qathet
REGIONAL DISTRICT

Report Date: January 4, 2022

Author: Melissa Howey

Meeting Date: January 13, 2022

REQUEST FOR DECISION REPORT

TO: Committee of the Whole

FROM: Let's Talk Trash, Waste Management Education Team

IN COLLABORATION WITH: Let's Talk Trash

SUBJECT: 2021 Waste Composition Report

ACTION/RECOMMENDATION

THAT the Committee recommend the Board receive the 2021 Waste Composition Study; Spring and Fall Aggregate Report for information.

PURPOSE/SUMMARY

The information derived from these studies provides a baseline for staff to assess the effectiveness of current programs and to potentially make recommendations to the Board to further increase diversion opportunities.

BACKGROUND

The qathet Regional District (qRD) undertook a two-season waste composition study to obtain information about the types of waste materials being disposed at the Augusta Transfer Station and their relative quantities. The spring waste composition exercise was conducted from May 25 to May 29, 2021, in Powell River at Augusta Recyclers.

The 2021 Waste Composition Study Spring Report was submitted to the June 24 Board Meeting and the following motion carried:

THAT the Board receive 2021 Waste Composition Spring Report for information.

STRATEGIC PLAN:

GOVERNANCE/MANAGEMENT EXCELLENCE - Effectively plan for and manage existing and new assets.

Environmental Sustainability - Ensure the resiliency, conservation and protection of the natural environment

TYPE OF DECISION

Directive Decision

DISCUSSION/ANALYSIS

The fall waste composition exercise was conducted from November 22 to November 27, 2021, in Powell River at Augusta Recyclers. A total of 31 samples (approximately 3,800 kg of waste) were sorted and weighed during the 6-day sampling period. There was no significant variation in the waste composition observed between the spring and fall waste composition studies.

The attached report provides annualized data, which is an aggregate of the results from both studies, as well as a comparison of the May and November 2021 data. The report includes the following information:

- the material composition of the waste disposed by weight for both studies and annualized;
- the material composition of each of the major waste streams by weight;
- waste material and collection/ disposal observations; and,
- recommendations for future diversion opportunities.

CONCLUSION

The data collected from Waste Composition Study provides an estimate of the overall composition of the waste disposed by qathet Regional District. This estimate provides a fuller picture of the waste disposed in our region and is the foundation for recommendations made in the report for diversion initiatives and provides data that can be used to inform potential future policy development.

ATTACHMENTS

2021_waste composition report_FINAL

Approved By:
Al Radke, Chief Administrative Officer

Status:
Approved - 04 Jan 2022

Let's Talk Trash
WHAT IS WASTE?

qathet Regional District

2021 Waste Composition Study
Annualized Report

Date: Dec. 27, 2021

Prepared by
Let's Talk Trash

December 27, 2021

Melissa Howey, Manager of Asset Management and Strategic Initiatives
qathet Regional District
#105 - 4675 Marine Ave.
Powell River, BC V8A 2L2

Dear Melissa,

Re: 2021 Waste Composition Study: Spring and Fall Aggregate Report

Let's Talk Trash is pleased to submit this report on the waste composition studies conducted in May and November 2021. The report provides a description of the methodology employed to conduct the studies, a summary and comparison of waste composition between the two seasons, observations and recommendations based on the aggregated data findings.

The findings from both waste composition studies serve to provide a current baseline of the composition of waste disposed by qathet Regional District residents, businesses, institutions, and the construction/demolition sector. The analysis of this aggregated data helps to identify and inform current and future waste diversion programs and policies.

Thank you for the opportunity to undertake this informative study.

Yours truly,

Tai Uhlmann, Abby McLennan, & Ingalisa Burns

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1. Introduction

The qathet Regional District (qRD) undertook a two-season waste composition study to obtain information about the types of waste materials being disposed at the Augusta Transfer Station and their relative quantities. The information derived from these studies provides a baseline for staff to assess the effectiveness of current programs and to make recommendations to further increase diversion opportunities.

The methodology used for both the spring and fall studies were based on the Canadian Council of Ministers of the Environment (CCME)'s *Recommended Waste Characterization Methodology for Direct Waste Analysis Studies in Canada* (1999). The sorting categories were developed by Let's Talk Trash and Maura Walker and Associates to meet the needs of the qRD and were modified for the November waste audit based on recommendations made following the spring study.

The spring waste composition exercise was conducted from May 25 to May 29, 2021, in Powell River at Augusta Recyclers. A total of 32 samples (approximately 3,500 kg of waste) were sorted and weighed during the 5-day sampling period. The 2021 Waste Composition Study Spring Report was submitted to the June 24th Board Meeting and the following motion carried; That the Board receive 2021 Waste Composition Spring Report for Information. The fall waste composition exercise was conducted from November 22 to November 27, 2021, in Powell River at Augusta Recyclers. A total of 31 samples (approximately 3,800 kg of waste) were sorted and weighed during the 6-day sampling period. There was no significant variation in the waste composition observed between the spring and fall waste composition studies.

This report provides annualized data, which is an aggregate of the results from both studies, as well as a comparison of the May and November 2021 data. The report includes the following information:

- the material composition of the waste disposed by weight for both studies and annualized; and
- the material composition of each of the major waste streams by weight; and
- waste material and collection/ disposal observations
- recommendations for future diversion opportunities

The data collected from both seasons combined provides an estimate of the overall composition of the waste disposed by qathet Regional District. This estimate provides a fuller picture of the waste disposed and is the foundation for recommendations made in this report for diversion initiatives and policy development purposes.

The 2021 data has been reported for the following data subsets:

a. Residential municipal solid waste (MSW)
b. Industrial, commercial, and institutional (ICI) MSW
c. Self-Haul MSW
d. Self-Haul Construction, demolition, and renovation (C&D) waste
e. Commercial C&D waste
f. Lasqueti Self-Haul (separate one-off study and not included in the qRD annualized data)

1.1 Sorting Categories

The waste sorting categories for the waste composition study were adapted slightly for the fall study to address suggestions from the spring study and reduced from 84 sorting categories to the 76 listed in Table 1.

Table 1 Waste Categories

	Paper and Paperboard	
1	**Mixed wastepaper**	Printed paper (newspaper, magazines, phonebooks, flyers, envelopes)
		Packaging (boxboard, spiral wound cans, kraft paper)
2	**Corrugated cardboard**	Corrugated cardboard
3	**Paper packaging - liquids**	Paper cups
		Non-deposit gable top cartons and aseptic boxes (e.g., milk, soup), frozen juice containers
4	**Paper beverage containers - deposit**	Deposit-bearing beverage gable top and aseptic containers (e.g., juice), Bag-in-box wine
5	**Books**	Books (hard and soft cover)
6	**Waxed cardboard**	Waxed corrugated cardboard and other paper (non-recyclable/non compostable)
	Glass	
7	**Glass beverage containers – deposit**	Deposit bearing Beverage containers – alcoholic and non-alcoholic
8	**Glass containers (bottles and jars)**	Non-deposit bottles
		Glass jars
9	**Other glass and ceramics**	Plates, cups, windows, mirrors
	Metals	
10	**Metal beverage containers – deposit**	Deposit-bearing cans (alcoholic and non-alcoholic)
11	**Food containers**	Food containers /Aluminum trays and foil
12	**Large appliances**	E.g., ovens, hot water tanks, washing machines
13	**Other metals**	Scrap metal e.g., pipe, nails, keys, hangers, pans
	Plastics	
14	**Plastic beverage containers – deposit**	Deposit-bearing bottles and jugs (alcoholic and non-alcoholic)
15	**Plastic containers – non deposit**	E.g., milk jugs, shampoo bottles, yogurt tubs, food take out containers, medicine bottles
16	**Expanded polystyrene (White and Colour)**	E.g., clam shells, meat trays, egg cartons, cushion packaging
17	**Film packaging – retail and grocery bags and overwrap**	Empty/clean and re-used as a garbage bag/kitchen catcher
18	**Cat 9 Multi-laminated plastic packaging**	Non-stretchy plastic films, saran wrap, fruit bag netting etc.
19	**Other film packaging (non EPR)**	Kitchen catchers, garbage bags
20	**Miscellaneous plastic/ Non EPR**	>90% plastic, e.g., toys, lawn chairs, plastic utensils, kids' toys (not electronic), straws, flagging tape, plastic shards, small plastic fragments
21	**Biodegradable plastic**	Food ware, bags
22	**Compostable plastics**	Food ware, bags
	Organics	

23	**Food waste – compostable (unavoidable)**	Fruit and vegetable peelings, carrot tops, eggshells, paper tea bags, meat bones
24	**Food waste – Donatable**	Usable fruit and vegetables, baked goods, candy, stacks, condiments, whole meats, unused ready made
25	**Food waste – fats, oil and grease**	Brown and yellow fats, oil and grease
26	**Yard and garden waste**	Grass, leaves, branches < 1 inch diameter, flowers/ house plants
27	**Other organic waste**	Invasive species
28	**Soiled Paper- Compostable**	Tissue paper, paper towels, napkins, food packaging (wrappers, french fry boxes, paper plates)
	Wood and Wood Products	
29	**Pallets/skids**	
30	**Wood shingles**	
31	**Wood furniture**	>80% wood
32	**Clean wood divertible for compost etc., not reuse**	
33	**Wood divertible for REUSE**	Construction lumber (2x4, 2x2, 2x6, etc) that is untreated, not painted, and not from demos (no nails, screws, etc). Basically, clean off cuts of lumber from new construction. The size does not really matter, but anything smaller than 2 inches would probably not be used/ Lumber 6' and up, old growth 4' and up, large pieces/sheets of plywood and OSB
34	**Other wood – treated/ painted**	
35	**Plywood/particle board non divertible**	
36	**Green waste**	Larger branches (1" diameter and larger), stumps
	Construction and Demolition Material (non-wood)	
37	**Drywall New (no asbestos)**	
38	**Drywall Used (May have asbestos)**	
39	**Asphalt roofing**	
40	**Flooring – carpet and underlay**	
41	**Flooring - vinyl/synthetic**	Vinyl/synthetic tiles and other
42	**Insulation**	Fibreglass, foam, vermiculite, other
43	**Masonry**	Bricks, ceramic tile, cement
44	**Rock/sand/dirt/ash**	
45	**Other C&D waste**	
46	**Reusable doors**	
47	**Reusable windows**	
48	**Divertible fixtures, flooring, etc.**	Cabinets, counter tops, sinks, toilets/ 60 sq ft or more of tiles are divertible/clean carpet in good condition is divertible
	Textiles	
49	**Natural textiles**	Clothes, linens, towels curtains, blankets
50	**Synthetic textiles**	Clothes, linens, towels curtains, blankets
51	**Reusable (Natural fibre)**	Clothes, linens, towels curtains, blankets - wearable, good condition, not stained or ripped

52	**Reusable (synthetic fibre)**	Clothes, linens, towels curtains, blankets-wearable, good condition, not stained or ripped
	Tires	
53	**Vehicle tires off rim/on rim/oversized**	
54	**Other rubber products**	
	Multi Material	
55	**Bulky multi-material items**	Couches, mattresses etc.
56	**Other multi-material items (not donatable)**	Shoes, toys and items that are not donatable, includes "compostable" takeout packaging
	Household Hygiene	
57	**Pet waste/kitty litter**	
58	**Hygiene products**	Diapers, feminine hygiene products, face masks, cotton balls, dental floss, Q-tips, etc.
	Hazardous Wastes	
59	**Light bulbs, tubes and ballasts**	Fluorescent lighting – CFL bulbs, tubes, ballasts
60	**Lighting fixtures**	
61	**Batteries – automotive**	Lead acid batteries
62	**Batteries – household**	Rechargeable and non-rechargeable
63	**Oil and antifreeze**	Lubricating oil, incl. containers empty oil containers
		Oil filters
		Antifreeze, incl. containers
64	**Paints and containers**	Latex paint, incl. containers, empty latex paint containers, oil-based paint, incl. containers, paint in aerosol cans, empty aerosol cans, other paints
65	**Solvents, pesticides, fuels**	Includes empty containers.
66	**Pharmaceuticals**	Including containers (but not empty ones)
67	**Vaping and Cannabis Related Products**	
68	**Needles and sharps**	
69	**Other medical waste**	Tubing, gauze, etc.
70	**Pressurized cannisters (non-EPR)**	
71	**Other hazardous wastes (non-EPR)**	Non EPR HHW incl. Windex, Draino, Armorall, fertilizers, pool chemicals, etc.
	Electronics/Electrical	
72	**Electronics**	TV and audio/video equipment, computers, and peripherals, electronic or electrical instruments/equipment (incl. toys), cell phones, fire alarms and carbon monoxide detectors and thermostats, heating and cooling products, small appliances and power tools, outdoor power equipment
	Other	
73	**Non distinct fines**	
74	**Other donatable/ reusable items**	Not listed in above categories. Marketable at local thrift store.
75	**Wax**	

76	**Miscellaneous**	Does not fit into any of the above categories

1.2 Sampling Strategy

The sampling strategies for both the spring and fall studies were based on the proportion of each type of waste delivered to the Augusta transfer station in 2020, as presented in Table 2.

Table 2 qRD Waste proportions

qRD 2020 tonnes disposed	Proportion	tonnes	Notes
Residential MSW	12%	1263	Includes City multi-family and Tla'amin curbside
ICI MSW	26%	2599	
Self-haul MSW	21%	2176	
Self-haul C&D	19%	1937	
Commercial C&D	22%	2197	
	100%	**10172**	

Table 3 shows the sampling schedule for the 6-day sorting period in November. This schedule was developed based on the typical delivery days of specific loads of waste. The strategy assumed that the sorting team could complete between 6 and 8 samples per day. However, due to scheduling of City trucks and fewer loads of Self-Haul C&D and ICI C&D roll off bins (possibly due to rainy weather), and the inclusion of 2 samples of Lasqueti Island waste, only 31 samples were obtained over the 6-day period (including Lasqueti).

Table 3 Sampling Strategy

Waste Stream	Mon Nov 22	Tue Nov 23	Wed Nov 24	Thurs Nov2 25	Fri Nov 26	Sat Nov 27	Total samples by type
City Curbside Single Family-MSW	0	2	2	1	3		**8**
City Multi- Family- MSW				1			**1**
Self-Haul- MSW		2			1	1	**4**
ICI - MSW	2	1	2	1		2	**8**
Tla'amin - MSW				1			**1**
C&D Commercial (roll-off)	2	2	3	2			**9**
C&D Self-Haul			1		1	2	**4**
Total samples/day	**4**	**7**	**8**	**6**	**5**	**5**	**35**
**** Lasqueti not included in consolidated data (fall study only)**	2						

1.3 Sampling

The sampling and sorting of waste for both spring and fall composition studies took place at Augusta Recyclers. The sorting area was set up in a sand storage shed at the back of the property. This area was out of the way of the site operation, had access to power and provided the team with protection from sun, rain and wind.

The sampling process worked as follows:

1. A list of target loads for each day was discussed with the scale house operator (Ron Russel).
2. As target loads arrived at the site, the scale house operator called the sorting team to help select the sample.
3. A machine operator selected the waste sample from the target load from different parts of the load and put it in their front-end loader. The selected waste was then weighed at the weigh scale and brought to the sorting area.
4. Once at the sorting areas, the operator confirmed with the sorting crew where the waste was from and gave them the weight of the waste in the bucket of the front-end loader. The target weight for each sample was 100 -150 kg.
5. If the sample was too light, additional waste was retrieved from the load by the operator and brought to the sorting area.
6. The sample was deposited onto a tarp. A photo of the sample, including a sign specifically identifying it was taken. If the sample could not be sorted immediately, an orange cone was placed on the load that was labelled with identifying information.
7. A datasheet was prepared for each sample. The source of the load (hauler), type of waste (e.g., Self-Haul MSW), date and time the sample was received at the sorting area were recorded.
8. If the weight of waste dropped on the tarp was beyond 150 kg, waste was collected from the pile in a random manner and weighed until the target weight was achieved. This new pile became the sample to be sorted.
9. The samples were protected from rain by an event tent for the fall waste audit to prevent additional moisture entering the samples.
10. The sample was sorted into 84 material categories in the spring and 76 material categories in the fall by placing each item into a labelled bin.
11. Each bin was weighed, and the weight recorded on the datasheet.

After the sorting exercise, the sample was emptied into a roll-off bin which was emptied at the end of the working day by Augusta.

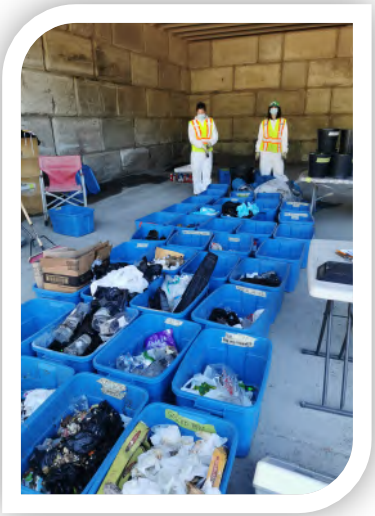
Getting the Sample

1.4 Waste Sorting

The sorting area was organized by primary categories (e.g., metal) and each collected sample was sorted directly into bins labelled with each material type (e.g., metal beverage cans, other metal packaging, other metal), as shown in the photographs below. Bins for the most popular categories – food, soiled paper, plastic film, Category 9 flexible plastic, and mixed wastepaper – were kept beside or on top of each sorting station. The remaining sorting categories were placed on the floor around the two sorting stations, as shown in the photograph to the right.

Set up of the Sorting Area

Each category of material was weighed, and the weight was recorded on a datasheet. Let's Talk Trash team members were responsible for quality assurance and quality control program during the November study.



Raw Sample and Sorted Sample for Weighing

2. Results

The annualized results from the combined May and November waste composition studies are summarized below and are presented as percent composition (by weight) for each waste stream (i.e., MSW curbside, ICI MSW, Self-Haul). A comparison of the results between the May and November 2021 waste composition studies are also included for each section. More detailed information, such as the proportion of each of the secondary categories for each waste stream is provided in Appendix A for the May, November and Annualized waste composition studies.

Both studies occurred during the COVID 19 pandemic. Though the exact impact on the waste stream composition is unknown, many businesses and institutions operated differently this year and many people opted to work from home. Covid 19 lockdowns, reductions to the number of people allowed in the recycling depots at a time, reusable coffee mug and cloth shopping bag restrictions, disposable masks, etc. may have influenced consumption and waste disposal patterns and behaviours.

2.1 Residential Curbside Waste Composition

Residential curbside waste represented **12%** of the waste disposed by the qathet Regional District in 2020. The residential dataset included samples from the City of Powell River's residential curbside collection program, one from the City's multi-family collection service, and one from Tla'amin Nation's curbside.

Figure 1 illustrates the estimated composition of the residential curbside waste from a total of 17 samples over both waste composition studies. As shown, the primary components of the waste stream are Organics (**42%**), Household Hygiene (**16%**), and Plastic (**12%**).

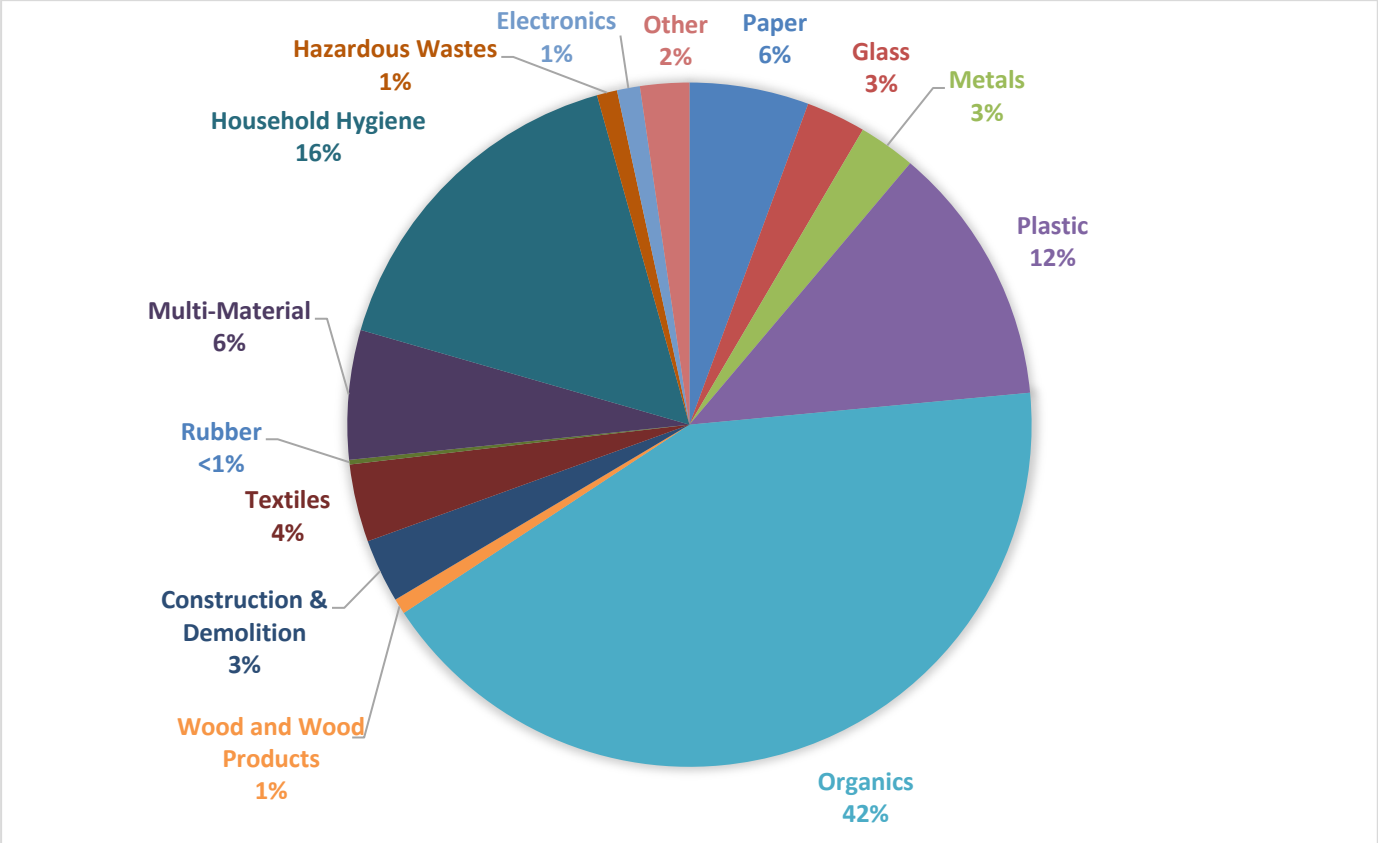


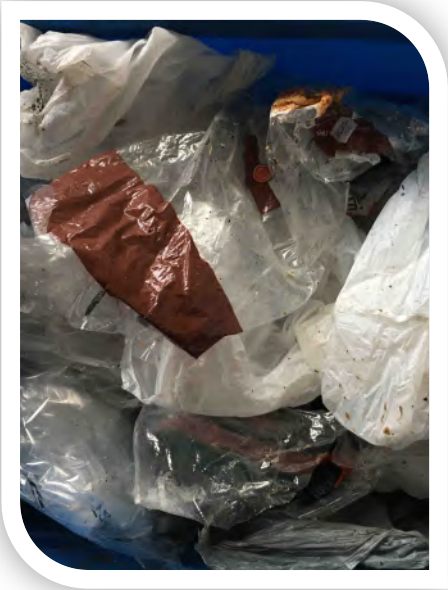
Figure 1 Composition of Residential Curbside Waste Disposed in 2021 based on weight

The Organics found in the residential curbside annualized sample, consisted primarily of food waste (**82%)** and compostable paper (**15%)** such as paper towels, compostable take-out food packaging, napkins and tissues. Much of the weight of the compostable paper comes from moisture absorbed from the food waste.

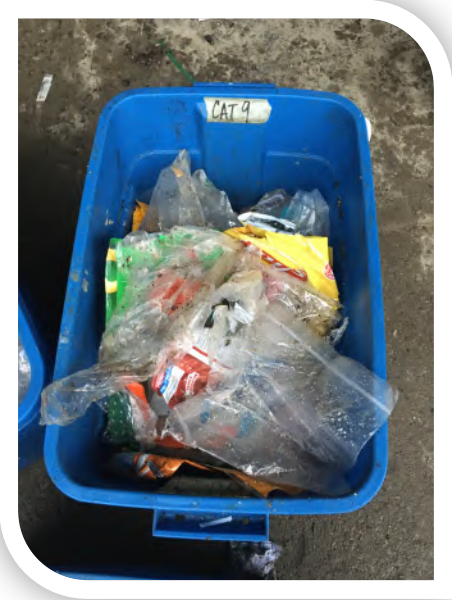
Household Hygiene includes personal hygiene (items like diapers, wipes, disposable face masks, and sanitary products) and pet waste including dog feces, kitty litter and pet pads. In the residential curbside waste, **60%** of the weight of the Household Hygiene waste was from personal hygiene (mainly infant and adult diapers) and **40%** was pet waste. There were disposable masks present in the waste however, their volume and weight were negligible relative to the other types of waste materials.

In the Plastic category, the plastics were divided between flexible plastic packaging (also known as Category 9, based on its Recycle BC EPR[1] category) such as chip bags (**26%**) rigid plastic containers like yogurt containers and shampoo bottles (**21%**), other plastics-non EPR such as kids' toys, plastic cutlery, and Tupperware (**17%),** film plastic -EPR items such as shopping bags and overwrap (**15%**), other film plastic -primarily garbage bags (**15%**)**.**

The weight of film plastics was affected by moisture that clings to the bags, particularly if they had contained or were in contact with a moist food product. It should be noted that most plastic bags that were sorted had been reused as garbage bags. Compostable bags were also measured but their weight was negligible. No biodegradable plastic bags were found.



Plastic Film Packaging (EPR)



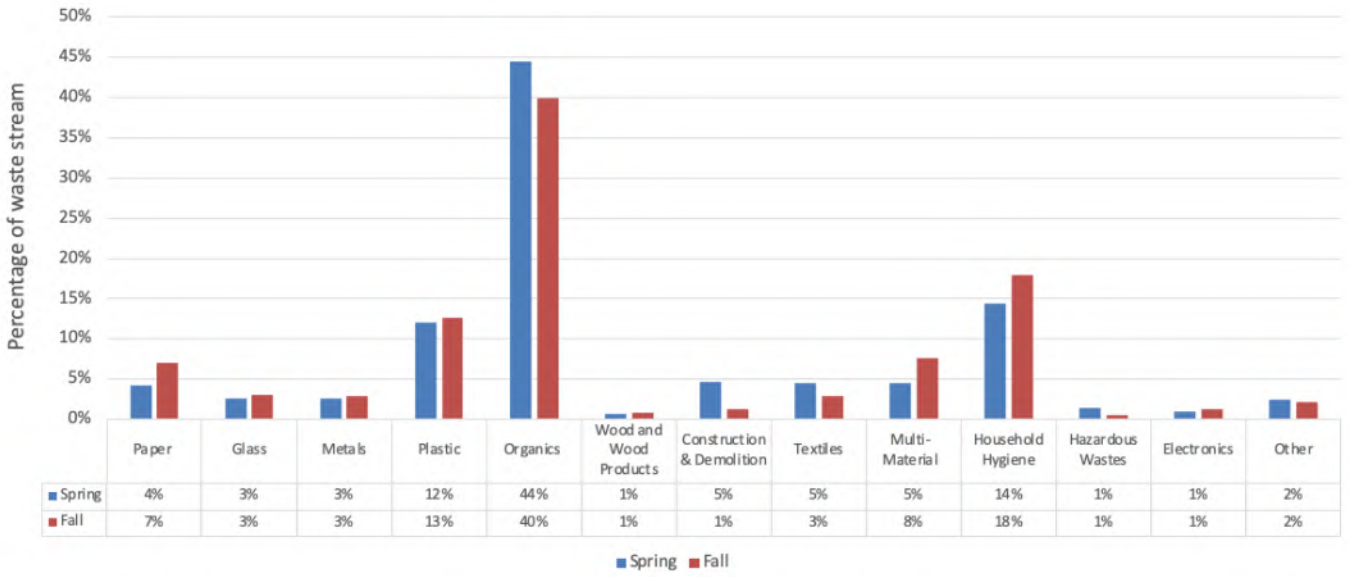
Flexible (Category 9) Packaging (EPR)

[1] Extended Producer Responsibility (EPR): A policy approach in which a producer's responsibility, physical and/or financial, for a product is extended to the post-consumer stage of a product's life cycle.

Other Film Plastics (Non EPR)

Other Plastics (Non EPR)

There was little change in the composition of the residential MSW waste disposed in the qathet region between the spring and fall waste studies, as shown in Figure 2. The main differences in datasets were seen in Household Hygiene (4% increase), Paper (3% increase), Organics (4% decrease) and C&D (4% decrease) in the fall study compared to the spring.



	Paper	Glass	Metals	Plastic	Organics	Wood and Wood Products	Construction & Demolition	Textiles	Multi-Material	Household Hygiene	Hazardous Wastes	Electronics	Other
Spring	4%	3%	3%	12%	44%	1%	5%	5%	5%	14%	1%	1%	2%
Fall	7%	3%	3%	13%	40%	1%	1%	3%	8%	18%	1%	1%	2%

Figure 2 Comparison: Composition of Residential Curbside Waste Disposed based on weight between May and November 2021

2.2 ICI MSW Composition

ICI MSW includes businesses, institutions, light manufacturing, and multi-family properties served by private waste collection companies. ICI MSW represented **26%** of the waste disposed by the qathet Regional District in 2020.

11 ICI MSW samples were sorted over the course of both waste composition studies. Figure 3 illustrates the estimated composition of this waste stream. As shown, the primary components of the ICI MSW stream are Organics (**42%**), Plastic (**14%**), Paper (**13%**), Multi-Material **(8%)**, and Household Hygiene (**6%**).

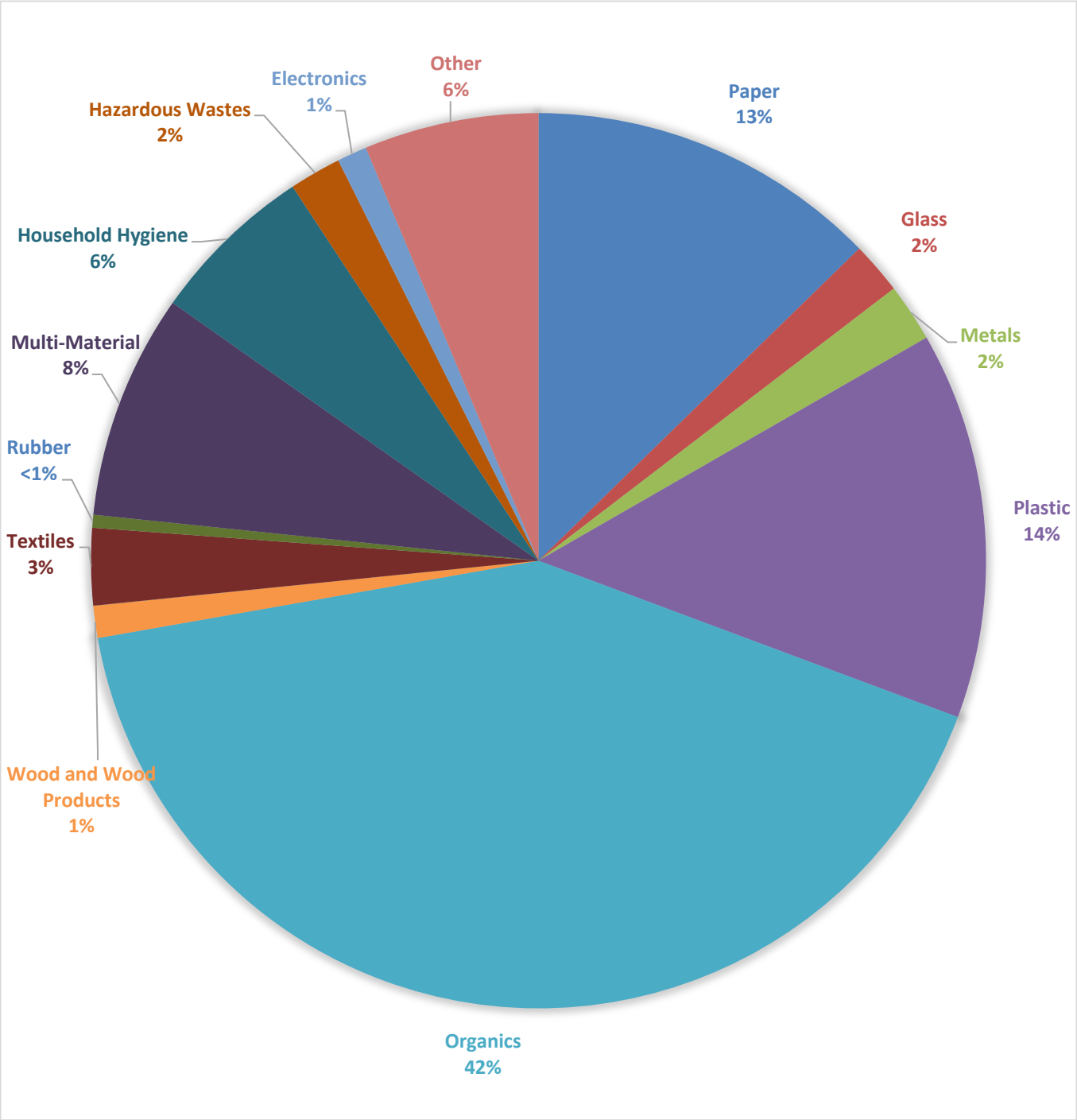


Figure 3 Composition of ICI MSW Waste Disposed in 2021, based on weight

The Organics category was composed largely of compostable food waste (**65%**), compostable paper such as paper towels (**21%)** and donatable food waste (food waste still enclosed in packaging) (**7%**).

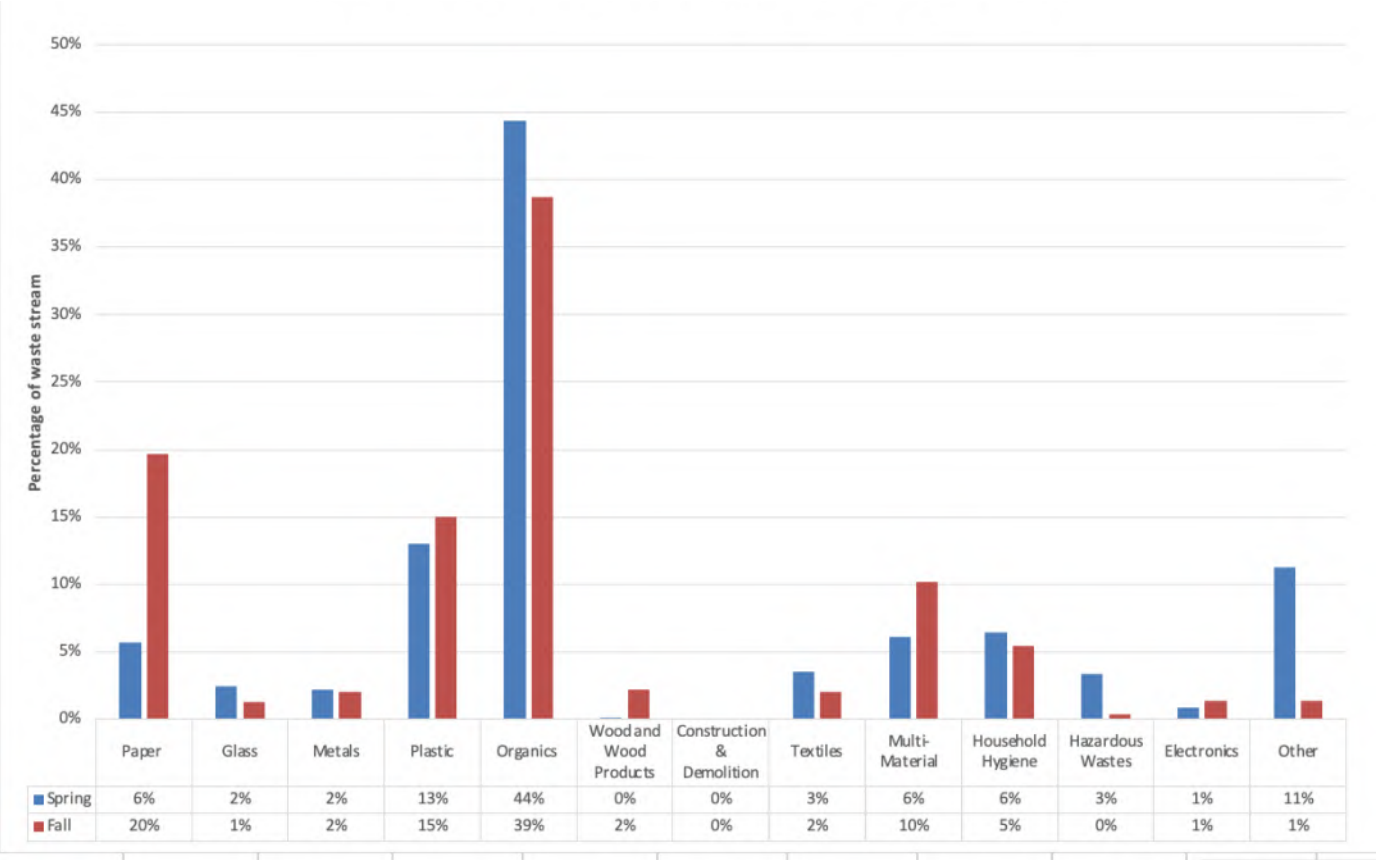
The Plastic category was largely made up of other film plastic non-EPR (**24%),** other plastics non-EPR (**21%**), rigid plastic containers EPR (**19%),** flexible packaging EPR (**17%**), and film plastic EPR (**11%**).

The Paper category was primarily mixed wastepaper (**41%**) and cardboard (**36%**). Approximately **11%** of the paper category was paper packaging that held liquids. This was primarily to-go coffee cups. In total, **413** to-go coffee cups were counted in the ICI MSW waste for both studies combined.

The Household Hygiene category was primarily personal hygiene (**72%)**. Adult diapers were found in both spring and fall ICI MSW samples. The fall waste composition study confirmed that the high number of diapers in the spring sample was valid despite the small waste sampled. A high number of disposable gloves were also observed and appeared to come primarily from the food service industry.

The Multi-Material category is comprised of materials that could not be reused or recycled and were made of more than one component, i.e., food packaging made from paper and plastic, lottery tickets, parchment paper, non-reusable binders, etc.

There was little change in the composition of ICI MSW disposed in the qathet region between the spring and fall waste studies, as shown in Figure 4. The main differences in datasets were seen in Paper (**14%** increase), Multi-Material (**4%** increase), Other (**10%** decrease), and Organics (**5%** decrease) in the fall study compared to the spring.



	Paper	Glass	Metals	Plastic	Organics	Wood and Wood Products	Construction & Demolition	Textiles	Multi-Material	Household Hygiene	Hazardous Wastes	Electronics	Other
Spring	6%	2%	2%	13%	44%	0%	0%	3%	6%	6%	3%	1%	11%
Fall	20%	1%	2%	15%	39%	2%	0%	2%	10%	5%	0%	1%	1%

Figure 4 Comparison: Composition of ICI MSW Waste Disposed based on weight between May and November 2021

2.3 Self-Haul MSW Waste Composition

Self-Haul MSW refers to waste brought to Augusta by private vehicles that is disposed of in the transfer building. The source of the waste could be residential or ICI. This waste stream is distinct from self-Haul C&D waste (discussed in Section 2.5) because it may contain putrescible waste. Self-Haul MSW waste represented **21%** of the waste disposed by the qathet Regional District in 2020.

10 Self-Haul MSW samples were sorted in the combined spring and fall waste studies. Figure 5 illustrates the estimated composition of this waste stream. As shown, the largest components of the Self-Haul MSW stream are Organics (**38**%), Household Hygiene (**12**%), and Plastic (**12**%).

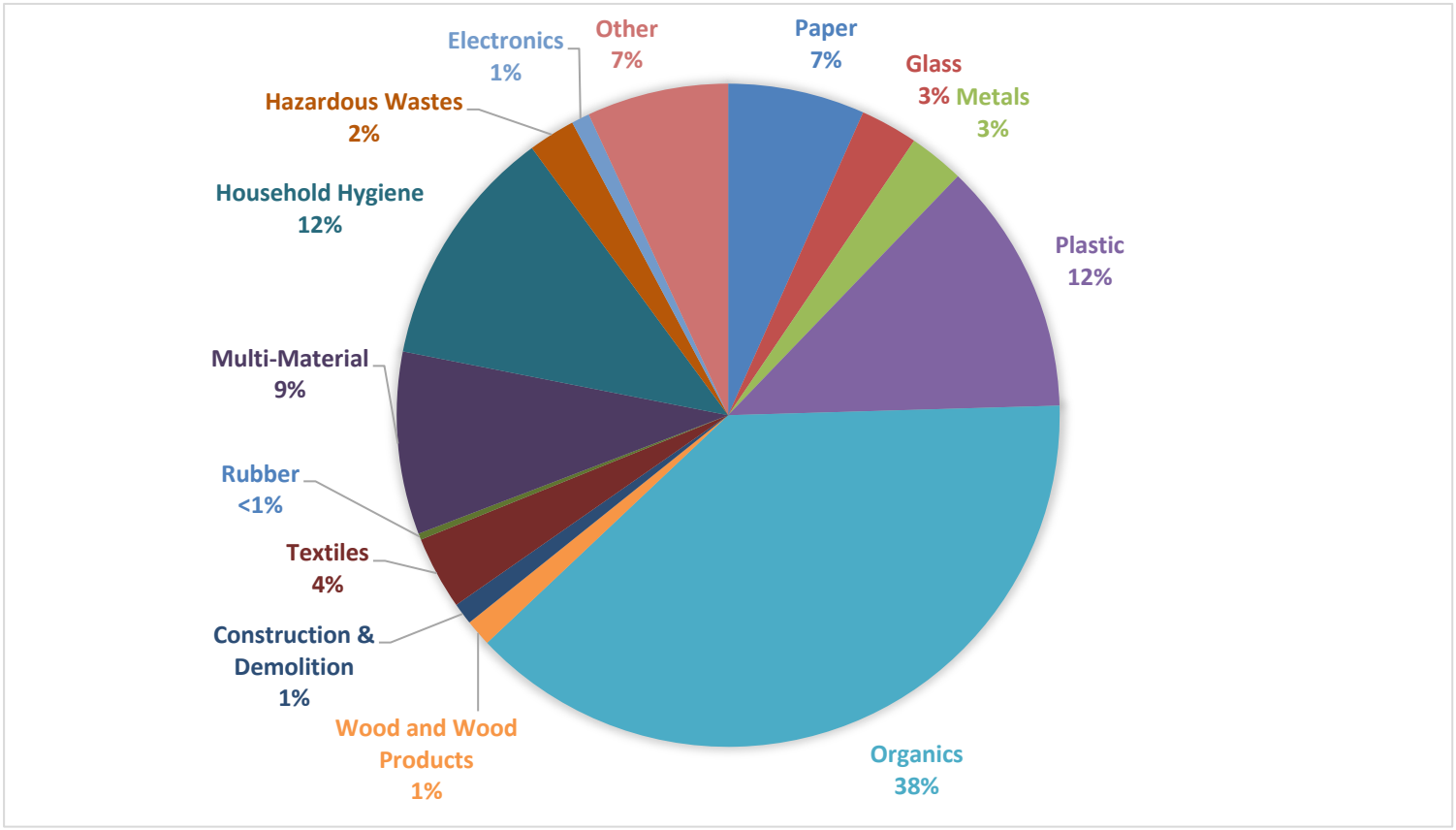


Figure 5 Composition of Self-Haul MSW Disposed in 2021, based on weight

The Organics category was composed largely of compostable food waste (**69%**) and compostable paper (**14%**).

The Household Hygiene category was **51%** personal hygiene and **49%** pet waste.

The Plastic category was largely made up of rigid plastic containers EPR (**24%**), flexible packaging (**22%**), other plastics non-EPR (**22%**), other film plastic non-EPR (**15%**)**,** film plastic EPR (**11%**).

There was little change in the composition of Self-Haul MSW waste disposed in the qathet region between the spring and fall waste studies, as shown in Figure 6. The main differences in datasets were seen in Household Hygiene (**9%** increase), Multi-Material (**6%** increase), Organics (**12%** decrease) and Other (**8%** decrease) in the fall study compared to the spring.

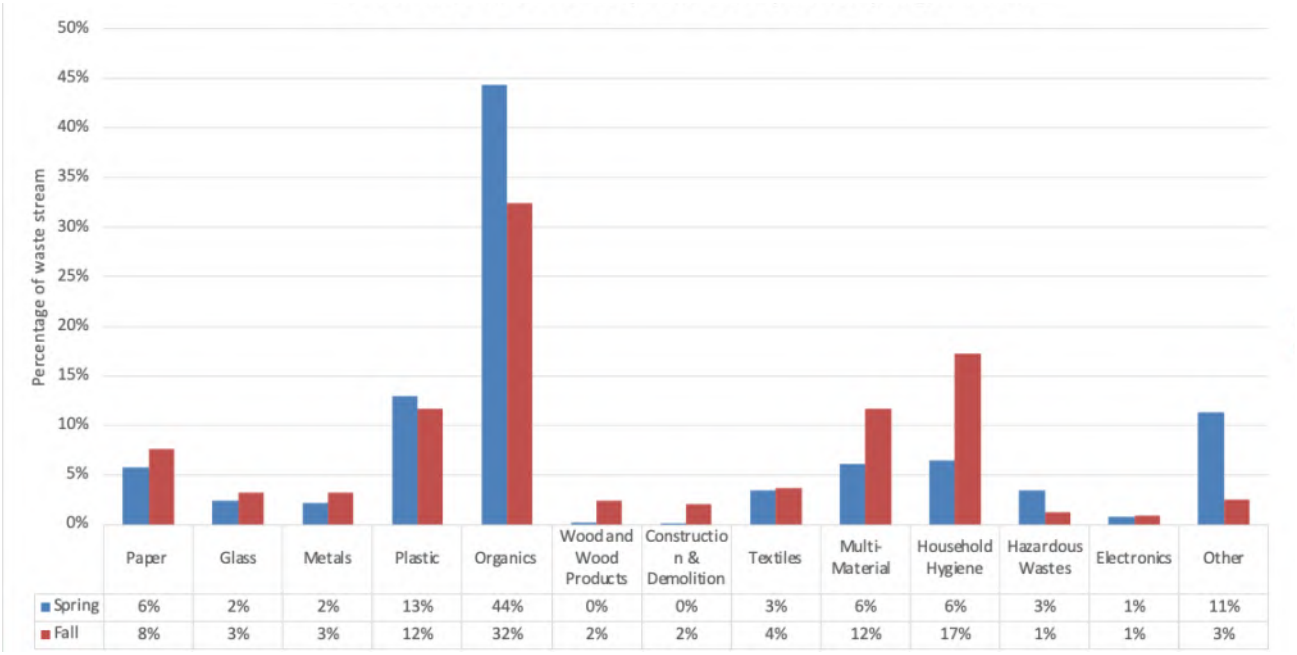


Figure 6 Comparison of Composition of Self-Haul MSW Waste Disposed based on weight between May and November 2021

2.4 Construction, Renovation and Demolition Waste Composition

Construction, renovation, and demolition (C&D) waste hauled to Augusta by commercial waste haulers (as opposed to Self-Haul C&D waste which is discussed in the next section) represented **22%** of the waste disposed by the qathet Regional District in 2020.

13 C&D waste samples were sorted between the combined spring and fall waste studies. Figure 7 illustrates the estimated composition of this waste stream. As shown, the primary components of the C&D waste stream by weight are Wood and Wood Products (**73%)** and General Construction & Demolition waste (**9%**).

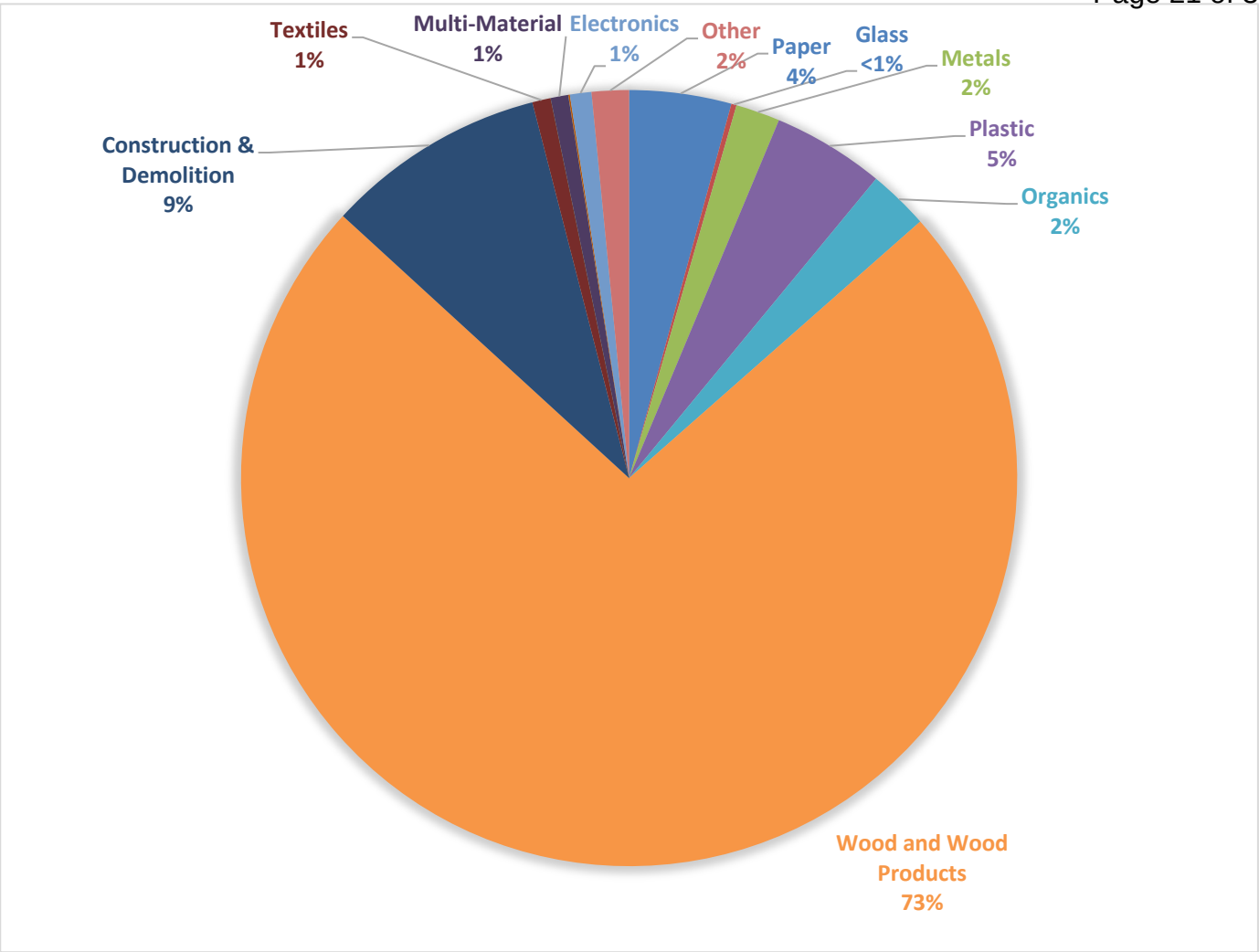


Figure 7 Composition of C&D Waste Disposed 2021, based on weight

The wood waste consisted of treated and painted wood (**33%**), clean wood divertible for reuse (**31%**), and clean wood not divertible for reuse (untreated wood but with a lot of nails or in too poor of condition to be reused) (**23%**). This material has the potential to be chipped and composted.

The General Construction and Demolition waste consisted primarily of masonry such as tiles, bricks, etc. (**32%**.), asphalt shingles (**17%)**, other C&D waste such as spray foam, dirty plastic wrap, sawdust with glue, brown kraft paper with paint and dirt (**16%**) and insulation (**15%**).

It should be noted that several of the C&D samples were found to contain general refuse. A small amount of general refuse in C&D waste loads is to be expected since workers use the onsite waste bin for disposal of waste associated with breaks and lunches (e.g., food scraps, take out containers). However, some C&D waste samples contained bags of residential waste that was likely due to illegal use of the waste bin.

Divertible Wood waste

Treated Wood

Other C&D

Other C&D

There was little change in the composition of C&D waste disposed in the qathet region between the spring and fall waste studies, as shown in Figure 8. The main difference in datasets was seen in Plastic (**4%** decrease) in the fall study compared to the spring.

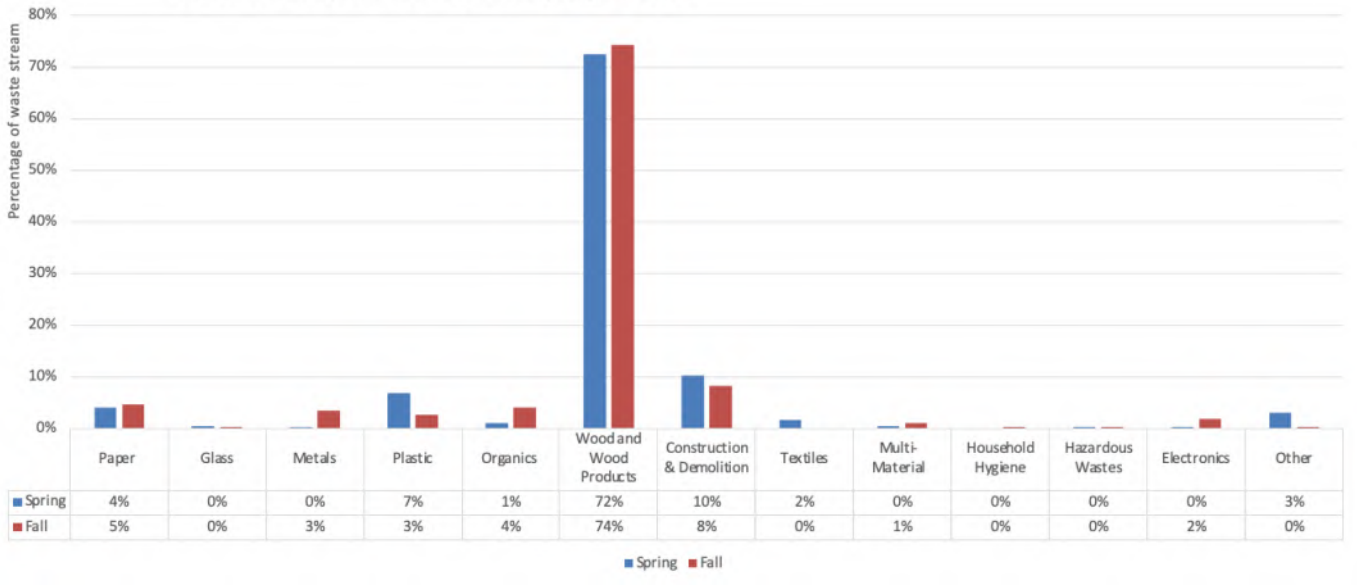


Figure 8 Comparison: Composition of C&D Waste Disposed based on weight between May and November 2021

2.5 Self-Haul CD Waste Composition

Self-Haul C&D waste represented **19%** of the waste disposed by the qathet Regional District in 2020.

10 Self-Haul C&D samples were sorted between the combined spring and fall studies. Figure 9 illustrates the estimated composition of this waste stream. As shown, the largest components of the Self-Haul C&D waste stream by weight were General Construction & Demolition waste (**36%**) and Wood and Wood Products (**32%**).

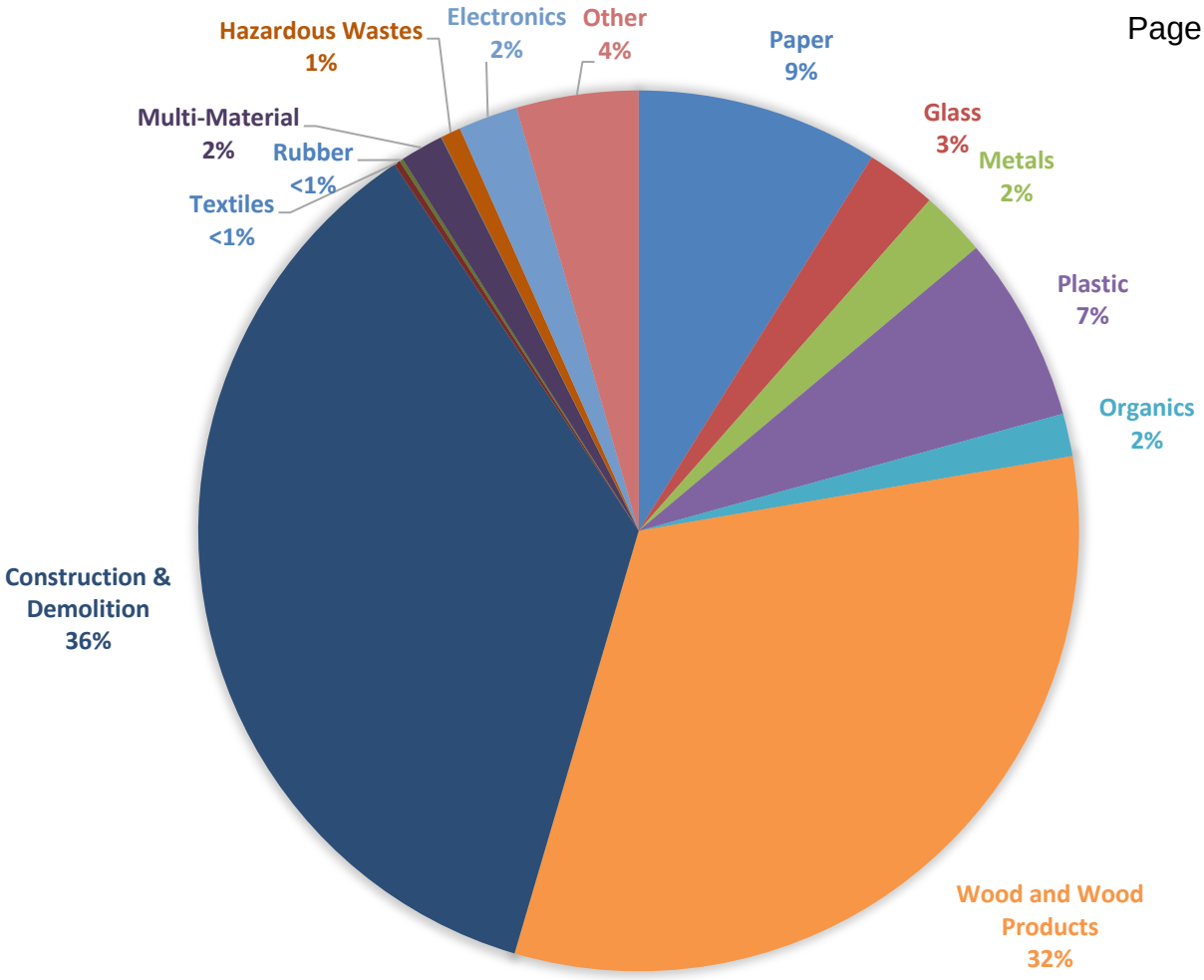


Figure 9 Composition of Self-Haul C&D Waste Disposed 2021, based on weight

The General Construction & Demolition consisted of masonry (**44%)**, new drywall (**18%**), other C&D i.e., grout and poly fill, sawdust and vinyl siding, etc. (**14%**), used drywall (**10%**) and carpet and underlay (**7%).** The high percentage represented by masonry may be an anomaly due to one entire sample load consisting of concrete flooring.

The wood category was comprised of plywood (**47%**) and particle board, treated and painted wood (**36%**), non-divertible clean wood (material has the potential to be chipped and composted) (**9%**) and divertible clean wood (**6%**).

Self-Haul Sample C&D

Self-Haul Sample C&D

There was little change in the composition of Self-Haul MSW waste disposed in the qathet region between the spring and fall waste studies. The main differences in datasets were seen in C&D (**17%** increase), Paper (**12%** increase), Wood and Wood Products (**13%** decrease), Other (**9%** decrease) in the fall study compared to the spring.

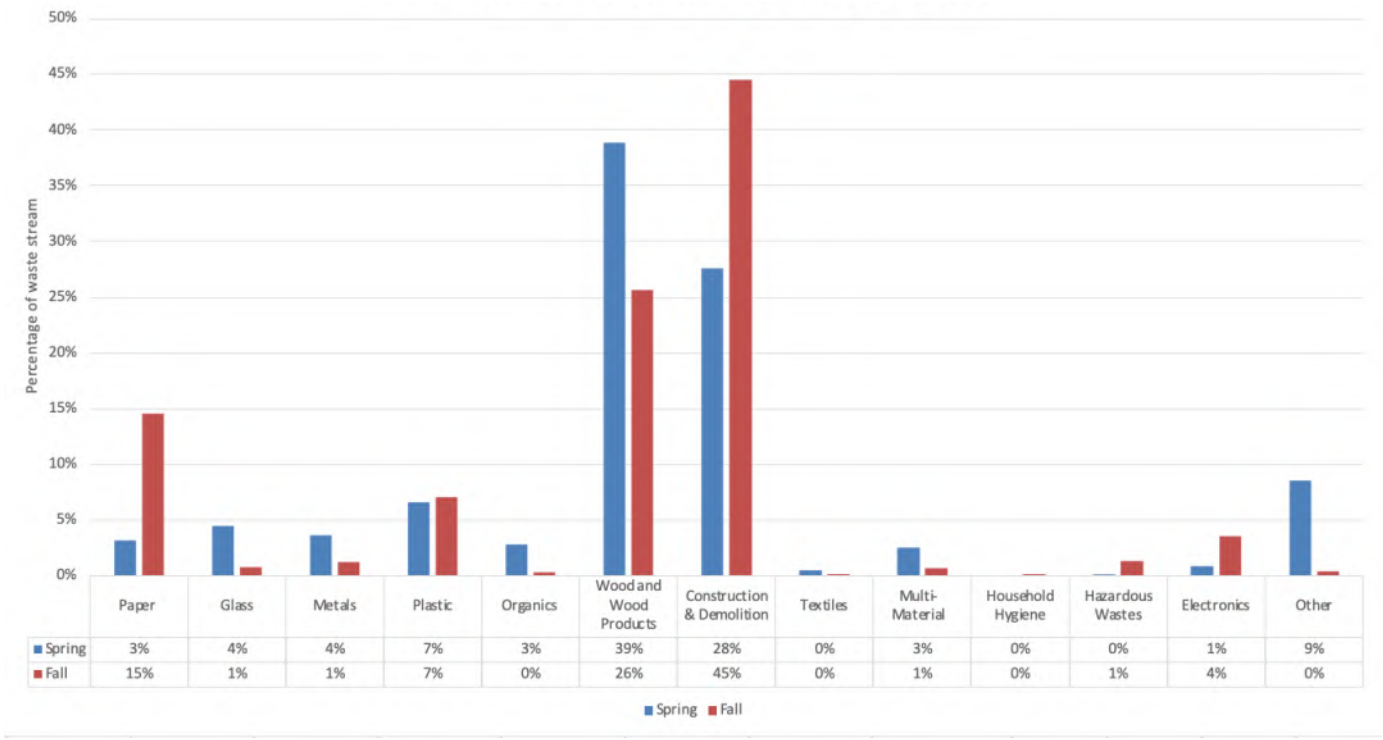


Figure 10 Comparison of Composition of Self-Haul C&D Waste Disposed based on weight between May and November 2021

2.6 qathet Regional District Waste Composition

Figure 11 illustrates the estimated composition of the waste disposed by the qathet Regional District in 2021. To develop the overall estimate for the qRD, the data from each of the five waste stream sectors presented above

(Residential MSW, ICI MSW, Self-Haul MSW, Self-Haul C&D, ICI C&D) was applied proportionally, based on the scale data for 2020. These proportions are provided in Table 3.

Table 4 2020 Waste Disposal, By Waste Stream

Type of Waste	Tonnes	% Disposed
Residential MSW	1,263	12%
ICI MSW	2,599	26%
Self-Haul MSW	2,176	21%
Self-Haul C&D	1,937	19%
Commercial C&D	2,197	22%
TOTAL DISPOSED (2020)	**10,172**	**100%**

As shown, the data indicates that the largest components of the waste stream by weight in 2021 was Organics (**25%**), Wood and Wood Products (**23%**), Plastic (**10%**), C&D (**10%**), Paper (**9%**), Household Hygiene (**7%**) Multi-Material non donatable items (**5%**) and Other materials (**3%**) of which contained multi-material items that were considered donatable.

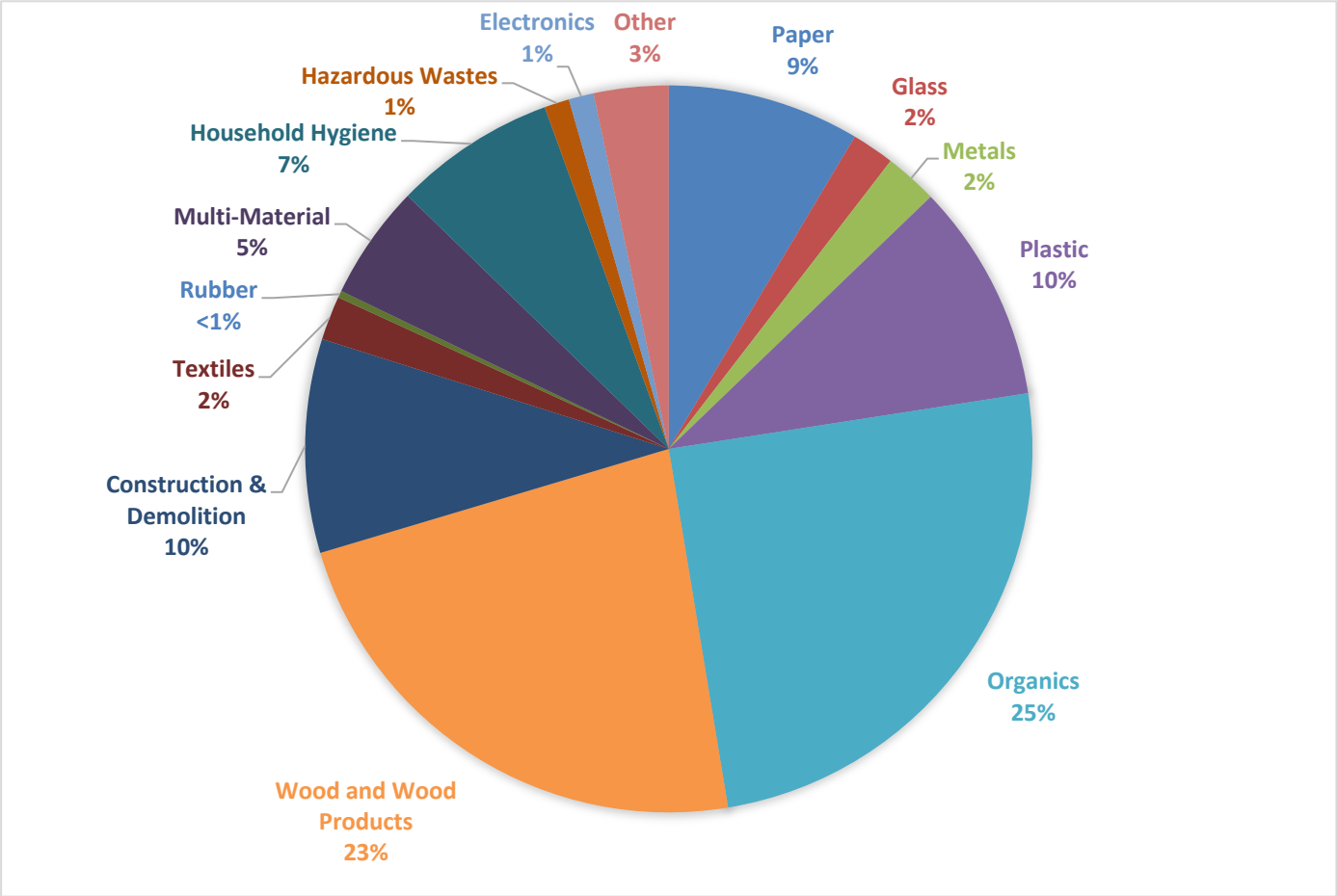


Figure 11 Estimated Composition of qRD Waste Disposed in 2021, based on weight

The Organics category comprised of:

- **69%** food waste
- **17%** compostable paper
- **7%** donatable food
- **6%** yard and garden waste.

Compostable food waste

Donatable food waste

Compostable Soiled Paper

The Wood and Wood waste category comprised of:

- **35%** treated wood waste
- **23%** divertible clean wood waste
- **19%** non-divertible clean wood waste (potential for compost)
- **20%** non-divertible plywood and particle board.

The Construction and Demolition category comprised of:

- **14%** new drywall
- **15%** other C&D waste
- **40%** masonry
- **4%** asphalt shingles
- **6%** flooring
- **9%** used drywall
- **5%** carpet and underlay.

The Paper category comprised of:

- **42%** corrugated cardboard
- **46%** mixed wastepaper
- **8%** paper packaging that used to contain liquids (e.g., coffee cups, milk cartons).

The Plastic category comprised of:

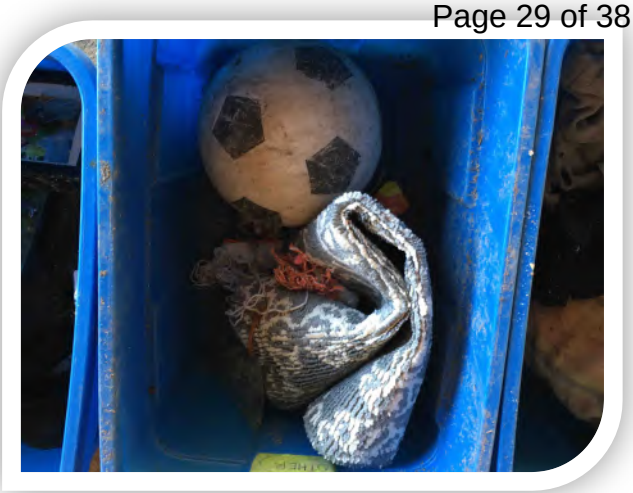
- **28%** rigid plastic non-EPR
- **23%** other film non-EPR
- **19%** rigid containers -EPR
- **15 %** Category 9

The **Multi-Material category** was made up of **78%** materials that were not considered donatable and were essentially considered garbage.

The **Other** materials category contained **70%** donatable/reusable items that contained multiple materials (plastic and metal toy, purse, etc.).

The **Household Hygiene** was made up of **64%** diapers and related items (feminine hygiene products, cotton tipped swabs) and **36%** pet waste (including kitty litter).

Multi Material aka garbage



Multi Material Donatable

3 General Observations

The May and November 2021 studies provide a high-level "snapshot in time" for waste disposed in the qRD. The data, based on five consecutive days in May and six consecutive days in November may not be reflective of waste in other seasons or other weeks, however the combined data and observations do not show a significant change in the volume or type of materials found in the waste stream between the spring and fall seasons which suggests that the study data provides a reasonable look at what makes up the waste disposed in the qRD.

The study data provides the qRD with a more accurate understanding of the waste disposed in the region, and a baseline that can be used as a foundation to inform future waste diversion policy, programs, and educational outreach and initiatives.

The following observations are a combination of the findings between both waste composition studies and can be generalized for our region:

- The amount of refundable beverage containers found in the waste stream was very low. It should be noted that in February 2022, Encorp will start accepting milk and milk substitute containers into the refundables stream. This should impact the amount of waste entering the paper packaging liquids stream.
- The amount of household hazardous waste was low. Most of the HHW observed was empty containers or items of low toxicity. Household batteries were found in all MSW loads.
- The amount of EPR items, such as electronics, small appliances, light bulbs, etc., was very low.
- The number of materials that are readily recyclable and free to recycle was approximately **16%** of the total amount sampled including curbside and depot recycling.
- Organics (compostable) was a substantial portion **(42%)** of the weight of the residential and ICI MSW streams (including Self-Haul) samples but was a negligible portion of the C&D waste sector samples.
- There was a very small amount of reusable goods noted in the samples including clothing, toys, and jewelry.
- Minimal compostable take-out packaging was found. Compostable packaging was primarily from one local grocery store that offers compostable plastic bags.
- A noticeable amount of single use coffee pods was found in MSW, both compostable and plastic pods.
- There were no biodegradable plastics found in the November waste study and very minimal in the May study.
- Many plastic grocery store bags found in the waste stream were getting a second use as garbage bags.
- Minimal medication was found in the waste samples.

- A noticeable amount of vaping equipment and accessories were observed in both studies.
- Large amounts of cardboard and non-C&D items were disposed of in the C&D pit.
- Some bags of clean sorted recyclables were found in the trash. Let's Talk Trash checked the City's recycling schedule to see if perhaps residents were disposing of recyclables on the "off" week where recycling wasn't offered since collection is bi-weekly. However, during the week of the waste study, all zones collected received both garbage and recycling collection. There is also the possibility of the curbside truck driver emptying the recyclables into the garbage truck by mistake.

4 Recommendations

To reach the waste diversion goals outlined in the region's Solid Waste Management Plan, waste management practices need to change. A more sustainable approach needs to be adopted that engages all local governments, private industry, and the non-profit sector to form partnerships and foster innovation. Local solutions are needed to reduce the financial and environmental costs associated with current waste management practices. The data revealed through these two waste studies shows that diverting organics and clean wood waste alone would reduce our regions waste going to landfill by at least **35%**.

Organics:
Organics represents the single largest material category (**25%**) and represents the greatest potential for diversion from landfill. Food waste accounted for **76%** of the organics sample which was comprised of **69%** food waste and **7%** donatable food (still packaged). The food waste diversion hierarchy starts first by reducing overall food waste, diverting food waste for animal feed and finally composting.

Recommendation 1: The qRD is signed on as a local government member to the Love Food Hate Waste campaign which offers educational resources to promote food waste avoidance through shopping and storage tips as well as the creative use of over ripe food in delicious recipes. Increase education through Let's Talk Trash to residents and the ICI sector through public and targeted outreach, publications, and social media.

Recommendation 2: Increase outreach to the ICI sector in advance of the local compost facility becoming operational. Education should include procurement practice (i.e., purchasing reusable or paper containers for single serving ketchup instead of plastic, onsite separation of organic waste including paper packaging and food waste, appropriate bins, and signage.

Recommendation 3: Increase outreach to residents in advance of the curbside rollout of the organics program. Education should include accepted materials, bin maintenance and cleanliness, and storage tips.

Recommendation 4: Once a local composting facility is fully operational, bans on organic waste from the commercial and residential sectors should be implemented and enforced.

Wood and Wood Products:
Wood and wood products represent the second largest material category (**23%**). **42%** of the clean wood waste sampled was considered to be divertible for local reuse (i.e., non-structural building) and **19%** divertible for compost, chipped for landscaping mulch or for use in local products like One Light fire starters. Through observation and photo documentation taken while onsite at Augusta during both waste composition studies, there is no organized source separation of clean wood from Self-Haul residential and small contractor C&D loads deposited on the tipping floor or roll-off commercial C&D loads in the pit. Source separation of C&D materials is essential for the creation of diversion opportunities.

Recommendation 1: To divert clean wood waste for local reuse, systems need to be put in place to incentivise deconstruction over demolition, require onsite source separation of materials during construction, deconstruction, and demolition projects, and allow access to clean wood waste (and other C&D) materials. These systems include building, demolition and deconstruction permits, and waste Bylaws that build local resiliency through C&D waste diversion and by fostering regional collaboration between local governments, the construction and waste management and non-profit sectors. The Resource Recovery Centre (RRC) will facilitate the source separation and access to clean wood waste brought to the site by residents and contractors however to capture the volume of large-scale commercial C&D waste, policy change, bans and recycling mandates like those in effect in Metro Vancouver and the City of Victoria need to be implemented.

Recommendation 2: Accelerate engagement with the private and non-profit sector to identify uses for clean wood locally (divertible for reuse and compost). The clean wood identified for reuse and other uses such as compost may need investment (labour, equipment, and costs) to remove nails, staples, etc. in order to be diverted from the waste stream. Let's Talk Trash is working with qRD staff to draft a Request for Proposal that invites proposals from the non-profit sector for C&D waste collected at the RRC to be diverted and resold in a small 'Restore' style business that can operate out of a small structure that will be onsite close to the recycling centre at the RRC.

Recommendation 3: Consultation with the construction industry, non-profit sector, and local waste industry experts to identify barriers to C&D diversion (i.e., cost, schedule, lack of storage space for material, lack of incentives and regulation). Let's Talk Trash participates in a monthly C&D working group through the Coast Waste Management Association. Staff at regional districts across BC are looking for innovative solutions to the challenges of C&D waste. The top barriers identified through the working group are the availability of storage space (primarily in urban centers), the coupling of schedules, budgets and permits that do not incentivise deconstruction and source separation, and limitations on the reuse of old lumber within building codes. There are many experts in this working group that have been challenging the status quo and moving the dial, these experts are often the best positioned to help find solutions.

Recommendation 4: Ban clean wood waste from the garbage. Once source separation of clean wood waste is available through the RRC and local diversion opportunities identified, bans on clean wood waste from MSW can be implemented. To capture commercial comingled C&D waste not being disposed of at the RRC will take a regional effort as mentioned above.

The C&D 'pit'

The C&D Self-Haul tipping floor

Household Hygiene:
36% of Household hygiene sampled was pet waste including kitty litter.

Recommendation 1: Incentivize options like the Green Cone Digester for residents by offering a rebate program.

Recommendation 2: Investigate pet waste composters or alternative systems that can be installed in qathet Regional District and City parks.

Household Hazardous Waste (HHW):

The majority of HHW items found (batteries, paint) are those covered under stewardship programs and represented a low percentage of the waste stream (**1%** combined), their presence in the waste stream may indicate a lack of awareness by some generators of the proper method for managing these wastes and an opportunity to increase diversion.

***Recommendation 1*:** Increase educational campaigns connected to HHW and other stewarded products through public outreach, publications, and social media.

5 Lasqueti

The opportunity arose to sample a load of MSW from Lasqueti Island residents. Although the data from this sample was not included within the main study results, it is valuable information to have a snapshot in time of the Lasqueti waste stream and affirms a very different waste composition from the rest of the qRD. The biggest difference was the absence of organic materials.

Two samples, approximately 100kg's per sample were sorted on the first day of the November waste composition study and was primarily identified as residential waste. This data was based on a very small dataset and has a high margin for error potential.

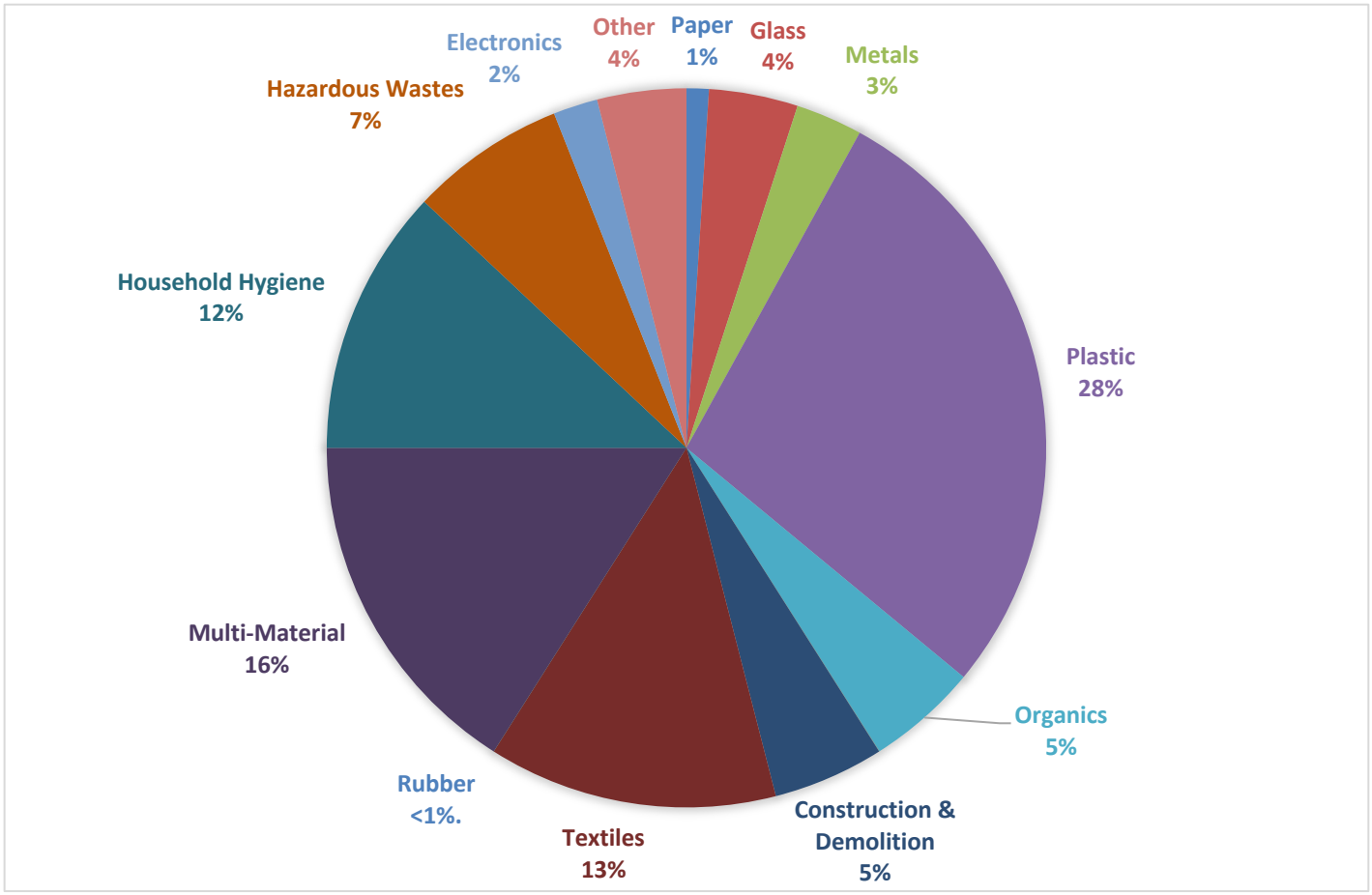


Figure 12 **Estimated Composition of Lasqueti Waste Disposed in 2021, based on weight**

Lasqueti waste sample

Lasqueti's waste was comprised of:

Plastic (**28%** of total sample) **--**primarily non-EPR plastics (i.e., plastic highchair, toys, dish rack) (**51%**), recyclable containers- EPR (**17%**), non-EPR film such as garbage bags (**15%**) and EPR film (shopping bags) and cat 9 (chip and snack bags) (**11%**).

Multi-Material (**16%** of total sample) non reusable mixed material items.

Textiles (**13%** of total sample) -Reusable/donatable textiles (**69%**) and **31%** stained, ripped, or soiled textiles that have potential for recycling through private organizations.

Household Hygiene (**12%** of total sample) -**93%** of household hygiene was pet waste.

Household Hazardous Waste (**7%** of total sample) -contained jerry can, brake fluid, paint cans and fertilizer.

Organic waste (**5%** of total sample)- food and plant waste.

C&D (**5%** of total sample) -primarily carpet underlay, rocks, sand, dirt.

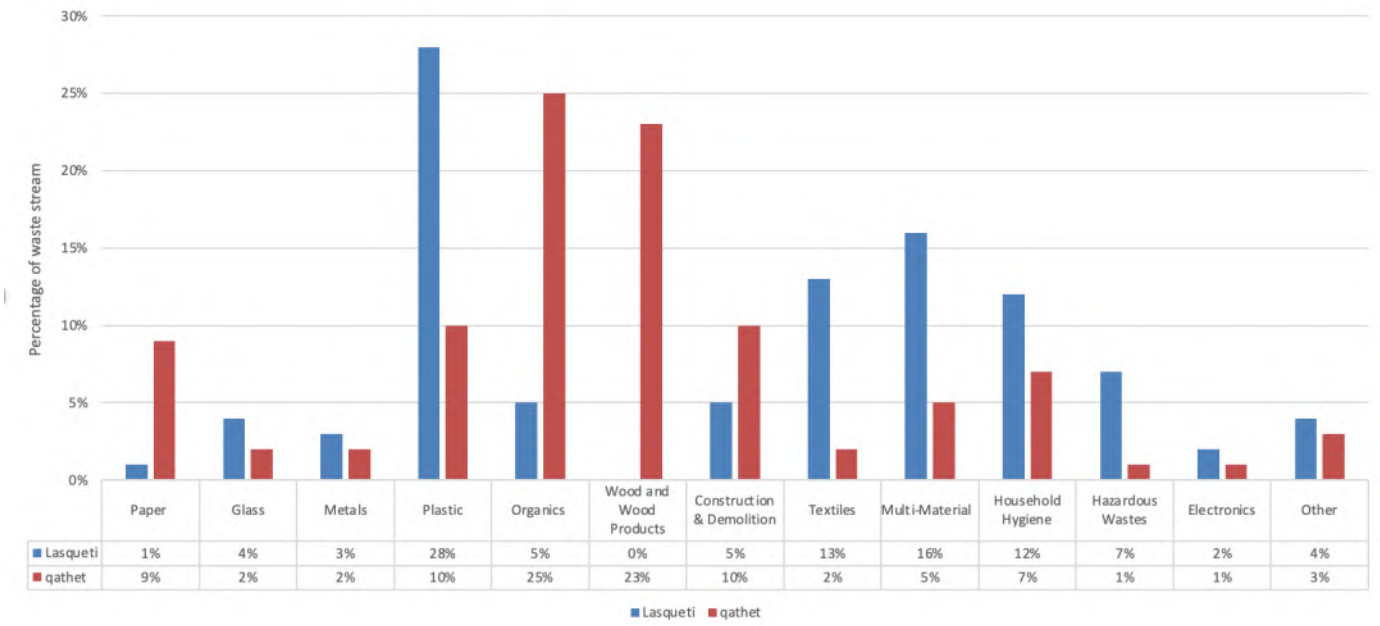
Other (**4%** of total sample) -**96%** of Other were donatable items that didn't fit the other categories (jewelry, art supplies).

Glass (**4%** of total sample) primarily non-EPR glass (mirror, glassware) and ceramics.

Metal (3% of total sample)- beverage and food containers and other non-EPR metals.

Electronics (**2%** of total sample)-shop vac, electric razor, lamp.

Paper (1 % of total sample) **-** mixed paper.



	Paper	Glass	Metals	Plastic	Organics	Wood and Wood Products	Construction & Demolition	Textiles	Multi-Material	Household Hygiene	Hazardous Wastes	Electronics	Other
Lasqueti	1%	4%	3%	28%	5%	0%	5%	13%	16%	12%	7%	2%	4%
qathet	9%	2%	2%	10%	25%	23%	10%	2%	5%	7%	1%	1%	3%

Figure 13 Comparison: Composition of Lasqueti and qRD Waste Disposed based on weight between May and November 2021

Although the samples are not completely comparable, since Lasqueti's waste was only sampled from one season, it does provide insight into Lasqueti's waste stream. The key takeaways are:

- The diversion of organic material is happening on Lasqueti Island.
- Most items found in the trash were those that are not easily recyclable on Lasqueti i.e., plastics that are not part of the recycle BC depot program (the only available recycling on the island aside from deposit containers, and some clothing donation through the free store).

APPENDIX A: May, November, and Annualized 2021 Waste Composition Data

Material	Residential MSW			ICI MSW			Self Haul MSW			CD			Self Haul CD			qRD	qRD	qRD
	Spring	Fall	Annualized	Spring	Fall	Annualized	Spring	Fall	Annnualized	Spring	Fall	Annualized	Spring	Fall	Annualized	Spring	Fall	Annualized
Paper	**4.3%**	**7.0%**	**5.6%**	**5.7%**	**19.7%**	**12.7%**	**5.7%**	**7.6%**	**6.7%**	**4.0%**	**4.5%**	**4.2%**	**3.2%**	**14.6%**	**8.9%**	**5.8%**	**11.3%**	**8.5%**
Newsprint	0.2%	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.1%
Mixed waste paper	2.3%	3.8%	3.0%	3.2%	7.2%	5.2%	3.2%	4.8%	4.0%	0.0%	0.6%	0.3%	0.5%	10.3%	5.4%	2.2%	5.4%	3.8%
Corrugated cardboard	0.7%	1.4%	1.1%	1.5%	7.8%	4.6%	1.5%	1.7%	1.6%	3.9%	3.7%	3.8%	2.5%	4.2%	3.4%	2.8%	4.2%	3.5%
Paper packaging - liquids	0.8%	1.2%	1.0%	0.8%	2.0%	1.4%	0.8%	0.8%	0.8%	0.0%	0.2%	0.1%	0.1%	0.0%	0.0%	0.5%	0.9%	0.7%
Paper beverage containers - deposit	0.0%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Books	0.3%	0.4%	0.4%	0.1%	1.6%	0.9%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.5%	0.3%
Waxed cardboard	0.0%	0.1%	0.1%	0.0%	1.0%	0.5%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.2%
Glass	**2.6%**	**3.1%**	**2.8%**	**2.5%**	**1.3%**	**1.9%**	**2.5%**	**3.2%**	**2.8%**	**0.4%**	**0.1%**	**0.2%**	**4.4%**	**0.8%**	**2.6%**	**2.2%**	**1.6%**	**1.9%**
Glass beverage containers – deposit	0.3%	0.3%	0.3%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.1%	0.1%	0.1%	0.4%	0.0%	0.2%	0.4%	0.1%	0.3%
Glass containers (bottles and jars)	1.1%	1.6%	1.3%	1.5%	0.5%	1.0%	1.5%	1.5%	1.5%	0.0%	0.0%	0.0%	0.3%	0.2%	0.3%	0.7%	0.7%	0.7%
Other glass and ceramics	1.1%	1.2%	1.2%	0.8%	0.8%	0.8%	0.8%	1.4%	1.1%	0.2%	0.0%	0.1%	3.7%	0.6%	2.1%	1.1%	0.7%	0.9%
Metals	**2.5%**	**2.9%**	**2.7%**	**2.2%**	**2.0%**	**2.1%**	**2.2%**	**3.2%**	**2.7%**	**0.3%**	**3.4%**	**1.8%**	**3.6%**	**1.2%**	**2.4%**	**2.2%**	**2.5%**	**2.4%**
Beverage cans – deposit	0.3%	0.2%	0.3%	0.3%	0.2%	0.2%	0.3%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.2%
Food containers	1.0%	1.2%	1.1%	1.4%	0.9%	1.1%	1.4%	1.4%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.7%	0.6%
Large appliances	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other metals	1.2%	1.5%	1.3%	0.5%	1.0%	0.7%	0.5%	1.6%	1.1%	0.2%	3.4%	1.8%	3.6%	1.2%	2.4%	1.4%	1.7%	1.6%
Plastic	**12.1%**	**12.6%**	**12.3%**	**13.0%**	**15.0%**	**14.0%**	**13.0%**	**11.7%**	**12.4%**	**6.7%**	**2.6%**	**4.7%**	**6.6%**	**7.0%**	**6.8%**	**9.7%**	**9.8%**	**9.7%**
Plastic beverage containers – deposit	0.3%	0.3%	0.3%	0.2%	0.1%	0.2%	0.2%	0.4%	0.3%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.2%	0.2%	0.2%
Rigid plastic containers– PPP/non deposit	2.8%	2.3%	2.6%	3.3%	2.2%	2.7%	3.3%	2.8%	3.0%	0.2%	0.0%	0.1%	0.3%	0.9%	0.6%	2.0%	1.6%	1.8%
Expanded polystyrene (White and Colour)	0.4%	0.4%	0.4%	0.4%	0.6%	0.5%	0.4%	0.3%	0.3%	0.2%	0.1%	0.2%	0.1%	0.0%	0.0%	0.2%	0.3%	0.3%
Film packaging – retail bags and overwrap	2.0%	1.8%	1.9%	1.4%	1.7%	1.6%	1.4%	1.3%	1.4%	0.0%	0.0%	0.0%	0.0%	0.4%	0.2%	0.9%	1.0%	0.9%
Cat 9 Multi-laminated plastic packaging	2.8%	3.7%	3.2%	2.6%	2.2%	2.4%	2.6%	2.7%	2.7%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	1.5%	1.6%	1.5%
Other film - non PPP	1.8%	1.9%	1.8%	2.7%	4.0%	3.3%	2.7%	1.1%	1.9%	5.6%	0.7%	3.1%	1.3%	0.0%	0.6%	2.7%	1.6%	2.2%
Miscellaneous rigid plastic - non PPP	2.0%	2.1%	2.1%	2.2%	3.6%	2.9%	2.2%	3.2%	2.7%	0.6%	1.7%	1.1%	4.8%	5.8%	5.3%	2.2%	3.3%	2.7%
Biodegradable plastic	0.0%	0.0%	0.0%	0.0%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%
Compostable plastics	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.1%
Organics	**44.5%**	**39.9%**	**42.2%**	**44.4%**	**38.7%**	**41.6%**	**44.4%**	**32.5%**	**38.4%**	**1.1%**	**4.0%**	**2.5%**	**2.8%**	**0.3%**	**1.6%**	**27.0%**	**22.7%**	**24.8%**
Food waste – compostable	35.8%	32.0%	33.9%	35.0%	19.4%	27.2%	35.0%	27.0%	31.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	19.5%	14.7%	17.1%
Food waste – donatable	0.5%	0.5%	0.5%	1.9%	3.6%	2.8%	1.9%	0.6%	1.3%	0.0%	0.0%	0.0%	1.7%	0.0%	0.8%	2.2%	1.1%	1.7%
Food waste – fats, oil and grease	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Yard and garden waste	2.0%	0.9%	1.4%	1.1%	2.1%	1.6%	1.1%	0.1%	0.6%	1.1%	3.8%	2.4%	1.2%	0.1%	0.6%	1.5%	1.5%	1.5%
Other organic waste	0.0%	0.0%	0.0%	0.0%	2.4%	1.2%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.2%	0.6%	0.4%
Soiled paper (compostable)	6.3%	6.5%	6.4%	6.3%	11.1%	8.7%	6.3%	4.6%	5.5%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	3.5%	4.7%	4.1%
Wood and Wood Products	**0.6%**	**0.8%**	**0.7%**	**0.2%**	**2.2%**	**1.2%**	**0.2%**	**2.4%**	**1.3%**	**72.4%**	**74.2%**	**73.3%**	**38.9%**	**25.6%**	**32.3%**	**23.9%**	**22.1%**	**23.0%**
Pallets/skids	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Wood shingles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.6%	1.8%	1.1%	0.0%	0.6%	0.2%	0.8%	0.5%
Wood furniture	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Clean wood - for COMPOST	0.0%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.4%	0.2%	9.8%	23.7%	16.8%	5.6%	0.3%	3.0%	3.5%	5.3%	4.4%
Clean wood - for REUSE	0.1%	0.0%	0.0%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	27.9%	17.4%	22.7%	3.7%	0.0%	1.9%	6.8%	3.8%	5.3%
Other wood – treated/ painted	0.3%	0.6%	0.5%	0.0%	1.1%	0.6%	0.0%	1.9%	0.9%	29.4%	19.6%	24.5%	19.9%	3.4%	11.6%	10.6%	5.6%	8.1%
Plywood/particle board	0.2%	0.1%	0.2%	0.0%	1.0%	0.5%	0.0%	0.0%	0.0%	5.2%	9.9%	7.6%	8.5%	22.0%	15.3%	2.8%	6.6%	4.7%
Green waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Construction & Demolition	**4.7%**	**1.3%**	**3.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**2.1%**	**1.1%**	**10.2%**	**8.1%**	**9.2%**	**27.6%**	**44.5%**	**36.1%**	**8.2%**	**10.9%**	**9.5%**
Drywall New	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	9.1%	3.8%	6.5%	1.7%	0.8%	1.3%
Drywall Used	1.2%	0.1%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	0.8%	0.1%	7.0%	3.6%	0.5%	1.3%	0.9%
Asphalt roofing	0.9%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.2%	0.0%	1.6%	0.0%	0.0%	0.0%	0.8%	0.0%	0.4%
Carpet and underlay	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	3.1%	2.6%	0.5%	0.6%	0.5%
Other Synthetic Flooring	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	0.7%	1.8%	0.0%	0.9%	2.2%	0.0%	1.1%	0.8%	0.3%	0.6%
Insulation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	2.2%	1.4%	2.8%	0.0%	1.4%	0.7%	0.5%	0.6%
Masonry	1.9%	0.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%	3.3%	2.9%	3.2%	28.5%	15.8%	1.4%	6.1%	3.8%
Rock/sand/dirt	0.4%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%
Other C&D waste	0.2%	0.8%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	2.6%	1.5%	8.1%	2.1%	5.1%	1.7%	1.1%	1.4%
Reusable doors	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Reusable windows	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Reusable C&D items	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Textiles	**4.5%**	**2.9%**	**3.7%**	**3.5%**	**2.1%**	**2.8%**	**3.5%**	**3.6%**	**3.6%**	**1.5%**	**0.0%**	**0.8%**	**0.4%**	**0.0%**	**0.2%**	**2.3%**	**1.7%**	**2.0%**
Natural textiles	0.2%	1.1%	0.6%	0.7%	0.3%	0.5%	0.7%	0.5%	0.6%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.2%	0.3%	0.3%
Synthetic textiles	1.8%	0.8%	1.3%	2.2%	0.2%	1.2%	2.2%	1.1%	1.7%	1.5%	0.0%	0.8%	0.3%	0.0%	0.1%	1.5%	0.4%	0.9%
Reusable (natural fibre)	1.4%	0.5%	0.9%	0.1%	0.8%	0.4%	0.1%	1.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.5%	0.4%
Reusable (synthetic fibre)	0.6%	0.5%	0.5%	0.5%	0.8%	0.6%	0.5%	0.8%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.4%	0.4%
Rubber	**0.3%**	**0.1%**	**0.2%**	**0.5%**	**0.4%**	**0.5%**	**0.5%**	**0.1%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**	**0.3%**	**0.0%**	**0.1%**	**0.5%**	**0.1%**	**0.3%**
Tires	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other rubber products	0.3%	0.1%	0.2%	0.5%	0.4%	0.5%	0.5%	0.1%	0.3%	0.0%	0.0%	0.0%	0.3%	0.0%	0.1%	0.5%	0.1%	0.3%
Multi-Material	**4.6%**	**7.6%**	**6.1%**	**6.1%**	**10.1%**	**8.1%**	**6.1%**	**11.7%**	**8.9%**	**0.4%**	**1.0%**	**0.7%**	**2.6%**	**0.6%**	**1.6%**	**3.8%**	**6.4%**	**5.1%**
Bulky items	0.0%	0.3%	0.1%	0.0%	3.8%	1.9%	0.0%	5.9%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	1.1%
Other non-reusable items	4.6%	7.3%	6.0%	6.1%	6.4%	6.2%	6.1%	5.7%	5.9%	0.4%	1.0%	0.7%	2.6%	0.6%	1.6%	3.8%	4.1%	4.0%
Household Hygiene	**14.4%**	**17.9%**	**16.2%**	**6.5%**	**5.5%**	**6.0%**	**6.5%**	**17.2%**	**11.8%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**7.1%**	**7.3%**	**7.2%**
Kitty litter, pet waste	6.1%	7.0%	6.5%	2.0%	1.3%	1.6%	2.0%	9.7%	5.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	3.3%	2.6%
Diapers and other personal hygiene products	8.4%	10.9%	9.6%	4.5%	4.2%	4.3%	4.5%	7.5%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.2%	4.0%	4.6%
Hazardous Wastes	**1.4%**	**0.5%**	**1.0%**	**3.4%**	**0.4%**	**1.9%**	**3.4%**	**1.2%**	**2.3%**	**0.1%**	**0.1%**	**0.1%**	**0.1%**	**1.3%**	**0.7%**	**1.5%**	**0.7%**	**1.1%**
Light bulbs, tubes and ballasts	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Light fixtures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Batteries – automotive	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Batteries – household	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.2%	0.1%	0.1%
Oil and antifreeze	0.2%	0.1%	0.1%	0.4%	0.0%	0.2%	0.4%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%
Paints and containers	0.5%	0.1%	0.3%	0.3%	0.1%	0.2%	0.3%	0.0%	0.2%	0.0%	0.1%	0.0%	0.0%	1.3%	0.6%	0.3%	0.3%	0.3%
Solvents, pesticides, fuels	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pharmaceuticals	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Vaping and cannabis related products	0.2%	0.0%	0.1%	0.2%	0.0%	0.1%	0.2%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.1%
Needles and sharps	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other medical waste	0.1%	0.0%	0.1%	1.9%	0.1%	1.0%	1.9%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.0%	0.2%
Pressurized cannisters (non-EPR)	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
Other hazardous waste - non-EPR	0.2%	0.1%	0.1%	0.2%	0.0%	0.1%	0.2%	0.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.2%
Electronics	**0.9%**	**1.2%**	**1.1%**	**0.8%**	**1.3%**	**1.1%**	**0.8%**	**0.9%**	**0.9%**	**0.0%**	**1.8%**	**0.9%**	**0.8%**	**3.5%**	**2.2%**	**0.5%**	**1.7%**	**1.1%**
Electronics	0.9%	1.2%	1.1%	0.8%	1.3%	1.1%	0.8%	0.9%	0.9%	0.0%	1.8%	0.9%	0.8%	3.5%	2.2%	0.5%	1.7%	1.1%
Other	**2.5%**	**2.1%**	**2.3%**	**11.3%**	**1.3%**	**6.3%**	**11.3%**	**2.5%**	**6.9%**	**3.0%**	**0.1%**	**1.5%**	**8.5%**	**0.4%**	**4.5%**	**5.4%**	**1.3%**	**3.3%**
Non distinct fines	1.6%	0.3%	0.9%	1.0%	0.2%	0.6%	1.0%	0.2%	0.6%	0.9%	0.1%	0.5%	0.9%	0.0%	0.4%	0.9%	0.2%	0.5%
Donatable/ reusable items not listed above	0.5%	1.0%	0.8%	9.1%	0.4%	4.7%	9.1%	2.2%	5.6%	2.1%	0.0%	1.0%	6.3%	0.4%	3.4%	3.8%	0.8%	2.3%
Wax	0.0%	0.1%	0.0%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Miscellaneous	0.8%	0.0%	0.4%	1.1%	0.0%	0.6%	1.1%	0.0%	0.6%	0.0%	0.0%	0.0%	1.4%	0.0%	0.7%	0.7%	0.0%	0.4%
	100.0%	100.0%		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

May, November, and Annualized 2021 Waste Composition Data Main Category Summary

	Residential MSW			ICI MSW			Self Haul MSW			CD			Self Haul CD			qRD	qRD	qRD
	Spring	Fall	Annual	Spring	Fall	Annual	Spring	Fall	Annual	Spring	Fall	Annual	Spring	Fall	Annual	Spring	Fall	Annualized
Paper	4%	7%	6%	6%	20%	13%	6%	8%	7%	4%	5%	4%	3%	15%	9%	6%	11%	9%
Glass	3%	3%	3%	2%	1%	2%	2%	3%	3%	0%	0%	0%	4%	1%	3%	2%	2%	2%
Metals	3%	3%	3%	2%	2%	2%	2%	3%	3%	0%	3%	2%	4%	1%	2%	2%	3%	2%
Plastic	12%	13%	12%	13%	15%	14%	13%	12%	12%	7%	3%	5%	7%	7%	7%	10%	10%	10%
Organics	44%	40%	42%	44%	39%	42%	44%	32%	38%	1%	4%	3%	3%	0%	2%	27%	23%	25%
Wood and Wood Products	1%	1%	1%	0%	2%	1%	0%	2%	1%	72%	74%	73%	39%	26%	32%	24%	22%	23%
Construction & Demolition	5%	1%	3%	0%	0%	0%	0%	2%	1%	10%	8%	9%	28%	45%	36%	8%	11%	10%
Textiles	5%	3%	4%	3%	2%	3%	3%	4%	4%	2%	0%	1%	0%	0%	0%	2%	2%	2%
Rubber	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Multi-Material	5%	8%	6%	6%	10%	8%	6%	12%	9%	0%	1%	1%	3%	1%	2%	4%	6%	5%
Household Hygiene	14%	18%	16%	6%	5%	6%	6%	17%	12%	0%	0%	0%	0%	0%	0%	7%	7%	7%
Hazardous Wastes	1%	1%	1%	3%	0%	2%	3%	1%	2%	0%	0%	0%	0%	1%	1%	2%	1%	1%
Electronics	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	2%	1%	1%	4%	2%	0%	2%	1%
Other	2%	2%	2%	11%	1%	6%	11%	3%	7%	3%	0%	2%	9%	0%	4%	5%	1%	3%
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%