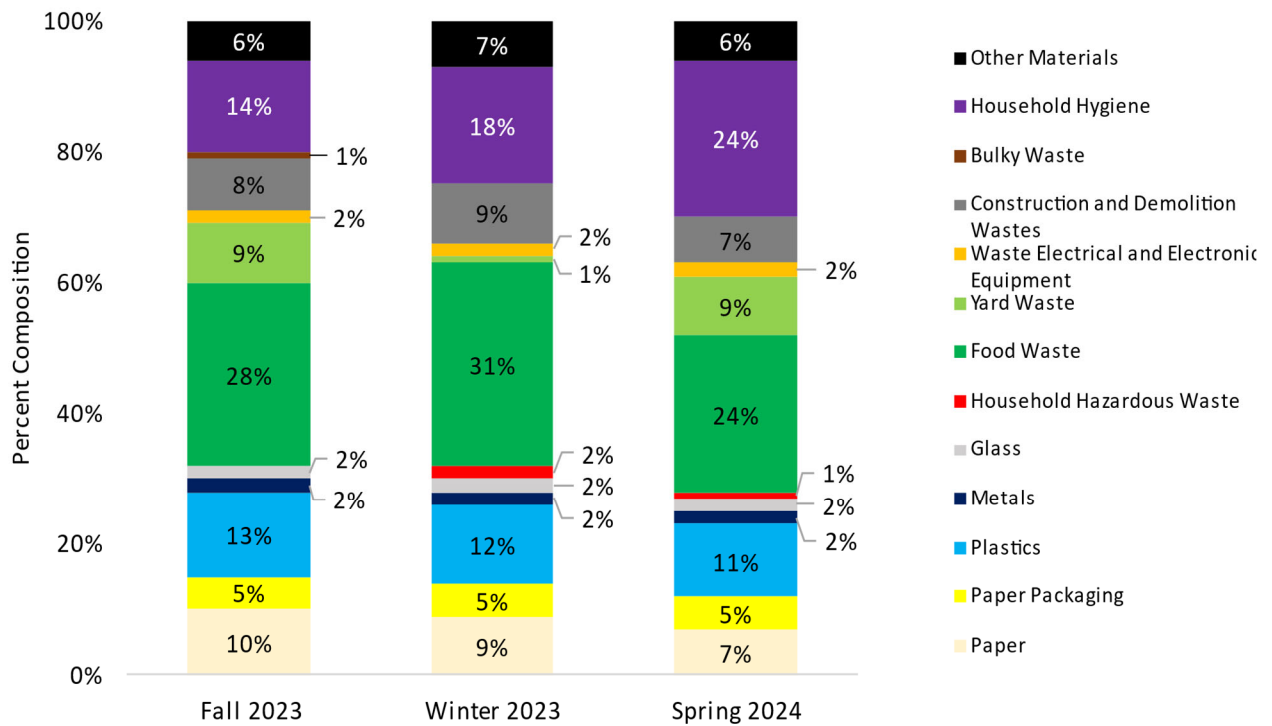


Figure 3-2: Three-Season SF Garbage Composition

3.1.6 Diversion Potential

Figure 3-3 summarizes the diversion potential of the SF garbage stream. The diversion potential represents the percentage of materials that could be diverted from the garbage stream through the City’s organics, recycling, and depot programs. The ‘No Program’ category represents the theoretical diversion potential of materials from the garbage stream, but no corresponding program or service is currently offered (construction and demolition waste and bulky waste). The total diversion potential for the SF garbage stream ranged from 63% to 72%. The diversion potential for the SF garbage stream based on existing programs and services ranged from 56% to 63%. Most of the divertible materials were compostable (38% to 46%), followed by recyclable (10% to 12%), no program (7% to 9%), and items that can be dropped off at a depot (6% to 7%).

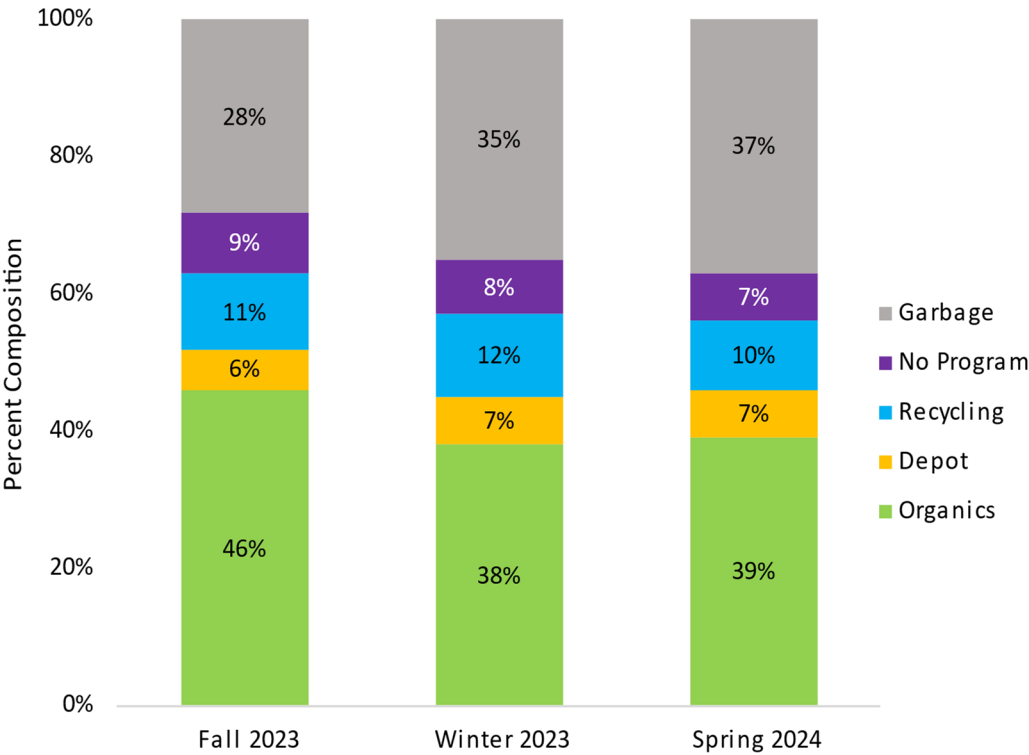


Figure 3-3: Three-Season SF Garbage Diversion Potential

3.2 Single Family Recycling

The following summarizes the waste composition results for the SF recycling stream over the first three sampling events (Fall 2023, Winter 2023, Spring 2024).

3.2.1 Set-Out Rates

Table 3-5 summarizes the set-out rates from each season in SF residential recycling carts. The average total percentage of carts set-out was 80% for all three seasons and the average set-out rates in Fall 2023, Winter 2023, and Spring 2024 was 80%, 83%, and 77%, respectively. The range of set-out rates for all routes was between 52% and 93%.

Table 3-5: Recycling Cart Set-Out Rates

Route	Set Out Location	Fall 2023 (%)	Winter 2023 (%)	Spring 2024 (%)	Average (%)
Eastview	Back Lane	70%	80%	70%	73%
Parkridge	Front Street	73%	73%	73%	73%
Rosewood	Front Street	70%	80%	70%	73%
Mount Royal	Front Street	57%	43%	57%	52%
Holliston	Back Lane	82%	91%	73%	82%
City Park	Back Lane	-	90%	70%	80%
Nutana	Back Lane	110%	90%	80%	93%
Silverwood Heights	Front Street	100%	90%	80%	90%
Willowgrove	Front Street	80%	90%	100%	90%
Dundonald	Front Street	80%	100%	100%	93%
Average		80%	83%	77%	80%

3.2.2 Material Collected

Table 3-6 summarizes the amount of material collected from each season in SF residential recycling carts. The average amount of materials collected was 53 kg for all three seasons and the average amount of materials collected in Fall 2023, Winter 2023, and Spring 2024 was 50 kg, 57 kg, and 51 kg, respectively. The range for all three seasons for a given route was 39 kg to 60 kg.

Table 3-6: Amount of Recycling Collected

Route	Set Out Location	Fall 2023 (kg)	Winter 2023 (kg)	Spring 2024 (kg)	Average (kg)
Eastview	Back Lane	48.35	48.95	28.00	41.77
Parkridge	Front Street	48.90	60.15	66.20	58.42
Rosewood	Front Street	33.30	50.75	34.20	39.42
Mount Royal	Front Street	35.73	44.80	55.85	45.46
Holliston	Back Lane	50.70	69.10	57.35	59.05
City Park	Back Lane	-	61.80	49.35	55.58
Nutana	Back Lane	48.05	58.40	59.05	55.17
Silverwood Heights	Front Street	78.25	57.10	38.15	57.83
Willowgrove	Front Street	55.00	54.45	65.15	58.20
Dundonald	Front Street	53.85	65.25	59.75	59.62
Average		50.24	57.08	51.31	52.87

3.2.3 Material Collected Per Household

Table 3-7 summarizes the amount of material collected per household from each season in SF residential recycling carts. The average amount of materials per household was 5.04 kg/household for all three seasons, and the

average amount of materials per household in Fall 2023, Winter 2023, and Spring 2024 was 5 kg/household, 5 kg/household, and 5 kg/household, respectively. The generation rate range for all three seasons was between 3 kg/household to 6 kg/household per two-week period.

Table 3-7: Amount of Recycling Material Disposed per Household per Two Week Period

Route	Set Out Location	Fall 2023 (kg/household)	Winter 2023 (kg/household)	Spring 2024 (kg/household)	Average (kg/household)
Eastview	Back Lane	4.84	4.90	2.80	4.18
Parkridge	Front Street	4.45	5.47	6.02	5.31
Rosewood	Front Street	3.33	5.08	3.42	3.94
Mount Royal	Front Street	2.55	3.20	3.99	3.25
Holliston	Back Lane	4.61	6.28	5.21	5.37
City Park	Back Lane	-	6.18	4.94	5.56
Nutana	Back Lane	4.81	5.84	5.91	5.52
Silverwood Heights	Front Street	7.83	5.71	3.82	5.78
Willowgrove	Front Street	5.50	5.45	6.52	5.82
Dundonald	Front Street	5.39	6.53	5.98	5.96
Average		4.81	5.46	4.86	5.04

3.2.4 Cart Fullness

Table 3-8 summarizes the average cart fullness from each season in SF residential recycling carts. The average fullness of carts was 73% for all three seasons, and the average cart fullness in Fall 2023, Winter 2023, and Spring 2024 was 73%, 75%, and 73%, respectively. The range of cart fullness for all routes was between 61%, and 87%.

Table 3-8: Garbage Cart Fullness

Route	Set Out Location	Fall 2023 (%)	Winter 2023 (%)	Spring 2024 (%)	Average (%)
Eastview	Back Lane	69%	76%	50%	65%
Parkridge	Front Street	54%	59%	71%	61%
Rosewood	Front Street	74%	89%	69%	77%
Mount Royal	Front Street	61%	75%	77%	71%
Holliston	Back Lane	83%	79%	70%	77%
City Park	Back Lane	-	64%	80%	72%
Nutana	Back Lane	60%	67%	80%	69%
Silverwood Heights	Front Street	82%	75%	76%	77%
Willowgrove	Front Street	79%	79%	77%	78%
Dundonald	Front Street	92%	84%	83%	87%
Average		73%	75%	73%	73%

3.2.5 SF Recycling Waste Composition Results

Figure 3-4 presents the average recycling waste composition across the three sorting events from Fall 2023 to Spring 2024. The largest category was paper packaging (51%), followed by paper (23%) and plastics (13%).

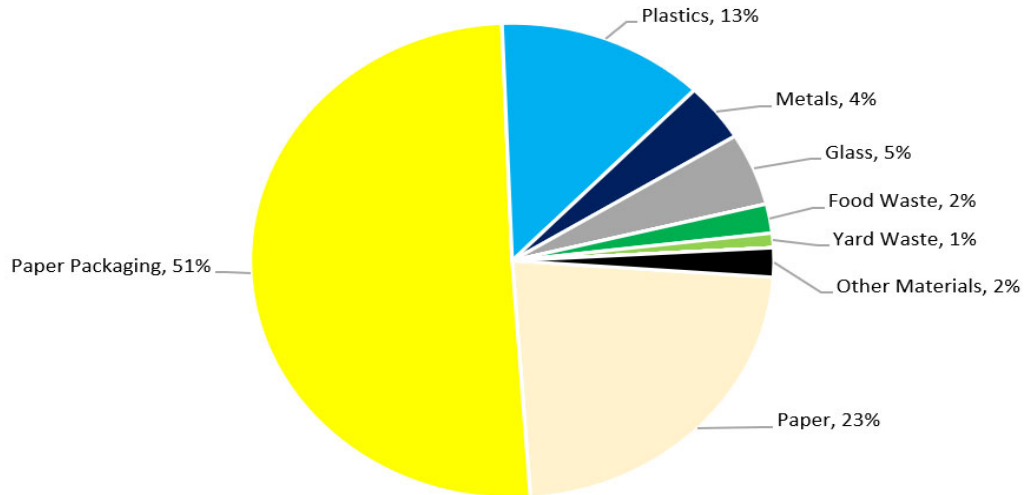


Figure 3-4: SF Garbage Average Composition

Figure 3-5 compares the recycling waste composition across the three sorting events from Fall 2023 to Spring 2024.

The largest primary category was paper packaging (Fall: 47%, Winter: 50%, Spring: 56%). The next largest primary category was paper (Fall: 27%, Winter: 26%, Spring: 15%), followed by plastics (Fall: 13%, Winter: 11%, Spring: 14%). These three categories (paper packaging, paper, plastics) made up between 85% to 87% of the recycling stream each season.

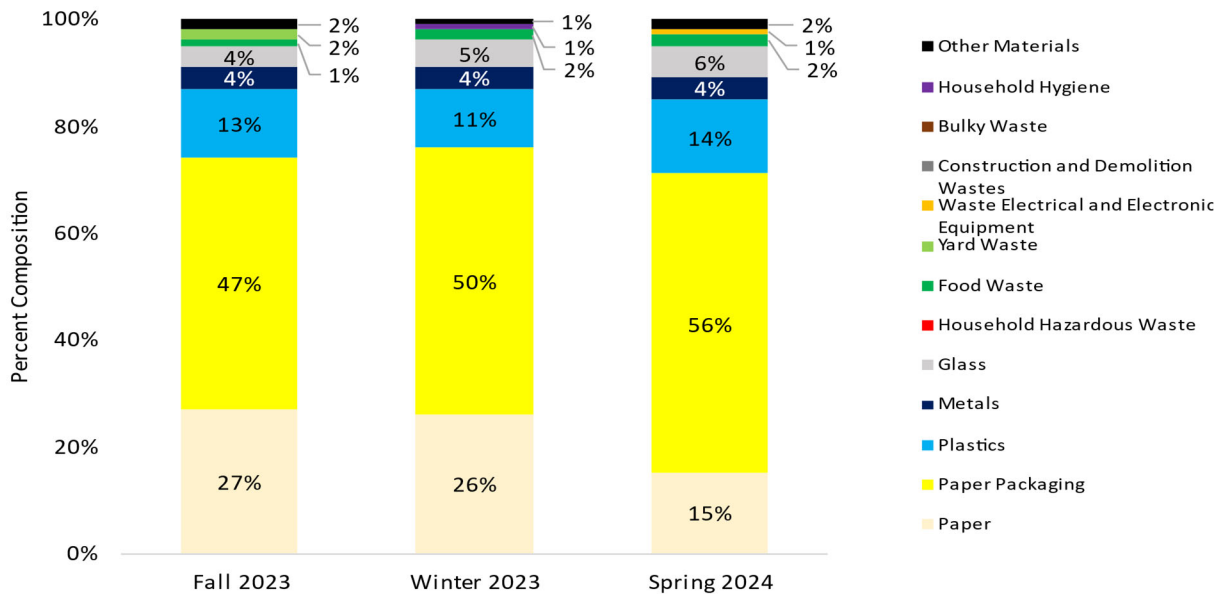


Figure 3-5: Three-Season SF Recycling Composition

3.2.6 Contamination Rate

Figure 3-6 summarizes the percent contamination in the SF recycling stream. The percent contamination represents the percentage of materials that are considered garbage, organic, or depot materials. The total percent contamination for the SF recycling stream ranged from 14% to 15%. Most of the contamination materials were garbage (9% to 10%), followed by organics (2% to 4%), and depot materials (1% to 3%).

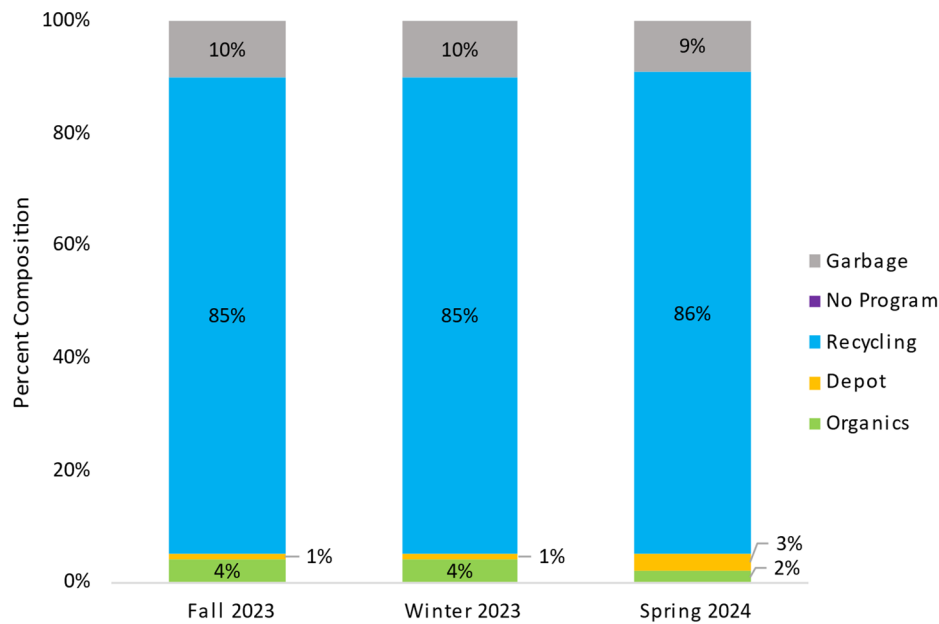


Figure 3-6: Three-Season SF Recycling Contamination Rate

3.2.7 Recyclable Material Capture Rate

Table 3-9 summarizes the capture rate of the recycling stream. The capture rate for recyclables in the recycling stream was determined to be 63%, 69%, and 67% for Fall 2023, Winter 2023, and Spring 2024, respectively.

Table 3-9: Recyclable Material Capture Rate

	Fall 2023	Winter 2023	Spring 2024
Total Recyclables in Garbage, Recycling, and Organics Streams	67.94 kg	70.99 kg	66.01 kg
Total Recyclables Captured in the Recycling Stream	42.53 kg	48.69 kg	43.98 kg
Capture Rate	62.6%	68.6%	66.6%

3.3 Single Family Organics

The following summarizes the waste composition results for the SF organics stream over the first three sampling events (Fall 2023, Winter 2023, Spring 2024).

3.3.1 Set-Out Rates

Table 3-10 summarizes the set-out rates from each season in SF organics recycling carts. The average total percentage of carts set-out was 60% for all three seasons, and the average set-out rates in Fall 2023, Winter 2023, and Spring 2024 was 75%, 44%, and 60%, respectively. The range of set-out rates for all routes was between 38%, and 93%.

Table 3-10: Organics Cart Set-Out Rates

Route	Set Out Location	Fall 2023 (%)	Winter 2023 (%)	Spring 2024 (%)	Average (%)
Eastview	Back Lane	80%	50%	80%	70%
Parkridge	Front Street	73%	18%	45%	45%
Rosewood	Front Street	60%	50%	50%	53%
Mount Royal	Front Street	57%	14%	43%	38%
Holliston	Back Lane	73%	64%	73%	70%
City Park	Back Lane	70%	30%	-	50%
Nutana	Back Lane	110%	100%	70%	93%
Silverwood Heights	Front Street	90%	10%	40%	47%
Willowgrove	Front Street	50%	20%	50%	40%
Dundonald	Front Street	90%	80%	90%	87%
Average		75%	44%	60%	60%

3.3.2 Material Collected

Table 3-11 summarizes the amount of material collected from each season in SF residential organics carts. The average amount of materials collected was 107.22 kg for all three seasons, and the average amount of materials collected in Fall 2023, Winter 2023, and Spring 2024 was 163 kg, 48 kg, and 111 kg, respectively. The range for all three seasons for a given route was 60 kg to 141 kg.

Table 3-11: Amount of Organics Collected

Route	Set Out Location	Fall 2023 (kg)	Winter 2023 (kg)	Spring 2024 (kg)	Average (kg)
Eastview	Back Lane	235.98	42.60	143.70	140.76
Parkridge	Front Street	200.05	43.35	114.00	119.13
Rosewood	Front Street	74.35	41.35	64.25	59.98
Mount Royal	Front Street	153.55	22.30	149.25	108.37
Holliston	Back Lane	90.65	41.05	118.65	83.45
City Park	Back Lane	155.05	35.40	-	95.23
Nutana	Back Lane	186.88	84.30	43.70	104.96
Silverwood Heights	Front Street	233.70	5.90	71.65	103.75
Willowgrove	Front Street	145.90	101.35	99.10	115.45
Dundonald	Front Street	155.79	58.20	193.75	135.91
Average		163.19	47.58	110.89	107.22

3.3.3 Material Collected Per Household

Table 3-12 summarizes the amount of material collected per household from each season in SF organics recycling carts. The average amount of materials per household every two weeks was 10 kg/household for all three seasons, and the average amount of materials per household in Fall 2023, Winter 2023, and Spring 2024 was 16 kg/household, 5 kg/household, and 10 kg/household, respectively. The generation rate range for all three seasons was between 6 kg/household to 14 kg/household per two-week period.

Table 3-12: Amount of Organics Material Disposed per Household per Two Week Period

Route	Set Out Location	Fall 2023 (kg/household)	Winter 2023 (kg/household)	Spring 2024 (kg/household)	Average (kg/household)
Eastview	Back Lane	23.60	4.26	14.37	14.08
Parkridge	Front Street	18.19	3.94	10.36	10.83
Rosewood	Front Street	7.44	4.14	6.43	6.00
Mount Royal	Front Street	10.97	1.59	10.66	7.74
Holliston	Back Lane	8.24	3.73	10.79	7.59
City Park	Back Lane	15.51	3.54	-	9.52
Nutana	Back Lane	18.69	8.43	4.37	10.50
Silverwood Heights	Front Street	23.37	0.59	7.17	10.38
Willowgrove	Front Street	14.59	10.14	9.91	11.55
Dundonald	Front Street	15.58	5.82	19.38	13.59
Average		15.62	4.62	10.38	10.20

3.3.4 Cart Fullness

Table 3-13 summarizes the average cart fullness from each season in SF residential organics carts. The average fullness of carts was 49% for all three seasons and the average cart fullness in Fall 2023, Winter 2023, and Spring 2024 was 63%, 34%, and 50%, respectively. The range of cart fullness for all routes was between 26% and 66%.

Table 3-13: Organics Cart Fullness

Route	Set Out Location	Fall 2023 (%)	Winter 2023 (%)	Spring 2024 (%)	Average (%)
Eastview	Back Lane	98%	46%	55%	66%
Parkridge	Front Street	63%	50%	64%	59%
Rosewood	Front Street	20%	18%	40%	26%
Mount Royal	Front Street	64%	40%	78%	61%
Holliston	Back Lane	66%	29%	38%	44%
City Park	Back Lane	63%	38%	NA	51%
Nutana	Back Lane	69%	24%	27%	40%
Silverwood Heights	Front Street	62%	10%	76%	49%
Willowgrove	Front Street	58%	55%	22%	45%
Dundonald	Front Street	67%	33%	47%	49%
Average		63%	34%	50%	49%

3.3.5 SF Organics Waste Composition Results

Figure 3-7 presents the average organics waste composition across the three sorting events from Fall 2023 to Spring 2024. The largest category was yard waste (55%) followed by food waste (35%).

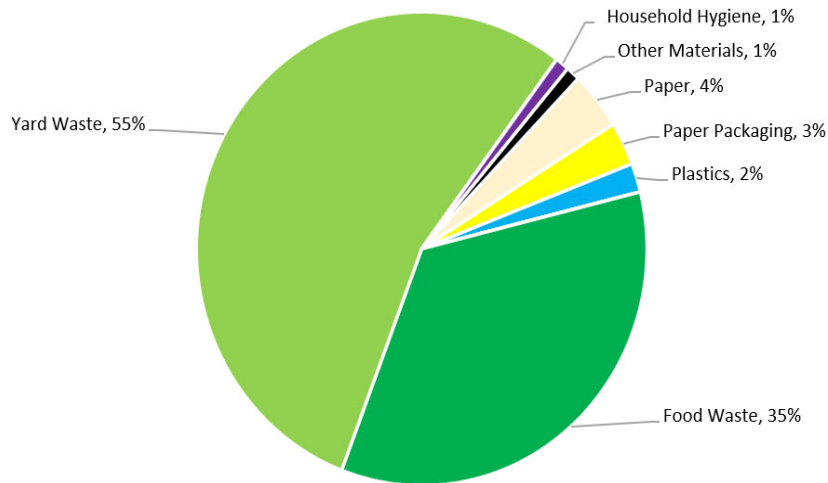


Figure 3-7: SF Garbage Average Composition

Figure 3-8 compares the organic waste composition across the three sorting events from Fall 2023 to Spring 2024.

The largest primary category was yard waste (Fall: 81%, Winter: 34%, Spring: 50%). The next largest primary category was food waste (Fall: 14%, Winter: 53%, Spring: 37%). These two categories (yard waste and food waste) made up between 95% to 87% of the organics stream each season.

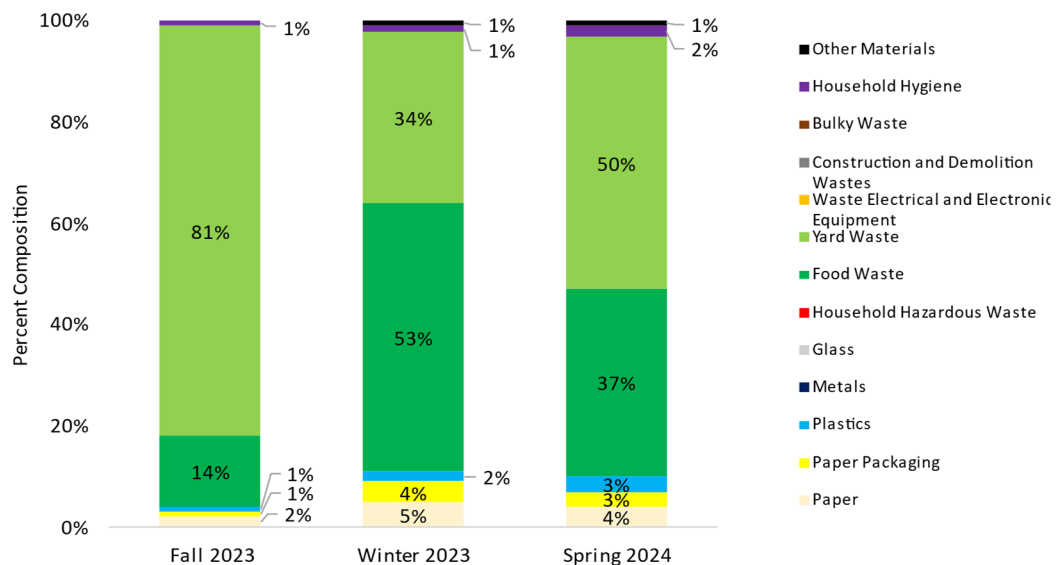


Figure 3-8: Three-Season SF Organics Composition

3.3.6 Contamination Rate

Figure 3-9 summarizes the percent contamination in the SF organics stream. The percent contamination represents the percentage of materials that are considered garbage, recycling, or depot materials. The total percent contamination for the SF organics stream ranged from 2% to 7%. Most of the contamination materials were garbage (2% to 4%), followed by recycling (0% to 2%), and depot materials (0% to 1%).

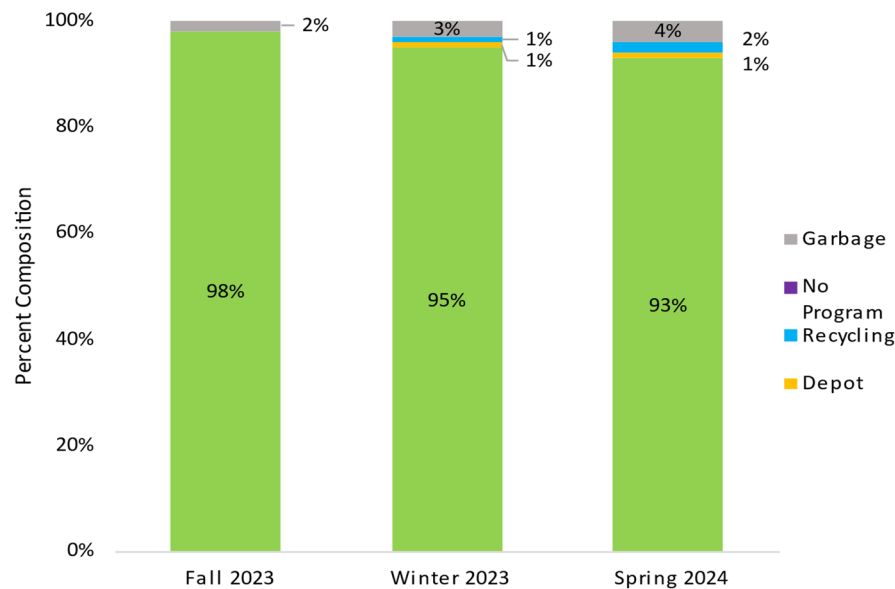


Figure 3-9: Three-Season SF Organics Diversion Potential

3.3.7 Capture Rate

Table 3-14 summarizes the capture rate of the organics stream. The capture rate for organic material in the organics stream was determined to be 61%, 40%, and 56% for Fall 2023, Winter 2023, and Spring 2024, respectively.

Table 3-14: Organic Material Capture Rate

	Fall 2023	Winter 2023	Spring 2024
Total Organics in Garbage, Recycling, and Organics Streams	258.60 kg	109.88 kg	184.27 kg
Total Organic Material Captured in the Organics Stream	158.38 kg	43.50 kg	103.56 kg
Capture Rate	61.2%	39.6%	56.2%

3.3.8 Bag Count

Table 3-15 summarize the number of compostable bags found in the SF organics stream. The average number of biodegradable/compostable bags per kg of organics was 12 bags/100 kg for all three seasons, and the average number of biodegradable/compostable bags per kg of organics in Fall 2023, Winter 2023, and Spring 2024 was 5 bags/100 kg, 22 bags/100 kg, and 9 bags/100 kg, respectively. The range of biodegradable/compostable bags/kg for all routes was between 1 bags/100 kg and 34 bags/100 kg.

Table 3-15: Biodegradable/Compostable (bags/100 kg)

Route	Set Out Location	Fall 2023 (bags/100 kg)	Winter 2023 (bags/100 kg)	Spring 2024 (bags/100 kg)	Average (bags/100 kg)
Eastview	Back Lane	2	0	5	2
Parkridge	Front Street	1	2	1	1
Rosewood	Front Street	8	68	25	34
Mount Royal	Front Street	2	4	0	2
Holliston	Back Lane	11	37	18	22
City Park	Back Lane	6	6	-	6
Nutana	Back Lane	5	13	23	14
Silverwood Heights	Front Street	1	51	0	17
Willowgrove	Front Street	7	0	4	4
Dundonald	Front Street	12	38	10	20
Average		5	22	9	12

Table 3-16 summarize the number of Low-density Polyethylene/High-density Polyethylene (LDPE/HDPE) non-packaging bags found in the SF organics stream. The average number of LDPE/HDPE non-packaging bags per kg of organics was 11 bags/kg for all three seasons, and the average number of LDPE/HDPE non-packaging bags per kg of organics in Fall 2023, Winter 2023, and Spring 2024 was 1 bags/kg, 19 bags/kg, and 12 bags/kg, respectively. The range of LDPE/HDPE non-packaging bags for all routes was between 0 bags/kg and 48 bags/kg.






Table 3-16: LDPE/HDPE Non-Packaging (bags/100 kg)

Route	Set Out Location	Fall 2023 (bags/100 kg)	Winter 2023 (bags/100 kg)	Spring 2024 (bags/100 kg)	Average (bags/100 kg)
Eastview	Back Lane	0	0	0	0
Parkridge	Front Street	<1	14	46	20
Rosewood	Front Street	7	7	20	11
Mount Royal	Front Street	0	103	40	48
Holliston	Back Lane	2	29	5	12
City Park	Back Lane	0	0	-	0
Nutana	Back Lane	0	0	0	0
Silverwood Heights	Front Street	0	0	0	0
Willowgrove	Front Street	1	11	0	4
Dundonald	Front Street	1	3	2	2
Average		1	19	12	11

4.0 INTERESTING FINDS

Table 4-1 lists some of the notable, unexpected, or unusual materials found during the waste composition study. These materials will not necessarily skew the results, as it is not atypical to have these types of materials present in the waste stream.

Table 4-1: Notable Materials

Waste Stream	Season	Sample ID	Description	Photo
Garbage	Fall 2023	FA23-EAS-G	Sink	
Garbage	Fall 2023	FA23-MOU-G	Standing fan	
Garbage	Winter 2023	WI23-MOU-G	Three lead-acid batteries	
Garbage	Winter 2023	WI23-MOU-G	Car tire	
Organics	Winter 2023	WI23-MOU-O	Insulin needles	

Waste Stream	Season	Sample ID	Description	Photo
Recycling	Winter 2023	WI23-PAR-R	Avoidable food waste	
Recycling	Winter 2023	WI23-MOU-R	Toaster	
Garbage	Spring 2024	SP24-EAS-G	Fluorescent tube lights	
Garbage	Spring 2024	SP24-ROS-G	Vehicle brake discs	
Garbage	Spring 2024	SP24-WIL-G	Printer	
Organics	Spring 2024	SP24-HOL-O	Metal cable and dog ground spike	

5.0 RECCOMENDATIONS

The following are some initial comments and recommendations based on the findings from the study:

- The once every two weeks collection frequency appears to be appropriate for garbage and recycling. On average, garbage and recycling carts were 70% and 73% full, respectively.
- The once every two weeks collection frequency and cart size appears to be sufficient for the amount of organics encountered during the Fall and Spring sampling period. In the Fall, on average, organics carts were 63% full with a 75% set out rate, and in the Spring, on average, organics carts were 50% full with a 60% set out rate.
- The once every two weeks collection frequency and/or large cart size appears to be a higher level of service than what is required for the organics stream during the Winter sampling period. On average, organics carts were only 34% full with a 44% set out rate.
- The 360 L cart worked well for most households, however:
 - There were 18, 3, and 18 carts out of 306 total possible carts (approximately 1% to 6% of carts) that were overfilled (e.g., the lid did not fully close) in the Fall, Winter, and Spring, respectively.
 - There were 73, 91, and 65 carts out of 306 total possible carts (approximately 21% to 30% of carts) that were filled to half capacity or below in the Fall, Winter, and Spring, respectively.
 - Future audits may yield different findings as a result of the smaller (variable) cart sizes now available to SF households.
- Additional education and communication on the new green cart program may be beneficial to:
 - Reduce the amount of food and yard waste in the garbage stream. Even with once every two weeks organics collection, organics (food and yard waste) still made up 38% to 46% of the garbage stream.
 - Remind residents that only biodegradable products institute (BPI) certified compostable bags are permitted in the green cart program. On average there were 12 BPI-certified bags per 100 kg of organic material and 11 plastic bags per 100 kg of organic material.
 - Increase resident participation or set-out rates. On average, only 60% of residents set-out their green cart for the study. Some residents may intentionally choose to not set their carts out when only a minimal amount of material is in the cart. This recommendation will be revisited after future sorting events in the summer season to better determine if the set-out trend is low overall or is dependent on seasonal considerations.
- Additional education and communication on the recycling program may be beneficial to:
 - Reduce the amount of contamination in the recycling stream. Approximately 9% to 10% of material in the recycling carts was garbage. The recycling stream also contained 2% to 4% organic material.
- Additional diversion programs are recommended for materials that can be diverted from landfill, including construction and demolition waste (e.g., mixed metals, treated lumber). Approximately 7% to 9% of material in the garbage stream in the study was construction and demolition waste.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.



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APPENDIX A

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LIMITATIONS ON USE OF THIS DOCUMENT

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APPENDIX B

SELECTED PHOTOGRAPHS



Photo 1: Field Staff Collecting Materials



Photo 2: Example of a 100 kg Garbage Sample



Photo 3: Example of a Recycling Sample



Photo 4: Example of an Organics Sample



Photo 5: Example of Mixed Paper



Photo 6: Example of Tissue/Toweling



Photo 7: Example of Corrugated Cardboard



Photo 8: Example of Boxes/Cores



Photo 9: Example of Molded Pulp



Photo 10: Example of Polycoat Beverage Cups



Photo 11: Example of Spiral Wound Containers



Photo 12: Example of Gable Top Containers – Beverage



Photo 13: Example of Aseptic Containers – Beverage



Photo 14: Example of Aseptic Containers – Non-Beverage



Photo 15: Example of #1 Polyethylene Terephthalate Thermoform



Photo 16: Example of #2 High-Density Polyethylene Beverage



Photo 17: Example of #2 High-Density Polyethylene Non-Beverage



Photo 18: Example of #5 Polypropylene



Photo 19: Example of #6 Polystyrene – Expanded



Photo 20: Example of Plastic Film



Photo 21: Example of Low-Density Polyethylene/High-Density Polyethylene – Products (non-packaging)



Photo 22: Example of Plastic Laminates and Other Film Packaging



Photo 23: Example of Durable Plastic Products



Photo 24: Example of Aluminum – Beverage Cans



Photo 25: Example of Aluminum – Non-Beverage



Photo 26: Example of Steel Food Cans



Photo 27: Example of Avoidable Food Waste



Photo 28: Example of Unavoidable Food Waste



Photo 29: Example of Yard and Garden Debris



Photo 30: Example of Dimensional Lumber – Treated



Photo 31: Example of Diapers



Photo 32: Example of Pet Waste



Photo 33: Example of Textiles



Photo 34: Example of Tires and Other Rubber

APPENDIX C

MATERIAL CATEGORIES

Table C-1: Material Category Descriptions – Garbage and Recycling Stream

	Category	Description and/or Examples	Diversion Potential
01 Paper			
1	Mixed Paper	<ul style="list-style-type: none"> Fine household papers, writing paper, office paper, copy paper, bills and statements, ad mail, etc. Includes glossy flyers and advertising that are not distributed with newspapers. Includes gift wrap, construction paper, puzzle books, e.g., sudoku or colouring books Glossy magazines, catalogues, calendars, annual reports (must be bound, i.e., stapled or glued) Telephone books and other directories such as the Yellow Pages Non Newspapers (e.g., television guides, Auto Trader, Real Estate News) plus inserts and flyers from newspapers made of newsprint Daily and weekly newspapers 	Recycling
2	Tissue/Toweling	<ul style="list-style-type: none"> Paper napkins, towel, tissues 	Organics
3	Food Soiled Paper	<ul style="list-style-type: none"> Plates, cups, muffin wrappers, coffee filters, teabags, bags, food packaging 	Organics
4	Shredded Paper	<ul style="list-style-type: none"> Paper that has been shredded mechanically into thin strips 	Recycling
5	Other Paper – Non-Obligated	<ul style="list-style-type: none"> Soft or hard covered literary books, academic journals, textbooks, photographs 	Garbage
02 Paper Packaging			
6	Corrugated Cardboard	<ul style="list-style-type: none"> Includes micro-flute corrugated containers, pizza boxes, waxed corrugated containers, electronic product boxes such as television and computer boxes, boxes used to direct mail for residential consumers 	Recycling
7	Boxboard/Cores	<ul style="list-style-type: none"> Boxboard, paperboard, cereal box, shoe box, frozen food box, cores from toilet paper/toweling/gift wrap, etc. Includes wet-strength boxboard, fast food cartons such as fry/onion ring boxes and paper plates 	Recycling
8	Kraft Paper	<ul style="list-style-type: none"> Kraft paper bags and wrap, grocery or retail bags, potato bags, some pet food bags, etc. Includes brown, white, and coloured kraft paper and bags. No bags with bonded plastic or foil liners/layers/coatings. Includes bags with a light grease coating 	Recycling
9	Molded Pulp	<ul style="list-style-type: none"> Egg cartons, drink trays, other trays, molded pulp flower pots/trays, etc. 	Recycling
10	Polycoat Beverage Cups	<ul style="list-style-type: none"> Hot beverage/food containers, with polycoat on inside only, including coffee cups, soup cups/bowls, chili cups etc. Cold beverage/food containers with polycoat on both sides including fountain drinks, take-out ice cream cups 	Garbage
11	Ice Cream Containers and Other Bleached Long Polycoat Fibre	<ul style="list-style-type: none"> Polycoated paper ice cream containers, typically with a lid, excluding boxboard folded ice cream boxes. Food containers with white fibre and a rolled or folded rim, includes Michelina's frozen food, KFC tubs 	Garbage
12	Laminated Paper Packaging	<ul style="list-style-type: none"> Paper based packaging (at least 85% paper) with foil or plastic liners/layers/coatings, pouches, cookie bags, microwave popcorn bags, fast food sandwich wraps, gift bags, paper based trays, etc. 	Garbage
13	Spiral Wound Containers	<ul style="list-style-type: none"> Spiral wound cans with paper walls and plastic or metal tops or bottoms; frozen juice, Pringles, raisins, etc. 	Garbage

	Category	Description and/or Examples	Diversion Potential
14	Gable Top Containers – Beverage	<ul style="list-style-type: none"> ▪ Polycoat containers with a gable shaped top, milk and milk substitutes like soy, almond and rice milk, and juices 	Recycling
15	Gable-Top Containers – Non-Beverage	<ul style="list-style-type: none"> ▪ Polycoat containers with a gable shaped top that previously contained some foods or other products, e.g., sugar, molasses etc. 	Recycling
16	Aseptic Containers – Beverage	<ul style="list-style-type: none"> ▪ Polycoat fibre and foil containers (e.g., Tetra Pak) for beverage e.g., soy, almond and rice milk, juice boxes 	Recycling
17	Aseptic Containers – Non-Beverage	<ul style="list-style-type: none"> ▪ Polycoat fibre and foil containers (e.g., Tetra Pak) for soup, sauces etc. 	Recycling
03 Plastics			
18	#1 Polyethylene Terephthalate Bottles – Beverage	<ul style="list-style-type: none"> ▪ Soft drink/water bottles 	Recycling
19	#1 Polyethylene Terephthalate Bottles, Jugs and Jars – Non-Beverage	<ul style="list-style-type: none"> ▪ Salad dressing bottles, peanut butter jars 	Recycling
20	#1 Polyethylene Terephthalate Thermoform	<ul style="list-style-type: none"> ▪ #1 clamshells, #1 egg cartons, #1 trays, #1 blister packaging, #1 drink cups, etc. 	Recycling
21	#2 High-Density Polyethylene Beverage	<ul style="list-style-type: none"> ▪ Milk jugs, juice containers and drinkable yogurt bottles 	Recycling
22	#2 High-Density Polyethylene Non-Beverage	<ul style="list-style-type: none"> ▪ Laundry detergent, bleach, vinegar, personal care products such as shampoos, conditioners, and body wash, windshield washing fluid containers, cleaning supplies. Other #2 containers such as margarine and yogurt containers and lids made from high-density polyethylene 	Recycling
23	#3 Polyvinyl Chloride	<ul style="list-style-type: none"> ▪ Tubs, condiment containers 	Recycling
24	#5 Polypropylene	<ul style="list-style-type: none"> ▪ #5 bottles and containers. plastic bottles includes nutritional supplement drinks, shampoos, etc. ▪ #5 containers such as margarine and yogurt containers and other containers made from polypropylene, including tubs and lids with resin codes #5 polypropylene 	Recycling
25	#6 Polystyrene – Expanded	<ul style="list-style-type: none"> ▪ Foam take-out containers such as drink cups, large, white packaging foam, meat trays, coloured foam insulation 	Garbage
26	#6 Polystyrene – Non-Expanded	<ul style="list-style-type: none"> ▪ Polystyrene clear clamshell containers such as berry and muffin containers, rigid polystyrene cups, plates, and bottles 	Recycling
27	#7 Biodegradable/Compostable Plastics	<ul style="list-style-type: none"> ▪ Might not have #7 label; include Biodegradable Products Institute (BPI) certification 	Garbage
28	Plastic Film	<ul style="list-style-type: none"> ▪ High-density polyethylene and low-density polyethylene film, dry cleaning bags, bread bags, milk bags, toilet paper and paper towel over-wrap, lawn seed bags 	Garbage
29	Low-Density Polyethylene and High-Density Polyethylene Film – Products (Non-Packaging)	<ul style="list-style-type: none"> ▪ Non-packaging low-density polyethylene and high-density polyethylene film (e.g., kitchen catchers, sandwich and freezer bags, etc.) 	Garbage
30	Plastic Laminates and Other Film Packaging	<ul style="list-style-type: none"> ▪ Laminated plastic film and bags that are at least 85% plastic (by weight). Includes chip bags, vacuum sealed bags, cereal liners, candy wraps, pasta bags, boil in a bag, plastic based food pouches, etc. 	Garbage

	Category	Description and/or Examples	Diversion Potential
31	Other Rigid Plastic Packaging	<ul style="list-style-type: none"> Other rigid containers (#4 and #7), non-polyethylene terephthalate blister packaging, unmarked/coded packaging, plant pots and trays, pails etc. 	Garbage
32	Durable Plastic Products	<ul style="list-style-type: none"> Non-packaging such as videocassette recorder tapes, compact discs, toys, games, tupperware, etc. Include multi-material items that are mainly plastic – e.g., a plastic toy truck with metal axles 	Garbage
04 Metals			
33	Aluminum Beverage Cans	<ul style="list-style-type: none"> Aluminum soft drinks, soda, juice, alcoholic beverages, beer cans 	Recycling
34	Aluminum Non-Beverage	<ul style="list-style-type: none"> Food containers, aluminum foil wrap, pie plates, baking trays, etc. 	Recycling
35	Aerosol Containers	<ul style="list-style-type: none"> Mousse spray cans, air freshener spray cans, deodorant spray cans, hairspray cans, food spray cans for cheese or whipped cream, empty spray cans, cooking oil, etc. 	Garbage
36	Other Aluminum	<ul style="list-style-type: none"> Aluminum siding, baking trays etc. 	Garbage
37	Steel Beverage Cans	<ul style="list-style-type: none"> Steel apple juice, alcoholic beverages, beer cans, Sapporo, etc. 	Recycling
38	Steel Food Cans	<ul style="list-style-type: none"> Soup, beans, peaches, etc. No alcohol containers 	Recycling
39	Other Metal	<ul style="list-style-type: none"> Wire, hardware, copper 	Depot
05 Glass			
40	Glass Beverage Containers	<ul style="list-style-type: none"> Juice, beer, and wine bottles 	Recycling
41	Glass Non-Beverage	<ul style="list-style-type: none"> Food containers 	Recycling
42	Other Glass	<ul style="list-style-type: none"> Window glass, plates, and glasses, light bulbs (fluorescent tubes and compact fluorescents go in Household Hazardous Waste) 	Garbage
06 Household Hazardous Waste			
43	Household Hazardous Waste	<ul style="list-style-type: none"> Labelled CAUTION, WARNING, CORROSIVE, EXPLOSIVE, FLAMMABLE, POISONOUS or TOXIC Acid, adhesives, automotive, batteries, cleaners, cylinders, coorsives, fuels, light bulbs, mercury, oxidizing chemicals, paint, pesticides and fertilizers, pharmaceuticals, solvents 	Depot
07 Food Waste			
44	Avoidable Food Waste	<ul style="list-style-type: none"> Whole fruits and vegetables, meat, bread, prepared meals, fruits and vegetables trimmings 	Organics
45	Unavoidable Food Waste	<ul style="list-style-type: none"> Inedible food, such as peelings, bones, solidified fats, cooking oils, and food grease 	Organics
08 Yard Waste			
46	Yard and Garden Debris	<ul style="list-style-type: none"> Grass clippings, leaves, weeds, plant parts, pumpkins, topsoil, and sod 	Organics
47	Brush and Branches	<ul style="list-style-type: none"> Small twigs and tree trimmings that are no more than 60 cm in length and 2 cm in diameter, conifer cones and needles, wood chips and bark mulch 	Organics

	Category	Description and/or Examples	Diversion Potential
09	Waste Electrical and Electronic Equipment		
48	Electronics	<ul style="list-style-type: none"> Laptop computers, notebooks, tablet PCs, TVs and computer monitors, printers, fax machines, photocopiers and scanners, personal, portable, or home DVD, Blu Ray, CD, MP3, record players; film or digital cameras/video recorders; digital picture frames; audio and video baby monitors; cable/satellite TV receivers; amps, receivers; speakers, headphones, microphones, coaxial, telephone, speaker wires, coffee makers, mixers, bread makers, toaster ovens, waffle, makers, crock pots, saw , drill, etc. 	Depot
10	Construction And Demolition Wastes		
49	Dimensional Lumber – Untreated	<ul style="list-style-type: none"> Unpainted or unstained lumber and pallets 	No program
50	Dimensional Lumber – Treated	<ul style="list-style-type: none"> Painted, stained, or treated lumber 	No program
51	Composite Wood	<ul style="list-style-type: none"> Plywood, oriented strand board, medium-density fibreboard, particle board 	No program
52	Gypsum Wallboard	<ul style="list-style-type: none"> Drywall 	No program
53	Asphalt Roofing Shingles	<ul style="list-style-type: none"> Asphalt shingles and tarpaper 	No program
54	Mixed Metals	<ul style="list-style-type: none"> Ferrous, non-ferrous, aluminum 	No program
55	Concrete, Bricks	<ul style="list-style-type: none"> Concrete, paving stones, cement bricks 	No program
56	Ceramics, Porcelain	<ul style="list-style-type: none"> Tiles, toilets, sinks 	No program
57	Carpeting	<ul style="list-style-type: none"> Carpeting, underlay, mats 	No program
58	Other Construction and Demolition Wastes	<ul style="list-style-type: none"> Vinyl siding, misc. conduits, ceiling tiles, plumbing pipes, insulation 	No program
11	Bulky Waste		
59	Furniture or Fixtures	<ul style="list-style-type: none"> Chairs, sofas, cabinets, tables, garden furniture, etc. 	No program
60	Other Large Bulky Items	<ul style="list-style-type: none"> Other large items not classified elsewhere 	No program
12	Household Hygiene		
61	Diapers	<ul style="list-style-type: none"> Diapers 	Garbage
62	Sanitary Products	<ul style="list-style-type: none"> Sanitary napkins, hygiene products, etc. 	Garbage
63	Pet Waste	<ul style="list-style-type: none"> Animal feces, bedding, kitty litter 	Garbage
13	Other Materials		
64	Textiles	<ul style="list-style-type: none"> Clothing, shoes, mats, drapes, sheets, etc. Plastic rice sacks go in Other Rigid Plastic Packaging 	Depot
65	Tires and Other Rubber	<ul style="list-style-type: none"> Rubber tires and tubes, other rubber items such as hoses 	Garbage
66	Other Waste	<ul style="list-style-type: none"> Materials not classified elsewhere, wooden fruit basket, vacuum bags, wax candles, furnace filters, etc. 	Garbage
67	Wood Utensils	<ul style="list-style-type: none"> Chopsticks, wooden forks, toothpicks, etc. 	Organics

Table C-2: Material Category Descriptions – Organics Stream

	Category	Description and/or Examples	Diversion Potential
01 Paper			
1	Mixed Paper	<ul style="list-style-type: none"> Fine household papers, writing paper, office paper, copy paper, bills and statements, ad mail, etc. Includes glossy flyers and advertising that are not distributed with newspapers. Includes gift wrap, construction paper, puzzle books, e.g., sudoku or colouring books Glossy magazines, catalogues, calendars, annual reports (must be bound, i.e., stapled or glued) Telephone books and other directories such as the Yellow Pages Non Newspapers (e.g., television guides, Auto Trader, Real Estate News) plus inserts and flyers from newspapers made of newsprint Daily and weekly newspapers 	Organics
2	Tissue/Toweling	<ul style="list-style-type: none"> Paper napkins, towel, tissues 	Organics
3	Food Soiled Paper	<ul style="list-style-type: none"> Plates, cups, muffin wrappers, coffee filters, teabags, bags, food packaging 	Organics
4	Shredded Paper	<ul style="list-style-type: none"> Paper that has been shredded mechanically into thin strips 	Recycling
5	Other Paper – Non-Obligated	<ul style="list-style-type: none"> Soft or hard covered literary books, academic journals, textbooks, photographs 	Garbage
02 Paper Packaging			
6	Corrugated Cardboard	<ul style="list-style-type: none"> Includes micro-flute corrugated containers, pizza boxes, waxed corrugated containers, electronic product boxes such as television and computer boxes, boxes used to direct mail for residential consumers 	Organics
7	Boxboard/Cores	<ul style="list-style-type: none"> Boxboard, paperboard, cereal box, shoe box, frozen food box, cores from toilet paper/toweling/gift wrap, etc. Includes wet-strength boxboard, fast food cartons such as fry/onion ring boxes and paper plates 	Recycling
8	Kraft Paper	<ul style="list-style-type: none"> Kraft paper bags and wrap, grocery or retail bags, potato bags, some pet food bags, etc. Includes brown, white, and coloured kraft paper and bags. No bags with bonded plastic or foil liners/layers/coatings. Includes bags with a light grease coating 	Organics
9	Molded Pulp	<ul style="list-style-type: none"> Egg cartons, drink trays, other trays, molded pulp flower pots/trays, etc. 	Organics
10	Polycoat Beverage Cups	<ul style="list-style-type: none"> Hot beverage/food containers, with polycoat on inside only, including coffee cups, soup cups/bowls, chili cups etc. Cold beverage/food containers with polycoat on both sides including fountain drinks, take-out ice cream cups 	Garbage
11	Ice Cream Containers and Other Bleached Long Polycoat Fibre	<ul style="list-style-type: none"> Polycoated paper ice cream containers, typically with a lid, excluding boxboard folded ice cream boxes. Food containers with white fibre and a rolled or folded rim, includes Michelina's frozen food, KFC tubs 	Garbage
12	Laminated Paper Packaging	<ul style="list-style-type: none"> Paper based packaging (at least 85% paper) with foil or plastic liners/layers/coatings, pouches, cookie bags, microwave popcorn bags, fast food sandwich wraps, gift bags, paper based trays, etc. 	Garbage
13	Spiral Wound Containers	<ul style="list-style-type: none"> Spiral wound cans with paper walls and plastic or metal tops or bottoms; frozen juice, Pringles, raisins, etc. 	Garbage

	Category	Description and/or Examples	Diversion Potential
14	Gable Top Containers – Beverage	<ul style="list-style-type: none"> ▪ Polycoat containers with a gable shaped top, milk and milk substitutes like soy, almond and rice milk, and juices 	Recycling
15	Gable-Top Containers – Non-Beverage	<ul style="list-style-type: none"> ▪ Polycoat containers with a gable shaped top that previously contained some foods or other products, e.g., sugar, molasses etc. 	Recycling
16	Aseptic Containers – Beverage	<ul style="list-style-type: none"> ▪ Polycoat fibre and foil containers (e.g., Tetra Pak) for beverage e.g., soy, almond and rice milk, juice boxes 	Recycling
17	Aseptic Containers – Non-Beverage	<ul style="list-style-type: none"> ▪ Polycoat fibre and foil containers (e.g., Tetra Pak) for soup, sauces etc. 	Recycling
03 Plastics			
18	#1 Polyethylene Terephthalate Bottles – Beverage	<ul style="list-style-type: none"> ▪ Soft drink/water bottles 	Recycling
19	#1 Polyethylene Terephthalate Bottles, Jugs and Jars – Non-Beverage	<ul style="list-style-type: none"> ▪ Salad dressing bottles, peanut butter jars 	Recycling
20	#1 Polyethylene Terephthalate Thermoform	<ul style="list-style-type: none"> ▪ #1 clamshells, #1 egg cartons, #1 trays, #1 blister packaging, #1 drink cups, etc. 	Recycling
21	#2 High-Density Polyethylene Beverage	<ul style="list-style-type: none"> ▪ Milk jugs, juice containers and drinkable yogurt bottles 	Recycling
22	#2 High-Density Polyethylene Non-Beverage	<ul style="list-style-type: none"> ▪ Laundry detergent, bleach, vinegar, personal care products such as shampoos, conditioners, and body wash, windshield washing fluid containers, cleaning supplies. Other #2 containers such as margarine and yogurt containers and lids made from high-density polyethylene 	Recycling
23	#3 Polyvinyl Chloride	<ul style="list-style-type: none"> ▪ Tubs, condiment containers 	Recycling
24	#5 Polypropylene	<ul style="list-style-type: none"> ▪ #5 bottles and containers. plastic bottles includes nutritional supplement drinks, shampoos, etc. ▪ #5 containers such as margarine and yogurt containers and other containers made from polypropylene, including tubs and lids with resin codes #5 polypropylene 	Recycling
25	#6 Polystyrene – Expanded	<ul style="list-style-type: none"> ▪ Foam take-out containers such as drink cups, large, white packaging foam, meat trays, coloured foam insulation 	Garbage
26	#6 Polystyrene – Non-Expanded	<ul style="list-style-type: none"> ▪ Polystyrene clear clamshell containers such as berry and muffin containers, rigid polystyrene cups, plates, and bottles 	Recycling
27	#7 Biodegradable/Compostable Plastics	<ul style="list-style-type: none"> ▪ Might not have #7 label; include Biodegradable Products Institute (BPI) certification 	Garbage
28	Plastic Film	<ul style="list-style-type: none"> ▪ High-density polyethylene and low-density polyethylene film, dry cleaning bags, bread bags, milk bags, toilet paper and paper towel over-wrap, lawn seed bags 	Garbage
29	Low-Density Polyethylene and High-Density Polyethylene Film – Products (Non-Packaging)	<ul style="list-style-type: none"> ▪ Non-packaging low-density polyethylene and high-density polyethylene film (e.g., kitchen catchers, sandwich and freezer bags, etc.) 	Garbage
30	Plastic Laminates and Other Film Packaging	<ul style="list-style-type: none"> ▪ Laminated plastic film and bags that are at least 85% plastic (by weight). Includes chip bags, vacuum sealed bags, cereal liners, 	Garbage

	Category	Description and/or Examples	Diversion Potential
		candy wraps, pasta bags, boil in a bag, plastic based food pouches, etc.	
31	Other Rigid Plastic Packaging	<ul style="list-style-type: none"> Other rigid containers (#4 and #7), non-polyethylene terephthalate blister packaging, unmarked/coded packaging, plant pots and trays, pails etc. 	Garbage
32	Durable Plastic Products	<ul style="list-style-type: none"> Non-packaging such as videocassette recorder tapes, compact discs, toys, games, tupperware, etc. Include multi-material items that are mainly plastic – e.g., a plastic toy truck with metal axles 	Garbage
04 Metals			
33	Aluminum Beverage Cans	<ul style="list-style-type: none"> Aluminum soft drinks, soda, juice, alcoholic beverages, beer cans 	Recycling
34	Aluminum Non-Beverage	<ul style="list-style-type: none"> Food containers, aluminum foil wrap, pie plates, baking trays, etc. 	Recycling
35	Aerosol Containers	<ul style="list-style-type: none"> Mousse spray cans, air freshener spray cans, deodorant spray cans, hairspray cans, food spray cans for cheese or whipped cream, empty spray cans, cooking oil, etc. 	Garbage
36	Other Aluminum	<ul style="list-style-type: none"> Aluminum siding, baking trays etc. 	Garbage
37	Steel Beverage Cans	<ul style="list-style-type: none"> Steel apple juice, alcoholic beverages, beer cans, Sapporo, etc. 	Recycling
38	Steel Food Cans	<ul style="list-style-type: none"> Soup, beans, peaches, etc. No alcohol containers 	Recycling
39	Other Metal	<ul style="list-style-type: none"> Wire, hardware, copper 	Depot
05 Glass			
40	Glass Beverage Containers	<ul style="list-style-type: none"> Juice, beer, and wine bottles 	Recycling
41	Glass Non-Beverage	<ul style="list-style-type: none"> Food containers 	Recycling
42	Other Glass	<ul style="list-style-type: none"> Window glass, plates, and glasses, light bulbs (fluorescent tubes and compact fluorescents go in Household Hazardous Waste) 	Garbage
06 Household Hazardous Waste			
43	Household Hazardous Waste	<ul style="list-style-type: none"> Labelled CAUTION, WARNING, CORROSIVE, EXPLOSIVE, FLAMMABLE, POISONOUS or TOXIC Acid, adhesives, automotive, batteries, cleaners, cylinders, coorsives, fuels, light bulbs, mercury, oxidizing chemicals, paint, pesticides and fertilizers, pharmaceuticals, solvents 	Depot
07 Food Waste			
44	Avoidable Food Waste	<ul style="list-style-type: none"> Whole fruits and vegetables, meat, bread, prepared meals, fruits and vegetables trimmings 	Organics
45	Unavoidable Food Waste	<ul style="list-style-type: none"> Inedible food, such as peelings, bones, solidified fats, cooking oils, and food grease 	Organics
08 Yard Waste			
46	Yard and Garden Debris	<ul style="list-style-type: none"> Grass clippings, leaves, weeds, plant parts, pumpkins, topsoil, and sod 	Organics
47	Brush and Branches	<ul style="list-style-type: none"> Small twigs and tree trimmings that are no more than 60 cm in length and 2 cm in diameter, conifer cones and needles, wood chips and bark mulch 	Organics

	Category	Description and/or Examples	Diversion Potential
09	Waste Electrical and Electronic Equipment		
48	Electronics	<ul style="list-style-type: none"> Laptop computers, notebooks, tablet PCs, TVs and computer monitors, printers, fax machines, photocopiers and scanners, personal, portable, or home DVD, Blu Ray, CD, MP3, record players; film or digital cameras/video recorders; digital picture frames; audio and video baby monitors; cable/satellite TV receivers; amps, receivers; speakers, headphones, microphones, coaxial, telephone, speaker wires, coffee makers, mixers, bread makers, toaster ovens, waffle, makers, crock pots, saw , drill, etc. 	Depot
10	Construction And Demolition Wastes		
49	Dimensional Lumber – Untreated	<ul style="list-style-type: none"> Unpainted or unstained lumber and pallets 	No program
50	Dimensional Lumber – Treated	<ul style="list-style-type: none"> Painted, stained, or treated lumber 	No program
51	Composite Wood	<ul style="list-style-type: none"> Plywood, oriented strand board, medium-density fibreboard, particle board 	No program
52	Gypsum Wallboard	<ul style="list-style-type: none"> Drywall 	No program
53	Asphalt Roofing Shingles	<ul style="list-style-type: none"> Asphalt shingles and tarpaper 	No program
54	Mixed Metals	<ul style="list-style-type: none"> Ferrous, non-ferrous, aluminum 	No program
55	Concrete, Bricks	<ul style="list-style-type: none"> Concrete, paving stones, cement bricks 	No program
56	Ceramics, Porcelain	<ul style="list-style-type: none"> Tiles, toilets, sinks 	No program
57	Carpeting	<ul style="list-style-type: none"> Carpeting, underlay, mats 	No program
58	Other Construction and Demolition Wastes	<ul style="list-style-type: none"> Vinyl siding, misc. conduits, ceiling tiles, plumbing pipes, insulation 	No program
11	Bulky Waste		
59	Furniture or Fixtures	<ul style="list-style-type: none"> Chairs, sofas, cabinets, tables, garden furniture, etc. 	No program
60	Other Large Bulky Items	<ul style="list-style-type: none"> Other large items not classified elsewhere 	No program
12	Household Hygiene		
61	Diapers	<ul style="list-style-type: none"> Diapers 	Garbage
62	Sanitary Products	<ul style="list-style-type: none"> Sanitary napkins, hygiene products, etc. 	Garbage
63	Pet Waste	<ul style="list-style-type: none"> Animal feces, bedding, kitty litter 	Garbage
13	Other Materials		
64	Textiles	<ul style="list-style-type: none"> Clothing, shoes, mats, drapes, sheets, etc. Plastic rice sacks go in Other Rigid Plastic Packaging 	Depot
65	Tires and Other Rubber	<ul style="list-style-type: none"> Rubber tires and tubes, other rubber items such as hoses 	Garbage
66	Other Waste	<ul style="list-style-type: none"> Materials not classified elsewhere, wooden fruit basket, vacuum bags, wax candles, furnace filters, etc. 	Garbage
67	Wood Utensils	<ul style="list-style-type: none"> Chopsticks, wooden forks, toothpicks, etc. 	Organics

APPENDIX D

WASTE COMPOSITION RESULTS

Table D-1: Annual Waste Composition Results – Garbage

	Fall 2023	Winter 2023	Spring 2023
01 Paper	10.3%	1.0%	6.7%
01. Mixed Paper	1.4%	1.5%	1.0%
02. Tissue/Toweling	7.4%	0.4%	4.8%
03. Food Soiled Paper	1.0%	0.1%	0.9%
04. Shredded Paper	0.0%	0.4%	0.0%
05. Other Paper – Non-Obligated	0.6%	0.4%	<0.1%
02 Paper Packaging	4.6%	1.2%	4.9%
06. Corrugated Cardboard	1.2%	0.1%	1.0%
07. Boxboard / Cores	1.5%	0.1%	1.5%
08. Kraft Paper	0.5%	<0.1%	0.5%
09. Molded Pulp	0.1%	0.1%	0.1%
10. Polycoat Beverage Cups	0.4%	<0.1%	0.3%
11. Ice Cream Containers and Other Bleached Long Polycoat Fiber	0.1%	12.2%	0.1%
12. Laminated Paper Packaging	0.5%	0.2%	0.9%
13. Spiral Wound Containers	<0.1%	0.4%	0.1%
14. Gable Top Containers – Beverage	0.1%	0.6%	<0.1%
15. Gable-top Containers – Non-Beverage	<0.1%	0.1%	<0.1%
16. Aseptic Containers – Beverage	0.1%	0.4%	0.2%
17. Aseptic Containers – Non-Beverage	0.0%	<0.1%	<0.1%
03 Plastics	12.6%	1.0%	10.7%
18. #1 Polyethylene Terephthalate Bottles – Beverage	0.1%	0.3%	0.1%
19. #1 Polyethylene Terephthalate Bottles, Jugs, and Jars – Non-Beverage	0.5%	0.3%	0.5%
20. #1 Polyethylene Terephthalate Thermoform	0.6%	0.1%	0.8%
21. #2 High-Density Polyethylene Beverage	0.1%	0.9%	<0.1%
22. #2 High-Density Polyethylene Non-Beverage	0.9%	1.6%	0.7%
23. #3 Polyvinyl Chloride	0.1%	3.6%	<0.1%
24. #5 Polypropylene	1.3%	0.8%	1.0%
25. #6 Polystyrene – Expanded	0.5%	1.9%	0.4%
26. #6 Polystyrene – Non-Expanded	0.2%	2.0%	0.2%
27. #7 Biodegradable/Compostable Plastics	0.1%	0.1%	0.1%
28. Plastic Film	1.1%	0.7%	0.7%
29. Low-Density Polyethylene and High-Density Polyethylene Film – Products (Non-Packaging)	1.9%	0.1%	1.4%
30. Plastic Laminates and Other Film Packaging	3.0%	<0.1%	2.8%
31. Other Rigid Plastic Packaging	0.5%	<0.1%	0.5%
32. Durable Plastic Products	1.8%	0.5%	1.5%
04 Metals	2.1%	0.5%	1.8%
33. Aluminum Beverage Cans	<0.1%	2.2%	0.1%
34. Aluminum Non-Beverage	0.9%	0.2%	0.6%
35. Aerosol Containers	0.1%	1.3%	0.1%
36. Other Aluminum	<0.1%	0.8%	0.1%
37. Steel Beverage Cans	0.0%	2.1%	0.0%

	Fall 2023	Winter 2023	Spring 2023
38. Steel Food Cans	0.3%	2.1%	0.2%
39. Other Metal	0.7%	30.8%	0.7%
05 Glass	1.6%	22.3%	2.1%
40. Glass Beverage Containers	0.1%	8.6%	0.1%
41. Glass Non-Beverage	0.9%	1.2%	1.0%
42. Other Glass	0.7%	0.8%	1.1%
06 Household Hazardous Waste	0.6%	0.3%	1.0%
43. Household Hazardous Waste	0.6%	2.0%	1.0%
07 Food Waste	28.2%	2.0%	23.5%
44. Avoidable Food Waste	20.6%	8.4%	18.5%
45. Unavoidable Food Waste	7.6%	0.3%	5.1%
08 Yard Waste	8.9%	0.6%	9.3%
46. Yard and Garden Debris	7.7%	2.9%	8.0%
47. Brush and Branches	1.2%	0.5%	1.3%
09 Waste Electrical and Electronic Equipment	2.0%	3.1%	2.2%
48. Electronics	2.0%	0.3%	2.2%
10 Construction and Demolition Wastes	8.5%	0.0%	6.9%
49. Dimensional Lumber – Untreated	0.2%	0.0%	0.0%
50. Dimensional Lumber – Treated	3.0%	0.3%	2.0%
51. Composite Wood	1.1%	0.4%	0.2%
52. Gypsum Wallboard	0.4%	0.0%	0.0%
53. Asphalt Roofing Shingles	0.0%	0.0%	0.0%
54. Mixed Metals	0.9%	0.0%	2.7%
55. Concrete, Bricks	0.0%	18.2%	0.0%
56. Ceramics, Porcelain	1.5%	6.4%	0.0%
57. Carpeting	1.4%	1.5%	0.0%
58. Other Construction and Demolition Wastes	<0.1%	10.3%	2.0%
11 Bulky Waste	0.6%	6.6%	0.5%
59. Furniture or Fixtures	0.5%	2.3%	0.5%
60. Other Large Bulky Items	0.1%	1.1%	0.0%
12 Household Hygiene	14.3%	3.1%	24.5%
61. Diapers	7.6%	0.1%	5.9%
62. Sanitary Products	0.8%	1.0%	0.8%
63. Pet Waste	5.9%	1.5%	17.8%
13 Other Materials	5.7%	0.4%	5.9%
64. Textiles	3.1%	0.1%	3.6%
65. Tires and Other Rubber	0.1%	0.4%	0.2%
66. Other Waste	2.4%	0.4%	2.0%
67. Wood Utensils	<0.1%	1.2%	0.1%
	100.0%	100.0%	100.0%

Table D-2: Annual Waste Composition Results – Recycling

Category	Fall 2023	Winter 2023	Spring 2023
01 Paper	26.6%	29.2%	15.4%
01. Mixed Paper	22.7%	15.1%	14.4%
02. Tissue/Toweling	0.3%	2.1%	0.5%
03. Food Soiled Paper	0.3%	1.1%	0.1%
04. Shredded Paper	0.3%	0.1%	0.0%
05. Other Paper – Non-Obligated	3.0%	0.3%	0.4%
02 Paper Packaging	47.2%	1.0%	56.0%
06. Corrugated Cardboard	26.8%	0.5%	33.9%
07. Boxboard / Cores	16.9%	0.4%	15.5%
08. Kraft Paper	1.1%	<0.1%	2.1%
09. Molded Pulp	1.3%	0.3%	2.1%
10. Polycoat Beverage Cups	0.2%	0.1%	0.1%
11. Ice Cream Containers and Other Bleached Long Polycoat Fiber	0.1%	11.0%	0.1%
12. Laminated Paper Packaging	0.2%	0.5%	0.9%
13. Spiral Wound Containers	0.2%	1.3%	0.5%
14. Gable Top Containers – Beverage	0.2%	1.9%	0.3%
15. Gable-top Containers – Non-Beverage	0.1%	0.4%	0.1%
16. Aseptic Containers – Beverage	0.1%	1.9%	0.4%
17. Aseptic Containers – Non-Beverage	0.1%	0.0%	<0.1%
03 Plastics	12.5%	1.7%	13.8%
18. #1 Polyethylene Terephthalate Bottles – Beverage	0.5%	0.1%	0.4%
19. #1 Polyethylene Terephthalate Bottles, Jugs, and Jars – Non-Beverage	1.2%	0.1%	1.3%
20. #1 Polyethylene Terephthalate Thermoform	1.7%	<0.1%	3.1%
21. #2 High-Density Polyethylene Beverage	0.3%	0.5%	0.4%
22. #2 High-Density Polyethylene Non-Beverage	2.2%	0.2%	1.9%
23. #3 Polyvinyl Chloride	0.2%	0.8%	<0.1%
24. #5 Polypropylene	1.4%	0.8%	2.1%
25. #6 Polystyrene – Expanded	0.1%	0.6%	0.1%
26. #6 Polystyrene – Non-Expanded	0.6%	3.8%	0.2%
27. #7 Biodegradable/Compostable Plastics	<0.1%	0.4%	<0.1%
28. Plastic Film	0.7%	1.2%	0.5%
29. Low-Density Polyethylene and High-Density Polyethylene Film – Products (Non-Packaging)	0.7%	0.2%	0.2%
30. Plastic Laminates and Other Film Packaging	0.7%	<0.1%	1.1%
31. Other Rigid Plastic Packaging	0.4%	0.0%	0.5%
32. Durable Plastic Products	1.9%	1.9%	2.1%
04 Metals	3.7%	0.1%	3.7%
33. Aluminum Beverage Cans	0.1%	4.5%	0.8%
34. Aluminum Non-Beverage	1.9%	1.6%	1.6%
35. Aerosol Containers	0.0%	2.7%	<0.1%
36. Other Aluminum	<0.1%	0.2%	0.1%

Category	Fall 2023	Winter 2023	Spring 2023
37. Steel Beverage Cans	0.0%	0.1%	0.0%
38. Steel Food Cans	1.4%	0.1%	1.0%
39. Other Metal	0.3%	2.2%	0.2%
05 Glass	4.2%	1.9%	6.0%
40. Glass Beverage Containers	1.3%	0.3%	1.7%
41. Glass Non-Beverage	2.3%	0.2%	2.6%
42. Other Glass	0.6%	0.2%	1.7%
06 Household Hazardous Waste	<0.1%	0.0%	0.1%
43. Household Hazardous Waste	<0.1%	0.4%	0.1%
07 Food Waste	1.3%	0.4%	1.4%
44. Avoidable Food Waste	1.2%	0.4%	1.1%
45. Unavoidable Food Waste	<0.1%	0.1%	0.3%
08 Yard Waste	2.1%	0.1%	0.2%
46. Yard and Garden Debris	2.0%	0.1%	0.1%
47. Brush and Branches	<0.1%	<0.1%	<0.1%
09 Waste Electrical and Electronic Equipment	<0.1%	0.0%	0.6%
48. Electronics	<0.1%	0.1%	0.6%
10 Construction and Demolition Wastes	0.1%	0.0%	0.4%
49. Dimensional Lumber – Untreated	0.0%	0.0%	0.0%
50. Dimensional Lumber – Treated	<0.1%	0.0%	0.0%
51. Composite Wood	<0.1%	<0.1%	0.3%
52. Gypsum Wallboard	0.0%	0.0%	0.0%
53. Asphalt Roofing Shingles	0.0%	0.0%	0.0%
54. Mixed Metals	0.1%	0.0%	<0.1%
55. Concrete, Bricks	0.0%	0.7%	0.0%
56. Ceramics, Porcelain	0.0%	0.5%	0.0%
57. Carpeting	0.0%	0.2%	0.0%
58. Other Construction and Demolition Wastes	0.0%	0.0%	<0.1%
11 Bulky Waste	0.0%	0.9%	0.0%
59. Furniture or Fixtures	0.0%	0.2%	0.0%
60. Other Large Bulky Items	0.0%	0.0%	0.0%
12 Household Hygiene	0.5%	0.6%	0.2%
61. Diapers	0.0%	0.1%	<0.1%
62. Sanitary Products	0.5%	29.2%	<0.1%
63. Pet Waste	0.0%	15.1%	0.1%
13 Other Materials	1.8%	2.1%	2.3%
64. Textiles	0.7%	1.1%	2.0%
65. Tires and Other Rubber	0.0%	0.1%	<0.1%
66. Other Waste	1.0%	0.3%	0.3%
67. Wood Utensils	0.1%	1.0%	<0.1%
	100.0%	100.0%	100.0%

Table D-3: Annual Waste Composition Results – Organics

Category	Fall 2023	Winter 2023	Spring 2023
01 Paper	1.9%	2.5%	4.4%
01. Mixed Paper	0.1%	0.5%	0.4%
02. Tissue/Toweling	1.5%	0.2%	3.2%
03. Food Soiled Paper	0.2%	0.3%	0.8%
04. Shredded Paper	0.0%	0.2%	0.0%
05. Other Paper – Non-Obligated	0.2%	0.1%	0.0%
02 Paper Packaging	0.9%	0.3%	3.4%
06. Corrugated Cardboard	0.6%	0.0%	1.8%
07. Boxboard / Cores	0.1%	0.0%	0.6%
08. Kraft Paper	0.1%	0.0%	0.3%
09. Molded Pulp	0.1%	0.1%	0.1%
10. Polycoat Beverage Cups	<0.1%	0.0%	0.2%
11. Ice Cream Containers and Other Bleached Long Polycoat Fiber	0.0%	2.1%	<0.1%
12. Laminated Paper Packaging	<0.1%	<0.1%	0.3%
13. Spiral Wound Containers	0.0%	0.1%	<0.1%
14. Gable Top Containers – Beverage	0.0%	0.1%	<0.1%
15. Gable-top Containers – Non-Beverage	0.0%	<0.1%	0.0%
16. Aseptic Containers – Beverage	<0.1%	<0.1%	0.1%
17. Aseptic Containers – Non-Beverage	0.0%	0.0%	0.0%
03 Plastics	0.8%	0.3%	2.6%
18. #1 Polyethylene Terephthalate Bottles – Beverage	0.0%	<0.1%	<0.1%
19. #1 Polyethylene Terephthalate Bottles, Jugs, and Jars – Non-Beverage	<0.1%	0.1%	<0.1%
20. #1 Polyethylene Terephthalate Thermoform	<0.1%	0.4%	0.2%
21. #2 High-Density Polyethylene Beverage	0.0%	0.1%	<0.1%
22. #2 High-Density Polyethylene Non-Beverage	<0.1%	0.3%	<0.1%
23. #3 Polyvinyl Chloride	0.0%	0.6%	0.0%
24. #5 Polypropylene	<0.1%	0.1%	0.3%
25. #6 Polystyrene – Expanded	<0.1%	0.1%	<0.1%
26. #6 Polystyrene – Non-Expanded	<0.1%	0.2%	<0.1%
27. #7 Biodegradable/Compostable Plastics	0.2%	<0.1%	0.3%
28. Plastic Film	0.1%	0.2%	0.3%
29. Low-Density Polyethylene and High-Density Polyethylene Film – Products (Non-Packaging)	0.1%	0.0%	0.5%
30. Plastic Laminates and Other Film Packaging	0.1%	0.0%	0.6%
31. Other Rigid Plastic Packaging	<0.1%	0.0%	0.1%
32. Durable Plastic Products	<0.1%	0.0%	0.2%
04 Metals	0.1%	<0.1%	0.4%
33. Aluminum Beverage Cans	<0.1%	0.3%	0.1%
34. Aluminum Non-Beverage	0.1%	0.0%	0.1%
35. Aerosol Containers	0.0%	0.3%	0.0%
36. Other Aluminum	<0.1%	<0.1%	<0.1%

Category	Fall 2023	Winter 2023	Spring 2023
37. Steel Beverage Cans	0.0%	<0.1%	0.0%
38. Steel Food Cans	0.0%	<0.1%	<0.1%
39. Other Metal	<0.1%	53.0%	0.2%
05 Glass	<0.1%	38.4%	0.1%
40. Glass Beverage Containers	0.0%	14.6%	0.0%
41. Glass Non-Beverage	<0.1%	33.8%	<0.1%
42. Other Glass	<0.1%	31.6%	0.1%
06 Household Hazardous Waste	<0.1%	2.2%	0.1%
43. Household Hazardous Waste	<0.1%	0.0%	0.1%
07 Food Waste	14.3%	0.0%	36.9%
44. Avoidable Food Waste	9.9%	0.0%	22.2%
45. Unavoidable Food Waste	4.4%	<0.1%	14.7%
08 Yard Waste	81.1%	0.0%	49.8%
46. Yard and Garden Debris	77.1%	0.0%	45.7%
47. Brush and Branches	4.0%	0.0%	4.1%
09 Waste Electrical and Electronic Equipment	<0.1%	0.0%	<0.1%
48. Electronics	<0.1%	0.0%	<0.1%
10 Construction and Demolition Wastes	0.2%	0.0%	<0.1%
49. Dimensional Lumber – Untreated	0.0%	0.0%	0.0%
50. Dimensional Lumber – Treated	0.2%	0.0%	<0.1%
51. Composite Wood	0.0%	0.0%	0.0%
52. Gypsum Wallboard	0.0%	0.0%	0.0%
53. Asphalt Roofing Shingles	0.0%	0.0%	0.0%
54. Mixed Metals	0.0%	0.0%	0.0%
55. Concrete, Bricks	0.0%	0.4%	0.0%
56. Ceramics, Porcelain	0.0%	0.2%	0.0%
57. Carpeting	0.0%	0.2%	0.0%
58. Other Construction and Demolition Wastes	<0.1%	<0.1%	0.0%
11 Bulky Waste	0.0%	0.8%	0.0%
59. Furniture or Fixtures	0.0%	0.6%	0.0%
60. Other Large Bulky Items	0.0%	<0.1%	0.0%
12 Household Hygiene	0.5%	0.1%	1.6%
61. Diapers	0.4%	0.1%	1.3%
62. Sanitary Products	0.2%	2.5%	0.1%
63. Pet Waste	0.0%	0.5%	0.2%
13 Other Materials	0.1%	0.2%	0.7%
64. Textiles	<0.1%	0.3%	0.5%
65. Tires and Other Rubber	0.0%	0.2%	<0.1%
66. Other Waste	0.1%	0.1%	0.1%
67. Wood Utensils	<0.1%	0.3%	<0.1%
	100.0%	100.0%	100.0%

APPENDIX E

SECTORS AND NAMING CONVENTIONS

Sectors & Naming Convention

The naming convention for samples should be as follows:

Example:

FA23 - EAS - G

Season and YearRouteStream

Options:

Fall = FA23
Winter = WI23
Spring = SP24

See Table

Garbage = G
Recycling = R
Organics = O

Route	Collection Route	Community
EAS	01	Eastview
PAR	02	Parkridge
ROS	03	Rosewood
MOU	04	Mount Royal
HOL	05	Holliston
CIT	06	City Park
NUT	07	Nutana
SIL	08	Silverwood Heights
WIL	09	Willowgrove
DUN	10	Dundonald