

Prepared for:

**Metro Vancouver**

Prepared by:

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**METRO VANCOUVER**

# **2023 Multi-Family Residential Waste Composition Study**





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***2023 Multi-Family Residential Waste Composition Study***

Dillon Consulting Limited (Dillon) is pleased to submit this report to Metro Vancouver for the Metro Vancouver 2023 Multi-Family Residential Waste Composition Study, which collected 91 samples from 87 multi-family buildings and complexes throughout Metro Vancouver. Waste sorting was completed at the Vancouver South Transfer Station and the United Boulevard Recycling and Waste Centre.

As outlined in the work plan, this report presents the waste composition study results by sub-sector and overall, including single-use items (SUIs) and personal protective equipment (PPE) disposal results.

Waste composition study data containing garbage composition is included as **Appendix E**. SUI and PPE data containing all disposal results is included as **Appendix I**. Historical waste composition data from 2006 to 2023 is included as **Appendix J**.

Sincerely,

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## Executive Summary

Dillon Consulting Limited (Dillon) was retained by Metro Vancouver to conduct the 2023 Multi-Family Waste Composition Study. Overall, 91 samples were collected from 87 multi-family (MF) buildings and complexes in the Metro Vancouver region over six weeks from July to August 2023. The purpose of the study was to characterize the waste composition and estimate the generation rates of the garbage waste stream. This study aims to better understand MF waste composition across all building and ownership types.

In 2022, approximately 906,500 tonnes of residential, commercial/institutional, and small load garbage were disposed at regional facilities. It is estimated that 28% of this material (257,000 tonnes) was disposed by MF sources. At the time of writing this report, 2023 information is not yet available. The results presented in the study are a snapshot of the waste stream generated in 2023 by the MF sector in the region.

Garbage was collected from MF buildings and sorted at a designated sort area. Sample analysis took place at the Vancouver South Transfer Station and the United Boulevard Recycling and Waste Centre. In addition to garbage sample collection and analysis, waste diversion streams available to residents at each building were noted and recorded. Phone surveys were conducted with MF building participants to gather information on the building and disposal schedules for each sampling location.

Overall, 91 samples with a total weight of 6,576 kg garbage were sorted. The average garbage sample weight was 72 kg. The target sample weight was 100 kg; however, smaller samples were often collected due to the limited amount of garbage present at the time of site visit.

Garbage was sorted into 13 primary categories and a total of 174 subcategories.

**Executive Summary Table 1** presents the overall waste composition in the garbage stream.

**Executive Summary Table 1: Overall Garbage Composition**

Primary Material Category	% Composition <sup>1</sup> (N=91)	90% Confidence Interval
01 - Paper	15%	1%
02 - Plastic	17%	1%
03 - Compostable Plastic	0%	-
04 - Compostable Organics	34%	2%
05 - Non-Compostable Organics	7%	1%
06 - Metals	4%	1%
07 - Glass	3%	-
08 - Building Material	2%	1%
09 - Electronic Waste	2%	-
10 - Household Hazardous	1%	-
11 - Household Hygiene	14%	2%
12 - Bulky Objects	1%	1%
13 - Fines	2%	-

<sup>1</sup>Percentages were rounded to the nearest whole number and may not add up to 100%

Overall findings for the garbage stream include:

- The largest material categories disposed were compostable organics, plastic, and paper.
  - Compostable organics was the largest proportion of waste disposed, comprising 34% of the garbage stream;
  - Plastic comprised 17% of the waste disposed; and
  - Paper was 15% of waste disposed.
- The overall per-capita disposal rate was 181kg/capita.
- Single-use items (SUIs) and personal protective equipment (PPE) were assessed as part of the waste composition study.
  - The per capita disposal rate of SUIs in the garbage stream was 278 units/capita; and
  - The total per capita disposal rate of PPE in the garbage stream was 140 units/capita.

## 1.0

# Introduction

## 1.1

## Background

Metro Vancouver provides essential services and planning for British Columbia's lower mainland region, including solid waste management for approximately 2.7 million people across 21 municipalities, one Electoral Area, and one Treaty First Nation.

In 2022, approximately 906,500 tonnes of garbage were disposed at regional facilities. It is estimated that 28% of this material (257,000 tonnes) was disposed by multi-family (MF) sources. This study aims to better understand MF waste composition across all building and ownership types within the waste sector.

Metro Vancouver has previously completed five MF waste composition studies, in 2006, 2013, 2017, 2021, and 2022. The studies performed in 2017, 2021, and 2022 used a similar methodology to the 2023 study. Results are presented based on the weighted average found during the waste composition study. The 90% confidence interval was applied, which is based on sample variability; however, data collection was subject to limitations in participant recruitment and availability of samples across the region.

## 1.2

## Scope of Work

Dillon Consulting was contracted by Metro Vancouver to conduct a waste audit of multi-family residences. A phone survey was conducted over a six-week period in July and August 2023 to acquire participants, coordinate sample collection and site assessments, and gather information on the building and disposal schedules of the sampling locations. Garbage sampling, and a visual evaluation of waste disposal areas was completed at 87 MF buildings and complexes in Metro Vancouver over a four-week period in July and August 2023.

The sample distribution by geographic sub-region, building type, and unit ownership type is presented in **Table 1**. Sample distribution deviated from the geographic distribution of the proportion of MF population within Metro Vancouver as participant recruitment was voluntary and limited by the availability of MF properties. Previous iterations of this study noted that the difference between rented and owned, and based on geography was insignificant. Based on this assessment, the primary factor for recruitment breakdown for the 2023 study was building type.



Table 1: Sample Distribution

Property Type				
Building Type	Description	Proportion of MF Population	Proportion of Samples for this Study	Total Number of Samples
High Rise	One or more buildings with five or more storeys	30%	23%	21
Low Rise	One or more buildings with less than five storeys	44%	43%	39
Townhouse	A series of attached row homes	26%	34%	31
Geographic Distribution				
Geographic Region	Municipalities Sampled	Proportion of MF Population	Proportion of Samples for this Study	Total Number of Samples
Vancouver	Vancouver	34%	30%	27
Inner Municipalities	Burnaby, Richmond, New Westminster	26%	37%	34
Northeast	Coquitlam, Port Coquitlam, Port Moody, Maple Ridge, Pitt Meadows	6%	15%	14
North Shore	City of North Vancouver, District of North Vancouver	11%	3%	3
South of Fraser	Surrey, Township of Langley, City of Langley, Delta, White Rock	23%	14%	13
Unit Ownership				
Unit Ownership Type	Description	Approximate Proportion of MF Population	Proportion of Samples for this Study	Total Number of Samples
Co-op	All units in the building are part of a co-op.	-	2%	2
Owned	All units in the building are owned.	50%	3%	3
Rental Units	All units in the building are rental units	50%	62%	56
Mixed	The building has a combination of condominiums and rental units	-	33%	30
Total Number of Samples				91

Sample analysis took place at the Vancouver South Transfer Station and United Boulevard Recycling and Waste Centre.

In addition to a garbage sample analysis, waste diversion streams available to residents in each building were noted as part of a site assessment.

As part of this project, 91 samples with a total weight of 6,576 kg were sorted, with an average sample weight of 72 kg. The target sample weight was 100 kg; however, smaller samples were often collected due to the limited amount of garbage present at the time of site visit.

## 2.0

## Methodology and Work Plan

The overall project methodology was developed with the objective of finding regionally representative waste composition for the MF sector. Additionally, visual site assessments of waste disposal areas and containers, and participant phone surveys were conducted to gain a better understanding of the overall state of MF disposal and recycling in Metro Vancouver, and to allow waste composition to be compared based on building type, unit ownership type, and geographic sub-region.

## 2.1

### Participant Recruitment

Participants were identified for inclusion in the waste composition study via the following methods:

- Two non-profit housing associations were contacted (BC Housing and Metro Vancouver Housing Corporation). There were 17 participants from BC Housing and 27 participants from Metro Vancouver Housing;
- The City of Vancouver encouraged buildings participating in the Zero Waste Ambassador program;
- Dillon staff and Metro Vancouver reached out to municipal waste management contacts asking if they were able to provide contact information for MF property managers in their municipality;
- A post inviting MF residents to sign up their own building was shared on social media by Dillon staff and participants;
- Property managers were reached via door-to-door visits by Dillon staff to various municipalities across all three-sub regions; and
- Known industry and contacts of project staff were contacted to take part in the study.

When contacting residents and property managers it was indicated that the study was free and confidential, and that they would be provided with the results of their building's waste composition study.

Approximately 400 MF properties were contacted during the participant recruitment process and a quarter of properties contacted participated in the study. Many buildings that participated in the 2022 study participated again in 2023. Most of these repeat participants are Metro Vancouver and BC Housing buildings, and approximately ten buildings with no governmental affiliations participated in last year's as well as this year's study.

### 2.1.1 Participant Survey and Scheduling

Once a property contact indicated that they would participate in the study, Dillon completed a participant survey over the phone. The Participant Survey is included in **Appendix A**. The Participant Survey included the following topics:

- Property address and contact information;
- Collection days for garbage and recycling streams;
- Type of property:
  - Building type (low-rise, high-rise, or townhouse); and
  - Unit ownership type (Co-op, owned, rented, or mixed);
- Number of building occupants;
- Property disposal and recycling details including bulky item disposal process and presence of garbage chutes or in-sink disposal mechanisms; and
- Scheduling information for sample collection (date and time confirmation and contact name and contact information).

Once a site visit had been scheduled, property contacts were contacted via email to confirm their site visit date and time. Property contacts were also contacted on the day before their site visit (by email and/or phone) to confirm their site visit for the following day. To avoid audit waste on or right after collection days where there's little waste to audit, buildings were asked to reported their waste collection dates. Unfortunately, the reported date was not always reliable. In some instances, the audit team noticed that waste had just been collected on audit day or the days prior.

## 2.2 Site Visit

Each property was visited during the fieldwork portion of the study (July 24 to August 22, 2023) to perform a site assessment and collect a sample (up to 100 kg) of on-site garbage.

### 2.2.1 Site Assessment

A team of two Dillon technicians performed sample collection by visiting each participant's waste disposal area during the six weeks of the study. Upon arrival at the site, the team met with the site contact and asked to view and assess the garbage, recycling, and organics containers present. A visual assessment was performed in which the following information was collected:

- Confirmation of presence of a compactor and which waste materials the compactor(s) was designated;
- Number and size(s) of garbage containers;
- Availability, stream(s), and size of recycling containers;
- Availability, and size of organics containers;
- Fullness of containers; and
- Photos of all on-site garbage, recycling, and organics containers.

The site assessment form can be found in **Appendix B**.

The site visit was scheduled for the day before garbage pickup whenever possible for consistency and to collect as much data as possible. In a few instances this was not possible; however, for the purpose of bin fullness observations in this report all bins are treated as if they are one day away from collection.

If a participant had a compactor(s), the location was visited twice. On the first visit, large garbage containers were dropped off and put next to the compactor with signage indicating that all garbage should be placed into the containers and not the compactor. Then, the location was visited the following day for sample collection. On multiple occasions, the collection date provided was incorrect, though participants had the option to reschedule audits, most did not. Ultimately data provided during phone surveys was used to estimate waste generation although there may be some error in the self-reported information.

### 2.2.2 Sample Collection

A garbage sample was taken from the on-site garbage containers and weighed at the site. A sample of up to 100 kg was taken, or in the case if a smaller amount of garbage available, all the garbage present was collected as a sample. In some cases, not all garbage was collected as a sample (even when it was less than 100 kg) due to safety or other on-site logistical issues, such as the arrival of the building's contracted waste haulers. The sample was re-bagged and consolidated if necessary, and all sampled bags were labelled and transported. Bulky items are weighed and placed in the same pile as other waste. If a bulky item cannot fit in the collection van or cannot be lifted, it is excluded from the study.

## 2.3 Waste Sorting

Dillon completed waste sampling and sorting in accordance with the methodology set out in Recommended Waste Characterization Methodology for Direct Waste Analysis Studies in Canada (CCME, 1999) and previous Metro Vancouver waste composition studies. According to this methodology, waste samples should be 100 kg. In this study, the target sample weight was 100 kg; smaller samples were often collected due to the following:

- Low amounts of total garbage present at the time of sample location;
- Difficulties in gathering loose un-bagged material; and
- Difficulties in gathering heavy and bulky items within the garbage container.

Waste samples collected from participants were transported off-site for sorting. Samples were sorted based on a material category list (**Appendix C**) into 13 primary, 57 secondary, and 174 tertiary categories, and weighed for data collection. During sample sorting, for materials categories designated as single-use items (SUIs) or personal protective equipment (PPE), each item was counted in addition to being weighed. The categories were divided into primary, secondary, and tertiary materials and

products. In addition, categories were assigned a functional type, if applicable, based on the end fate or management paradigm of the waste material.

## 2.4 Data Analysis and Statistical Evaluation

Data was compiled electronically throughout the course of the project. Data collected during field work, including site assessment, and sorting data, was compiled on-site and reviewed daily to confirm data input. Sample logs and checklists were employed to determine that a sufficient distribution of samples was collected to provide proper statistical evaluation. Data was regularly subjected to quality assurance and quality control methods during fieldwork and analysis, confirming the differences between pre-sorting and post-sorting sample weights were within acceptable margins of accuracy (i.e., majority of samples fell within 3% difference).

The overall composition for each MF building type and ownership type was calculated by combining weights of all sorted materials. The combined composition for all buildings was calculated by weighing the compositions using the overall Metro Vancouver disposal for each building and ownership type. For SUIs and PPE disposal analysis, averages were calculated by sector and total weights and counts taken at the end of each week of field work. Disposal rates for garbage were calculated by projecting the weights of sorted material to estimations of the number of days-worth of garbage collected, based on the building's garbage collection date and the sample collection date, and extrapolating based on the number of occupants in the MF property. To calculate the overall waste disposal rate, the waste density from 2022 was used. In 2023's study, waste volume was not recorded for the first few days in field, as initially instructed by Metro Vancouver, therefore some data is missing. Waste density, however, is unexpected to change significantly from year to year. There are some additional sources of error including discrepancies between the buildings reported and actual waste collection days and reported occupancy count in each building. Further, it's reasonable to assume some waste was disposed in compactors even when a sign was posted to put waste aside. All these sources of error contribute to the final data calculated. It's important to acknowledge these errors and understand that audits are a snapshot in time and is not a comprehensive and exhaustive study of waste generated.

Standard deviations and 90% confidence intervals were calculated for primary categories and functional material categories by waste sector. Given the variance in total sample weights between samples, waste composition percentages were used to determine the statistical parameters to normalize the data set.

## 2.5 Single-Use Items (SUIs) and Personal Protective Equipment (PPE)

To determine the unit weights of single-use items (SUIs) and personal-protective equipment (PPE), following the sorting of a sample, each item category of SUIs and PPE was weighed, counted, and then collected for that week of sampling. A weekly total weight was measured by weighing the SUIs and PPE items which had been collected throughout the week. Similarly, a weekly total count was calculated by combining the count data for SUIs and PPE sorted from samples throughout the week. The unit weights

for each SUIs and PPE category was calculated from dividing the weight for each category by its respective count, with weights and counts averaged either by sample or weekly total.

The quantity of SUIs and PPE waste disposed in the MF sector was calculated using the collected garbage sample data. SUIs and PPE were calculated using percent composition multiplied their unit weight. Quantities are presented in terms of disposed weight and counts per capita per annum.

2.6 **Site Assessment**

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Data collected from all site assessments was aggregated for analysis to determine waste composition, confidence levels, and disposal rate.

2.7 **Participant Feedback Forms**

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Feedback forms for each participant were created at the conclusion of data analysis. The forms provide graphical presentations of waste composition data, in addition to insights and recommendations to promote further waste reduction and diversion for the participant building. The information in each feedback form is unique to the building and was provided to the site contact. An example of a participant feedback form can be found in **Appendix D**.

## 3.0 Garbage Results

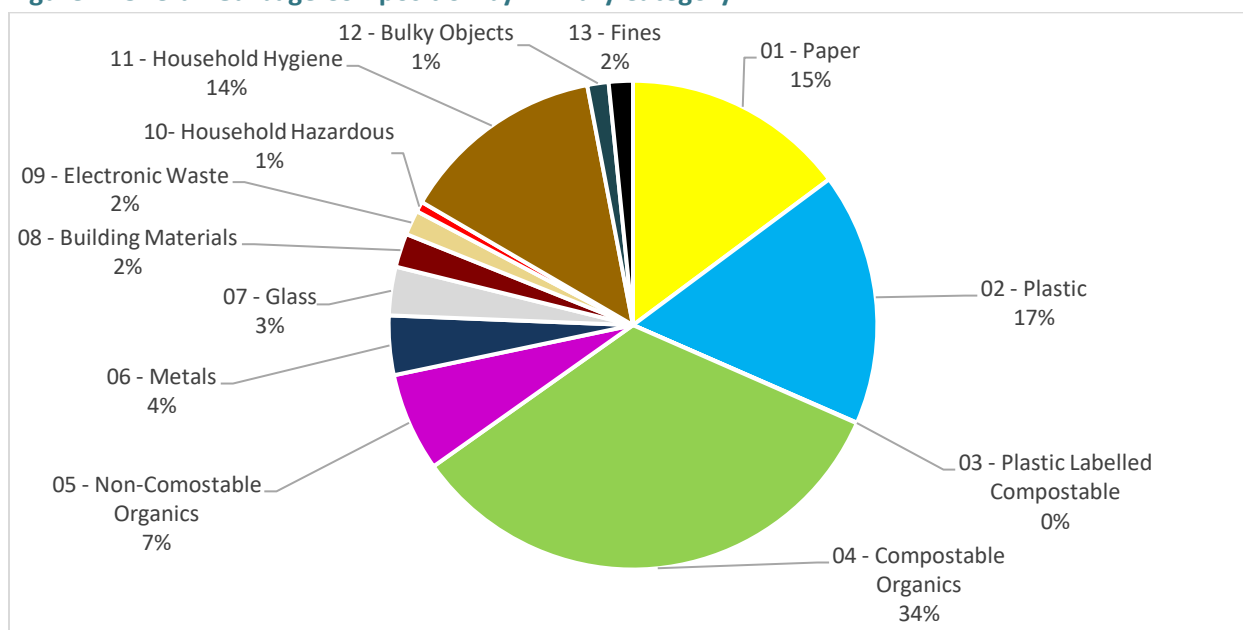
### 3.1 Overall Garbage Composition Results

The overall waste composition results are presented in the following sections as weighted average percentages by primary material categories and functional categories. Primary material categories represent the contents consisting within the category (e.g., paper, plastic, etc.). Since, 2020, each material category has been assigned a functional category which represents the end fate or management paradigm of the material contents. Results were weighted by combining all sample data. All percentages in the following sections are the percentage of material category or functional category contents in relation to the total amount of material.

#### 3.1.1 Garbage Composition

**Figure 1** presents the overall garbage composition by primary category for the MF sector. The largest components within the garbage were compostable organics (34%), followed by plastic (17%) and paper (15%). Compostable organics mainly comprised unavoidable food waste (18%) and whole fruits and vegetables (14%). Paper consisted mostly of other compostable paper (9%) and cereal boxes and other box packaging (3%). The largest component of plastic was film (6%) and high-density polyethylene (HDPE) consumables packaging containers (6%).

**Figure 1: Overall Garbage Composition by Primary Category**





**Table 2** is a summary of the overall garbage composition results with their 90% confidence levels presented as a confidence interval. Results for all 174 material categories are included in **Appendix C**. **Appendix F** contains selected photographs from the sample sorting process, and **Appendix G** provides example photographs for each material category.

**Table 2: Overall Garbage Composition by Primary Category**

Primary Category	% Composition <sup>1</sup>	Confidence Interval
01 – Paper	15%	1%
02- Plastic	17%	1%
03- Compostable plastic	0%	<1
04 – Compostable Organics	34%	2%
05 – Non-Compostable Organics	7%	1%
06 – Metals	4%	1%
07 – Glass	3%	<1
08 – Building Material	2%	1%
09 – Electronic Waste	2%	<1
10 – Household Hazardous	1%	<1
11 – Household Hygiene	14%	2%
12 – Bulky Objects	1%	1%
13 – Fines	2%	<1

<sup>1</sup> All percentages in the results section were rounded to the nearest whole number. Percentages may not add up to 100%.

### 3.1.2 Functional Categories

The waste composition study assigned an end use to each material category. This assists with determining the end fate or management paradigm of waste that share similar materials. The following section highlights the composition of the different functional categories within the garbage stream. Note that not all material categories were assigned a functional category and some materials may be present in more than one functional category.

**Table 3** presents the overall garbage composition by functional category. The largest components of the garbage stream were materials that should have been diverted in organics containers (39%), waste with limited recycling options (22%) such as freezer bags, rubber, and diapers, and recyclables (21%). Green bin material mainly comprised unavoidable food waste (18%) and avoidable food waste such as whole fruits or vegetables (14%). The largest component of waste with limited recycling options was pet waste (7%). Recyclables consisted mostly of film (4%), household non-consumable mix-metals (3%) and non-beverage rigid packaging (3%). In 2023, the percent composition of recyclable material in the MF garbage stream decreased by 3% compared to 2021. The functional categories list did not consider the newest additions to Extended Producer Responsibility (EPR) programs in BC such as freezer bags. **Appendix H** lists the functional categories and the assigned materials categories.

**Table 3: Overall Garbage Composition by Functional Category**

Functional Category	% Composition (2022) <sup>1</sup>	% Composition (2023)
Green Bin	44%	39%
Recyclable	24%	21%
Limited Recycling Options	20%	22%
Textiles	4%	7%
C&D	3%	4%
SUI	3%	3%
PPE	<1%	0%
Other	-	2%

<sup>1</sup> Numbers may not add to 100% because not all material categories were assigned a functional category and some materials may be present in more than one functional category. This includes items like coffee pods, manure and animal carcasses, biomedical waste, household hazardous waste, and bulky objects such as furniture.

## 3.2 Garbage Composition Results Analysis

This section presents the waste composition results of MF buildings analyzed by:

- Building type; and
- Unit ownership type.

### 3.2.1 Building Type

**Table 4** summarizes the garbage composition results by building type. The building types reported in this study include:

- High-rises (greater than or equal to five storeys);
- Low-rises (less than five storeys); and
- Townhouses.

The definition of high-rise and low-rise buildings is consistent with the terminology used in census data from Statistics Canada.

In all building types, the largest component in the garbage stream was compostable organics. The next largest components across all building types were paper, plastic, and household hygiene. The variation in garbage composition between building types was low. Garbage composition results observed include:

- High-rises had the largest proportion of paper and plastic, followed by low-rises, with townhouses having the lowest proportion;
- High-rises had the largest proportion of compostable organics, followed by townhouses, with low-rises having the lowest proportion; and
- Low-rises had a larger proportion of non-compostable organics than other building types.

**Table 4: Garbage Composition by Building Type**

Primary Material Category	% Composition <sup>1</sup>			
	High-rise (N=21)	Low-rise (N=39)	Townhouse (N=31)	Overall (N=91)
01 - Paper	17%	15%	14%	15%
02 - Plastic	19%	18%	14%	17%
03 - Compostable Plastic	0%	0%	0%	0%
04 - Compostable Organics	35%	32%	34%	34%
05 - Non-Compostable Organics	5%	8%	6%	7%
06 - Metals	4%	3%	5%	4%
07 - Glass	4%	3%	3%	3%
08 - Building Material	2%	1%	3%	2%
09 - Electronic Waste	1%	2%	2%	2%
10 - Household Hazardous	1%	1%	1%	1%
11 - Household Hygiene	12%	14%	14%	14%
12 - Bulky Objects	0%	2%	2%	1%
13 - Fines	2%	2%	1%	2%

<sup>1</sup>All percentages in the results section were rounded to the nearest whole number. Percentages may not add up to 100%

### 3.2.2

### Unit Ownership

**Table 5** summarizes the garbage composition results by unit ownership type. The unit ownership types reported in the study include:

- Co-op (cooperative living);
- Condominiums (owned);
- Rentals; and
- Mixed.

The unit ownership types describe the ownership of all units in a building, with mixed unit ownership referring to buildings where both condominiums and rental units were confirmed to be present.

Cooperative living properties refer to buildings that are owned and operated by BC Housing.

In all unit ownership types, the largest components of the garbage stream were compostable organics, paper, and plastic. The variation in garbage composition between unit ownership types was low, with the exception of non-compostable organics and glass. Garbage composition results include:

- Condominiums had a higher proportion of compostable organics and metals than all other ownership types;
- Rentals had a higher proportion of non-compostable organics than all other ownership types;
- Co-ops had a higher proportion of household hygiene items than all other ownership types; and
- Mixed-Ownership buildings had had higher proportions of paper and plastics but did not have a higher proportion in any category compared to other ownership types.

**Table 5: Waste Composition by Unit Ownership Type**

Primary Material Category	% Composition <sup>1</sup>				
	Co-op (N=2)	Condominiums (N=3)	Rentals (N=56)	Mixed (N=30)	Overall (N=91)
01 - Paper	12%	12%	15%	15%	15%
02 - Plastic	18%	18%	16%	18%	17%
03 - Compostable Plastic	0%	0%	0%	0%	0%
04 - Compostable Organics	26%	36%	34%	34%	34%
05 - Non-Compostable Organics	3%	3%	8%	3%	7%
06 - Metals	1%	7%	4%	3%	4%
07 - Glass	1%	1%	4%	3%	3%
08 - Building Material	8%	0%	2%	2%	2%
09 - Electronic Waste	4%	0%	2%	2%	2%
10 - Household Hazardous	0%	0%	1%	0%	1%
11 - Household Hygiene	24%	21%	12%	16%	14%
12 - Bulky Objects	0%	0%	2%	1%	1%
13 - Fines	2%	2%	1%	2%	2%

<sup>1</sup> All percentages in the results section were rounded to the nearest whole number. Percentages may not add up to 100%.

### 3.3 Special Interest Categories

Metro Vancouver has requested the specific sorting, counting, and analysis of SUIs and PPE due to their inclusion in regulative policy and prevalence, respectively. The primary material categories assigned as SUI or PPE are listed in **Appendix H**. Selected example photographs of these special interest categories can be found in **Appendix G**. Results for all SUIs and PPE are included in **Appendix I**.

#### 3.3.1 Single Use Items

**Table 6** summarizes the estimated per capita disposal rates of SUIs by weight. The SUIs with the largest disposal rates were takeout containers (2.0 kg/capita), retail bags (2.0 kg/capita), and cups 0.8 kg/capita). The estimated total disposal rate of SUIs by weight is 5.1 kg/capita.

**Table 6: Estimated Per Capita Disposal of SUIs by Weight**

SUI Category	Weight Disposed/Capita (kg)
	2023
Retail Bags	2.0
Cups	0.8
Takeout Containers	2.0
Straws	0.1
Utensils	0.2
<b>TOTAL</b>	<b>5.1</b>

**Table 7** summarizes the estimated per capita disposal rates of SUIs by count. The SUIs with the highest disposal rates were retail bags (75), utensils (68), and takeout containers (58). The estimated total disposal rate of SUIs by count is 278 units/capita. Results from this study were compared with findings from the 2022 study. SUI disposal trends observed that there was a decrease in disposal rate from 2022 to 2023 with most categories, with exception to takeout containers and straws.

**Table 7: Estimated Per Capita Disposal of SUIs by Count**

SUI Category	Units Disposed/Capita	
	2022	2023
Retail Bags	86	75
Cups	50	42
Takeout Containers	52	58
Straws	35	36
Utensils	73	68
<b>TOTAL</b>	<b>296</b>	<b>278</b>

### 3.3.2

### Personal Protective Equipment

**Table 8** summarizes the estimated per capita disposal rates of PPE by weight. The PPE with the largest disposal rates were wipes (0.36 kg/capita), and gloves (0.29 kg/capita). The estimated total disposal rate of PPE by weight is 1.0 kg/capita.

**Table 8: Estimated Per Capita Disposal of PPE Items by Weight**

PPE Category	Weight Disposed (kg/capita)
	2023
Masks	0.06
Gloves	0.25
Wipes	0.31
<b>TOTAL</b>	<b>1.00</b>

**Table 9** summarizes the estimated per capita disposal rate of PPE by count. The PPE with the highest disposal rates were wipes (89), and gloves (37). The estimated total disposal rate of PPE by count is 140 units/capita. Detailed results for all PPE categories, including total counts and weights, can be found in **Appendix I**. Results from this study were compared with findings from the 2022 study. PPE disposal trends observed include:

- Masks had a significant decrease in disposal rate from 2022 to 2023 followed by a more modest decrease in gloves; and
- Wipes had a significant increase in disposal rate.

Wipes in general are very difficult to identify in waste audits due to their size. Additionally, wipes are used in many applications and may not correspond to public health use.

**Table 9: Estimated Per Capita Disposal of PPE Items by Count**

PPE Category	Units Disposed/Capita	
	2022	2023
Masks	36	14
Gloves	40	37
Wipes	49	89
<b>TOTAL</b>	<b>125</b>	<b>140</b>

**3.4****Disposal Rate**

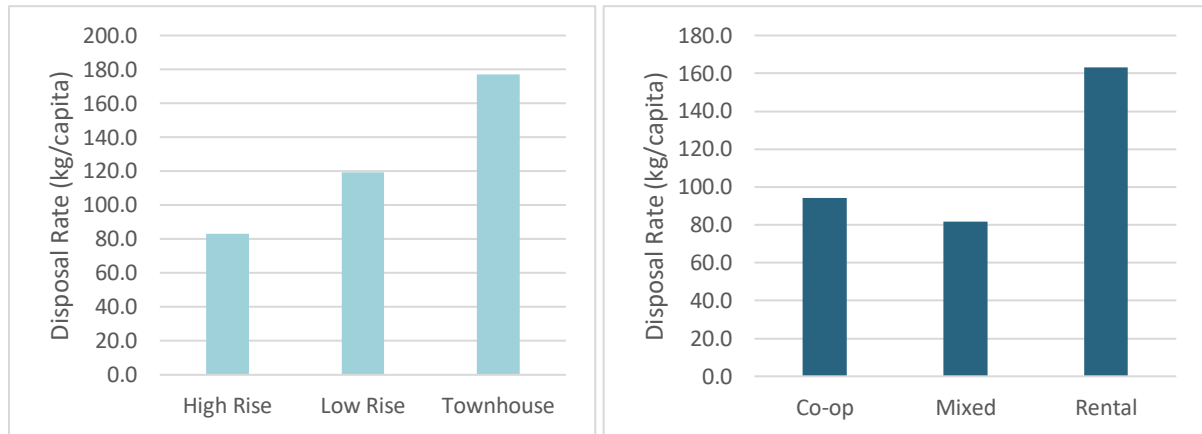
The estimated per capita disposal rates were calculated by building type and unit ownership type as described in **Section 2.4**. There were 87 buildings included in the calculations. Buildings with compactors and where the study could not arrange an alternative process for garbage sample collection were excluded from the disposal rate calculations. Building samples with mixed ownership of rental units and condominium units were excluded in calculations for the disposal rates by unit ownership type in this section.

**Figure 2** presents the estimated per capita disposal rates by building type and unit ownership type. The estimated disposal rate across all building and unit ownership types in the region was 181 kg/capita. The highest disposal rates were observed in the following MF residence types:

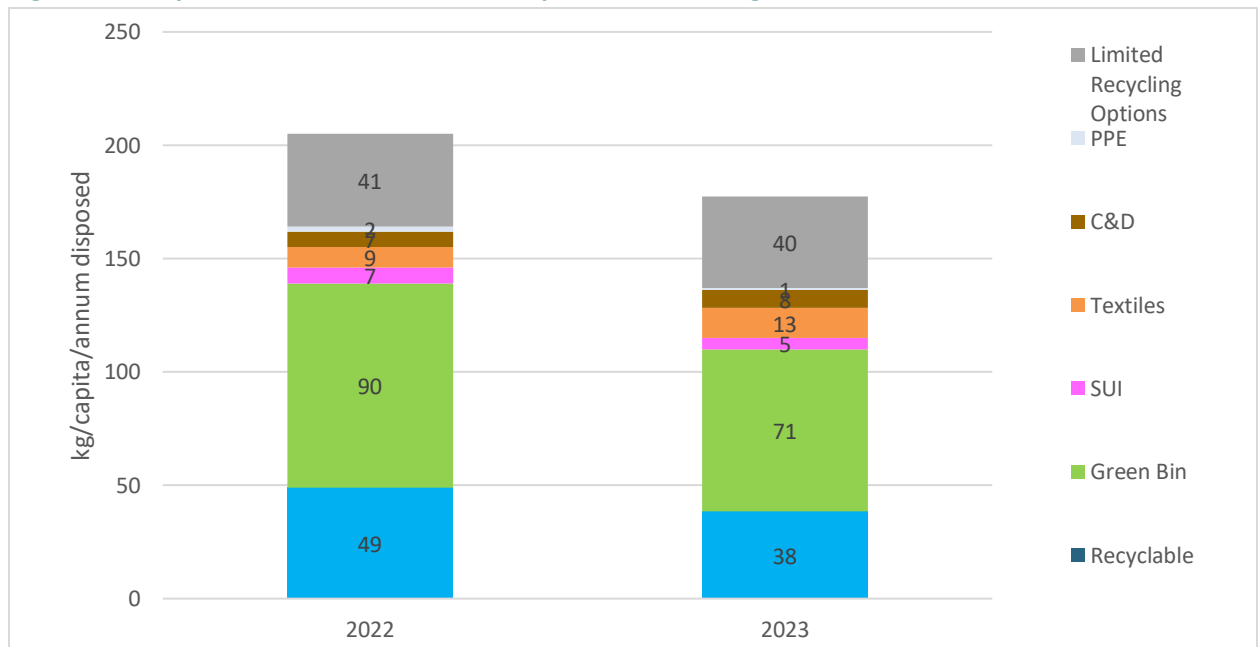
- Townhouse buildings (177 kg/capita); and
- Rental buildings (163 kg/capita).

The lowest disposal rates were observed in the following high-rise buildings at 83 kg/capita.

There were only three owned building samples, and one was excluded due to error in hauler collection. The total weight was recorded incorrectly and presented as an anomaly. The disposal rate by ownership type for owned buildings is based on two samples and is less statistically significant and therefore excluded from **Figure 2** below.

**Figure 2: Disposal Rate by Building Type (left); Disposal Rate by Unit Ownership Type (right)**

**Figure 3** presents a historical comparison of per capita garbage generation by functional category. Between 2022 and 2023, the per capita garbage generation rate has been lowered in most functional categories, with the exception of textiles, construction and demolition (C&D) waste, and items with limited recycling options. However, the proportional composition of garbage disposed has remained similar.

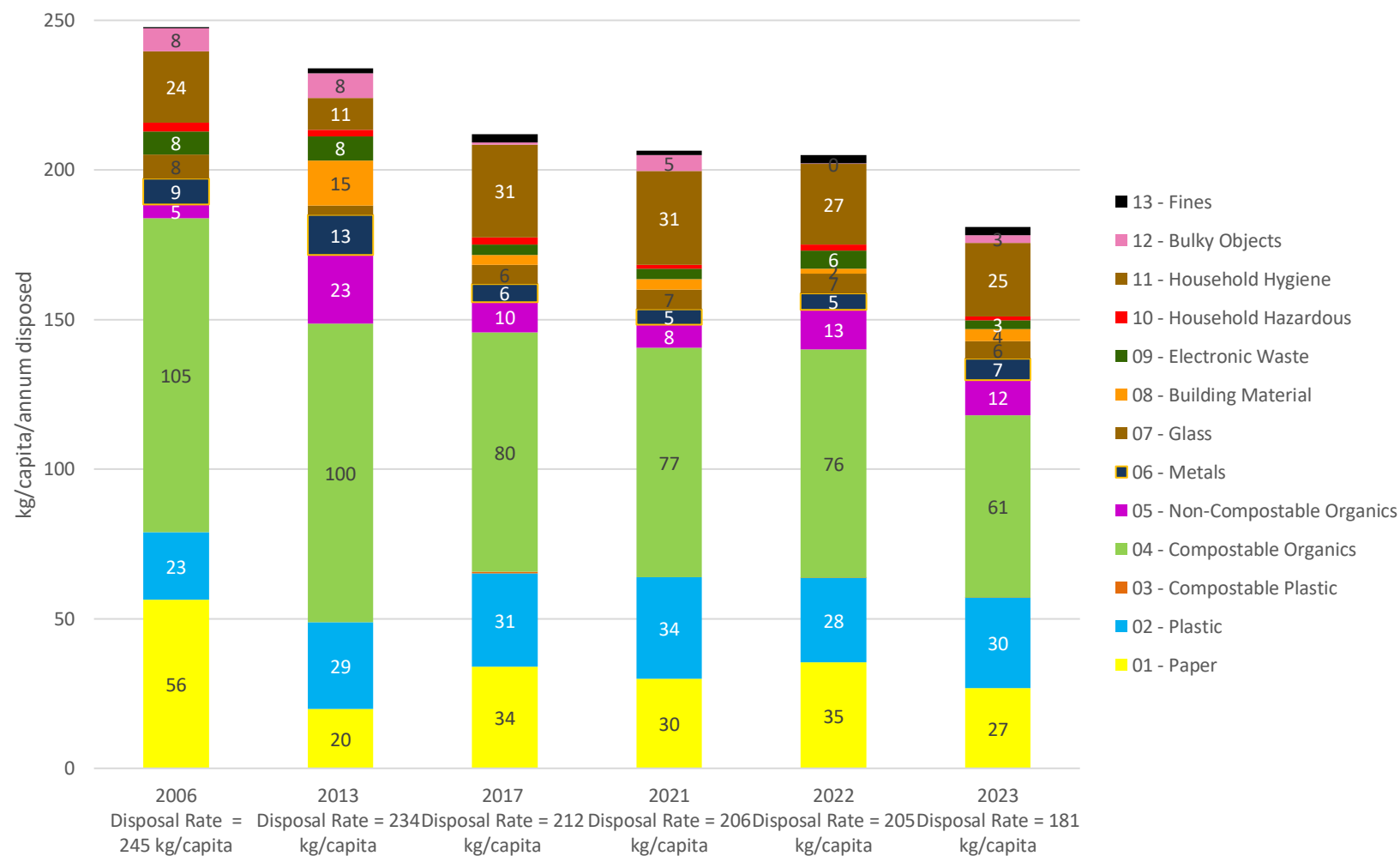
**Figure 3: Comparison of Generation Rates by Functional Categories between 2022 and 2023**

### 3.5 Historical Results Comparison

Waste composition data for MF properties in the region has been reported from 2006 to 2022. Historically, waste composition studies on the MF sector were not conducted annually by Metro Vancouver; however, results from 2006, 2013, 2017, 2021, and 2022 were available and are compared to 2023 waste composition results in this section. **Figure 4** presents a side-by-side historical comparison of primary categories and average per capita disposal rates within the MF waste section.



Figure 4: Historical Comparison of Overall MF Garbage Composition and Generation



The MF disposal rate was 245 kg/capita, 234 kg/capita, 212 kg/capita, 206 kg/capita, and 205 kg/capita in 2006, 2013, 2017, 2021, and 2022 respectively. In 2023 the disposal rate was 181 kg/capita. Overall, per capita disposal rates have continued to decrease since 2006.

In 2022, material composition calculations showed the largest components of overall recyclables in multi-stream systems<sup>1</sup> were cardboard (62%), followed by paper (18%), and paper containers (7%). The largest components of overall recyclables in single-stream systems<sup>2</sup> were cardboard (43%), followed by paper (33%), and plastic containers (8%).

Since 2006, there have been changes in the secondary and tertiary waste categories included in waste composition reporting; however, the primary categories used to calculate the disposal rates have been generally consistent. The methodology used to calculate waste disposal rates in 2023 was similar to those used from 2017 to 2022; therefore, the results from these years provide the most representative comparisons.

Notable trends between the waste composition studies include:

- Compostable organics waste in the garbage stream has decreased each year, from 105 kg/capita in 2006 to 61 kg/capita in 2023. The decrease in the proportion of compostable organics in the garbage generally correlates with an increase in green bin use since the introduction of organics collection in 2014;
- Plastic waste in the garbage stream has decreased since 2021, from 34 kg/capita in 2021 to 28 kg/capita in 2022 and increased slightly in 2023 to 30 kg/capita;
- Paper waste in the garbage stream has remained steady since 2017; however, it decreased from 35 kg/capita in 2022 to 27 kg/capita in 2023; and
- Electronic waste in the garbage stream has decreased since 2022, from 6 kg/capita in 2022 to 3 kg/capita in 2023. This is comparable to the disposal rate in 2006 and 2013 at 8 kg/capita.

A comparison of all available historical waste composition results can be found in **Appendix J**.

<sup>1</sup> Multi-stream recycling systems refer to buildings that had collection for more than one type of recyclable material besides cardboard and glass.

<sup>2</sup> Single-stream recycling systems refer to buildings that combined the collection of recyclable containers and paper into a mixed recyclable container

## 4.0

## Recycling and Organics Provision and Best Practices

The 2023 MF waste composition audit did not include visual audits of recycling and organics containers at MF properties, as done previously. For the 91 samples, technicians verified whether recycling and organics containers were available for residential usage and estimated fullness of each container. For recycling containers, technicians also identified the number and recycling streams that were accepted. Visual audits of the containers were not completed following discussion with Metro Vancouver.

In lieu of comprehensive sorting of recycling and organics waste, Dillon has provided best practices for proper diversion of these streams.

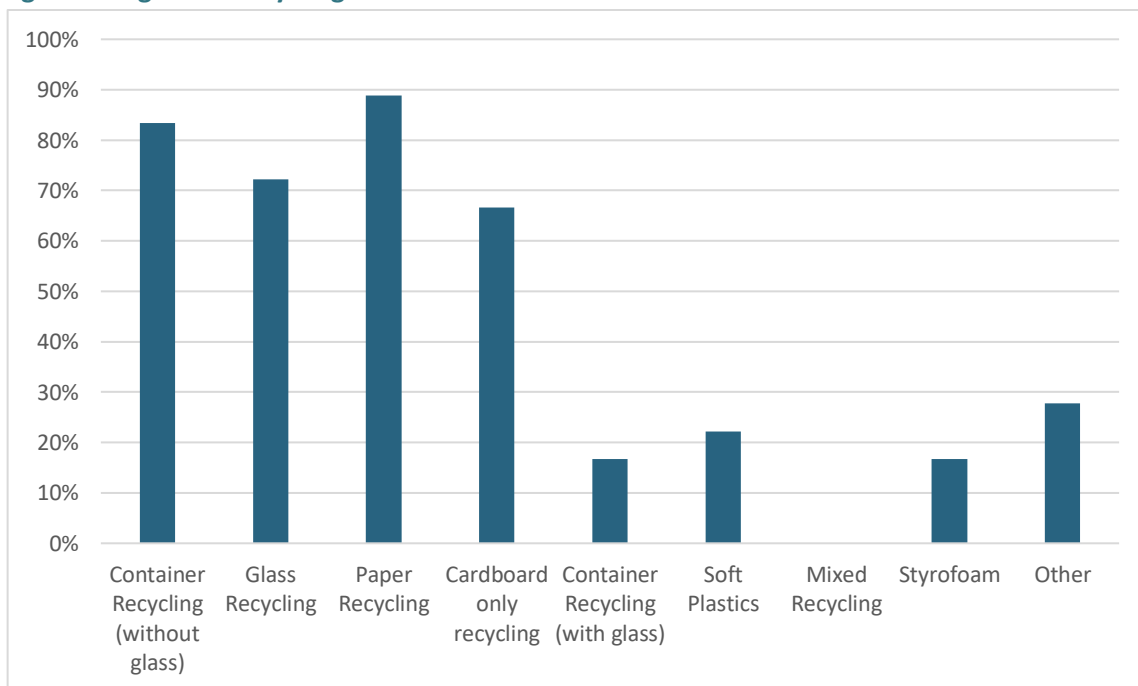
## 4.1

### Recycling Streams Available

**Figure 5, Figure 6, and Figure 7** present the types of recycling streams available in high rise, low rise, and townhouse buildings, respectively.

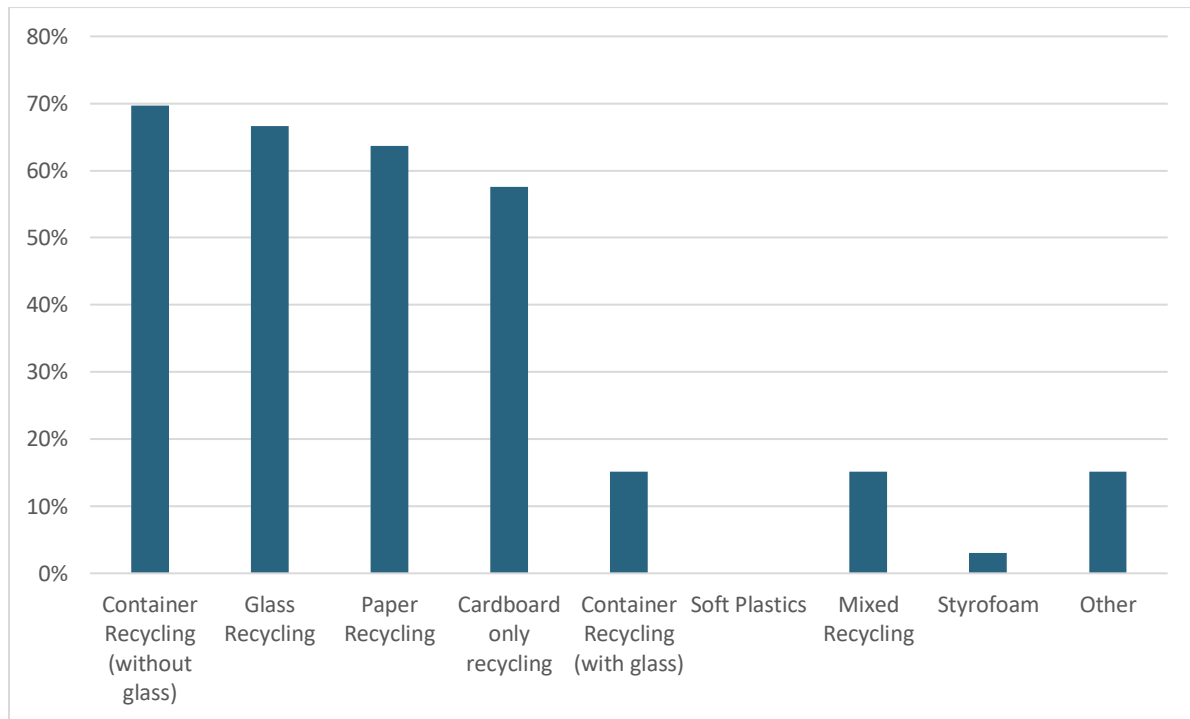
Paper was the most widely available recycling stream in high rise buildings as they were present in 89% of high rises followed by container recycling (without glass) (83%), and glass recycling (73%). High rise buildings are also the building type with most Styrofoam recycling (17%) compared to over building types; the only other type of building they were present in were low rise buildings (3%).

**Figure 5: High Rise Recycling Streams**



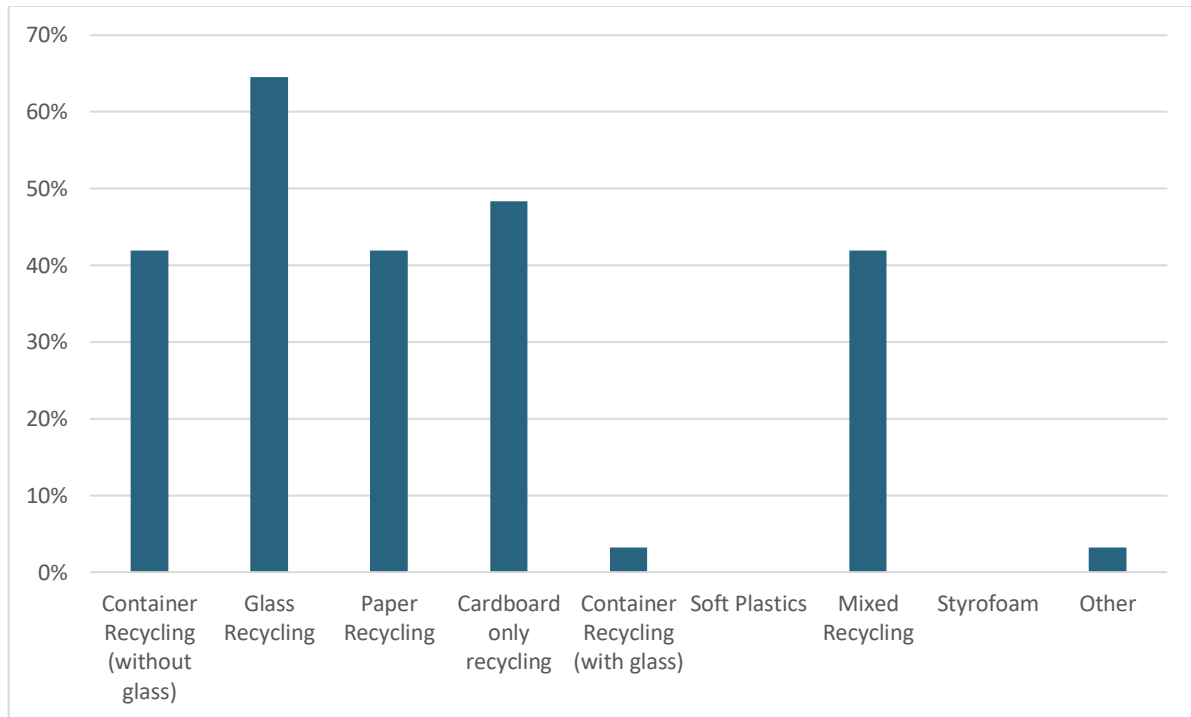
Container recycling (without glass) were the most prevalent recycling stream, present in 70% of low rise buildings, followed by glass recycling (67%), and paper recycling (64%). Only 3% of low rise buildings collected soft plastic recycling and no Styrofoam recycling was available. Mixed recycling was documented in five buildings and three of which had additional bins to collect cardboard and glass.

**Figure 6: Low Rise Recycling Streams**



Glass recycling is most prominent recycling stream in townhouses (65%) followed by cardboard only recycling (48%) and container and mixed recycling (both 42%). Soft plastic and Styrofoam recycling was not available at the townhouses sampled.

**Figure 7: Townhouse Recycling Streams**

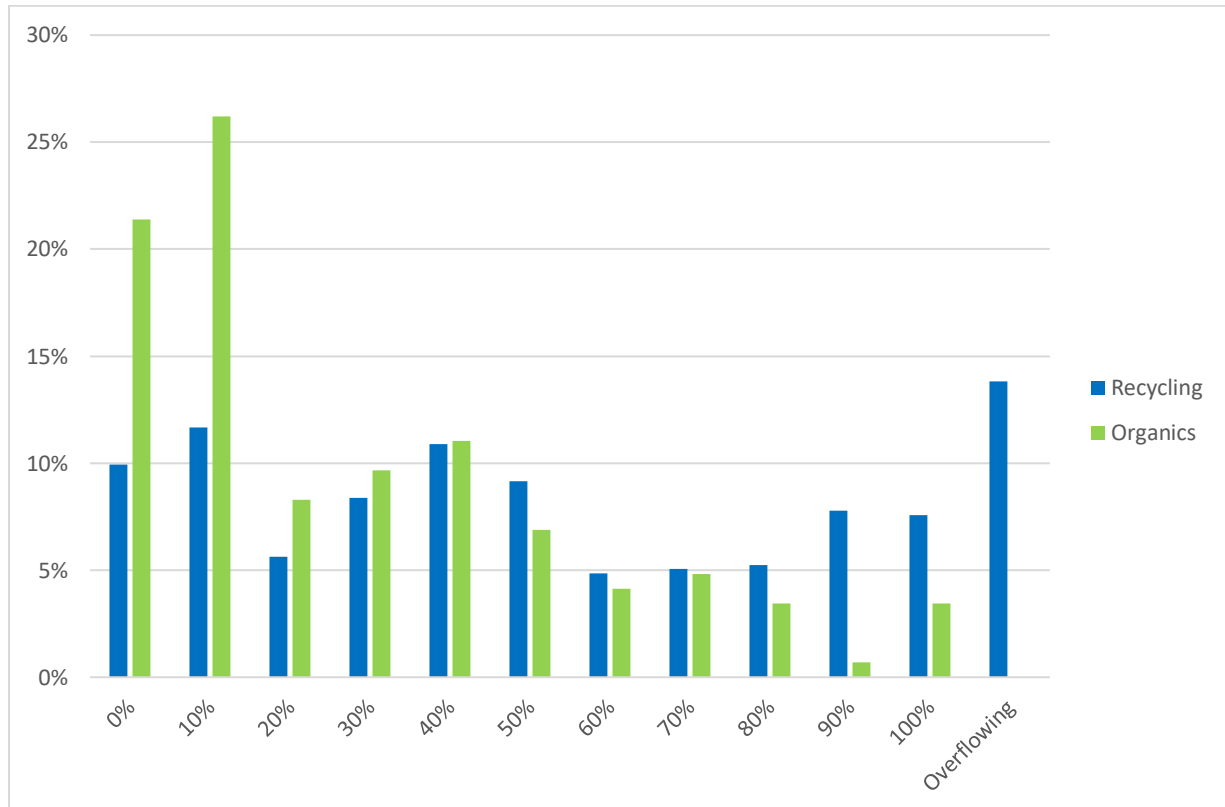


## 4.2

## Bin Fullness – Recycling and Organics Bins

**Figure 8** presented below represents the fullness of each recycling and organics bin. For recyclables, 14% of bins were overflowing followed by 12% of bins being 10% full and 10% of bins being empty. For organics, 26% of bins were 10% full followed by 21% of bins being empty. This could be interpreted as organics bins are less utilized by recycling bins. However, any interpretations must also factor in previously mentioned factors for error such as incorrectly reported waste collection dates.

**Figure 8: Bin Fullness – Recycling and Organics**



### 4.3 Waste Management Best Practices

Waste management best practices encourage proper waste disposal by maximizing convenience, safety, and user experience. Some of these include:

#### **Location and accessibility**

- Locate the waste collection area centrally; have one area where garbage, recycling, and organics can all be disposed;
- Locate the waste collection area at a convenient location for all building residents and is on their regular route to other building amenities such as the parking garage;
- Ensure the waste collection area is accessible and can accommodate wheelchairs and other mobility aids; and
- Ensure lids on bins are easy to open and all bins are easily accessible (no need to move bins around to reach other bins).

#### **Signage and education**

- Post permanent signage on the wall that is in line of sight, clear, and color coded for each bin; and
- Provide education on what to do with bulky items if it is not accepted at the building.

#### **Sanitation and safety**

- Ensure waste area and bins are clean and well maintained to minimize pests, and odours, so residents are willing to spend time to properly dispose of waste;
- Ensure the waste area is well lit; and
- Ensure the waste area restricts access to only authorized personnel (residents and maintenance staff) to prevent unlawful entry.

## 5.0

## Limitation and Sources of Error

Limitations and potential sources of error for the study include:

- Weights measured by the electronic scale can be inaccurate. These inaccuracies could be the result of operator errors during weighing (e.g., by not placing the scale on a level-surface or neglecting to keep the scale tared) or due to wear-and-tear on the scale. This was controlled by having field staff monitor and maintain proper scale use, and retaining spare scales;
- Sample weights may change after being weighed in due to small materials being lost during sorting or transportation, and by changing moisture content from excessive rain or sunshine;
- Discrepancies between the weigh-in mass of the sample and the weigh-out mass, calculated by summing the net weights for each sorted item category can occur. This type of discrepancy may be the result of errors in recording the field data, either during weigh-in or when sorted categories are weighed. Such errors were monitored for by quality assurance/quality check (QA/QC) procedures for error checking during data collection, as a result the errors were minor;
- Loose un-bagged material and larger bulky or otherwise oddly shaped items may not have been effectively retrievable by field staff for sample collection; these items were noted if detected;
- Sorting accuracy was limited in certain cases due to notable health and safety hazards to field staff as a result of the waste contents or how the contents were contained;
- Personal wipes, sorted from samples as a PPE category, in certain cases may not be distinguishable from other tissues and sanitary wipes and therefore may not have been accurately weighed or counted; and
- Irregularities in the collection days for cardboard and glass recycling streams may produce some uncertainty in data collection and analysis.



## 6.0

## Closure and Professional Statement

This report was prepared exclusively for the purposes, project and location outlined in this report. The report is based on the composition of the inbound material over a specific period of time as indicated in the report. Although a reasonable analysis was conducted by Dillon, Dillon's analysis was by no means exhaustive. Rather, Dillon's report represents a reasonable review of the audit results as a "snapshot" in time. These results only reflect the conditions of the period of time in which they were collected. The audit results for the assessments that took place July to August 2023 are those reflected in this report.

Dillon prepared this report for the sole benefit of the Metro Vancouver. The material in the report reflects Dillon's best judgement in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decision based on it, are the responsibilities of such third parties.

## Appendix A

### *Participant Phone Survey Questions*

No.	Question	Possible Answer
1	What type of complex is it?	Apartment building, townhouse, multiple buildings
2	If Townhouse - do you have shared waste containers?	Y/N or N/A
3	When is your garbage day(s)?	Days of the week
4	When is your recycling day(s)?	Days of the week
5	When is your organics day(s)?	Days of the week
6	Do you have a compactor? If so who is your hauler?	Y/N, hauler
7	Are your waste Containers locked or in a locked area?	Y/N
8	Do you share your garbage containers with any businesses?	Y/N
9	How many storeys are in your property?	Number
10	How many units are in your property?	Number
11	How many residents currently live on the property?	Number
12	Is the property a condo building, a rental building, or does it have a combination of owned and rented units?	Condos, rental, mixed, Coop
13	How many units are rented?	Number
14	How many units have in-sink disposal?	Number
15	Does the property have a garbage chute?	Y/N
16	How are the bulky items disposed?	Open-ended
17	Have residents been provided with resources to assist them in their recycling efforts?	Y/N

## Appendix B

### *Sampling Site Assessment Form*

Metro Vancouver

*2023 Multi-Family Residential Waste Composition  
Study*

June 2024 – 21-2946



# Updated B3 Site Assessment Form

\* Indicates required question

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1. Person Completing the Survey \*

Mark only one oval.

☐ Hasnah

☐ Andy

☐ Danielle

☐ Other: \_\_\_\_\_

2. Sample Number \*

\_\_\_\_\_

3. Site Address \*

\_\_\_\_\_

4. Date of Collection \*

\_\_\_\_\_  
*Example: January 7, 2019*

5. Time of Collection \*

\_\_\_\_\_  
*Example: 8:30 AM*

Garbage Collection

6. How many garbage areas are there \*

*Mark only one oval.*

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ Other: \_\_\_\_\_

7. Is there a compactor? \*

*Mark only one oval.*

☐ Yes, there is a compactor on site

☐ No, there is not a compactor on site

## 8. Garbage Container Size

*Check all that apply.*

	240 L Cart	360 L Cart	1- yard bin	2- yard bin	3 - yard bin	4- yard bin	5 - yard bin	6- yard bin	7- yard bin
<b>Bin 1</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 3</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 4</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 5</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 6</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 7</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 8</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 9</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 10</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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▶

## 9. Bin Fullness

*Check all that apply.*

	0%	10%	20%	30%	40%	50%	60%	70%	80%
<b>Bin 1</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 3</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 4</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 5</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 6</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 7</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 8</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 9</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 10</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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## 10. Photo of Garbage \*

Files submitted:

## 11. Additional Notes on Garbage

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Organics Collection



12. How many organics areas are there \*

*Mark only one oval.*

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ Other: \_\_\_\_\_

13. Is there a compactor? \*

*Mark only one oval.*

☐ Yes, there is a compactor on site

☐ No, there is not a compactor on site

## 14. Organics Container Size

*Check all that apply.*

	240 L Cart	360 L Cart	1- yard bin	2- yard bin	3 - yard bin	4- yard bin	5 - yard bin	6- yard bin	7- yard bin
<b>Bin 1</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 3</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 4</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 5</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 6</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 7</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 8</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 9</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 10</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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▶

## 15. Organics Bin Fullness

*Check all that apply.*

	0%	10%	20%	30%	40%	50%	60%	70%	80%
<b>Bin 1</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 3</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 4</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 5</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 6</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 7</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 8</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 9</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 10</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## 16. Photo of Organics \*

Files submitted:

## 17. Additional Notes on Organics

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Recycling Collection

18. How many recycling areas are there? \*

*Mark only one oval.*

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ Other: \_\_\_\_\_

19. Is there a compactor? \*

*Mark only one oval.*

☐ Yes, there is a compactor on site

☐ No, there is not a compactor on site

## 20. Recycling Container Type

*Check all that apply.*

	Paper Recycling	Container Recycling (with glass)	Container Recycling (without glass)	Glass Recycling	Mixed Recycling	Cardboard Only Recycling	Soft Plastic Recycling	S F
<b>Bin 1</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Bin 2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Bin 3</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Bin 4</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Bin 5</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Bin 6</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Bin 7</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Bin 8</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Bin 9</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Bin 10</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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## 21. Recycling Container Size

*Check all that apply.*


	240 L Cart	360 L Cart	1- yard bin	2- yard bin	3 - yard bin	4- yard bin	5 - yard bin	6- yard bin	7- yard bin
<b>Bin 1</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 3</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 4</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 5</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 6</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 7</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 8</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 9</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 10</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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## 22. Recycling Bin Fullness

*Check all that apply.*

	0%	10%	20%	30%	40%	50%	60%	70%	80%
<b>Bin 1</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 3</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 4</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 5</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 6</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 7</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 8</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 9</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Bin 10</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## 23. Photo of Recycling \*

Files submitted:

## 24. Additional Notes on Recycling

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## Appendix C

### *Category Descriptions - Garbage*

Primary	Secondary	Category Number	Tertiary	Functional Group	Count?
Paper	Fine, Office, Envelopes	01	Junk Mail, Flyers, Unaddressed Mail	Recyclable	
Paper	Fine, Office, Envelopes	02	Other Fine Office Paper or Envelopes	Recyclable	
Paper	Newsprint	03	Newsprint	Recyclable	
Paper	OCC	04	Clean Recyclable OCC	Recyclable	
Paper	OCC	05	Waxed OCC	Limited Recycling Options	
Paper	OCC	06	Other Soiled OCC	Green Bin	
Paper	Boxboard	07	Cereal Boxes and Other Box Packaging	Recyclable	
Paper	Bound Paper Products	08	Telephone Books	Recyclable	
Paper	Bound Paper Products	09	Magazines	Recyclable	
Paper	Bound Paper Products	10	Books	Recyclable	
Paper	Beverage Containers – Gabletop/Drink Box/Aseptic	11	Dairy or Dairy Substitute	Recyclable	
Paper	Beverage Containers – Gabletop/Drink Box/Aseptic	12	Non-Dairy/Deposit	Recyclable	
Paper	Other Paper	13	Plastic-Lined Paper Hot Cups	SUI	Y
Paper	Other Paper	14	Plastic-Lined Paper Cold Cups	SUI	Y
Paper	Other Paper	15	Plastic-Lined Paper Cups Labeled Compostable	SUI	Y
Paper	Other Paper	16	Paper Straws	SUI	Y
Paper	Other Paper	17	Unlined Paper Takeout Containers	SUI	Y
Paper	Other Paper	18	Plastic-Lined Paper Takeout Containers	SUI	Y
Paper	Other Paper	19	Plastic-Lined Paper Takeout Containers	SUI	Y
Paper	Other Paper	20	Paper bags	SUI	Y
Paper	Other Paper	21	Paper Party Décor	Recyclable	
Paper	Other Paper	22	Other Recyclable Paper	Recyclable	
Paper	Other Paper	23	Other Compostable Paper	Green Bin	

Primary	Secondary	Category Number	Tertiary	Functional Group	Count?
Paper	Other Paper	24	Non-compostable, Non-recyclable Paper	Limited Recycling Options	
Plastic	Film	25	Re-Used Plastic Bags	SUI	Y
Plastic	Film	26	Empty Plastic Bags	SUI	Y
Plastic	Film	27	HDPE & LDPE Consumables Packaging Bags and Film	Recyclable	
Plastic	Film	28	OFPP	Limited Recycling Options	
Plastic	Film	29	Garbage & Recycling Bags	Limited Recycling Options	
Plastic	Film	30	Freezer & Sandwich Bags	Limited Recycling Options	
Plastic	Film	31	Deposit Beverage Pouches	Recyclable	
Plastic	Film	32	Other Plastic Film		
Plastic	Textiles (Synthetic)	33	Clothing and accessories	Textiles	
Plastic	Textiles (Synthetic)	34	Household	Textiles	
Plastic	Textiles (Synthetic)	35	Reusable bags (Washable)	Textiles	Y**
Plastic	Textiles (Synthetic)	36	Reusable bags (Non-washable)	Textiles	Y**
Plastic	Textiles (Synthetic)	37	Other	Textiles	
Plastic	Rigid Beverage Containers	38	Dairy or Dairy Substitute	Recyclable	
Plastic	Rigid Beverage Containers	39	Deposit Containers – Water	Recyclable	
Plastic	Rigid Beverage Containers	40	Deposit Containers – Other	Recyclable	
Plastic	Rigid Beverage Containers	41	Rigid Plastic Cups	SUI	Y
Plastic	Rigid Beverage Containers	42	Other	Recyclable	
Plastic	Rigid (non-beverage)	43	# 1 PETE – Bottles and Jars	Recyclable	
Plastic	Rigid (non-beverage)	44	#1 PETE – Other Packaging	Recyclable	
Plastic	Rigid (non-beverage)	45	#2 HDPE – Bottles and Jugs	Recyclable	
Plastic	Rigid (non-beverage)	46	#2 HDPE – Tubs and Lids	Recyclable	
Plastic	Rigid (non-beverage)	47	#3 PVC	Recyclable	
Plastic	Rigid (non-beverage)	48	#4 LDPE	Recyclable	
Plastic	Rigid (non-beverage)	49	#5 PP	Recyclable	

Primary	Secondary	Category Number	Tertiary	Functional Group	Count?
Plastic	Rigid (non-beverage)	50	#6 PS – Non-Foam	Recyclable	
Plastic	Rigid (non-beverage)	51	#6 PS – Packing Foam	Recyclable	
Plastic	Rigid (non-beverage)	52	Foam Cups	SUI	Y
Plastic	Rigid (non-beverage)	53	Foam Takeout Containers	SUI	Y
Plastic	Rigid (non-beverage)	54	#6 PS – Foam foodware	Recyclable	
Plastic	Rigid (non-beverage)	55	#6 PS – Other PS Foam	Recyclable	
Plastic	Rigid (non-beverage)	56	Other Foam	Limited Recycling Options	
Plastic	Rigid (non-beverage)	57	#7 Mixed Resin Plastic	Recyclable	
Plastic	Rigid (non-beverage)	58	Uncoded Packaging/Containers	Recyclable	
Plastic	Rigid (non-beverage)	59	Rigid Plastic takeout Containers	SUI	Y
Plastic	Rigid (non-beverage)	60	Non-durable plastic food containers		
Plastic	Other	61	Durable Plastic Products	Limited Recycling Options	
Plastic	Other	62	Plastic Straws	SUI	Y
Plastic	Other	63	Plastic Utensils	SUI	Y
Plastic	Other	64	Coffee Pods	Limited Recycling Options	
Plastic	Other	65	Other/Mixed Plastics	Limited Recycling Options	
Compostable Plastic	Foodware	66	Rigid Plastic Cups Labeled Compostable	SUI	Y
Compostable Plastic	Foodware	67	"Plastic Takeout Containers Labeled Compostable"	SUI	Y
Compostable Plastic	Foodware	68	Other Foodware Labeled Compostable	SUI	Y
Compostable Plastic	Film	69	Plastic Bags Labeled Compostable	SUI	Y
Compostable Plastic	Film	70	Bags and Liners	Limited Recycling Options	

Primary	Secondary	Category Number	Tertiary	Functional Group	Count?
Compostable Plastic	Other Compostable Products and Packaging	71	Packaging , Bottles	Limited Recycling Options	
Compostable Organics	Yard & Garden	72	Small Yard Waste	Green Bin	
Compostable Organics		73	Large Yard Waste	Green Bin	
Compostable Organics	Food Waste - Unavoidable	74	Unavoidable Food Waste	Green Bin	
Compostable Organics	Food Waste - Avoidable	75	Plate Scrapings, Unfinished Meals	Green Bin	
Compostable Organics	Food Waste – Avoidable	76	Whole Fruits and Vegetables	Green Bin	
Compostable Organics	Food Waste – Avoidable	77	Whole Meats, Fish	Green Bin	
Compostable Organics	Food Waste – Avoidable	78	Full/Unused Ready-Made	Green Bin	
Compostable Organics	Food Waste – Avoidable	79	Baked Goods	Green Bin	
Compostable Organics	Food Waste – Avoidable	80	Dairy	Green Bin	
Compostable Organics	Food Waste – Avoidable	81	Liquids (drinks, oil in package)	Green Bin	
Compostable Organics	Food Waste – Avoidable	82	Candy and snacks	Green Bin	
Compostable Organics	Food Waste – Avoidable	83	Condiments and sauces	Green Bin	
Compostable Organics	Food Waste – Avoidable	84	Pet food	Green Bin	

Primary	Secondary	Category Number	Tertiary	Functional Group	Count?
Compostable Organics	Clean Wood	85	Wood Pallets	C&D	
Compostable Organics	Clean Wood	86	Unfinished Wood Furniture	C&D	Y
Compostable Organics	Clean Wood	87	Wood Utensils	SUI	
Compostable Organics	Clean Wood	88	Other Wood	C&D	
Compostable Organics	Other Compostable Organics	89	Manure, Slaughterhouse, Animals		
Non-compostable organics	Treated or Painted Wood	90	Pressure Treated Wood	C&D	
Non-compostable organics	Treated or Painted Wood	91	Finished Wood	C&D	
Non-compostable organics	Treated or Painted Wood	92	Finished Wood Furniture	C&D	
Non-compostable organics	Textiles	93	Natural Fiber Clothing	Textiles	
Non-compostable organics	Textiles	94	Household	Textiles	Y
Non-compostable organics	Textiles	95	Reusable bags	Textiles	

Primary	Secondary	Category Number	Tertiary	Functional Group	Count?
Non-compostable organics	Textiles	96	Other	Textiles	
Non-compostable organics	Rubber	97	Tires	Recyclable	
Non-compostable organics	Rubber	98	Other Rubber	Recyclable	
Non-compostable organics	Leather / Multiple/Composite Organic Materials	99	Leather	Limited Recycling Options	
Non-compostable organics	Other	100	Composite Organic Materials (shoes)	Textiles	
Non-compostable organics	Other	101	Other	Textiles	
Metals	Ferrous	102	Food Containers	Recyclable	
Metals	Ferrous	103	Spiral-Wound Containers	Recyclable	
Metals	Ferrous	104	Other Ferrous	Recyclable	
Metals	Bimetallic	105	Food Containers	Recyclable	
Metals	Non-Ferrous (copper, aluminum, brass)	106	Alcoholic	Recyclable	
Metals	Non-Ferrous (copper, aluminum, brass)	107	Non-Alcoholic	Recyclable	
Metals	Non-Ferrous (copper, aluminum, brass)	108	Food Containers	Recyclable	
Metals	Non-Ferrous (copper, aluminum, brass)	109	Foil Trays, Wrap	Recyclable	

Primary	Secondary	Category Number	Tertiary	Functional Group	Count?
Metals	Non-Ferrous (copper, aluminum, brass)	110	Other Non-Ferrous	Recyclable	
Metals	Non-Consumable Mixed Metals	111	Household	Recyclable	
Metals	Non-Consumable Mixed Metals	112	Machine Parts	Recyclable	
Metals	Non-Consumable Mixed Metals	113	Construction/Industrial	Recyclable	
Glass	Beverage Containers	114	Beer	Recyclable	
Glass	Beverage Containers	115	Other Alcohol	Recyclable	
Glass	Beverage Containers	116	Non-Alcoholic & Non-Dairy	Recyclable	
Glass	Beverage Containers	117	Dairy or Dairy Substitute	Recyclable	
Glass	Food Containers	118	Food Containers	Recyclable	
Glass	Other Glass and Ceramics	119	Other Glass and Ceramics	Limited Recycling Options	
Glass	Other Glass and Ceramics	120	Light bulbs (Non-hazardous)	Recyclable	
Building Material	Gypsum / Drywall	121	Gypsum/Drywall	C&D	
Building Material	Masonry	122	Masonry	C&D	
Building Material	Rock, Sand, Dirt	123	Rock, Sand, Dirt	C&D	
Building Material	Rigid Asphalt	124	Rigid Asphalt	C&D	
Building Material	Carpet Waste	125	Carpet	C&D	
Building Material	Carpet Waste	126	Underlay	C&D	



Primary	Secondary	Category Number	Tertiary	Functional Group	Count?
Building Material	Other Inorganics	127	Other Inorganics	C&D	
Electronic Waste	Computers and Peripherals	128	Desktop Computers	Recyclable	
Electronic Waste	Computers and Peripherals	129	Notebook Computers	Recyclable	
Electronic Waste	Computers and Peripherals	130	Computer Peripherals	Recyclable	
Electronic Waste	Computers and Peripherals	131	Computer Monitors	Recyclable	
Electronic Waste	Computers and Peripherals	132	Printers, Scanners	Recyclable	
Electronic Waste	Televisions & AV Equipment	133	Televisions	Recyclable	
Electronic Waste	Televisions & AV Equipment	134	Other Audio/Video	Recyclable	
Electronic Waste	Telephones & Telecommunications Equipment	135	Mobile Phones & Accessories	Recyclable	
Electronic Waste	Telephones & Telecommunications Equipment	136	Other	Recyclable	
Electronic Waste	Small Appliances & Floor Care Appliances	137	Small Appliances & Floor Care Appliances	Recyclable	
Electronic Waste	Electronic Toys	138	Electronic Toys	Recyclable	
Electronic Waste	Smoke Detectors	139	Smoke Detectors	Recyclable	
Electronic Waste	Other Electronics	140	Other Electronics	Recyclable	

Primary	Secondary	Category Number	Tertiary	Functional Group	Count?
Household Hazardous	Batteries	141	Lead Acid	Recyclable	
Household Hazardous	Batteries	142	Household Batteries (Non Lithium-Ion)	Recyclable	
Household Hazardous	Batteries	143	Lithium Ion Batteries	Recyclable	
Household Hazardous	Medical/Biological	144	Sharps		
Household Hazardous	Medical/Biological	145	Animal Carcass		
Household Hazardous	Medical/Biological	146	Other		
Household Hazardous	HHW	147	Stains/Preservatives	Recyclable	
Household Hazardous	HHW	148	Latex Paint	Recyclable	
Household Hazardous	HHW	149	Oil-Based Paint	Recyclable	
Household Hazardous	HHW	150	Paint Aerosols	Recyclable	
Household Hazardous	HHW	151	Solvents	Recyclable	
Household Hazardous	HHW	152	Cleaners, Soaps etc.	Recyclable	
Household Hazardous	HHW	153	Pesticides/Herbicides/Preservatives	Recyclable	
Household Hazardous	HHW	154	Motor Oil	Recyclable	

Primary	Secondary	Category Number	Tertiary	Functional Group	Count?
Household Hazardous	HHW	155	Oil Filters	Recyclable	
Household Hazardous	HHW	156	Antifreeze	Recyclable	
Household Hazardous	HHW	157	Pharmaceuticals	Recyclable	
Household Hazardous	HHW	158	Other Petroleum Based Products	Recyclable	
Household Hazardous	HHW	159	Other	Recyclable	
Household Hazardous	Mercury Containing Items	160	Thermostats and Switches	Recyclable	
Household Hazardous	Mercury Containing Items	161	CFLs	Recyclable	
Household Hazardous	Other HHW	162	Other HHW or Containers		
Household Hazardous	Biological	163	Diapers	Limited Recycling Options	
Household Hygiene	Biological	164	Pet Waste	Limited Recycling Options	
Household Hygiene	Biological	165	Other (sanitary products, condoms)	Limited Recycling Options	
Household Hygiene	Public Health	166	Masks	PPE	Y
Household Hygiene	Public Health	167	Gloves	PPE	Y
Household Hygiene	Public Health	168	Wipes	PPE	Y

Primary	Secondary	Category Number	Tertiary	Functional Group	Count?
Household Hygiene	Liquid Product	169	Personal Care	Limited Recycling Options	
Bulky Objects	White Goods	170	Large Appliances	Recyclable	
Bulky Objects	Furniture	171	Mattresses, Box Springs	Recyclable	
Bulky Objects	Furniture	172	Other Upholstered Furniture		
Bulky Objects	Furniture	173	Other Furniture		
Fines	Fines	174	Fines	Limited Recycling Options	

## Appendix D

### *Example Participant Feedback Form*

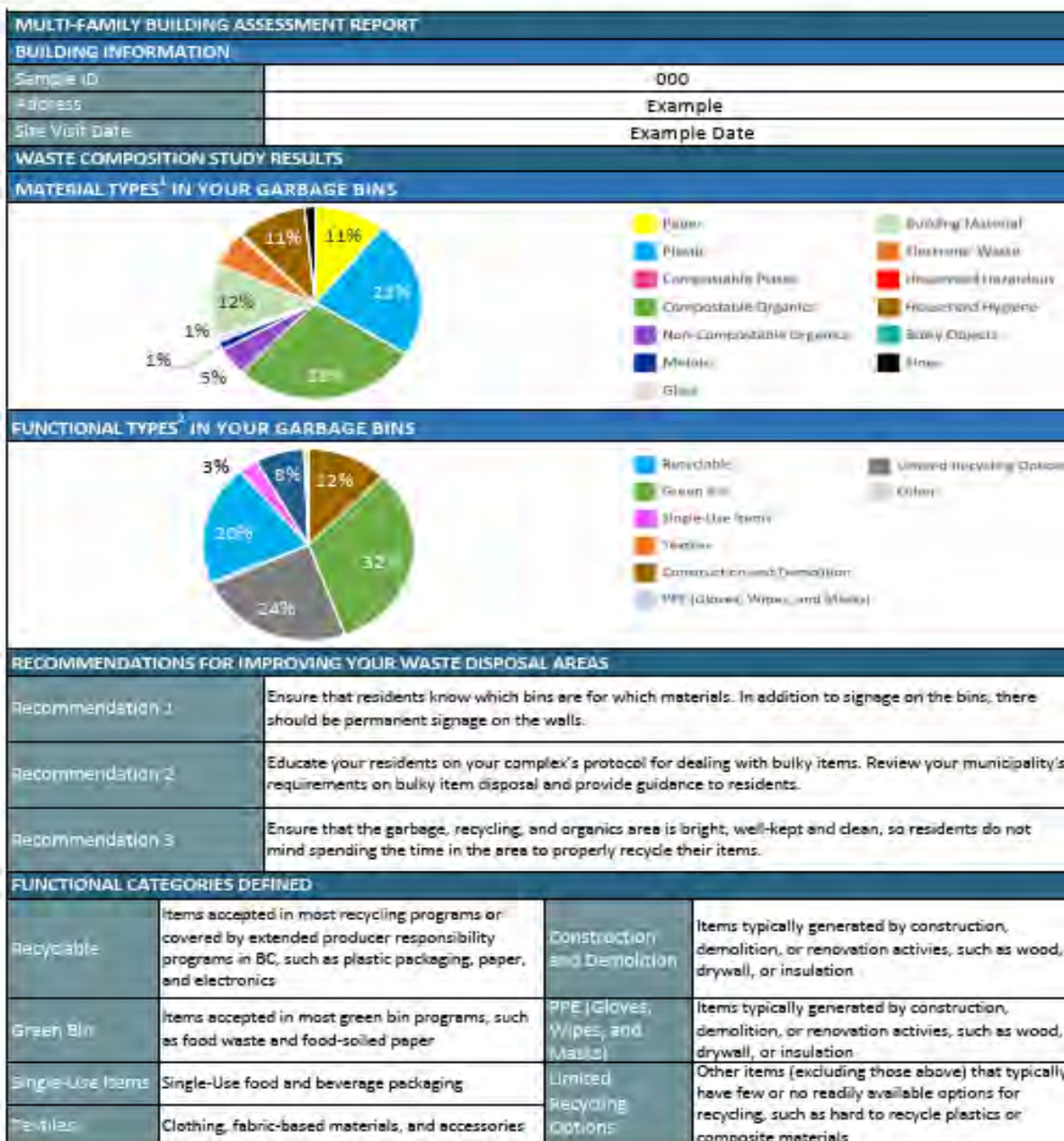
**Metro Vancouver**

**2023 Multi-Family Residential Waste Composition  
Study**

June 2024 – 21-2946



### Metro Vancouver 2023 Multi-Family Waste Composition Study



<sup>1</sup> Functional Types are a representation of how materials are typically managed (e.g., disposed, recycled, composted, etc.).

<sup>2</sup> Material Types are a representation of what the contents of your bin are made of (e.g., paper, plastic, etc.). Labels are only shown for categories that comprise more than 3% of all materials.

Find places to donate or recycle just about anything. Visit [www.metrovancouverrecycles.org](http://www.metrovancouverrecycles.org)

## Appendix E

### *Garbage Results – Percent Composition by Weight for All Categories*

Garbage Category	Building Type			Ownership Type				Sum of Annually Disposed/building for category
	High-rise	Low-rise	Townhouse	CO-OP	Mixed	Condominium	Rental	
<b>Paper</b>	<b>17%</b>	<b>15%</b>	<b>14%</b>	<b>12%</b>	<b>16%</b>	<b>12%</b>	<b>15%</b>	<b>15%</b>
001 - Junk Mail, Flyers, Unaddressed Mail	0%	0%	0%	0%	0%	0%	0%	0%
002 - Other Fine Office Paper or Envelopes	1%	1%	1%	0%	1%	1%	1%	1%
003 - Newsprint	0%	1%	0%	0%	0%	0%	0%	0%
004 - Clean Recyclable OCC	1%	1%	2%	0%	1%	0%	1%	1%
005 - Waxed OCC	0%	0%	0%	0%	0%	0%	0%	0%
006 - Other Soiled OCC	0%	0%	0%	0%	0%	0%	0%	0%
007 - Cereal Boxes and Other Box Packaging	2%	2%	2%	3%	2%	1%	2%	2%
008 - Telephone Books	0%	0%	0%	0%	0%	0%	0%	0%
009 - Magazines	0%	0%	0%	0%	0%	0%	0%	0%
010 - Books	0%	0%	0%	0%	0%	0%	0%	0%
011 - Dairy or Dairy Substitute	0%	0%	0%	0%	0%	0%	0%	0%
012 - Non-Dairy/Deposit	0%	0%	0%	0%	0%	0%	0%	0%
013 - Plastic-Lined Paper Hot Cups	0%	0%	0%	0%	0%	0%	0%	0%
014 - Plastic-Lined Paper Cold Cups	0%	0%	0%	0%	0%	0%	0%	0%
015 - Plastic-Lined Paper Cups Labeled Compostable	0%	0%	0%	0%	0%	0%	0%	0%
016 - Paper Straws	0%	0%	0%	0%	0%	0%	0%	0%
017 - Unlined Paper Takeout Containers	0%	0%	0%	0%	0%	0%	0%	0%
018 - Plastic-Lined Paper Takeout Containers	0%	0%	0%	1%	0%	0%	0%	0%
019 - Plastic-Lined Paper Takeout Containers	0%	0%	0%	0%	0%	0%	0%	0%
020 - Paper bags	1%	1%	1%	1%	1%	1%	1%	1%
021 - Paper Party Décor	0%	0%	0%	0%	0%	0%	0%	0%
022 - Other Recyclable Paper	3%	1%	0%	0%	0%	0%	2%	1%
023 - Other Compostable Paper	6%	6%	5%	4%	8%	7%	5%	6%
024 - Non-compostable, non-recyclable paper	1%	1%	1%	1%	1%	1%	1%	1%
<b>Plastic</b>	<b>20%</b>	<b>18%</b>	<b>13%</b>	<b>20%</b>	<b>19%</b>	<b>18%</b>	<b>16%</b>	<b>17%</b>
025 - Re-Used HDPE & LDPE Plastic Bags	0%	0%	0%	0%	0%	0%	0%	0%



Garbage Category	Building Type			Ownership Type				Sum of Annually Disposed/building for category
	High-rise	Low-rise	Townhouse	CO-OP	Mixed	Condominium	Rental	
026 - Empty HDPE & LDPE Plastic Bags	0%	0%	0%	0%	0%	0%	0%	0%
027 - HDPE & LDPE Consumables Packaging Bags and Film	1%	1%	1%	4%	1%	2%	1%	1%
028 - Other Flexible Plastic Packaging (Multi-Layered and Other Flexible Resin)	3%	3%	2%	1%	4%	3%	5%	2%
029 - Garbage & Recycling Bags	1%	1%	1%	1%	1%	1%	1%	1%
030 - Freezer and Sandwich Bags	0%	0%	0%	0%	0%	0%	0%	0%
031 - Deposit Beverage Pouches	0%	0%	0%	0%	0%	0%	0%	0%
032 - Other Plastic Film	1%	0%	0%	1%	1%	1%	0%	0%
033 - Clothing and accessories	2%	2%	1%	0%	1%	1%	0%	2%
034 - Household	2%	1%	1%	0%	0%	1%	1%	1%
035 - Reusable bags (washable)	0%	0%	0%	0%	0%	0%	0%	0%
036 - Reusable bags (non-washable)	0%	0%	0%	0%	0%	0%	0%	0%
037 - Other	0%	1%	0%	0%	1%	0%	0%	1%
038 - Deposit Containers - Dairy or Dairy Substitute	0%	0%	0%	0%	0%	0%	0%	0%
039 - Deposit Containers – Water	0%	0%	0%	0%	0%	0%	0%	0%
040 - Deposit Containers – Other	0%	0%	0%	0%	1%	0%	0%	0%
041 - Rigid Plastic Cups	0%	0%	0%	0%	0%	0%	0%	0%
042 - Other	0%	0%	0%	0%	0%	0%	0%	0%
043 - # 1 PETE – Bottles and Jars	0%	0%	0%	0%	0%	0%	0%	0%
044 - #1 PETE – Other Packaging	1%	1%	1%	0%	0%	1%	1%	1%
045 - #2 HDPE – Bottles and Jugs	0%	1%	0%	0%	1%	0%	0%	0%
046 - #2 HDPE – Tubs and Lids	0%	0%	0%	0%	0%	0%	0%	0%
047 - #3 PVC	0%	0%	0%	0%	0%	0%	0%	0%
048 - #4 LDPE	0%	0%	0%	1%	0%	0%	0%	0%
049 - #5 PP	0%	0%	0%	0%	0%	0%	0%	0%
050 - #6 PS – Non-Foam	0%	0%	0%	0%	0%	0%	0%	0%
051 - #6 PS – Packing Foam	0%	0%	0%	0%	0%	0%	1%	0%
052 - Foam Cups	0%	0%	0%	0%	0%	0%	0%	0%
053 - Foam Takeout Containers	0%	0%	0%	0%	0%	0%	0%	0%
054 - #6 PS – Foam foodware	0%	0%	0%	0%	0%	0%	0%	0%
055 - #6 PS – Other PS Foam	0%	0%	0%	0%	0%	0%	2%	0%

Garbage Category	Building Type			Ownership Type				Sum of Annually Disposed/building for category
	High-rise	Low-rise	Townhouse	CO-OP	Mixed	Condominium	Rental	
056 - Other Foam	0%	0%	0%	0%	0%	0%	0%	0%
057 - #7 Mixed Resin Plastic	0%	0%	0%	1%	0%	0%	0%	0%
058 - Uncoded Packaging/Containers	0%	0%	0%	0%	1%	0%	0%	0%
059 - Rigid Plastic takeout Containers	1%	0%	0%	0%	0%	1%	0%	0%
060 - Non-durable Plastic Food Containers	0%	0%	0%	1%	0%	0%	0%	0%
061 - Durable Plastic Products	5%	3%	2%	0%	2%	4%	2%	3%
062 - Plastic Straws	0%	0%	0%	0%	0%	0%	0%	0%
063 - Plastic Utensils	0%	0%	0%	1%	0%	0%	0%	0%
064 - Coffee Pods	0%	0%	0%	0%	0%	1%	0%	0%
065 - Other/Mixed Plastics	0%	0%	0%	4%	0%	0%	0%	0%
<b>Compostable Plastic</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>
066 - Rigid Plastic Cups Labeled Compostable	0%	0%	0%	0%	0%	0%	0%	0%
067 - Plastic Takeout Containers Labeled Compostable"	0%	0%	0%	0%	0%	0%	0%	0%
068 - Other Foodware Labeled Compostable	0%	0%	0%	0%	0%	0%	0%	0%
069 - #7 Bio Flexible - Plastic Bags Labeled Compostable	0%	0%	0%	0%	0%	0%	0%	0%
070 - #7 Bio Flexible - Bags and Liners	0%	0%	0%	0%	0%	0%	0%	0%
<b>Compostable Organics</b>	<b>33%</b>	<b>32%</b>	<b>32%</b>	<b>26%</b>	<b>35%</b>	<b>37%</b>	<b>32%</b>	<b>32%</b>
072 - Small Yard Waste	1%	1%	1%	1%	1%	0%	0%	1%
073 - Large Yard Waste	0%	0%	0%	0%	0%	0%	0%	0%
074 - Unavoidable Food Waste	20%	18%	17%	13%	21%	21%	17%	18%
075 - Plate Scrapings, Unfinished Meals	2%	3%	2%	0%	2%	4%	2%	2%
076 - Whole Fruits and Vegetables	4%	2%	4%	2%	3%	4%	4%	4%
077 - Whole Meats, Fish	1%	1%	1%	1%	1%	0%	1%	1%
078 - Full/Unused Ready-Made	1%	2%	2%	0%	1%	2%	2%	2%
079 - Baked Goods	1%	2%	2%	0%	1%	1%	2%	2%
080 - Dairy	0%	1%	1%	0%	1%	2%	1%	1%
081 - Liquids (drinks, oil in package)	1%	1%	1%	6%	1%	0%	1%	1%

Garbage Category	Building Type			Ownership Type				Sum of Annually Disposed/building for category
	High-rise	Low-rise	Townhouse	CO-OP	Mixed	Condominium	Rental	
082 - Candy and snacks	1%	1%	1%	0%	1%	1%	1%	1%
083 - Condiments and sauces	1%	1%	1%	1%	1%	1%	1%	1%
084 - Pet food	0%	0%	0%	0%	0%	0%	0%	0%
085 - Wood Pallets	0%	0%	0%	0%	0%	0%	0%	0%
086 - Unfinished Wood Furniture	0%	0%	0%	0%	0%	0%	0%	0%
087 - Wood Utensils	0%	0%	0%	0%	0%	0%	0%	0%
088 - Other Wood	0%	0%	0%	0%	0%	0%	0%	0%
089 - Manure, Slaughterhouse, Animals	0%	0%	0%	0%	0%	0%	0%	0%
<b>Non-Compostable Organics</b>	<b>5%</b>	<b>9%</b>	<b>7%</b>	<b>4%</b>	<b>3%</b>	<b>3%</b>	<b>8%</b>	<b>7%</b>
090 - Pressure Treated Wood	0%	0%	0%	0%	0%	0%	0%	0%
091 - Finished Wood	0%	0%	0%	0%	0%	0%	1%	0%
092 - Finished Wood Furniture	0%	2%	1%	0%	1%	0%	1%	1%
093 - Natural Fiber Clothing	2%	3%	2%	2%	1%	1%	2%	2%
094 - Household	0%	1%	2%	1%	1%	1%	1%	1%
095 - Natural fiber bags	0%	0%	0%	0%	0%	0%	0%	0%
096 - Other	0%	0%	0%	0%	0%	0%	0%	0%
097 - Tires	0%	0%	1%	0%	0%	0%	0%	0%
098 - Other Rubber	1%	0%	0%	0%	0%	0%	0%	0%
099 - Leather	0%	0%	0%	0%	0%	0%	0%	0%
100 - Composite Organic Materials (shoes)	1%	1%	1%	1%	0%	1%	1%	1%
101 - Other	0%	0%	0%	0%	0%	0%	0%	0%
<b>Metals</b>	<b>4%</b>	<b>3%</b>	<b>7%</b>	<b>1%</b>	<b>3%</b>	<b>7%</b>	<b>6%</b>	<b>5%</b>
102 - Food Containers	1%	1%	0%	0%	0%	0%	1%	1%
103 - Spiral-Wound Containers	0%	0%	0%	0%	0%	0%	0%	0%
104 - Other Ferrous	0%	0%	0%	0%	0%	0%	0%	0%
105 - Food Containers	0%	0%	0%	0%	0%	0%	0%	0%
106 - Alcoholic	0%	0%	0%	0%	0%	0%	0%	0%
107 - Non-Alcoholic	0%	0%	0%	0%	0%	0%	0%	0%
108 - Food Containers	0%	0%	0%	0%	0%	0%	0%	0%
109 - Foil Trays, Wrap	0%	0%	0%	0%	0%	0%	0%	0%
110 - Other Non-Ferrous	0%	0%	0%	0%	0%	0%	0%	0%
111 - Household	2%	1%	5%	0%	1%	2%	4%	3%
112 - Machine Parts	0%	1%	0%	0%	0%	0%	0%	0%

Garbage Category	Building Type			Ownership Type				Sum of Annually Disposed/building for category
	High-rise	Low-rise	Townhouse	CO-OP	Mixed	Condominium	Rental	
113 - Construction/Industrial	0%	0%	0%	0%	1%	4%	0%	0%
<b>Glass</b>	<b>5%</b>	<b>3%</b>	3%	1%	3%	2%	4%	4%
114 - Beer	0%	0%	0%	0%	0%	0%	0%	0%
115 - Other Alcohol	1%	1%	0%	0%	1%	1%	0%	1%
116 - Non-Alcoholic & Non-Dairy	0%	0%	0%	0%	0%	0%	0%	0%
117 - Dairy or Dairy Substitute	0%	0%	0%	0%	0%	0%	0%	0%
118 - Food Containers	1%	1%	1%	1%	1%	0%	1%	1%
119 - Other Glass and Ceramics	3%	1%	1%	1%	1%	0%	2%	2%
120 - Light bulbs (Non-hazardous)	0%	0%	0%	0%	0%	0%	0%	0%
<b>Building Material</b>	<b>2%</b>	<b>1%</b>	<b>4%</b>	<b>9%</b>	<b>2%</b>	<b>0%</b>	<b>3%</b>	<b>3%</b>
121 - Gypsum/Drywall	0%	0%	0%	0%	0%	0%	0%	0%
122 - Masonry	0%	0%	0%	0%	0%	0%	0%	0%
123 - Rock, Sand, Dirt	0%	1%	0%	9%	1%	0%	0%	0%
124 - Rigid Asphalt	0%	0%	0%	0%	0%	0%	0%	0%
125 - Carpet	0%	0%	1%	0%	0%	0%	0%	0%
126 - Underlay	0%	0%	0%	0%	0%	0%	0%	0%
127 - Other Inorganics	1%	0%	3%	0%	1%	0%	2%	2%
<b>Electronic Waste</b>	<b>1%</b>	<b>2%</b>	<b>3%</b>	<b>4%</b>	<b>2%</b>	<b>0%</b>	<b>2%</b>	<b>2%</b>
128 - Desktop Computers	0%	0%	0%	0%	0%	0%	0%	0%
129 - Notebook Computers	0%	0%	0%	0%	0%	0%	0%	0%
130 - Computer Peripherals	0%	0%	0%	0%	0%	0%	0%	0%
131 - Computer Monitors	0%	0%	0%	0%	0%	0%	0%	0%
132 - Printers, Scanners	0%	0%	0%	3%	0%	0%	0%	0%
133 - Televisions	0%	0%	0%	0%	0%	0%	0%	0%
134 - Other Audio/Video	0%	0%	0%	0%	0%	0%	0%	0%
135 - Mobile Phones & Accessories	0%	0%	0%	0%	0%	0%	0%	0%
136 - Other	0%	0%	0%	0%	0%	0%	0%	0%
137 - Small Appliances & Floor Care Appliances	1%	1%	2%	0%	1%	0%	2%	1%
138 - Electronic Toys	0%	0%	0%	0%	0%	0%	0%	0%
139 - Smoke Detectors	0%	0%	0%	0%	0%	0%	0%	0%
140 - Other Electronics	0%	0%	0%	1%	0%	0%	0%	0%
<b>Household Hazardous</b>	<b>0%</b>	<b>1%</b>	<b>1%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>1%</b>	<b>1%</b>
141 - Lead Acid	0%	0%	0%	0%	0%	0%	0%	0%

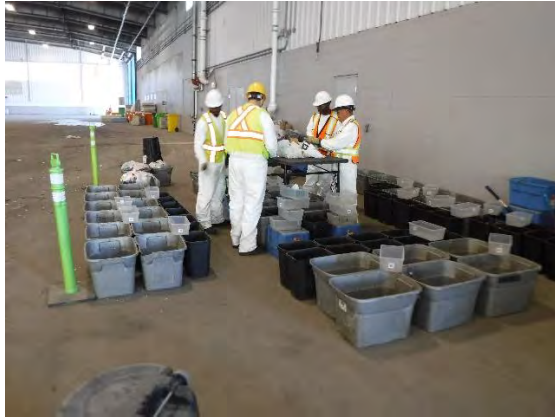
Garbage Category	Building Type			Ownership Type				Sum of Annually Disposed/building for category
	High-rise	Low-rise	Townhouse	CO-OP	Mixed	Condominium	Rental	
142 - Household Batteries (Non Lithium-Ion)	0%	0%	0%	0%	0%	0%	0%	0%
143 - Lithium Ion Batteries	0%	0%	0%	0%	0%	0%	0%	0%
144 - Sharps	0%	0%	0%	0%	0%	0%	0%	0%
145 - Animal Carcass	0%	0%	0%	0%	0%	0%	0%	0%
146 - Other	0%	0%	0%	0%	0%	0%	0%	0%
147 - Stains/Preservatives	0%	0%	0%	0%	0%	0%	0%	0%
148 - Latex Paint	0%	0%	0%	0%	0%	0%	0%	0%
149 - Oil-Based Paint	0%	0%	0%	0%	0%	0%	0%	0%
150 - Paint Aerosols	0%	0%	0%	0%	0%	0%	0%	0%
151 - Solvents	0%	0%	0%	0%	0%	0%	0%	0%
152 - Cleaners, Soaps etc.	0%	0%	0%	0%	0%	0%	0%	0%
153 - Pesticides/Herbicides/Preservatives	0%	0%	0%	0%	0%	0%	0%	0%
154 - Motor Oil	0%	0%	0%	0%	0%	0%	0%	0%
155 - Oil Filters	0%	0%	0%	0%	0%	0%	0%	0%
156 - Antifreeze	0%	0%	0%	0%	0%	0%	0%	0%
157 - Pharmaceuticals	0%	0%	0%	0%	0%	0%	0%	0%
158 - Other Petroleum Based Products	0%	0%	0%	0%	0%	0%	0%	0%
159 - Other	0%	0%	0%	0%	0%	0%	0%	0%
160 - Thermostats and Switches	0%	0%	0%	0%	0%	0%	0%	0%
161 - CFLs	0%	0%	0%	0%	0%	0%	0%	0%
162 - Other HHW or Containers	0%	0%	0%	0%	0%	0%	0%	0%
<b>Household Hygiene</b>	<b>11%</b>	<b>13%</b>	<b>13%</b>	<b>21%</b>	<b>14%</b>	<b>19%</b>	<b>11%</b>	<b>12%</b>
163 - Diapers	5%	5%	4%	6%	6%	6%	4%	4%
164 - Pet Waste	4%	6%	7%	13%	6%	11%	6%	6%
165 - Other (sanitary products, condoms)	1%	1%	1%	1%	1%	1%	1%	1%
166 - Masks	0%	0%	0%	0%	0%	0%	0%	0%
167 - Gloves	0%	0%	0%	0%	0%	0%	0%	0%
168 - Wipes	0%	0%	0%	0%	0%	0%	0%	0%
169 - Personal Care	1%	0%	1%	1%	1%	0%	1%	1%
<b>Bulky Objects</b>	<b>0%</b>	<b>2%</b>	<b>2%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>1%</b>	<b>1%</b>
170 - Large Appliances	0%	0%	0%	0%	0%	0%	0%	0%

Garbage Category	Building Type			Ownership Type				Sum of Annually Disposed/building for category
	High-rise	Low-rise	Townhouse	CO-OP	Mixed	Condominium	Rental	
171 - Mattresses, Box Springs	0%	0%	0%	0%	0%	0%	0%	0%
172 - Other Upholstered Furniture	0%	2%	2%	0%	0%	0%	1%	1%
173 - Other Furniture	0%	0%	0%	0%	0%	0%	0%	0%
<b>Fines</b>	<b>2%</b>	<b>2%</b>	<b>1%</b>	<b>2%</b>	<b>2%</b>	<b>2%</b>	<b>1%</b>	<b>2%</b>
174 - Fines	2%	2%	1%	2%	2%	2%	1%	2%

## Appendix F

### *Selected Waste Sorting Photos*





**Photo 1: Waste sorting area at United Boulevard Recycling and Waste Center**



**Photo 2: Example of received sample ready for sorting.**



**Photo 3: A sample being weighed in at United Boulevard Recycling and Waste Center.**



**Photo 4: Staff opening bags to sort at South Vancouver Transfer Station.**



**Photo 5: Staff sorting a sample.**



**Photo 6: Staff counting single use items.**





**Photo 7: Example of a sorted sample.**



**Photo 8: Example of staff collecting fines.**



**Photo 9: Staff weighing out a sample at united Boulevard Recycling and Waste Center**



**Photo 10: Staff weighing out weekly Single Use Items.**

## Appendix G

### *Selected Material Categories Photos*



**Photo 1: Paper- Newsprint (3) and Paper- Bound Paper Products- Magazine (9).**



**Photo 2: Paper- Other Paper- Plastic-lined Paper Takeout Containers- Fold-flat fiber based (18).**



**Photo 3: Plastic-Other- Durable Plastic Products (60).**



**Photo 4: Plastic- Other- Plastic Straws (61), Plastics Utensils (62), and Compostable Organics- Clean Wood- Wood Utensils (86).**





**Photo 5: Plastic- Other- Coffee Pods (63).**



**Photo 6: Compostable Organics- Yard and Garden- Small Yard Waste (71), and Compostable Organics- Food Waste- Avoidable-Condiments and Sauces (82).**



**Photo 7: Non-Compostable Organics-Other-Composite Organic Materials (shoes) (99).**



**Photo 8: Metals- Ferrous- Food Containers (101), Glass- Beverage Containers- Other Alcohol (114), Glass- Food Containers (117), and Glass- Other Glass and Ceramics (118).**



**Photo 9: Building Material- Carpet Waste-Carpet (124), and Electronic Waste- Small Appliances and Floor Care Appliances (136).**



**Photo 10: Household Hazardous-HHW- Stains/Preservatives (146).**



**Photo 11: Household Hazardous- HHW- Pharmaceuticals (156).**



**Photo 12: Household Hygiene- Biological- Pet Waste (163).**

## Appendix H

### *Functional Categories Listing*

Functional Category	Sorting Category
Green Bin	006 - Other Soiled OCC
	023 - Other Compostable Paper
	072 - Small Yard Waste
	073 - Large Yard Waste
	074 - Unavoidable Food Waste
	075 - Plate Scrapings, Unfinished Meals
	076 - Whole Fruits and Vegetables
	077 - Whole Meats, Fish
	078 - Full/Unused Ready-Made
	079 - Baked Goods
	080 - Dairy
	081 - Liquids (drinks, oil in package)
	082 - Candy and snacks
	083 - Condiments and sauces
	084 - Pet food
Limited Recycling Options	005 - Waxed OCC
	021 - Paper Party Décor
	024 - Non-compostable, non-recyclable paper
	029 - Garbage & Recycling Bags
	030 - Freezer and Sandwich Bags
	032 - Other Plastic Film
	056 - Other Foam
	060 - Non-durable Plastic Food Containers
	061 - Durable Plastic Products
	065 - Other/Mixed Plastics
	070 - #7 Bio Flexible - Bags and Liners
	071 - Packaging , Bottles
	098 - Other Rubber
	101 - Other
	119 - Other Glass and Ceramics
	163 - Diapers
	164 - Pet Waste
	165 - Other (sanitary products, condoms)
	169 - Personal Care
	174 - Fines
Recyclable	001 - Junk Mail, Flyers, Unaddressed Mail
	002 - Other Fine Office Paper or Envelopes
	003 - Newsprint
	004 - Clean Recyclable OCC

Functional Category	Sorting Category
	007 - Cereal Boxes and Other Box Packaging
	008 - Telephone Books
	009 - Magazines
	010 - Books
	011 - Dairy or Dairy Substitute
	012 - Non-Dairy/Deposit
	022 - Other Recyclable Paper
	027 - HDPE & LDPE Consumables Packaging Bags and Film
	028 - Other Flexible Plastic Packaging (Multi-Layered and Other Flexible Resin)
	031 - Deposit Beverage Pouches
	038 - Deposit Containers - Dairy or Dairy Substitute
	039 - Deposit Containers – Water
	040 - Deposit Containers – Other
	042 - Other
	043 - # 1 PETE – Bottles and Jars
	044 - #1 PETE – Other Packaging
	045 - #2 HDPE – Bottles and Jugs
	046 - #2 HDPE – Tubs and Lids
	047 - #3 PVC
	048 - #4 LDPE
	049 - #5 PP
	050 - #6 PS – Non-Foam
	051 - #6 PS – Packing Foam
	054 - #6 PS – Foam foodware
	055 - #6 PS – Other PS Foam
	057 - #7 Mixed Resin Plastic
	058 - Uncoded Packaging/Containers
	097 - Tires
	102 - Food Containers
	103 - Spiral-Wound Containers
	104 - Other Ferrous
	105 - Food Containers
	106 - Alcoholic
	107 - Non-Alcoholic
	108 - Food Containers
	109 - Foil Trays, Wrap
	110 - Other Non-Ferrous
	111 - Household
	112 - Machine Parts



Functional Category	Sorting Category
	113 - Construction/Industrial
	114 - Beer
	115 - Other Alcohol
	116 - Non-Alcoholic & Non-Dairy
	117 - Dairy or Dairy Substitute
	118 - Food Containers
	120 - Light bulbs (Non-hazardous)
	128 - Desktop Computers
	129 - Notebook Computers
	130 - Computer Peripherals
	131 - Computer Monitors
	132 - Printers, Scanners
	133 - Televisions
	134 - Other Audio/Video
	135 - Mobile Phones & Accessories
	136 - Other
	137 - Small Appliances & Floor Care Appliances
	138 - Electronic Toys
	139 - Smoke Detectors
	140 - Other Electronics
	141 - Lead Acid
	142 - Household Batteries (Non Lithium-Ion)
	143 - Lithium Ion Batteries
	147 - Stains/Preservatives
	148 - Latex Paint
	149 - Oil-Based Paint
	150 - Paint Aerosols
	151 - Solvents
	152 - Cleaners, Soaps etc.
	153 - Pesticides/Herbicides/Preservatives
	154 - Motor Oil
	155 - Oil Filters
	156 - Antifreeze
	157 - Pharmaceuticals
	158 - Other Petroleum Based Products
	159 - Other
	160 - Thermostats and Switches
	161 - CFLs
	170 - Large Appliances

Functional Category	Sorting Category
Textiles	171 - Mattresses, Box Springs
	033 - Clothing and accessories
	034 - Household
	035 - Reusable bags (washable)
	036 - Reusable bags (non-washable)
	037 - Other
	093 - Natural Fiber Clothing
	094 - Household
	095 - Natural fiber bags
	096 - Other
	099 - Leather
	100 - Composite Organic Materials (shoes)
Single-Use Items	013 - Plastic-Lined Paper Hot Cups
	014 - Plastic-Lined Paper Cold Cups
	015 - Plastic-Lined Paper Cups Labeled Compostable
	016 - Paper Straws
	017 - Unlined Paper Takeout Containers
	018 - Plastic-Lined Paper Takeout Containers
	019 - Plastic-Lined Paper Takeout Containers
	020 - Paper bags
	025 - Re-Used HDPE & LDPE Plastic Bags
	026 - Empty HDPE & LDPE Plastic Bags
	041 - Rigid Plastic Cups
	052 - Foam Cups
	053 - Foam Takeout Containers
	059 - Rigid Plastic takeout Containers
	062 - Plastic Straws
	063 - Plastic Utensils
	066 - Rigid Plastic Cups Labeled Compostable
	"067 - Plastic Takeout Containers Labeled Compostable"
	068 - Other Foodware Labeled Compostable
	069 - #7 Bio Flexible - Plastic Bags Labeled Compostable
PPE	166 - Masks
	167 - Gloves
	168 - Wipes

## Appendix I

### *Garbage Results – Detailed SUIs and PPE Results*

SUIs Category	Sum of Weight	Sum of Count	Weight/ kg sorted garbage	Disposal/capita/ year (kg)	Count/ kg sorted garbage	Disposal/capita/ year (count)
<b>Retail Bags</b>	<b>71.85</b>	<b>2741</b>	0.0109	2.0	0.4168	75.4
020 - Paper bags	54.4	1560	0.0083	9517.8	0.2372	42.9
025 - Re-Used HDPE & LDPE Plastic Bags	10.45	637	0.0016	10.5	0.0969	17.5
026 - Empty HDPE & LDPE Plastic Bags	5.5	444	0.0008	0.0	0.0675	12.2
069 - #7 Bio Flexible - Plastic Bags Labeled Compostable	1.5	100	0.0002	0.0	0.0152	2.8
<b>Cups</b>	<b>30.35</b>	<b>1510</b>	0.0046	0.0	0.2296	41.6
013 - Plastic-Lined Paper Hot Cups	10.15	440	0.0015	0.0	0.0669	12.1
014 - Plastic-Lined Paper Cold Cups	7.4	399	0.0011	0.0	0.0607	11.0
015 - Plastic-Lined Paper Cups Labeled Compostable	0.35	23	0.0001	0.0	0.0035	0.6
041 - Rigid Plastic Cups	12.35	611	0.0019	0.0	0.0929	16.8
052 - Foam Cups	0.1	30	0.0000	0.0	0.0046	0.8
066 - Rigid Plastic Cups Labeled Compostable	0	7	0.0000	0.0	0.0011	0.2
<b>Takeout Containers</b>	<b>73.8</b>	<b>2091</b>	0.0112	0.5	0.3180	57.6
017 - Unlined Paper Takeout Containers	10.9	323	0.0017	0.0	0.0491	8.9
018 - Plastic-Lined Paper Takeout Containers	22.95	678	0.0035	0.0	0.1031	18.7
019 - Plastic-Lined Paper Takeout Containers	9.95	396	0.0015	0.0	0.0602	10.9
053 - Foam Takeout Containers	0.15	13	0.0000	0.0	0.0020	0.4
059 - Rigid Plastic takeout Containers	29.5	644	0.0045	0.0	0.0979	17.7

SUIs Category	Sum of Weight	Sum of Count	Weight/ kg sorted garbage	Disposal/capita/ year (kg)	Count/ kg sorted garbage	Disposal/capita/ year (count)
"067 - Plastic Takeout Containers Labeled	0.2	5	0.0000	0.0	0.0008	0.1
Compostable"	0.15	32	0.0000	0.0	0.0049	0.9
<b>Straws</b>	<b>3.55</b>	<b>1311</b>	0.0005	0.0	0.1994	36.1
016 - Paper Straws	3.25	757	0.0005	0.0	0.1151	20.8
062 - Plastic Straws	0.3	554	0.0000	0.0	0.0842	15.2
<b>Utensils</b>	<b>7.05</b>	<b>2460</b>	0.0011	0.0	0.3741	67.7
063 - Plastic Utensils	2.35	583	0.0004	0.0	0.0887	16.0
087 - Wood Utensils	4.7	1877	0.0007	0.0	0.2854	51.7
<b>TOTAL SUIs</b>	<b>186.6</b>	<b>10113</b>	<b>0.0567</b>	<b>9530.8</b>	<b>3.0756</b>	<b>556.7</b>

## Appendix J

### *Historical Waste Composition Results*

Primary Category	2006	2013	2017	2021	2022	2023
01 - Paper	23%	8%	16%	15%	17%	15%
02 - Plastic	9%	12%	15%	17%	14%	17%
03 - Compostable Plastic	0%	0%	0%	0%	0%	0%
04 - Compostable Organics	43%	43%	38%	37%	37%	34%
05 - Non-Compostable Organics	2%	10%	5%	4%	6%	7%
06 - Metals	4%	6%	3%	3%	3%	4%
07 - Glass	3%	1%	3%	3%	3%	3%
08 - Building Material	0%	6%	2%	2%	1%	2%
09 - Electronic Waste	3%	3%	2%	2%	3%	2%
10 - Household Hazardous	1%	1%	1%	1%	1%	1%
11 - Household Hygiene	10%	5%	15%	15%	13%	14%
12 - Bulky Objects	3%	4%	0%	3%	0%	1%
13 - Fines	0%	1%	1%	1%	1%	2%
	<b>2006 Disposal Rate = 245 kg/capita</b>	<b>2013 Disposal Rate = 234 kg/capita</b>	<b>2017 Disposal Rate = 212 kg/capita</b>	<b>2021 Disposal Rate = 206 kg/capita</b>	<b>2022 Disposal Rate = 205 kg/capita</b>	<b>2023 Disposal Rate = 181 kg/capita</b>

## Appendix K

### *Selected Site Visit Photos*





**Photo 1: Garbage bins at a site.**



**Photo 2: Collection bins put out for sites with Garbage compactor.**



**Photo 3: Organics bin at a site.**



**Photo 4: Organics cart sample.**



**Photo 5: Paper and mixed paper recycling.**



**Photo 6: Mixed recycling bin at a site.**



**Photo 7: Mixed container recycling.**



**Photo 8: Signage at a site for recycling.**