Regional District of Fraser-Fort George
2023 Comprehensive Waste Composition Study



PRESENTED TO
Regional District of Fraser-Fort George

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ACRONYMS & ABBREVIATIONS

Acronyms/Abbreviations	Definition
BC	British Columbia
CCME	Canadian Council of Ministers of the Environment
CDO	Commercial Drop-Off
EPR	Extended Producer Responsibility
Foothills Landfill	Foothills Boulevard Regional Landfill
ICI	Industrial, Commercial, and Institutional
MF	Multi-Family
RDFFG	Regional District of Fraser-Fort George
RDO	Residential Drop-Off
SF	Single Family
Tetra Tech	Tetra Tech Canada Inc.
TS	Transfer Station

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NOTE TO THE READER

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

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by the Regional District of Fraser-Fort George (RDFFG) to conduct a comprehensive multi-sector waste composition study. The study was conducted in Fall 2023 at the Foothills Boulevard Regional Landfill (Foothills Landfill) in Prince George, British Columbia (BC).

1.1 Scope of Work

The scope of work for the study includes sorting municipal solid waste that arrived at the Foothills Landfill from the following waste-generating sectors:

- **Single Family** (SF): typically curbside collected waste streams from SF households, row houses, townhouses, and duplexes in the City of Prince George.
- **Residential Drop-Off** (RDO): waste from residents that would self-haul and/or drop off materials that are not typically collected from the curbside collection program. The waste material is commonly deposited into large roll-off bins at the landfill and aggregated together.
- **Transfer Station** (TS): waste from residents and businesses collected from a network of rural transfer stations.
- **Commercial Drop-Off** (CDO): waste from commercial sources that would be self hauled and dropped off at the landfill.
- **Industrial, Commercial, and Institutional** (ICI): typically waste from ICI sources including light industrial activities, retail, restaurants, office, schools, hospitals and mills, and multi-family (MF) buildings. Waste from these sources is typically collected by private sector service providers from disposal receptacles, such as dumpsters and compactors.

The study had the following objectives:

- Develop a clear understanding of current waste disposal and recycling habits of residents and businesses.
- Compare the results to the previous waste composition study completed in 2018.[1]
- Establish a baseline for new programs being implemented, specifically the composting of food waste in the City of Prince George.
- Compare waste composition results for various regional sources (i.e., waste from TSs) to monitor regional variations and disposal behaviours.
- Provide waste composition results to determine the effectiveness of current waste diversion programs, including:
  - Landfill policies and fee structures;
  - Curbside service policies and fee structures;
  - Education programs;
  - Multi-Material Recycling program; and
  - Private recycling services.

[1] TRI Consulting. July 31, 2018. *2018 Waste Characterization Study – Regional District of Fraser Fort George*. Retrieved from https://www.rdffg.ca/sites/default/files/2023-11/2018-Waste-Characterization-Study%20(1).pdf

- Provide data on Extended Producer Responsibility (EPR) specific materials to evaluate the effectiveness of the EPR programs at diverting waste in the region.
- Identify materials that may be targeted for potential new program initiatives.
- Gather site-specific information allowing updated modelling of future landfill gas generation.

This report summarizes the findings from the Fall 2023 sorting event at Foothills Landfill, which occurred from September 25 to October 6, 2023, inclusive. A sampling plan was developed in conjunction with RDFFG, and efforts were made to obtain samples from a representative sample in the regional district. The total number of samples collected and characterized during the 2018 and 2023 studies is summarized in Table 1-1.

Table 1-1: Number of Samples Characterized by Sector

Year	Sector					Total
	SF	RDO	TS	CDO	ICI	
2018	20	6	13	5	12	**56**
2023	19	8	12	6	10	**55**

1.2 Background

The RDFFG covers a geographic area of 52,000 km^2 in the middle interior of BC and has a population of approximately 106,000. There are seven electoral areas and four municipalities within the RDFFG. Approximately 75% of the population reside in the City of Prince George, along with 8,000 residents in the municipalities of Mackenzie, McBride, and Valemount. The remainder of the population resides in the seven electoral areas.

Foothills Landfill is located in the City of Prince George and is operated by the RDFFG. It is a regional landfill and receives municipal solid waste from a network of regional TSs and municipal and commercial collection services. There are 18 TSs where materials are transported to the Foothills Landfill, including the two regional TSs in Robson Valley and Mackenzie. Table 1-2 summarizes the amount of waste disposed at the landfill in the past 5 years.

Table 1-2: Weight of Waste Buried at Foothills Landfill

Year	2018	2019	2020	2021	2022
Weight of Waste Buried (tonnes)	72,742	73,529	73,785	79,139	74,124

The RDFFG services residents in the City of Prince George through a curbside collection program, which includes garbage and blue box recycling (accepted through Recycle BC). Outside of the city, residents can dispose of their waste and recycling through a network of TSs which are then transferred to the landfill. Yard and garden waste can be dropped off at the Foothills Landfill and some of the TSs. The RDFFG also provides drop off receptacles for a number of EPR materials such as automotive batteries, single use batteries, used oil, oil filters, antifreeze, and printed paper, and packaging materials.

2.0 METHODOLOGY

This section outlines the methodology used to select and characterize the collected samples. Tetra Tech's sampling methodology is based on the Canadian Council of Ministers of the Environment's (CCME's) Recommended Waste Characterization Methodology for Direct Waste Analysis Studies in Canada.[2] The fieldwork was completed by Tetra Tech's field team who were trained on proper safety and material sorting procedures prior to conducting any fieldwork.

The sampling plan was prepared with the RDFFG's input to ensure that targeted samples were collected and sorted. Samples were collected and sorted by Tetra Tech staff who were trained on safety and waste sorting procedures. Photos were also taken during the waste sorting event to provide visual records of what occurred during the sorting event and to support recorded data, and are shown in Appendix B.

2.1 Sample Collection Methodology

The following describes the collection approach for the various waste streams characterized. Tetra Tech's field lead worked closely with RDFFG staff to identify loads for sampling that were representative of each waste sector. As selected sampling loads arrived, Tetra Tech's field lead would communicate with RDFFG staff to ensure the target load was emptied at the designated area for sampling. For each load, sample information, including origin of waste and photograph of the sample(s), were collected.

2.1.1 Single Family

Landfill scale house staff would alert Tetra Tech staff when a truck carrying a SF load entered the landfill. Tetra Tech staff would then approach and talk to the driver to confirm the origin of the load and collect truck identification (e.g., license plate or truck number). The entire load was then tipped on the active face as per typical operations (Figure 2-1). Tetra Tech staff would then collect a sample that is approximately 100 kg (Figure 2-2) and bring it to the designated sorting area. The sample was then sorted into their respective categories and weighed by the Tetra Tech sorting team.

Figure 2-1: SF Curbside Truck Tipping Load

Figure 2-2: 100kg SF Sample to be Hand Sorted

[2] Canadian Council of Ministers of the Environment. 1999. *Recommended Waste Characterization Methodology for Direct Waste Analysis Studies in Canada*. Prepared under contract by SENES Consultants Limited.

2.1.2 Residential Drop-Off

Landfill scale house staff would alert Tetra Tech staff when a truck carrying an RDO load entered the active face. Tetra Tech staff would then approach and talk to the driver to confirm the origin of the load and collect vehicle identification (e.g., license plate or truck number). RDO loads were primarily composed of large and bulky objects not appropriate for hand sorting (Figure 2-3 and Figure 2-4) and were visually characterized using a volume-based visual estimate procedure.

Figure 2-3: Example of an RDO Load

Figure 2-4: Example of an RDO Load

2.1.3 Transfer Station

Loads were collected from the following TSs: Hixton, Cummings Road, Valemount/McBride, Vanway, Mackenzie, Shelly, Miworth, and Buckhorn. Loads were tipped at the active face (Figure 2-5 and Figure 2-6). Tetra Tech's field lead would approach and talk to the driver to confirm the origin of the load. Tetra Tech staff would then assess the load to determine the percentage of bagged garbage relative to the entire load and determine whether the load would be visually estimated or hand sorted. If the load was to be hand sorted, Tetra Tech staff would then collect a sample approximately 100 kg and bring it to the designated sorting area. The sample was then sorted into their respective categories and weighed by the Tetra Tech sorting team.

Figure 2-5: Truck Tipping a TS Load

Figure 2-6: Example of a TS Load

2.1.4 Commercial Drop-Off

Landfill scale house staff would alert Tetra Tech staff when a vehicle carrying a CDO load entered the landfill. Tetra Tech staff would then approach and talk to the driver to confirm the origin of the load and collect truck identification (e.g., license plate or truck number). The driver would then tip the entire load on the active face (Figure 2-7). CDO loads are primarily composed of large and bulky objects not appropriate for hand sorting (Figure 2-8) and were visually characterized using a volume-based visual estimate procedure.

Figure 2-7: CDO Load Being Tipped

Figure 2-8: Example of a CDO Load

2.1.5 Industrial, Commercial, and Institutional

Landfill scale house staff would alert Tetra Tech staff when a truck carrying an ICI load entered the landfill. Tetra Tech staff would then approach and talk to the driver to confirm the origin of the load and collect truck identification (e.g., license plate or truck number). The entire load was then tipped on the active face (Figure 2-9 and Figure 2-10). Tetra Tech staff would then assess the load to determine the percentage of bagged garbage relative to the entire load and determine whether the load would be visually estimated or hand sorted. If the load was to be hand sorted, Tetra Tech staff would then collect a sample approximately 100 kg and bring it to the designated sorting area. The sample was then sorted into their respective categories and weighed by the Tetra Tech sorting team.

Figure 2-9: ICI Truck Tipping Load

Figure 2-10: ICI Load to be Sampled and Sorted

2.2 Waste Characterization Approach

An initial visual analysis was conducted on each load to determine which of the following characterization methods would be used:

- **Hand Sort (Manual Sort)** – A random sample approximately 100 kg collected from the load and sorted by hand. This method was used for loads composed of more than 70% bagged garbage.
- **Visual Estimation** – The entire load was visually estimated for loads composed of 30% or less of bagged garbage.

2.2.1 Hand Sort

For loads that were to be hand sorted, the field team would collect a sample approximately 100 kg, using a rough grid pattern to minimize potential bias. Tetra Tech field staff then transported the collected sample to the designated sorting area (Figure 2-11). Each item was placed into bins according to their secondary category. The contents of each bin were then weighed and recorded to determine the weight for each secondary category.

Figure 2-11: Tetra Tech Staff Hand Sorting a Sample

2.2.2 Visual Estimates

Samples to be visually estimated were characterized by two Tetra Tech field staff who walked independently around the load to estimate the load's composition by volume, first by primary categories, then by secondary categories (Figure 2-12). Once each staff member completed their estimates, they would compare and average out their results. Results were then recorded electronically.

Figure 2-12: Field Staff Conducting a Visual Estimate

2.3 Material Categories

In consultation with RDFFG staff, a list of sorting categories was developed for this study as outlined in Appendix C, along with their descriptions, category densities, and preferred diversion/disposal method. For samples characterized by visual estimates, category densities were used to convert the volume-based percentages into weight-based percentages.

The sorting categories included 11 primary categories and 76 secondary categories. These categories were used in both the visually estimated and hand sorted materials. Primary categories included:

- Paper.
- Non-compostable organics.
- Building materials.
- Household hygiene.
- Plastic.
- Metal.
- Electronics.
- Other.
- Compostable organics.
- Glass.
- Household hazardous.

Note the "Other" primary category includes bulky items (e.g., furniture, major appliances) and fines (i.e., miscellaneous garbage less than 1 inch in diameter).

2.4 Data Analysis

Data analysis was performed using Tetra Tech's adaptation of the BC Ministry of Environment and Climate Change Strategy's Waste Characterization Spreadsheet Tool. Data was compiled into primary and secondary categories by weight. The composition for each sector was calculated as weighted averages using the tonnages attributed to each sector at each landfill. The overall composition was calculated by extrapolating the weighted average composition by sector to estimated tonnages of waste by sector.

2.5 Health and Safety

A Health and Safety Plan was developed for this project to identify potential hazards in advance of the waste composition study. Tetra Tech staff conducting field work for this study were required to have up-to-date safety certifications and training for waste sorting activities. Personal protective equipment, including face masks, safety goggles, gloves, steel toe boots, coveralls, and hi-vis vests, was worn by all field staff according to the Health and Safety Plan.

Upon arrival at Foothills Landfill, Tetra Tech staff conducted a site orientation with RDFFG staff to identify site-specific hazards and controls. A safe working location was selected and clearly demarcated. Safety meetings were conducted at the beginning of each day to review and identify key concerns and hazard mitigation strategies, including how to handle material hazards such as sharps or hazardous materials, safe lifting of heavy materials, working around vehicles, and actions to reduce risk of heat-related illnesses in hot weather conditions.

3.0 WASTE COMPOSITION RESULTS – OVERALL

The following summarizes the waste composition results for the various sectors investigated. Results are presented by primary category. Primary category percentages were calculated by aggregating all sample data for each sector. An average percentage by weight was determined for each sector. Waste composition results for all sample results by material categories are presented in Appendix D. Selected photographs are shown in Appendix B.

For samples where visual estimates were conducted, the volume-based percentages were converted into weight-based percentages using specific densities for material categories (Appendix C lists the specific densities for each material category).

Following the waste composition results, the proportion of materials that could be diverted from disposal was estimated and presented as the diversion potential. Classifications for the diversion potential of each secondary category can be found in Appendix C. The materials were categorized as follows:

- **Compostable – Food Waste:** avoidable and unavoidable food waste accepted in the future curbside collection services.
- **Compostable – Yard and Garden:** clean, source-separated yard and garden waste from residential and commercial sources accepted at selected TSs.
- **Recyclable:** materials acceptable in curbside recycling collection services.
- **Depot Recycling:** materials acceptable only through regionally provided recycling depots.

- **Drop Off Recycling:** recyclable material not accepted through curbside collection services but accepted through private recycling services for a fee.
- **Product Stewardship:** divertible materials managed by EPR programs.
- **Garbage:** materials that do not fall within the above diversion options and would be landfilled.

The diversion potential represents the percentage of materials that are considered compostable (food waste, and yard and garden), recyclable (curbside, depot, or drop off), and product stewardship materials. The diversion potential is calculated based on an ideal scenario where residents and/or businesses are correctly utilizing all waste diversion options that were available at the time of the study. It should be noted that the availability of waste diversion programs varies across the RDFFG. This is the theoretical maximum and represents the upper boundary of what is possible given the current waste composition and waste diversion programs.

3.1 Overall Waste Composition

The following summarizes the overall waste composition and diversion potential of materials disposed in the RDFFG. The overall waste composition was calculated using the average waste compositions by sector and proportioning the waste disposed for each sector using the tonnage disposed at Foothills Landfill in 2022 (74,124 tonnes). Table 3-1 summarizes the proportion and amount of waste disposed in 2022.

Table 3-1: Amount of Waste Received at Foothills Landfill in 2022

Sector	Proportion of Waste Disposed	Estimated Amount (Tonnes)
SF	18%	13,318
RDO	9%	6,655
TS	15%	10,779
CDO	23%	17,133
ICI	35%	26,239
Total	**100%**	**74,124**

3.1.1 Overall Waste Composition Results

Figure 3-1 illustrates the overall/regional waste composition of the garbage stream from all sectors received at the Foothills Landfill. This is a snapshot of the types and relative quantities of materials that were discarded by residents and businesses at this time of the year.

The overall garbage stream primarily consisted of building materials (32%), compostable organics (20%), paper (19%), and plastic (8%). These four primary categories represent 79% of the waste stream.

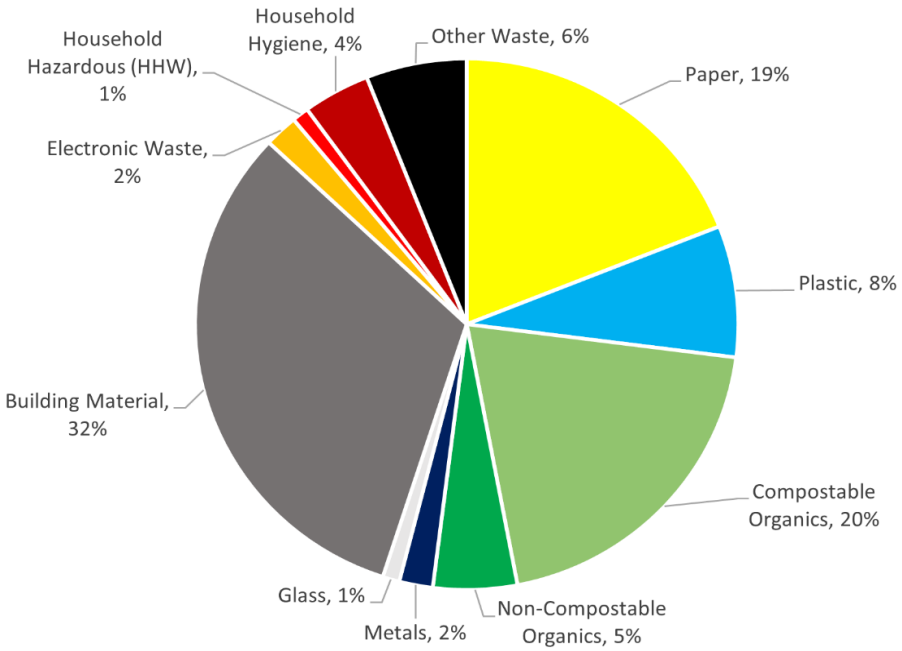

Figure 3-1: Overall Garbage Composition

The top primary categories in the overall garbage stream are further broken down as follows:

- Building materials, primarily composed of rigid asphalt products (7.7%), other inorganics such as linoleum (7.5%), and gypsum/drywall and plaster (4.1%).
- Compostable organics, mainly composed of avoidable food waste (10.8%), leaves, plants, and branches (2.3%), unavoidable food waste (2.3%), and woody waste (2.1%).
- Paper, primarily composed of fine paper (6.6%), old corrugated cardboard (4.1%), tissues, paper towels, and other food contaminated paper (2.7%), and non-recyclable paper (2.3%).
- Plastic, which mainly consisted of rigid containers (2.2%), recyclable film (2.0%), and other plastics (1.8%).

3.1.2 Overall Diversion Potential

Figure 3-2 summarizes the diversion potential of the overall garbage stream. The total diversion potential for the overall garbage stream was 57% and consisted of 16% recyclable material, 16% compostable food waste, 11% drop off recycling, 5% depot recycling, 5% product stewardship material, and 4% compostable yard and garden.

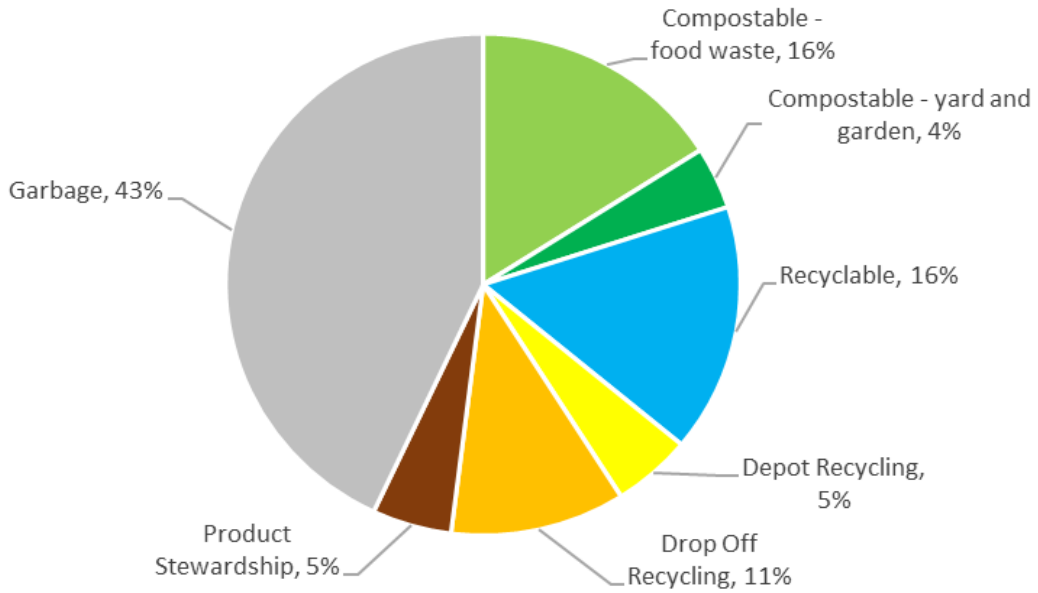

Figure 3-2: Diversion Potential of the Overall Garbage Stream

The top diversion options are broken down as follows:

- Recyclable materials, which included fine paper (6.6%), old corrugated cardboard (4.1%), recyclable rigid containers (2.3%), and boxboard (2.2%).
- Compostable food waste, primarily composed of avoidable food waste (10.8%), tissues, paper towels, and other food-contaminated paper (2.7%), and unavoidable food waste (2.3%).
- Drop off recycling, primarily composed of clean wood (4.0%), treated or painted wood (2.6%), and woody waste (2.1%).

3.1.3 Estimated Annual Disposal and Diversion Rates

In 2022, 74,124 tonnes of waste were landfilled in the RDFFG. By taking the overall waste composition and multiplying it by annual disposal tonnage, the annual amount of waste disposed by primary category can be estimated (Table 3-2).

Table 3-2: Estimated Annual Tonnages by Primary Category

Primary Category	Estimated Annual Tonnages
Paper	14,022
Plastic	5,826
Compostable Organics	15,192
Non-Compostable Organics	3,515
Metal	1,309
Glass	583
Building Materials	23,879
Electronic Waste	1,819
Household Hazardous Waste	918
Household Hygiene	2,681
Other	4,380
Total Annual Disposed Tonnage	**74,124**

The proportion of materials that could be diverted from disposal was also estimated and presented as the annual diversion potential in Table 3-3. Overall, 42,057 tonnes out of the overall 74,124 tonnes of waste disposed is considered divertible (57%). It is important to note that the diversion potential is an estimate of the proportion of materials that could be diverted in an ideal scenario and may not be possible to achieve in practice.

Table 3-3: Estimated Annual Diversion Potential

Diversion Option	Estimated Annual Tonnages
Compostable – Food Waste	12,078
Compostable – Yard and Garden	2,638
Recyclable	12,231
Depot Recycling	3,749
Drop Off Recycling	7,950
Product Stewardship	3,411
Garbage	32,067
Total Annual Disposed Tonnage	**74,124**

4.0 WASTE COMPOSITION RESULTS – BY SECTOR

The following section summarizes the results from the samples from the five sectors characterized at Foothills Landfill. Appendix E provides the community profiles for the City of Prince George, Mackenzie Transfer Station, and Valemount/McBride Transfer Station.

4.1 Single Family Sector

The following summarizes the waste composition results and diversion potential for SF garbage characterized at Foothills Landfill. Samples were curbside collected from the City of Prince George.

4.1.1 SF Waste Composition Results

Figure 4-1 shows the average composition of the garbage stream from the SF sector in Fall 2023. This is a snapshot of the types and relative quantities of materials that were discarded by residents at this time of the year.

SF garbage was primarily composed of compostable organics (43%), paper (14%), plastic (12%), and household hygiene (11%). These four primary categories represent 80% of the SF garbage stream.

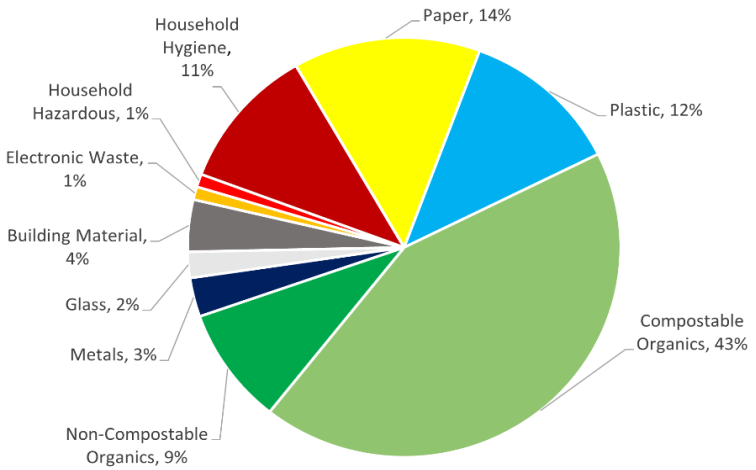

Figure 4-1: SF Garbage Composition

Details of the top primary categories in SF garbage are as follows:

- Compostable organics, mainly composed of avoidable food waste (16.6%), leaves, plants, and branches (9.8%), and grass trimmings (6.0%).
- Paper, primarily composed of tissues, paper towels, and other food-contaminated paper (4.7%), fine paper (2.9%), boxboard (2.2%), and old corrugated cardboard (1.6%).
- Plastic, primarily composed of rigid containers (3.3%), other plastics (3.1%), recyclable film (3.1%), and non-recyclable film (1.8%). Other plastics consisted of durable plastic products such as Tupperware containers and toys.
- Household hygiene, which included diapers and feminine hygiene products (6.0%) and pet waste (4.3%).

4.1.2 SF Diversion Potential

Figure 4-2 summarizes the diversion potential of the SF garbage stream disposed. The total diversion potential for the SF garbage stream was 66% and consisted of 27% compostable food waste, 16% compostable yard and garden, 12% recyclable materials, 4% drop off recycling, 4% depot recycling, and 3% product stewardship materials.

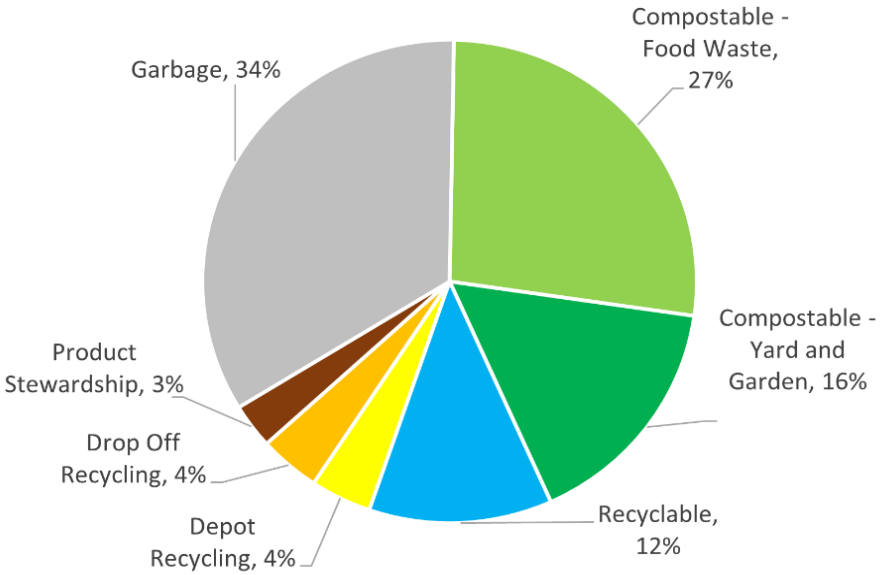

Figure 4-2: Diversion Potential of the SF Garbage Stream

The top three diversion options are broken down as follows:

- Compostable food waste, composed of avoidable food waste (16.6%), tissues, paper towels, and other food-contaminated paper (4.7%), and unavoidable food waste (4.1%).
- Compostable yard and garden, consisted of leaves, plants, and branches (9.8%), and grass trimmings (6.0%).
- Recyclable materials, which mainly included rigid containers (3.3%), fine paper (2.9%), boxboard (2.2%), and old corrugated cardboard (1.6%).

4.2 Residential Drop-Off Sector

The following summarizes the waste composition and diversion potential of RDO garbage that is discarded at the Foothills Landfill.

4.2.1 RDO Waste Composition Results

Figure 4-3 illustrates the average composition of the garbage stream from the RDO sector for Fall 2023. This is a snapshot of the types and relative quantities of materials that were discarded by residents at this time of the year.

RDO garbage was primarily composed of building materials (48%), other waste (27%), and compostable organics (10%). These three primary categories represent 85% of the RDO garbage stream.

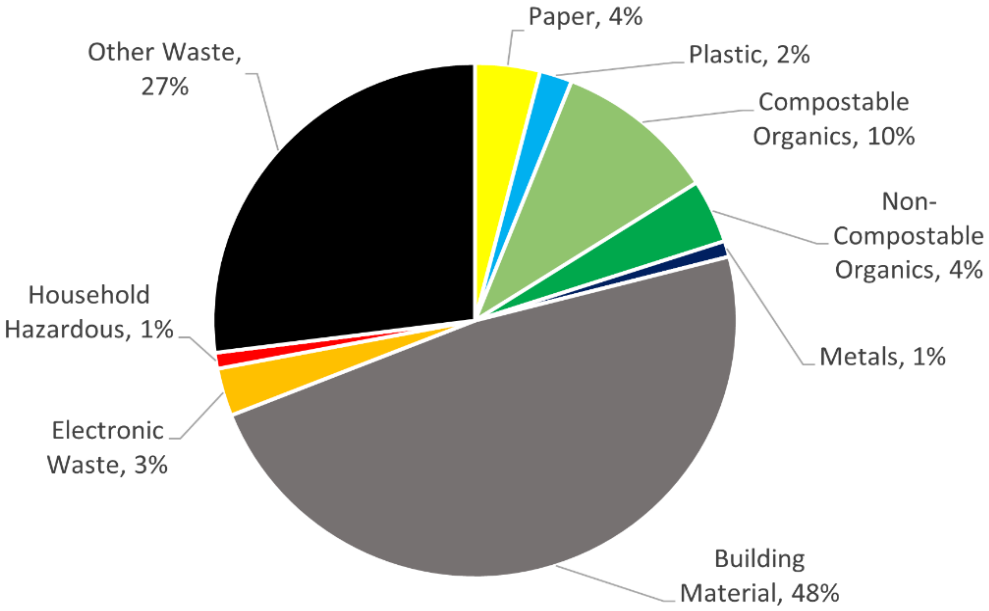

Figure 4-3: RDO Garbage Composition

The top primary categories in RDO garbage are broken down as follows:

- Building material, mainly composed of treated or painted wood (18.9%), masonry (bricks, blocks, concrete, etc.) (9.8%), clean wood (6.4%), and other inorganics such as linoleum (4.3%).
- Other waste consisted of bulky objects such as furniture and mattresses (18.0%) and bagged garbage (9.5%).
- Compostable organics, primarily composed of woody waste (4.5%) and soil (2.2%).

4.2.2 RDO Diversion Potential

Figure 4-4 summarizes the diversion potential of the RDO garbage stream. The total diversion potential for the RDO garbage stream was 54% and consisted of 41% drop off recycling, 4% product stewardship materials, 4% recyclable materials, 3% depot recycling, and 2% compostable yard and garden.

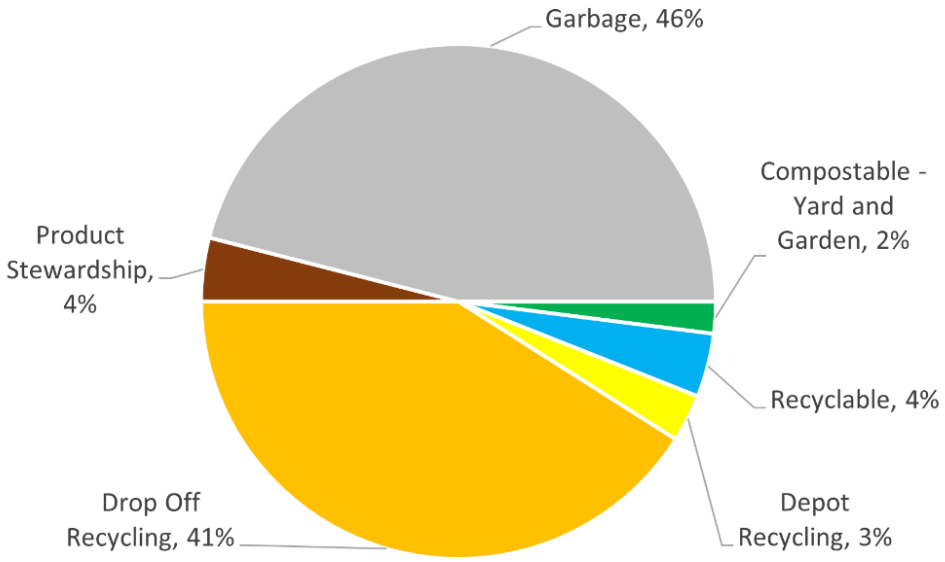

Figure 4-4: Diversion Potential of the RDO Garbage Stream

The top three diversion options are broken down as follows:

- Drop off recycling, which mainly consisted of treated or painted wood (18.9%), masonry (bricks, blocks, concrete, etc.) (9.8%), clean wood (6.4%), and woody waste (4.5%).
- Product stewardship materials, which mainly included small appliances and floor care appliances (1.3%), lighting equipment and lightbulbs (0.9%), and television and audio/video equipment (0.8%).
- Recyclable materials, which included old corrugated cardboard (1.7%), and fine paper (1.2%).

4.3 Transfer Station Sector

The following summarizes the waste composition and diversion potential of garbage received from TSs. Samples consisted of loads from the following TSs: Hixton, Cummings Road, Valemount/McBride, Vanway, Mackenzie, Shelly, Miworth, and Buckhorn during the Fall 2023 sorting event.

4.3.1 TS Waste Composition Results

Figure 4-5 shows the average composition of the garbage stream from the TS sector at Foothills Landfill in Fall 2023. This is a snapshot of the types and relative quantities of materials that were discarded by residents and businesses at TSs at this time of the year.

TS garbage was primarily composed of compostable organics (27%), paper (16%), plastic (11%), building material (11%), and other waste (11%). These five primary categories represent 76% of the TS garbage stream.

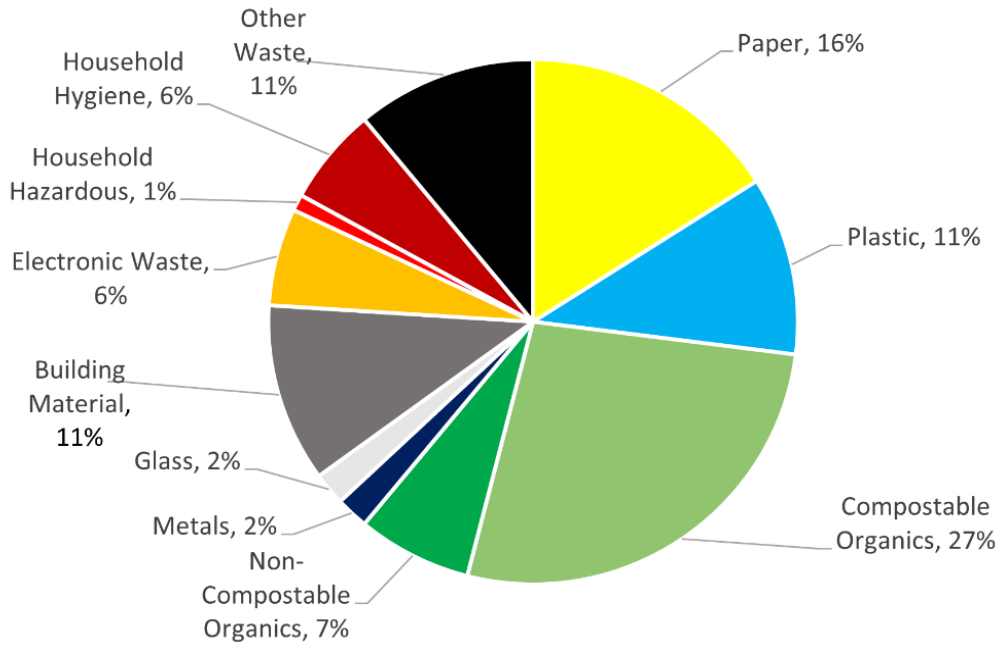

Figure 4-5: TS Garbage Composition

The top primary categories in TS garbage are broken down as follows:

- Compostable organics, mainly composed of avoidable food waste (18.1%), unavoidable food waste (2.7%), leaves, plants, and branches (1.8%), and sod (1.4%).
- Paper, primarily composed of tissues, paper towels, and other food-contaminated paper (4.4%), fine paper (3.6%), old corrugated cardboard (3.6%), and boxboard (2.0%).
- Plastic, primarily composed of recyclable film (3.2%), rigid containers (2.9%), other plastics (2.5%), and non-recyclable film (1.7%). Other plastics consisted of durable plastics such as laundry baskets and non-electric toys.
- Building materials consisted of other inorganics (3.3%), masonry (bricks, blocks, concrete, etc.) (3.1%), rock, sand, dirt, ceramic, and porcelain (1.4%), and treated or painted wood (0.9%). Other inorganics included items such as linoleum flooring, vinyl siding, and ceiling tiles.
- Other waste included bulky objects such as large furniture and mattresses (6.3%), and bagged garbage (3.7%).

4.3.2 TS Diversion Potential

Figure 4-6 summarizes the diversion potential of the TS garbage stream disposed at Foothills Landfill. The total diversion potential for the TS garbage stream was 59% and consisted of 26% compostable food waste, 14% recyclable material, 7% product stewardship materials, 5% drop off recycling, 5% depot recycling, and 2% compostable yard and garden.

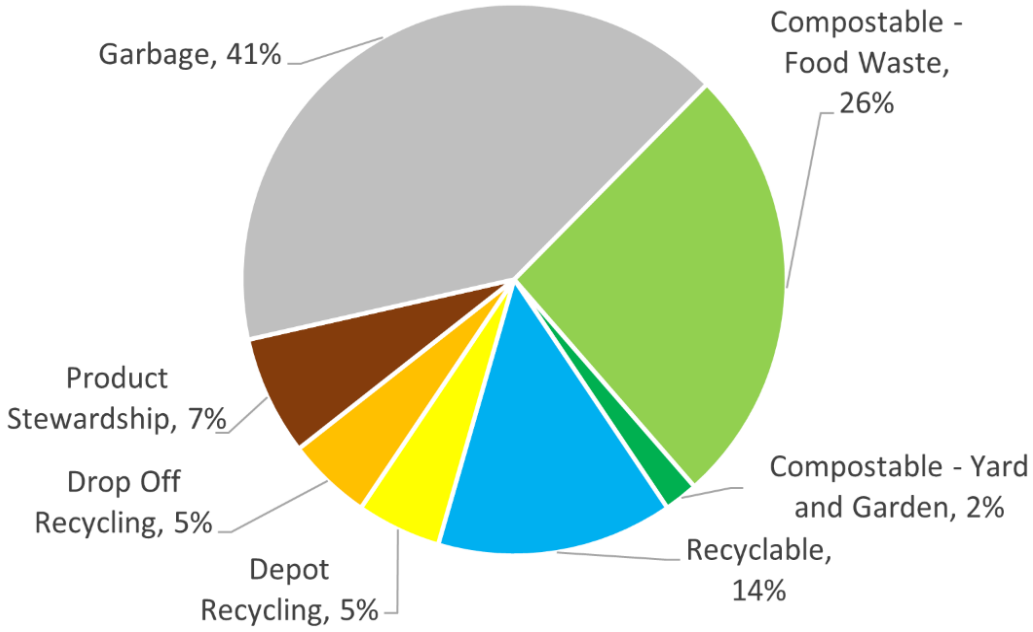

Figure 4-6: Diversion Potential of the TS Garbage Stream

The top three diversion options are broken down as follows:

- Compostable materials, composed of avoidable food waste (18.1%), tissues, paper towels, and other food-contaminated paper (4.4%), and unavoidable food waste (2.7%).
- Recyclable materials, which included fine paper (3.6%), old corrugated cardboard (3.6%), rigid containers (2.9%), and boxboard (2.0%).
- Product stewardship materials, which mainly included small appliances and floor care appliances (2.0%), and television and audio/video equipment (0.9%).

4.4 Commercial Drop-Off Sector

The following summarizes the waste composition results and diversion potential for CDO garbage characterized at Foothills Landfill. CDO samples were primarily waste from home demolition or renovation projects and were characterized using the visual estimates approach.

4.4.1 CDO Waste Composition Results

Figure 4-7 shows the average composition of the garbage stream from the CDO sector at Foothills Landfill in Fall 2023. This is a snapshot of the types and relative quantities of materials that were discarded by businesses at this time of the year.

CDO garbage was primarily composed of building materials (67%) and paper (27%). These two primary categories represent 94% of the CDO garbage stream.

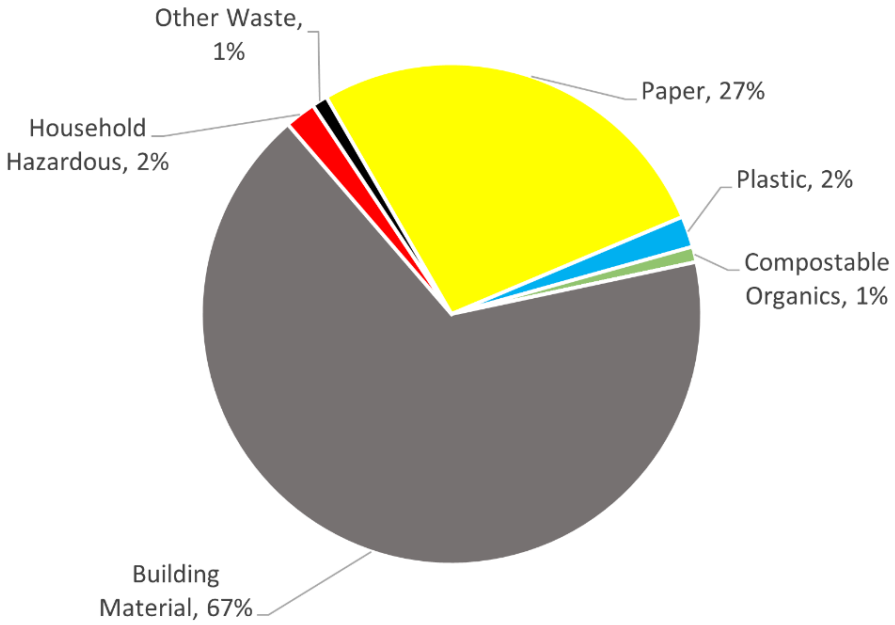

Figure 4-7: CDO Garbage Composition

The top primary categories in CDO garbage are broken down as follows:

- Building materials, primarily composed of rigid asphalt products (33.2%), gypsum/drywall, and plaster (16.6%), other inorganics (11.8%), and clean wood (4.7%). Other inorganics includes linoleum flooring, ceiling tiles, and plumbing pipes.
- Paper consisted of mainly old corrugated cardboard (10.5%), non-recyclable paper (5.8%), boxboard (5.2%), and fine paper (5.1%).

4.4.2 CDO Diversion Potential

Figure 4-8 summarizes the diversion potential of the CDO garbage stream disposed at Foothills Landfill. The total diversion potential was 31% and consisted of 21% recyclable materials, 5% drop off recycling, 2% depot recycling, 2% product stewardship materials, and 1% compostable yard and garden.

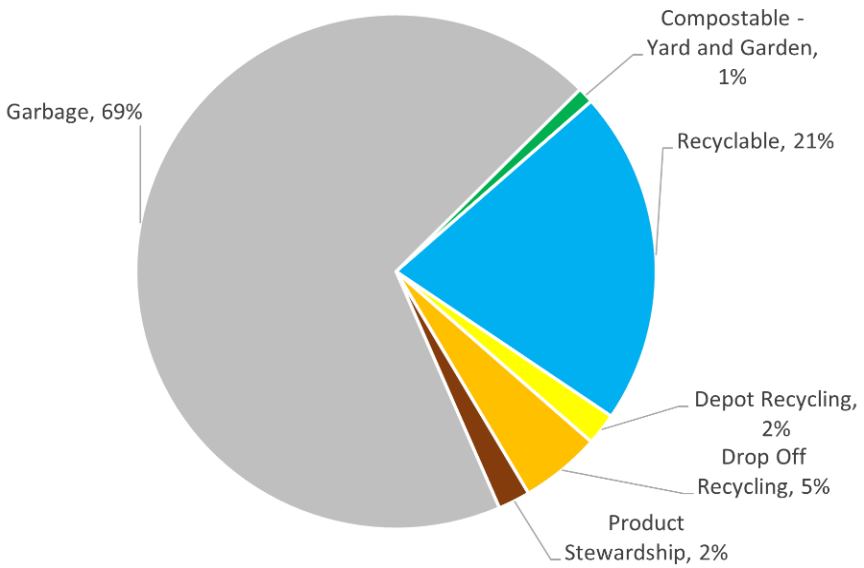

Figure 4-8: Diversion Potential of the CDO Garbage Stream

The top two diversion options are broken down as follows:

- Recyclable materials, which mainly included clean old corrugated cardboard (10.5%), boxboard (5.2%), and fine paper (5.1%).
- Drop off recycling almost entirely consisted of clean wood (4.7%).

4.5 Industrial, Commercial, and Institutional Sector

The following summarizes the waste composition results and diversion potential for ICI garbage characterized at Foothills Landfill. Samples primarily included garbage collected from businesses in RDFFG.

4.5.1 ICI Waste Composition Results

Figure 4-9 shows the average composition of the garbage stream from the ICI sector in Fall 2023. This is a snapshot of the types and relative quantities of materials that were discarded by businesses at this time of the year.

ICI garbage was primarily composed of building materials (28%), compostable organics (22%), paper (21%), and plastic (10%). These four primary categories represent 81% of the ICI garbage stream.

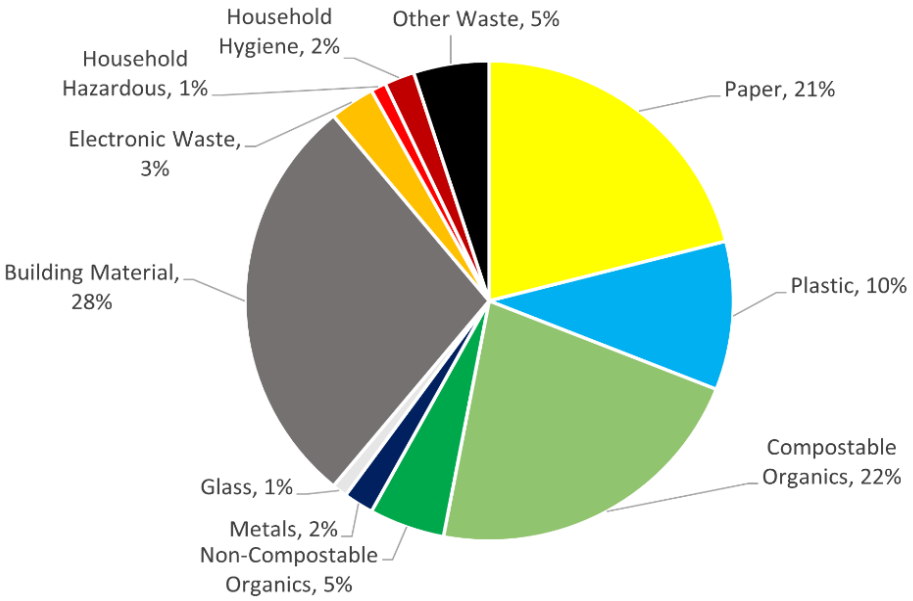

Figure 4-9: ICI Garbage Composition

The top primary categories in ICI garbage are broken down as follows:

- Building materials consisted of other inorganics (10.7%), clean wood (5.9%), scrap metal (5.9%), rock sand, dirt, ceramic, and porcelain (2.3%), treated or painted wood (1.8%).
- Compostable organics, mainly composed of avoidable food waste (14.7%), unavoidable food waste (3.2%), and woody waste (3.1%).
- Paper, primarily composed of fine paper (12.1%), tissues, paper towels, and other food-contaminated paper (3.5%), old corrugated cardboard (2.1%), and non-recyclable paper (1.6%).
- Plastic, primarily composed of rigid containers (3.2%), recyclable film (2.2%), other plastics such as toys and storage totes (2.0%), and non-recyclable film (1.7%).

4.5.2 ICI Diversion Potential

Figure 4-10 summarizes the diversion potential of the ICI garbage stream disposed at Foothills Landfill. The total diversion potential for the garbage stream was 69% and consisted of 22% compostable food waste, 20% recyclable materials, 12% drop off recycling, 8% depot recycling, 6% product stewardship materials, and 1% compostable yard and garden.

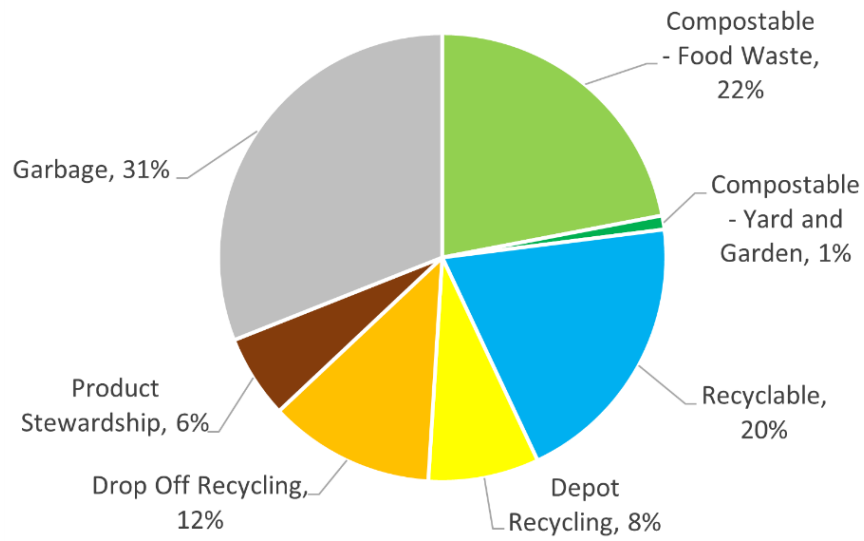

Figure 4-10: Diversion Potential of the ICI Garbage Stream

The top five diversion options are broken down as follows:

- Compostable materials, composed of avoidable food waste (14.7%), tissues, paper towels, and other food-contaminated paper (3.5%), and unavoidable food waste (3.2%).
- Recyclable materials, which included fine paper (12.1%), rigid containers (3.2%), old corrugated cardboard (2.1%), and paper packaging (1.3%).
- Drop off recycling, which mainly consisted of clean wood (5.9%), woody waste (3.1%), treated or painted wood (1.8%), and composite wood (1.4%).
- Depot recycling materials, which mainly consisted of scrap metal (5.9%) and recyclable film (2.2%).
- Product stewardship materials, which mainly included television and audio/video equipment (1.6%), tires (1.1%), and lighting equipment and light bulbs (0.9%).

4.6 Building Material Fraction Breakdown

Table 4-1 shows the secondary categories within the building materials primary category. Building materials make up approximately 4.1% to 67.3% across five sectors, with SF having the lowest proportion and CDO the highest. The most common secondary category overall was rigid asphalt products, largely coming from the CDO stream (33.2%). Treated or painted wood mainly came from the RDO stream (18.9%), and gypsum and drywall plaster were mostly contributed by the CDO stream (16.6%). Other inorganics, such as linoleum, vinyl flooring, ceiling tiles, and plumbing pipes were present across all five sectors ranging from 0.5% to11.8%.

Table 4-1. Breakdown of Building Material Category by Sector

Secondary Category	Overall	SF	RDO	TS	CDO	ICI
Gypsum and Drywall Plaster	4.1%	0.7%	2.1%	0.0%	16.6%	0.0%
Clean Wood	4.0%	0.6%	6.4%	0.6%	4.7%	5.9%
Treated or Painted Wood	2.6%	0.4%	18.9%	0.9%	0.5%	1.8%
Composite Wood	0.7%	0.6%	1.0%	0.3%	0.0%	1.4%
Scrap Metal	2.5%	0.3%	3.0%	0.3%	0.2%	5.9%
Masonry (ricks, blocks, concrete, etc.)	1.4%	0.1%	9.8%	3.1%	0.0%	0.0%
Rock, Sand, Dirt, Ceramic, Porcelain	1.2%	0.3%	1.5%	1.4%	0.0%	2.3%
Rigid Asphalt Products	7.7%	0.0%	0.0%	0.2%	33.2%	0.0%
Carpet Waste and Underlay	0.2%	0.6%	1.0%	0.1%	0.0%	0.0%
Insulation	0.3%	0.0%	0.0%	0.8%	0.3%	0.4%
Other Inorganics (linoleum, etc.)	7.5%	0.5%	4.3%	3.3%	11.8%	10.7%
Total Building Materials	**32.2%**	**4.1%**	**48.0%**	**11.0%**	**67.3%**	**28.4%**

5.0 COMPARISON TO PREVIOUS RESULTS

Figure 5-1 compares the 2018 and 2023 waste composition results by primary categories and by sector. The 2018 waste composition study was conducted in mid-June, while the 2023 study was conducted in late September and early October.

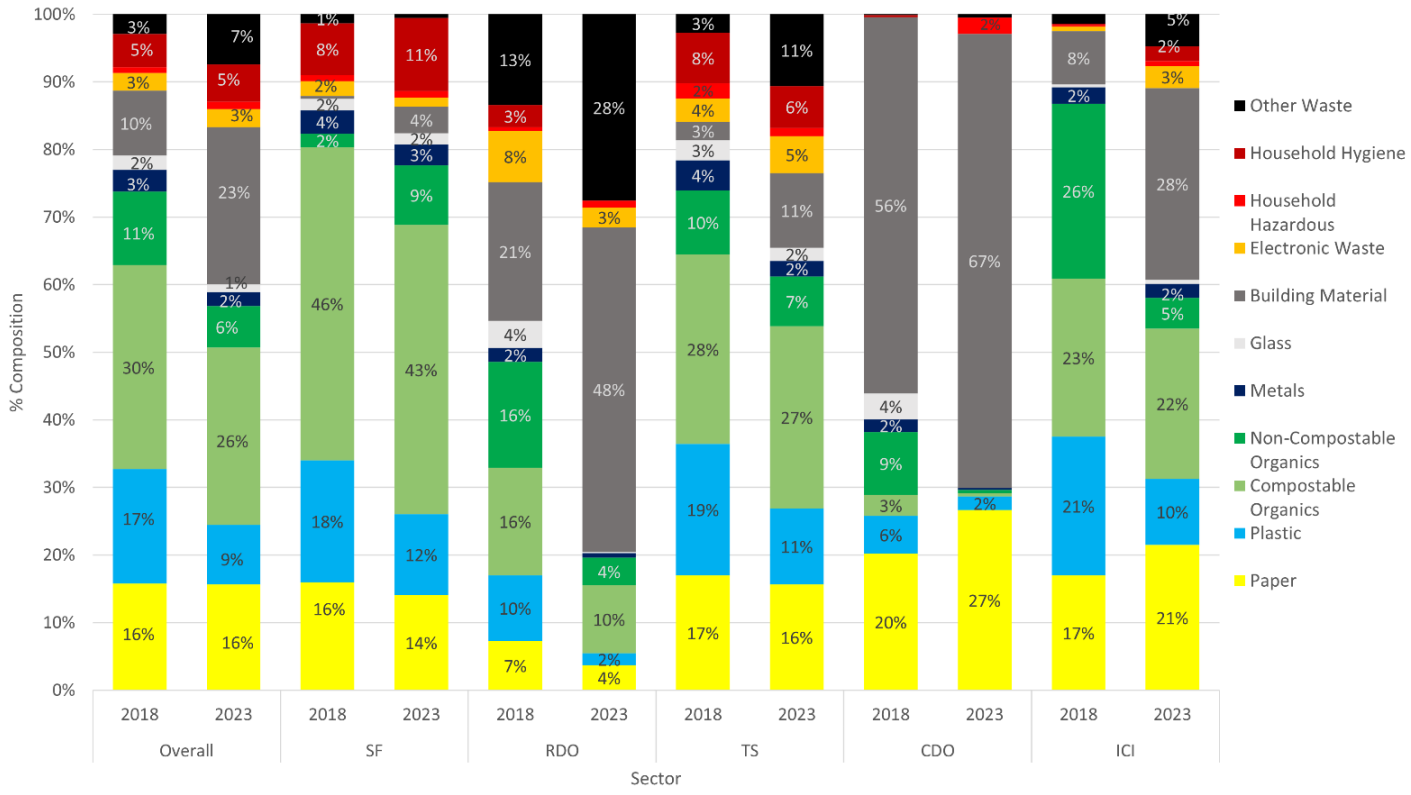

Figure 5-1: Comparison of 2018 and 2023 Results by Sector

The following are observations from the comparison of 2018 and 2023 data:

- Overall, building materials showed the largest change, increasing by 13% from 2018 to 2023. Decreases were observed in the primary categories of plastic (8%), non-compostable organics (5%), and compostable organics (4%).
- The 2018 and 2023 studies were conducted at different seasons, which may have contributed to the differences found between the two studies.
- In the SF sector, non-compostable organics increased by 7%, while plastic decreased by 6%.
- For the RDO sector, the largest changes were in the building material category, which increased by 27% in 2023 compared to 2018, and the other waste category, which increased by 15%. Decreases were observed in the non-compostable organics category (12%), plastic (8%), and compostable organics (6%). It should be noted the other waste primary category included bagged garbage in 2023 but not in 2018.
- In the TS sector, building materials and other waste both increased by 8% from 2018 to 2023, while plastic decreased by 8%.

- In the CDO sector, building materials increased by 11% and paper increased by 7%. A decrease of 9% was observed in the non-compostable organics category.
- For the ICI sector, the largest change was in the non-compostable organics category, which decreased by 21%. Other notable differences were in the building materials category, which increased by 20%, and plastic, which decreased by 11%.

6.0 EXTENDED PRODUCER RESPONSIBILTY

Table 6-1 summarizes the EPR materials found during the study. EPR categories are included in Appendix C. It should be noted that major appliances, such as dishwashers and ovens, would be managed by Major Appliances Recycling Roundtable; however, none were found during this study.

EPR items make up approximately 8.3% to 30.4% of the waste stream. The largest amount of EPR items were found in the ICI sector. In general, Recycle BC packaging (ranging from 3.0% to 17.6%) was the largest category of EPR items, followed by Recycle BC printed paper (ranges from 1.2% to 12.1%).

Table 6-1: Composition of Extended Producer Responsibility Items by Sector

Stewardship Agency	EPR Category	Overall	SF	RDO	TS	CDO	ICI
Call2Recycle, Canadian Battery Association	Rechargeable or Single-Use Batteries (<5 kg), Lead-Acid Batteries	0.1%	0.1%	0.2%	0.1%	0.0%	0.0%
ElectroRecycle, Outdoor Power Equipment Institute	Small Appliances and Power Tools, Outdoor Power Equipment	0.8%	0.6%	1.3%	2.1%	0.0%	0.7%
Encorp Pacific, Brewers Distributers Ltd.	Encorp Beverage Containers, Brewers Distributers Ltd. Beverage Containers	0.8%	0.9%	0.1%	1.7%	0.0%	1.0%
Health Products Stewardship Association	Medications	0.0%	0.2%	0.0%	0.1%	0.0%	0.0%
Heating, Refrigeration and Air Conditioning Institute of Canada	Heating, Ventilation, Air Conditioning, Refrigeration, Plumbing Products, Thermostats	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Interchange Recycling[3]	Oil and Antifreeze	0.2%	0.2%	0.0%	0.1%	0.0%	0.6%
Product Care	Alarms	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Lighting Equipment	0.5%	0.1%	0.9%	0.7%	0.0%	0.9%
	Paint, Pesticides, Solvents, Gasoline	0.7%	0.2%	0.8%	0.2%	2.3%	0.0%
Recycle BC	Newsprint, Other Printed Paper	6.6%	2.9%	1.2%	3.6%	5.1%	12.0%
	Packaging	13.7%	14.9%	3.0%	16.1%	17.6%	12.4%
Recycle My Electronics	Electronics (including Mobile Devices)	1.1%	0.5%	0.8%	2.4%	0.0%	1.7%
Tires Stewardship of BC	Tires	0.4%	0.0%	0.0%	0.0%	0.0%	1.1%
	EPR Products	**24.9%**	**20.6%**	**8.3%**	**27.1%**	**25.0%**	**30.4%**
	Non-EPR Products	**75.1%**	**79.4%**	**91.7%**	**72.9%**	**75.0%**	**69.6%**

[3] Previously known as BC Used Oil Management Association.

7.0 INTERESTING FINDS

Table 7-1 lists some of the notable, unexpected, and unusual materials found during the waste composition study. These materials will not necessarily skew the results as it is not atypical to have these types of materials present in the waste stream.

Table 7-1: List of Uncommon Materials Found During this Study

Waste Sector	Sample ID	Description	Photo
TS	FA23-TS-G-05	Sink	
ICI	FA23-ICI-G-02	Television Screen	
TS	FA23-TS-G-06	Ice Machine	
TS	FA23-TS-G-01	Computer	
SF	FA23-SF-G-09	Barbecue	

8.0 CLOSURE

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

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APPENDIX A

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LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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APPENDIX B

SELECTED PHOTOGRAPHS

Photo 1: Example of a Truck Tipping a Commercial Self-Haul Load

Photo 2: Example of an Industrial, Commercial, and Institutional Load

Photo 3: Example of a Residential Self-Haul Load

Photo 4: Example of a Single-Family Curbside Load

Photo 5: Example of a Transfer Station Load

Photo 6: Field Staff Collecting a Sample

Photo 7: Example of a 100 kg Sample for Hand Sorting

Photo 8: Field Staff Hand Sorting

Photo 9: Field Staff Conducting a Visual Estimate

Photo 10: Example of the Old Corrugated Cardboard Category

Photo 11: Example of the Paper Packaging Category

Photo 12: Example of the Foam Category

Photo 13: Example of the Rigid Containers Category

Photo 14: Example of the Recyclable Film Category

Photo 15: Example of the Grass Trimmings Category

Photo 16: Example of the Woody Waste Category

Photo 17: Example of the Leaves, Plants, and Branches Category

Photo 18: Example of the Food Waste – Avoidable Category

Photo 19: Example of the Food Waste – Non-Backyard Category

Photo 20: Example of the Textiles Category

Photo 21: Example of the Multiple/Composite Organic Materials Category

Photo 22: Example of the Food Containers, Trays, and Foil Wraps Category

Photo 23: Example of the Other Metals Category

Photo 24: Example of the Gypsum/Drywall, Plaster Category

Photo 25: Example of the Rock, Sand, Dirt, Ceramic, Porcelain Category

Photo 26: Example of the Computer and Peripherals Category

Photo 27: Example of the Small Appliances and Floor Care Appliances Category

Photo 28: Example of the Other Household Hazardous Waste Category

Photo 29: Example of the Personal Care Products Category

Photo 30: Example of the Diapers, Feminine Hygiene Products Category

APPENDIX C

MATERIAL CATEGORIES

Table C-1: Material Category Descriptions

	Category	Description and/or Examples	Diversion Potential	Density (kg/yd^3)	Stewardship Agency	EPR Category
01	**Paper**					
1	Fine Paper	Recyclable printed paper accepted by Recycle BC, including: ▪ Office paper, newspaper, magazines, catalogs, telephone books, calendars, brown kraft paper bags, envelopes, bills, gift cards, cash register receipts, gift wrap, shredded paper.	Recyclable	146.82	Recycle BC	Newsprint, Other Printed Paper
2	Clean Old Corrugated Cardboard	▪ Clean old corrugated cardboard, pizza boxes, moving boxes.	Recyclable	33.88	Recycle BC	Packaging
3	Non-Recyclable Paper	▪ Waxed and other non-recyclable old corrugated cardboard. ▪ Multi-layer packaging – paper with aluminium foil, or plastic layers – e.g., popcorn bags, pet food bags, photographs, foiled gift wrap.	Garbage	146.82	Non-EPR	Non-EPR
4	Boxboard	▪ Cracker boxes, tissue boxes, toilet paper cores.	Recyclable	33.88	Recycle BC	Packaging
5	Paper Packaging	▪ Coffee/drink cups, gable top cartons (non-beverage/deposits), aseptic boxes (non-beverage/deposits), spiral bound packaging, paper based take out containers, ice cream containers, microwavable food plates.	Recyclable	33.88	Recycle BC	Packaging
6	Bound Paper Products (Books)	▪ Hard and soft cover books.	Garbage	146.82	Non-EPR	Non-EPR
7	Paper Refundable Beverage Containers – Dairy and Dairy Substitute	▪ Paper refundable beverage containers for dairy and dairy substitutes. ▪ Gable top and drink box.	Product Stewardship	22.73	Encorp Pacific, BDL	Beverage Containers
8	Paper Refundable Beverage Containers – Non-Dairy	▪ Paper refundable beverage containers non-dairy. ▪ Drink box, gable top, wine-in-box.	Product Stewardship	22.73	Encorp Pacific, BDL	Beverage Containers
9	Tissues/Paper Towels, and Other Food-Contaminated Paper	▪ Tissue paper, paper towels, napkins, food soiled paper.	Compostable – Food Waste	210.45	Non-EPR	Non-EPR

	Category	Description and/or Examples	Diversion Potential	Density (kg/yd^3)	Stewardship Agency	EPR Category
02	**Plastic**					
10	Recyclable Plastic Film	Flexible plastics accepted at a Recycle BC depot, including: ▪ Plastic bags and overwrap – e.g., plastic bages for groceries; bags for produce; outer bags and wrap for diapers, paper towels, etc. ▪ Stand-up and zipper lock pouches – e.g., zipper lock pouches for frozen or fresh foods; stand-up pouches for baby food, granola, etc. ▪ Crinkly wrappers and bags – e.g., bags for potato chips, candy, dried pasta, cereal; wrappers for snack bars, instant noodles, etc. ▪ Flexible packaging with plastic seal – e.g., packaging for fresh pasta, deli meats, etc. ▪ Woven and net plastic bags – e.g., net bags for fruits; woven plastic bags for rice. ▪ Non-food protective packaging – e.g., plastic shipping evelopes, bubble wrap.	Depot Recycling	15.91	Recycle BC	Packaging
11	Non-Recyclable Plastic Film	Flexible plastics NOT accepted at a Recycle BC depot, including: ▪ Purchased garbage bags. ▪ Six-pack rings.	Garbage	15.91	Recycle BC	Packaging
12	Plastic Refundable Beverage Containers – Dairy and Dairy Substitute	Plastic refundable containers for milk and milk substitutes.	Product Stewardship	18.36	Encorp Pacific/BDL	Beverage Containers
13	Plastic Refundable Beverage Containers – Non-Dairy	Plastic refundable containers non-dairy beverages (alcoholic and non-alcholic).	Product Stewardship	18.36	Encorp Pacific, BDL	Beverage Containers
14	Recyclable Rigid Plastic Packaging	Recyclable rigid plastic products accepted by Recycle BC program, including: ▪ #1 to #7 containers. ▪ Clamshells. ▪ Bakery trays. ▪ Shampoo bottles. ▪ Yoghurt tubs. ▪ Laundry soap.	Recyclable	18.36	Recycle BC	Packaging

	Category	Description and/or Examples	Diversion Potential	Density (kg/yd^3)	Stewardship Agency	EPR Category
		Other recyclable plastic products, such as: ▪ Plastic plant pots and saucers. ▪ Plastic pails less than 25 L. ▪ Single-use plastic cups. ▪ Single-use plastic takeout containers. ▪ Single-use plastic straws and cutlery.				
15	Foam	Foam packaging: ▪ Meat trays, egg cartons, takeout containers.	Depot Recycling	14.55	Recycle BC	Packaging
16	Compostable Plastics	All plastics labelled “biodegradable” or “compostable” (film, rigid plastic, cutlery).	Garbage	15.91	Non-EPR	Non-EPR
17	Other Plastics	Plastic products NOT accepted by Recycle BC, including: ▪ Durable plastic products. ▪ Red solo cups. ▪ Toys without batteries. ▪ Laundry baskets. ▪ Garden hose.	Garbage	15.91	Non-EPR	Non-EPR
03	**Compostable Organics**					
18	Grass Trimmings	Grass, lawn clippings.	Compostable – Yard and Garden	113.64	Non-EPR	Non-EPR
19	Leaves, Plants, and Branches	Leaves, trimmings, plants, hedge clippings, flowers (<3” diameter).	Compostable – Yard and Garden	113.64	Non-EPR	Non-EPR
20	Woody Waste	Tree branches, tree stumps etc. (>3” diameter).	Drop Off Recycling	76.82	Non-EPR	Non-EPR
21	Sod	Sod.	Garbage	113.64	Non-EPR	Non-EPR
22	Soil	Clean Soil.	Garbage	390.91	Non-EPR	Non-EPR
23	Other Yard Waste	Ash, charcoal.	Garbage	113.64	Non-EPR	Non-EPR
24	Accepted Food Waste – Unavoidable	Banana peels, citrus rinds, melon rinds, coffee grounds/pods, eggshells.	Compostable – Food Waste	210.45	Non-EPR	Non-EPR
25	Accepted Food Waste – Avoidable	Whole fruits and vegetables, meat, bread, prepared meals, fruits and vegetables trimmings and peels.	Compostable – Food Waste	210.45	Non-EPR	Non-EPR

	Category	Description and/or Examples	Diversion Potential	Density (kg/yd^3)	Stewardship Agency	EPR Category
26	Food Waste – Non-Backyard	Bones, fats, oils.	Compostable – Food Waste	210.45	Non-EPR	Non-EPR
27	Other Compostable Organics	Wooden utensils, corks, animal carcasses.	Compostable – Food Waste	113.64	Non-EPR	Non-EPR
04	**Non-Compostable Organics**					
28	Rubber	Rubber gloves, rubber bands.	Garbage	125.00	Non-EPR	Non-EPR
29	Tires	Bike tires, car tires, inner tubes.	Product Stewardship	125.00	Tire Stewardship of British Columbia	Tires
30	Textiles	Clothing (natural fibres, blends, polyester, Gore-Tex, fleece, nylon, etc.), bedding, dryer sheets, reusable totes.	Garbage	68.18	Non-EPR	Non-EPR
31	Multiple/Composite Organic Materials	Shoes, purses, soft toys, meat pads.	Garbage	125.00	Non-EPR	Non-EPR
05	**Metal**					
32	Metal Refundable Beverage Containers – Alcoholic	Aluminum or steel alcoholic beverage containers.	Product Stewardship	20.91	Encorp Pacific, BDL	Beverage Containers
33	Metal Refundable Beverage Containers – Non-Alcoholic	Aluminum or steel non-alcoholic beverage containers (includes milk and milk substitutes).	Product Stewardship	20.91	Encorp Pacific, BDL	Beverage Containers
34	Recyclable Metal Food Containers, Trays or Foil Wraps	Steel and aluminum food containers, aluminum foil and trays, pie trays, steel and aluminum aerosols.	Recyclable	102.27	Recycle BC	Packaging
35	Other Metal	Pots and pans, coat hangers, metal parts (excludes building materials).	Garbage	102.27	Non-EPR	Non-EPR
06	**Glass**					
36	Glass Refundable Beverage Containers – Alcoholic	Glass alcoholic deposit beverage containers.	Product Stewardship	172.73	Encorp Pacific, BDL	Beverage Containers
37	Glass Refundable Beverage Containers – Non-Alcoholic	Glass non-alcoholic deposit beverage containers (includes milk and milk substitutes).	Product Stewardship	172.73	Encorp Pacific, BDL	Beverage Containers
38	Non-Refundable Glass Beverage Containers	Home brew bottles, bottles purchased outside of British Columbia (e.g. Alberta or USA).	Depot Recycling	172.73	Recycle BC	Packaging

	Category	Description and/or Examples	Diversion Potential	Density (kg/yd^3)	Stewardship Agency	EPR Category
39	Recyclable Glass Food Containers	Glass bottle and jars.	Depot Recycling	172.73	Recycle BC	Packaging
40	Other Glass	Broken glass, mirrors, sheet glass, ceramics, glasses, etc.	Garbage	172.73	Non-EPR	Non-EPR
07	**Building Materials**					
41	Gypsum and Drywall Plaster	Off cuts and scraps and used drywall material, treated as hazardous and not sorted.	Garbage	212.27	Non-EPR	Non-EPR
42	Clean Wood	Untreated wood, off cuts, compostable pallets, dimensional lumber (no paint, no treatment).	Drop-Off Recycling	76.82	Non-EPR	Non-EPR
43	Treated or Painted Wood	Treated, heavily painted or stained, or contains large amounts of other material. Dirty wood (preserved wood, wood with glue or bonded contamination, painted wood).	Drop-Off Recycling	76.82	Non-EPR	Non-EPR
44	Composite Wood	Manufactured products made with a blend of wood fibres and inorganic materials like plastic including: ▪ Particleboard. ▪ Plywood. ▪ Oriented strand lumber. ▪ Composite decking.	Drop-Off Recycling	76.82	Non-EPR	Non-EPR
45	Scrap Metal	Ferrous and non-ferrous metal building materials, including sheet metal siding, roofing, rebar, flashings, pipe, window frames, doors, wire, bathtubs, fencing, and heating, ventilation and air conditioning conduits.	Depot Recycling	102.27	Non-EPR	Non-EPR
46	Masonry and Bricks	Rubble, cinder blocks, concrete with rebar.	Drop-Off Recycling	390.91	Non-EPR	Non-EPR
47	Rock, Sand, Dirt, Ceramic, Porcelain	Tiles, toilets.	Garbage	390.91	Non-EPR	Non-EPR
48	Asphalt Products	Asphalt roofing shingles and tarpaper.	Garbage	391.91	Non-EPR	Non-EPR
49	Carpet	Carpet and underlay.	Garbage	66.82	Non-EPR	Non-EPR
50	Insulation	Fiberglass insulation, spray insulation	Garbage	66.82	Non-EPR	Non-EPR
51	Other Inorganics	Linoleum flooring, vinyl siding, ceiling tiles, plumbing pipes.	Garbage	189.55	Non-EPR	Non-EPR

	Category	Description and/or Examples	Diversion Potential	Density (kg/yd^3)	Stewardship Agency	EPR Category
08	**Electronics**					
52	Computer and Peripherals	Laptops, computer monitors, keyboards, mouse.	Product Stewardship	160.91	Recycle My Electronics	Electronics
53	Television and Audio/Video Equipment	Televisions, stereo, camera, headphones, ear buds.	Product Stewardship	155.91	Recycle My Electronics	Electronics
54	Telephones and Equipment	Handheld phones, wireless phones, cell phones, phone chargers.	Product Stewardship	199.09	Recycle My Electronics	Electronics
55	Small Appliances and Floor Care Appliances	Toaster, coffee maker, vacuum cleaner.	Product Stewardship	199.09	ElectroRecycle, Outdoor Power Equipment Institute Canada	Small Appliances and Power Tools
56	Electronic or Electrical Tools	Lawn mower, drill, line trimmer.	Product Stewardship	199.09	ElectroRecycle, Outdoor Power Equipment Institute Canada	Small Appliances and Power Tools
57	Electronic Toys	Video game consoles, ride on electric toy, battery operated toy.	Product Stewardship	199.09	Recycle My Electronics	Electronics
58	Lighting Equipment and Light Bulbs	Light fixture, light bulbs, ballasts, Christmas lights.	Product Stewardship	199.09	Product Care	Lighting Equipment
59	Smoke and Carbon Monoxide Detectors	Smoke detectors, carbon monoxide detectors.	Product Stewardship	199.09	Product Care	Alarms
60	Other Electronic Waste	Any plug in or battery operated electronic waste that is not accepted by an Extended Producer Responsibility (EPR) Program and does not fall into the above categories.	Garbage	199.09	Non-EPR	Non-EPR
09	**Household Hazardous Waste**					
61	Batteries	Single-use, rechargeable, lead acid.	Product Stewardship	125.00	Call2Recycle, Canadian Battery Association	Rechargeable or Single-Use Batteries (<5 kg), Lead-Acid Batteries

	Category	Description and/or Examples	Diversion Potential	Density (kg/yd^3)	Stewardship Agency	EPR Category
62	Paint	Paint, empty paint container, primer, empty primer container, spray paint (excludes non-industrial paint).	Product Stewardship	775.76	Product Care	Paint, Pesticides, Solvents, or Gasoline
63	Fertilizers and Pesticides	Fertilizers, pesticides – containers with pest control number and “skull and cross bones” symbol.	Product Stewardship	775.76	Product Care	Paint, Pesticides, Solvents, or Gasoline
64	Automotive	Motor oil, oil filters, antifreeze, empty motor oil container.	Product Stewardship	775.76	Interchange Recycling	Oil and Antifreeze
65	Pharmaceuticals	Prescription drugs, over-the-counter medications, natural health products.	Product Stewardship	125.00	Health Products Stewardship Association	Medications
66	Solvents	Gasoline, flammable solvents.	Product Stewardship	775.76	Product Care	Paint, Pesticides, Solvents, or Gasoline
67	Cosmetics	Blush, eye-shadow, mascara, foundation, lipstick, etc.	Garbage	125.00	Non-EPR	Non-EPR
68	Mercury Containing Items – Thermostats and Switches	Mercury containing thermostats and switches.	Product Stewardship	199.09	Heating, Refrigeration and Air Conditioning Institute of Canada	Thermostats
69	Mercury Containing Items – Other (Old Thermometers)	Other mercury containing items.	Garbage	199.09	Heating, Refrigeration and Air Conditioning Institute of Canada	Thermostats

	Category	Description and/or Examples	Diversion Potential	Density (kg/yd^3)	Stewardship Agency	EPR Category
70	Other Household Hazardous Waste – Not Accepted by EPR Programs	Household hazardous waste that is NOT managed by EPR programs, including: ▪ Craft paint. ▪ Non-accepted fertilizers and pesticides. ▪ Windshield washer fluid. ▪ Household cleaners. ▪ Propane and pressurized tanks – butane. ▪ COVID-19 rapid antigen tests.	Garbage	125.00	Non-EPR	Non-EPR
10	**Household Hygiene**					
71	Diapers, Feminine Hygiene Products	Infant diapers, adult diapers, feminine hygiene products, hair, floss, makeup wipes.	Garbage	125.00	Non-EPR	Non-EPR
72	Pet Waste	Kitty litter, dog waste, bird, small rodent.	Garbage	125.00	Non-EPR	Non-EPR
73	Personal Care Products	Full or partially full containers with non-hazardous products, including: ▪ Hair spray. ▪ Bug spray. ▪ Sunscreen. ▪ Soap. ▪ Shampoo. ▪ Hair dye.	Garbage	125.00	Non-EPR	Non-EPR
11	**Other**					
74	Bulky Objects	Mattresses, furniture, white goods.	Garbage	65.91	Non-EPR	Non-EPR
75	Fines	Fines and misc. garbage >1".	Garbage	125.00	Non-EPR	Non-EPR
76	Bagged Garbage	Bagged garbage (visual estimates only).	Garbage	125.00	Non-EPR	Non-EPR

Notes
BDL – Brewers Distributers Ltd.
Encorp – Encorp Pacific.
EPR – Extended Producer Responsibility.

APPENDIX D

WASTE COMPOSITION RESULTS

Table D-1: Waste Composition Results – by Sector

Category	Overall	SF	RDO	TS	CDO	ICI
01 Paper	**18.9%**	**14.1%**	**3.7%**	**15.7%**	**26.6%**	**21.5%**
01 Fine Paper	6.6%	2.9%	1.2%	3.6%	5.1%	12.1%
02 Clean Old Corrugated Cardboard	4.1%	1.6%	1.7%	3.6%	10.5%	2.1%
03 Non-Recyclable Paper	2.3%	1.1%	0.0%	1.1%	5.8%	1.6%
04 Boxboard	2.2%	2.2%	0.3%	2.0%	5.2%	0.7%
05 Packaging	0.7%	0.8%	0.0%	0.9%	0.0%	1.3%
06 Bound Paper Products (Books)	0.2%	0.6%	0.5%	0.1%	0.0%	0.1%
07 Paper Refundable Beverage Containers – Dairy and Dairy Substitute	0.1%	0.1%	0.0%	0.1%	0.0%	0.1%
08 Paper Refundable Beverage Containers – Non-Dairy	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%
09 Tissues, Paper Towels, and Other Food-Contaminated Paper	2.7%	4.7%	0.0%	4.4%	0.0%	3.5%
02 Plastic	**7.9%**	**11.9%**	**1.7%**	**11.2%**	**2.0%**	**9.8%**
10 Recyclable Plastic Film	2.0%	3.1%	0.0%	3.2%	0.8%	2.2%
11 Non-Recyclable Plastic Film	1.3%	1.8%	0.2%	1.7%	0.3%	1.7%
12 Plastic Refundable Beverage Containers – Dairy and Dairy Substitute	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%
13 Plastic Refundable Beverage Containers – Non-Dairy	0.3%	0.2%	0.1%	0.4%	0.0%	0.5%
14 Recyclable Rigid Plastic Packaging	2.2%	3.3%	0.4%	2.9%	0.1%	3.2%
15 Foam	0.2%	0.2%	0.1%	0.4%	0.5%	0.0%
16 Compostable Plastics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
17 Other Plastics	1.8%	3.1%	0.9%	2.5%	0.2%	2.0%
03 Compostable Organics	**20.5%**	**42.8%**	**10.1%**	**27.0%**	**0.5%**	**22.2%**
18 Grass Trimmings	1.2%	6.0%	1.3%	0.0%	0.1%	0.0%
19 Leaves, Plants, and Branches	2.3%	9.8%	1.1%	1.8%	0.4%	0.4%
20 Woody Waste	2.1%	2.6%	4.5%	0.6%	0.0%	3.1%
21 Sod	0.8%	2.4%	0.7%	1.4%	0.0%	0.3%
22 Soil	0.4%	0.2%	2.2%	1.3%	0.0%	0.1%
23 Other Yard Waste	0.1%	0.1%	0.3%	0.0%	0.0%	0.0%
24 Accepted Food Waste – Unavoidable	2.3%	4.1%	0.0%	2.7%	0.0%	3.2%
25 Accepted Food Waste – Avoidable	10.8%	16.6%	0.0%	18.1%	0.0%	14.7%
26 Food Waste – Non-Backyard	0.3%	0.8%	0.0%	0.5%	0.0%	0.3%
27 Other Compostable Organics	0.1%	0.3%	0.0%	0.5%	0.0%	0.1%
04 Non-Compostable Organics	**4.7%**	**8.8%**	**4.0%**	**7.3%**	**0.5%**	**4.6%**
28 Rubber	0.4%	0.3%	0.1%	0.9%	0.4%	0.4%
29 Tires	0.4%	0.0%	0.0%	0.0%	0.0%	1.1%
30 Textiles	2.7%	5.5%	2.3%	3.8%	0.0%	2.6%
31 Multiple/Composite Organic Materials	1.3%	3.0%	1.6%	2.6%	0.0%	0.6%

Category	Overall	SF	RDO	TS	CDO	ICI
05 Metal	**1.8%**	**3.1%**	**0.7%**	**2.4%**	**0.3%**	**2.1%**
32 Metal Refundable Beverage Containers – Alcoholic	0.0%	0.1%	0.0%	0.1%	0.0%	0.1%
33 Metal Refundable Beverage Containers – Non- Alcoholic	0.1%	0.1%	0.0%	0.1%	0.0%	0.1%
34 Recyclable Metal Food Containers, Trays, or Foil Wraps	0.6%	1.0%	0.0%	0.7%	0.0%	0.9%
35 Other Metal	1.0%	1.9%	0.6%	1.4%	0.3%	1.0%
06 Glass	**0.8%**	**1.6%**	**0.2%**	**1.9%**	**0.0%**	**0.6%**
36 Glass Refundable Beverage Containers – Alcoholic	0.2%	0.1%	0.0%	0.8%	0.0%	0.0%
37 Glass Refundable Beverage Containers – Non-Alcoholic	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%
38 Non-Refundable Glass Beverage Containers	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
39 Recyclable Glass Food Containers	0.3%	0.8%	0.2%	0.8%	0.0%	0.1%
40 Other Glass	0.2%	0.6%	0.0%	0.3%	0.0%	0.3%
07 Building Materials	**32.2%**	**4.0%**	**48.0%**	**11.1%**	**67.2%**	**28.4%**
41 Gypsum and Drywall Plaster	4.1%	0.7%	2.1%	0.0%	16.6%	0.0%
42 Clean Wood	4.0%	0.6%	6.4%	0.6%	4.7%	5.9%
43 Treated or Painted Wood	2.6%	0.4%	18.9%	0.9%	0.5%	1.8%
44 Composite Wood	0.7%	0.6%	1.0%	0.3%	0.0%	1.4%
45 Scrap Metal	2.5%	0.3%	3.0%	0.3%	0.2%	5.9%
46 Masonry and Bricks	1.4%	0.1%	9.8%	3.1%	0.0%	0.0%
47 Rock, Sand, Dirt, Ceramic, Porcelain	1.2%	0.3%	1.5%	1.4%	0.0%	2.3%
48 Asphalt Products	7.7%	0.0%	0.0%	0.2%	33.2%	0.0%
49 Carpet	0.2%	0.6%	1.0%	0.1%	0.0%	0.0%
50 Insulation	0.3%	0.0%	0.0%	0.8%	0.3%	0.4%
51 Other Inorganics	7.5%	0.5%	4.3%	3.3%	11.8%	10.7%
08 Electronics	**2.5%**	**1.3%**	**2.9%**	**5.4%**	**0.0%**	**3.3%**
52 Computers and Peripherals	0.2%	0.3%	0.0%	0.9%	0.0%	0.0%
53 Television and Audio/Video Equipment	0.8%	0.0%	0.8%	0.9%	0.0%	1.6%
54 Telephones and Equipment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
55 Small Appliances and Floor Care Appliances	0.7%	0.6%	1.3%	2.0%	0.0%	0.7%
56 Electronic or Electrical Tools	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
57 Electronic Toys	0.1%	0.2%	0.0%	0.5%	0.0%	0.1%
58 Lighting Equipment and Light Bulbs	0.5%	0.1%	0.9%	0.7%	0.0%	0.9%
59 Smoke and Carbon Monoxide Detectors	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
60 Other Electronic Waste	0.1%	0.1%	0.0%	0.3%	0.0%	0.0%
09 Household Hazardous Waste	**1.2%**	**1.0%**	**1.0%**	**1.3%**	**2.4%**	**0.7%**
61 Batteries	0.1%	0.1%	0.2%	0.1%	0.0%	0.0%
62 Paint	0.7%	0.2%	0.8%	0.2%	2.4%	0.0%
63 Fertilizers and Pesticides	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Category	Overall	SF	RDO	TS	CDO	ICI
64 Automotive	0.2%	0.2%	0.0%	0.1%	0.0%	0.6%
65 Pharmaceuticals	0.0%	0.2%	0.0%	0.1%	0.0%	0.0%
66 Solvents	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
67 Cosmetics	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
68 Mercury Containing Items – Thermostats and Switches	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
69 Mercury Containing Items – Other (Old Thermometers)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
70 Other Household Hazardous Waste – Not Accepted by Extended Producer Responsibility Programs	0.2%	0.3%	0.0%	0.7%	0.0%	0.1%
10 Household Hygiene	**3.6%**	**10.8%**	**0.0%**	**6.2%**	**0.0%**	**2.2%**
71 Diapers, Feminine Hygiene Products	2.0%	6.0%	0.0%	2.2%	0.0%	1.8%
72 Pet Waste (Kitty Litter and Dog Waste)	1.3%	4.3%	0.0%	3.8%	0.0%	0.0%
73 Personal Care Products	0.2%	0.5%	0.0%	0.2%	0.0%	0.4%
11 Other	**5.9%**	**0.5%**	**27.6%**	**10.6%**	**0.5%**	**4.7%**
74 Bulky Objects	3.4%	0.1%	18.0%	6.3%	0.0%	2.3%
75 Fines	0.3%	0.4%	0.0%	0.6%	0.0%	0.3%
76 Bagged Garbage	2.3%	0.0%	9.5%	3.7%	0.5%	2.2%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Notes
CDO – Commercial Drop-Off.
ICI – Industrial, Commercial, and Institutional.
RDO – Residential Drop-Off.
SF – Single Family.
TS – Transfer Station.

APPENDIX E

COMMUNITY PROFILES

The following is a summary of the waste composition of the Mackenzie Transfer Station garbage stream. Two garbage samples arriving at the Foothills Boulevard Regional Landfill on September 26 and September 27, 2023, were characterized. Each sample was approximately 100 kg. The study was conducted by Tetra Tech Canada Inc. (Tetra Tech) at the request of the Regional District of Fraser-Fort George (RDFFG).

Figure 1 represents the average material composition found in the Mackenzie Transfer Station garbage stream. This is a snapshot of the types and relative quantities of materials that were dropped off by residents and small businesses at the Mackenzie Transfer Station. Materials were primarily composed of paper (21%), compostable organics (19%), non-compostable organics (16%), plastics (14%), and household hygiene (13%), by weight.

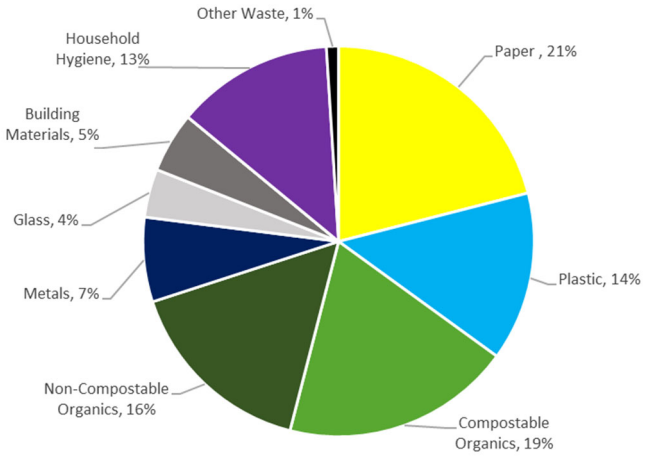

Figure 1: Composition of the Mackenzie Transfer Station Garbage Stream

Figure 2 summarizes the diversion potential found in the Mackenzie Transfer Station garbage stream, which represents the percentage of materials that could be diverted through composting (food waste or yard and garden), recycling (depot, curbside, or drop off), and product stewardship waste diversion programs. Recycling can be diverted through the current blue box curbside system, depot recycling services provided by the regional district, or a private recycling service for a fee. The total diversion potential was found to be 52%, which consists of 24% compostable materials (24% food waste and less than 1% yard and garden), 18% recyclable materials, 6% depot recycling, 3% product stewardship materials, and 1% drop off recycling.

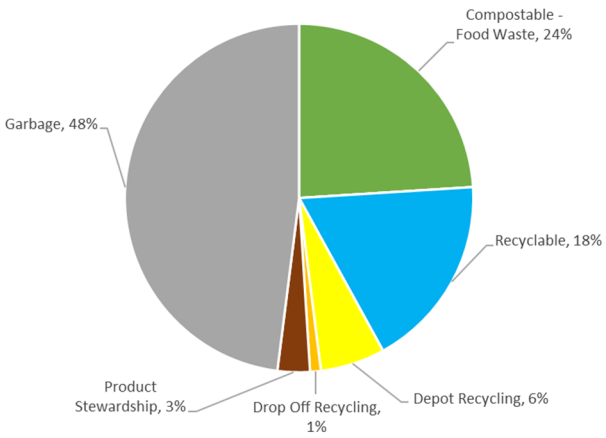

Figure 2: Diversion Potential in the Mackenzie Transfer Station Garbage Stream

The most commonly found divertible materials were accepted avoidable food waste (15.3%), clean old corrugated cardboard (8.5%), tissue, paper towels, and other food-contaminated paper (5.1%), recyclable film (3.7%), fine paper (3.2%), and recyclable rigid plastic packaging (2.8%). Table 1 summarizes the waste composition results in more detail.

PHOTOS AND EXAMPLES OF DIVERTIBLE MATERIAL

Photo 1: Plastic Refundable Beverage Containers – Non-Dairy

Photo 2: Clean Old Corrugated Cardboard

Photo 3: Accepted Food Waste – Avoidable

Photo 4: Glass Refundable Beverage Containers – Alcoholic

Photo 5: Recyclable Film

Photo 6: Batteries

Table 1: Mackenzie Transfer Station Garbage Composition Results

Materials	Percentage by Weight
Compostable – Food Waste	**23.9%**
Accepted Food Waste – Avoidable	15.3%
Food Waste – Non-Backyard	1.1%
Accepted Food Waste – Unavoidable	2.4%
Other Compostable Organics	0.0%
Tissues/Paper Towels, and Other Food-Contaminated Paper	5.1%
Compostable – Yard and Garden	**0.4%**
Grass Trimmings	0.0%
Leaves, Plants, and Branches	0.4%
Recyclable	**18.5%**
Boxboard	2.6%
Fine Paper	3.2%
Recyclable Metal Food Containers, Trays, or Foil Wraps	0.8%
Clean Old Corrugated Cardboard	8.5%
Paper Packaging	0.6%
Recyclable Rigid Plastic Packaging	2.8%
Depot Recycling	**5.7%**
Recyclable Plastic Film	3.7%
Foam	0.3%
Recyclable Glass Food Containers	1.7%
Non-Refundable Glass Beverage Containers	0.0%
Scrap Metal	0.0%
Drop Off Recycling	**0.7%**
Clean Wood	0.6%
Composite Wood	0.0%
Masonry and Bricks	0.1%
Treated or Painted Wood	0.0%
Woody Waste	0.0%
Product Stewardship	**3.1%**
Automotive	0.2%
Batteries	0.2%
Computers and Peripherals	0.0%
Electronic or Electrical Tools	0.0%
Electronic Toys	0.0%
Fertilizers and Pesticides	0.0%

Materials	Percentage by Weight
Glass Refundable Beverage Containers – Non-Alcoholic	0.0%
Glass Refundable Beverage Containers – Alcoholic	1.6%
Lighting Equipment and Light Bulbs	0.1%
Mercury Containing Items – Thermostats and Switches	0.0%
Metal Refundable Beverage Containers – Non-Alcoholic	0.1%
Metal Refundable Beverage Containers – Alcoholic	0.1%
Paint	0.0%
Paper Refundable Beverage Containers – Dairy and Dairy Substitute	0.0%
Paper Refundable Beverage Containers – Non-Dairy	0.0%
Pharmaceuticals	0.0%
Plastic Refundable Beverage Containers – Dairy and Dairy Substitute	0.0%
Plastic Refundable Beverage Containers – Non-Dairy	0.7%
Small Appliances and Floor Care Appliances	0.0%
Smoke and Carbon Monoxide Detectors	0.0%
Solvents	0.0%
Telephones and Equipment	0.0%
Tires	0.0%
Television and Audio/Video Equipment	0.1%
Garbage	**47.7%**
Bagged Garbage	0.0%
Bound Paper Products (Books)	0.1%
Bulky Objects	0.0%
Carpet	0.0%
Compostable Plastics	0.0%
Cosmetics	0.0%
Diapers, Feminine Hygiene Products	2.7%
Non-Recyclable Plastic Film	1.9%
Fines	1.0%
Gypsum and Drywall Plaster	0.0%
Insulation	0.3%
Mercury Containing Items – Other (Old Thermometers)	0.0%
Multiple/Composite Organic Materials	3.4%
Non-Recyclable Paper	1.0%
Other Electronic Waste	0.0%
Other Glass	0.2%
Other Household Hazardous Waste – Not Accepted by EPR Programs	0.1%

Materials	Percentage by Weight
Other Inorganics	0.0%
Other Metal	5.6%
Other Plastics	4.9%
Other Yard Waste	0.0%
Personal Care Products	0.1%
Pet Waste	9.9%
Asphalt Products	0.0%
Rock, Sand, Dirt, Ceramic, Porcelain	4.1%
Rubber	4.1%
Sod	0.0%
Soil	0.0%
Textiles	8.3%
Total	**100.0%**

Notes:
EPR – Extended Producer Responsibility.

NOTE TO THE READER

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The following is a summary of the waste composition of the City of Prince George's (City's) curbside collection garbage stream. A total of 19 curbside garbage samples arriving at the Foothills Boulevard Regional Landfill from September 25 to October 6, 2023, were characterized. Each sample was approximately 100 kg. The study was conducted by Tetra Tech Canada Inc. (Tetra Tech) at the request of the Regional District of Fraser-Fort George (RDFFG).

Figure 1 represents the average material composition found in the City's single family curbside garbage stream. This is a snapshot of the types and relative quantities of materials that were collected by the city's curbside collection program. Collected materials were primarily composed of compostable organics (43%), paper (14%), plastic (12%), and household hygiene (11%), by weight.

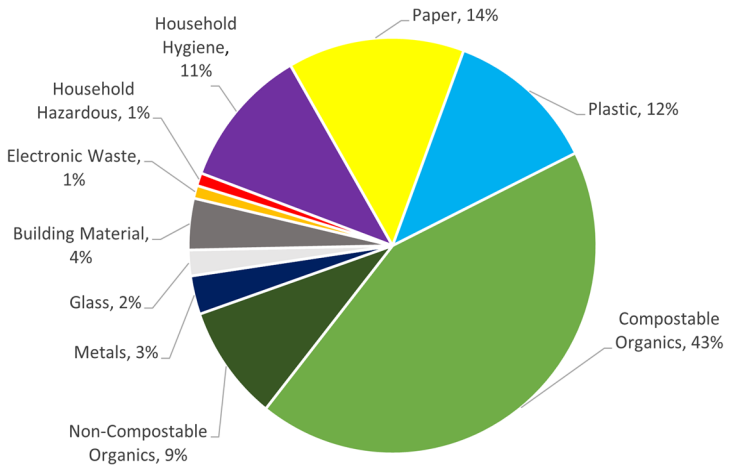

Figure 1: Composition of Prince George's Curbside Garbage Stream

Figure 2 summarizes the diversion potential found in the City's curbside garbage stream, which represents the percentage of materials that could be diverted through composting (food waste or yard and garden), recycling (depot, curbside, or drop off), and product stewardship waste diversion programs. Recycling can be diverted through the current blue box curbside system, depot recycling services provided by the regional district, or a private recycling service for a fee. The total diversion potential was found to be 66%, which consisted of 27% compostable food waste, 16% compostable yard and garden,12% recycling, 4% depot recycling, 4% drop off recycling, and 4% product stewardship material.

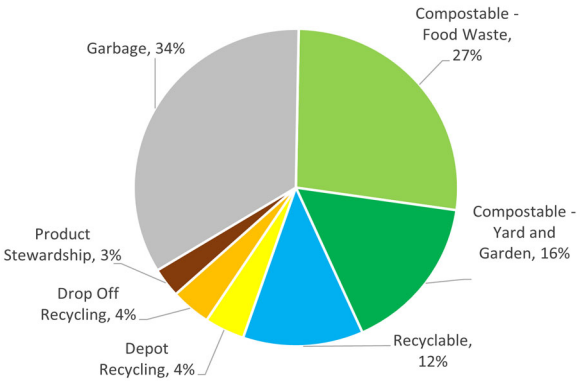

Figure 2: Diversion Potential in Prince George's Curbside Garbage Stream

The most commonly found divertible materials were accepted avoidable food waste (16.6%), tissue, paper towels, and other food-contaminated paper (4.7%), accepted unavoidable food waste (4.1%), leaves, plants, and branches (9.8%), grass trimmings (6.0%), recyclable rigid plastic packaging (3.3%), and woody waste (2.6%). Table 1 summarizes the waste composition results in more detail.

PHOTOS AND EXAMPLES OF DIVERTIBLE MATERIAL

Photo 1: Accepted Food Waste – Avoidable

Photo 2: Batteries

Photo 3: Metal Refundable Beverage Containers – Non-Alcoholic

Photo 4: Lighting Equipment and Light Bulbs

Photo 5: Leaves, Plants, and Branches

Photo 6: Fine Paper

Table 1: City of Prince George Single-Family Curbside Garbage Composition Results

Materials	Percentage by Weight
Compostable – Food Waste	**26.5%**
Accepted Food Waste – Avoidable	16.6%
Food Waste – Non-Backyard	0.8%
Accepted Food Waste – Unavoidable	4.1%
Other Compostable Organics	0.3%
Tissues/Paper Towels, and Other Food-Contaminated Paper	4.7%
Compostable – Yard and Garden	**15.8%**
Grass Trimmings	6.0%
Leaves, Plants, and Branches	9.8%
Recyclable	**11.9%**
Boxboard	2.2%
Fine Paper	2.9%
Recyclable Metal Food Containers, Trays, or Foil Wraps	1.0%
Clean Old Corrugated Cardboard	1.6%
Paper Packaging	0.9%
Recyclable Rigid Plastic Packaging	3.3%
Depot Recycling	**4.4%**
Recyclable Plastic Film	3.1%
Foam	0.2%
Recyclable Glass Food Containers	0.8%
Non-Refundable Glass Beverage Containers	0.0%
Scrap Metal	0.3%
Drop Off Recycling	**4.2%**
Clean Wood	0.6%
Composite Wood	0.5%
Masonry and Bricks	0.1%
Treated or Painted Wood	0.4%
Woody Waste	2.6%
Product Stewardship	**2.8%**
Automotive	0.2%
Batteries	0.1%
Computers and Peripherals	0.3%
Electronic or Electrical Tools	0.0%
Electronic Toys	0.2%
Fertilizers and Pesticides	0.0%

Materials	Percentage by Weight
Glass Refundable Beverage Containers – Non-Alcoholic	0.1%
Glass Refundable Beverage Containers – Alcoholic	0.1%
Lighting Equipment and Light Bulbs	0.1%
Mercury Containing Items – Thermostats and Switches	0.0%
Metal Refundable Beverage Containers – Non-Alcoholic	0.1%
Metal Refundable Beverage Containers – Alcoholic	0.1%
Paint	0.2%
Paper Refundable Beverage Containers – Dairy and Dairy Substitute	0.1%
Paper Refundable Beverage Containers – Non-Dairy	0.1%
Pharmaceuticals	0.2%
Plastic Refundable Beverage Containers – Dairy and Dairy Substitute	0.1%
Plastic Refundable Beverage Containers – Non-Dairy	0.2%
Small Appliances and Floor Care Appliances	0.6%
Smoke and Carbon Monoxide Detectors	0.0%
Solvents	0.0%
Telephones and Equipment	0.0%
Tires	0.0%
Television and Audio/Video Equipment	0.0%
Garbage	**34.4%**
Bagged Garbage	0.0%
Bound Paper Products (Books)	0.5%
Bulky Objects	0.1%
Carpet	0.6%
Compostable Plastics	0.0%
Cosmetics	0.1%
Diapers, Feminine Hygiene Products	6.0%
Non-Recyclable Plastic Film	1.8%
Fines	0.4%
Gypsum and Drywall Plaster	0.7%
Insulation	0.0%
Mercury Containing Items – Other (Old Thermometers)	0.0%
Multiple/Composite Organic Materials	3.0%
Non-Recyclable Paper	1.1%
Other Electronic Waste	0.1%
Other Glass	0.6%
Other Household Hazardous Waste – Not Accepted by EPR Programs	0.3%

Materials	Percentage by Weight
Other Inorganics	0.5%
Other Metal	1.9%
Other Plastics	3.1%
Other Yard Waste	0.1%
Personal Care Products	0.5%
Pet Waste	4.3%
Asphalt Products	0.0%
Rock, Sand, Dirt, Ceramic, Porcelain	0.3%
Rubber	0.3%
Sod	2.4%
Soil	0.2%
Textiles	5.5%
Total	**100.0%**

Notes:
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The following is a summary of the waste composition of the Valemount/McBride Transfer Station garbage stream. Two transfer station samples arriving at the Foothills Boulevard Regional Landfill on September 26 and October 3, 2023, were characterized. Each sample was approximately 100 kg. The study was conducted by Tetra Tech Canada Inc. (Tetra Tech) at the request of the Regional District of Fraser-Fort George (RDFFG).

Figure 1 represents the average material composition found in the Valemount/McBride Transfer Station garbage stream. This is a snapshot of the types and relative quantities of materials that were dropped off by residents. Collected materials were primarily composed of compostable organics (40%), plastic (17%), paper (17%), and household hygiene (11%), by weight.

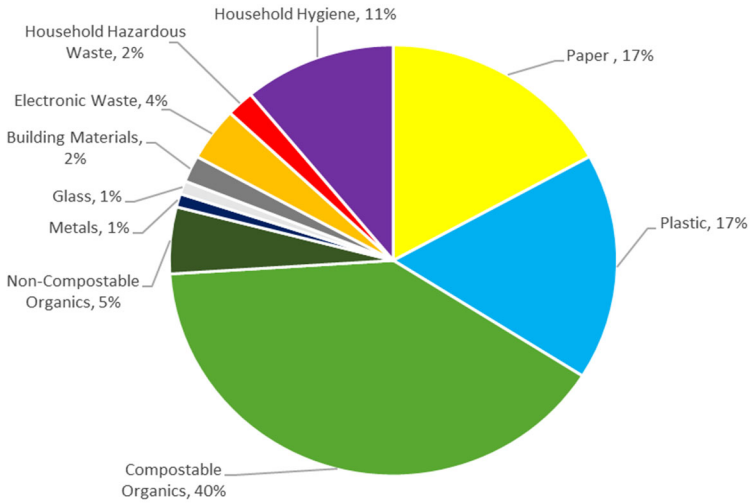

Figure 1: Composition of the Valemount/McBride Transfer Station Garbage Stream

Figure 2 summarizes the diversion potential found in the Valemount/McBride Transfer Station garbage stream, which represents the percentage of materials that could be diverted through composting (food waste or yard and garden), recycling (depot, curbside, or drop off), and product stewardship waste diversion programs. Recycling can be diverted through the current blue box curbside system, depot recycling services provided by the regional district, or a private recycling service for a fee. The total diversion potential was found to be 67%, which consists of 36% compostable materials (36% food waste and less than 1% yard and garden), 16% recyclable materials, 8% depot recycling, 6% product stewardship materials, and 1% drop off recycling.

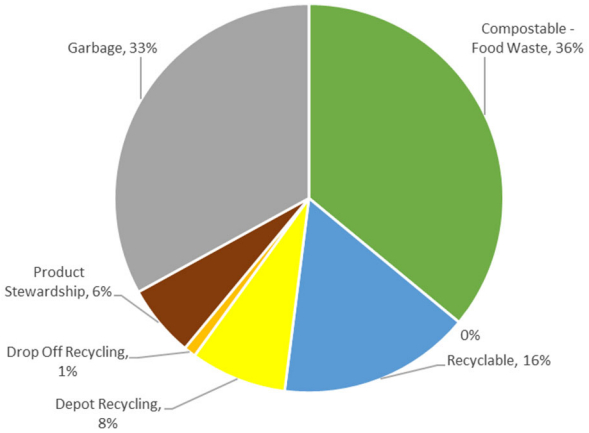

Figure 2: Diversion Potential in the Valemount/McBride Transfer Station Garbage Stream

The most commonly found divertible materials were accepted avoidable food waste (25.8%), recyclable film (6.1%), accepted unavoidable food waste (4.9%), tissues, paper towels, and other food-contaminated paper (4.5%), and recyclable rigid plastic packaging (4.1%). Table 1 summarizes the waste composition results in more detail.

PHOTOS AND EXAMPLES OF DIVERTIBLE MATERIAL

Photo 1: Accepted Food Waste – Avoidable

Photo 2: Refundable Metal Beverage Containers – Alcoholic and Non-Alcoholic

Photo 3: Recyclable Metal Food Containers, Trays, or Foil Wraps

Photo 4: Clean Old Corrugated Cardboard

Photo 5: Plastic Refundable Beverage Containers – Non-Dairy

Photo 6: Recyclable Rigid Plastic Packaging

Table 1: Valemount/McBride Transfer Station Garbage Composition Results

Materials	Percentage by Weight
Compostable – Food Waste	**36.4%**
Accepted Food Waste – Avoidable	25.8%
Food Waste – Non-Backyard	0.8%
Accepted Food Waste – Unavoidable	4.9%
Other Compostable Organics	0.4%
Tissues/Paper Towels, and Other Food-Contaminated Paper	4.5%
Compostable – Yard and Garden	**0.1%**
Grass Trimmings	0.0%
Leaves, Plants, and Branches	0.1%
Recyclable	**15.6%**
Boxboard	2.4%
Fine Paper	3.7%
Recyclable Metal Food Containers, Trays, or Foil Wraps	0.7%
Clean Old Corrugated Cardboard	2.3%
Paper Packaging	2.4%
Recyclable Rigid Plastic Packaging	4.1%
Depot Recycling	**7.7%**
Recyclable Plastic Film	6.1%
Foam	0.3%
Recyclable Glass Food Containers	0.9%
Non-Refundable Glass Beverage Containers	0.0%
Scrap Metal	0.4%
Drop Off Recycling	**0.9%**
Clean Wood	0.0%
Composite Wood	0.0%
Masonry and Bricks	0.0%
Treated or Painted Wood	0.9%
Woody Waste	0.0%
Product Stewardship	**6.5%**
Automotive	0.5%
Batteries	0.0%
Computers and Peripherals	0.0%
Electronic or Electrical Tools	1.0%
Electronic Toys	0.0%
Fertilizers and Pesticides	0.0%

Materials	Percentage by Weight
Glass Refundable Beverage Containers – Non-Alcoholic	0.1%
Glass Refundable Beverage Containers – Alcoholic	0.3%
Lighting Equipment and Light Bulbs	0.7%
Mercury Containing Items – Thermostats and Switches	0.0%
Metal Refundable Beverage Containers – Non-Alcoholic	0.2%
Metal Refundable Beverage Containers – Alcoholic	0.2%
Paint	0.3%
Paper Refundable Beverage Containers – Dairy and Dairy Substitute	0.1%
Paper Refundable Beverage Containers – Non-Dairy	0.2%
Pharmaceuticals	0.1%
Plastic Refundable Beverage Containers – Dairy and Dairy Substitute	0.1%
Plastic Refundable Beverage Containers – Non-Dairy	1.0%
Small Appliances and Floor Care Appliances	0.0%
Smoke and Carbon Monoxide Detectors	0.0%
Solvents	0.0%
Telephones and Equipment	0.1%
Tires	0.0%
Television and Audio/Video Equipment	1.6%
Garbage	**32.7%**
Bagged Garbage	0.0%
Bound Paper Products (Books)	0.0%
Bulky Objects	0.0%
Carpet	0.0%
Compostable Plastics	0.0%
Cosmetics	0.1%
Diapers, Feminine Hygiene Products	3.6%
Non-Recyclable Plastic Film	2.9%
Fines	0.3%
Gypsum and Drywall Plaster	0.0%
Insulation	0.0%
Mercury Containing Items – Other (Old Thermometers)	0.0%
Multiple/Composite Organic Materials	1.0%
Non-Recyclable Paper	1.2%
Other Electronic Waste	0.3%
Other Glass	0.0%
Other Household Hazardous Waste – Not Accepted by EPR Programs	0.6%
Other Inorganics	0.6%

Materials	Percentage by Weight
Other Metal	0.4%
Other Plastics	2.4%
Other Yard Waste	0.0%
Personal Care Products	0.5%
Pet Waste	7.3%
Asphalt Products	0.0%
Rock, Sand, Dirt, Ceramic, Porcelain	0.0%
Rubber	0.3%
Sod	0.0%
Soil	7.8%
Textiles	3.4%
Total	**100.0%**

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