



City of Airdrie

Technical Report: Residential Waste Audit

September 2017

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S-Cubed Environmental

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1 Background

The City of Airdrie offers curbside waste collection for single-family homes. In May 2014 curbside organics collection was implemented followed by curbside recycling which was implemented in April 2017.

In mid-March 2017 Council directed Staff to conduct waste composition studies (audits) over the next year to determine levels of contamination. The information gathered from these audits will help guide staff in their waste management plan specifically in the area of educational outreach.

S-Cubed consulting was contracted to perform a waste audit on the garbage in late March 2017. This was done prior to the roll-out of the curbside collection program for the purpose of providing a baseline by which future audits could be compared. Four and a half months later, S-Cubed returned to see if there was an improvement in the amount of recyclables in the garbage stream. In order to gain a well-rounded perspective on the compliance and overall success of the curbside programs; the team also audited the organics and the recycling streams.

1.1 Alberta Plastics Recycling Association (APRA) Participation

The City of Airdrie and the Alberta Plastics Recycling Association (APRA) entered into an agreement where APRA participated in the waste audit. APRA's involvement was for the purpose of gaining a greater understanding of the types of plastics in the municipal solid waste and recycling streams. With APRA's guidance, plastics were sorted into twenty nine categories rather than 4, which revealed interesting findings. For example, we realized there is a large percentage of clam shell items that would be deemed as non-recyclable in APRA's classification because they do not have a recycling number on the package but residents would place this in the recycling cart as it looks like other numbered clam shells. We also learned that a large amount of recyclable plastics were disposed of by residents in the garbage as opposed to collected and separated for recycling.

APRA identified that material deemed recyclable by a homeowner can be quite different from what is deemed recyclable by a processor. As a result, the processor likely landfills the material because there is no market for it, or creates a mixed bale that has lower value than bales of homogenous plastic. The quality of plastics are currently of greater significance now as processors are feeling the pressure of Chinese restrictions on recycled plastics imports.

The result of APRA's research is important to plastics manufacturers and processors, particularly at a time of volatile markets. The City of Airdrie has the opportunity to reduce the impact of this issue by further educating residents about the differences in plastics, and how to properly sort and prepare materials for recycling. APRA has indicated a willingness to further discuss communications on plastics recycling with the City.

APRA recommends the same plastic classification methodology is followed in future audits so that comparisons between the audits can be made.

The Alberta Plastics Recycling Association provides fee for service work and consulting on plastics recycling best practices. Tammy Schwass is the Executive Director; tammy@albertaplasticsrecycling.com; 403-835-6467.

2 Neighbourhood Selection and Waste Sample Collection

The audit examined the waste from a sample of 100 homes distributed between alley and front pickup. Based on 17,696 dwellings (source: City of Airdrie September 2017), the sample of 100 homes provides a confidence interval of 9.77, and a confidence level of 95%. In other words, if this same audit was conducted 20 times with a sample of 100 homes, 19 times out of 20 the data would fall into a range of plus or minus 9.77 percent of that which was found in this study.

Garbage and organics was collected on Monday September 25th and Tuesday September 26th and recycling was collected on Tuesday September 26th and Wednesday September 27th. The material was brought to the Recycling Depot and the audit was conducted behind the cardboard building. Staff was on site between 7:30 am to approximately 6:00 pm. Fifty houses were selected in the Windsong and Coopers communities (collected Monday and Tuesday), and another 50 houses were selected in the Airdrie Meadows and Edgewater communities (collected on Tuesday and Wednesday). These communities were selected as they included a mix of single family and duplex homes, and represented typical demographics of homes in Airdrie. The homes were the same ones sampled in the March audit.

A glossary of terms used in this report is located in Appendix A:, page 16.

3 Waste Audit Categories

Two categories that were included under Other Waste in the March 2017 have been broken out into their own categories for the September 2017 audit. These two categories are Textiles and Household Hazardous Waste. The audit categories in the September 2017 audit are Paper, Plastics, Glass, Metal, Organic Waste, Refundable Beverage Containers, Personal Electronics, Textiles, Household Hazardous Waste and Non-Recyclable Waste (Other Waste). The sub-categories are shown in the Appendix B:page 17.

The Alberta Plastics Recycling Association (APRA) was involved in the waste audit. APRA is examining opportunities for plastics recycling in the province. Its mission is to facilitate the development of efficient and effective programs to manage plastic waste. To provide the information they want for their purposes, plastic was sorted into twenty-nine sub-categories. The categories can be found in Appendix C: page 18. Each of the APRA categories was clearly coded to the March plastic categories so comparisons can be made between audits.

The recycling and organics audit used the same category list as the September audit.

The term contamination refers to material found in the sample that does not belong in the respective program. For example, a black garbage bag or electronics is considered

contamination when it is found in the blue cart, and pet waste is considered contamination if it is found in the organic cart.

4 Waste Audit Methodology



Image 1 – Sorting area set up

A team of four to six people sorted the material received into bins lined with black garbage bags. The contents of each bag were weighed in kilograms and recorded into a spreadsheet for data analysis. Following the waste sort, materials were deposited into the appropriate garbage and recycling bins and organics was picked up by the hauler again.

5 Results and Discussion

These results represent a snapshot in time of a sample of homes. Extrapolation of this data to the larger population is subject to a margin of error of approximately ± 9.77 percent, and is indicative rather than absolute.

5.1 Set Out Rate

Overall, 65 percent of the houses put garbage at the curb, 63 percent of the houses put recycling at the curb, and 50 percent of the houses put organics at the curb. The March garbage audit set out rate was 50 percent.

For the Monday collection, due to their normal early pickup schedule, there were no late set outs. On the other hand, on Tuesday there were several late set outs; eight garbage bags, seven recycling carts and one organics cart which were picked up by S-Cubed.

Of all houses that set out garbage at the curb in September, 59 percent set-out 1 bag (32 percent in March), 4 percent set-out 2 bags (15 percent in March), and 2 percent set out 3 bags in both September and March. There was only one house in March that set out 4 bags of garbage. Overall, the percentage of houses setting out more than one garbage bag decreased from the March audit.

5.2 Garbage Stream Audit results

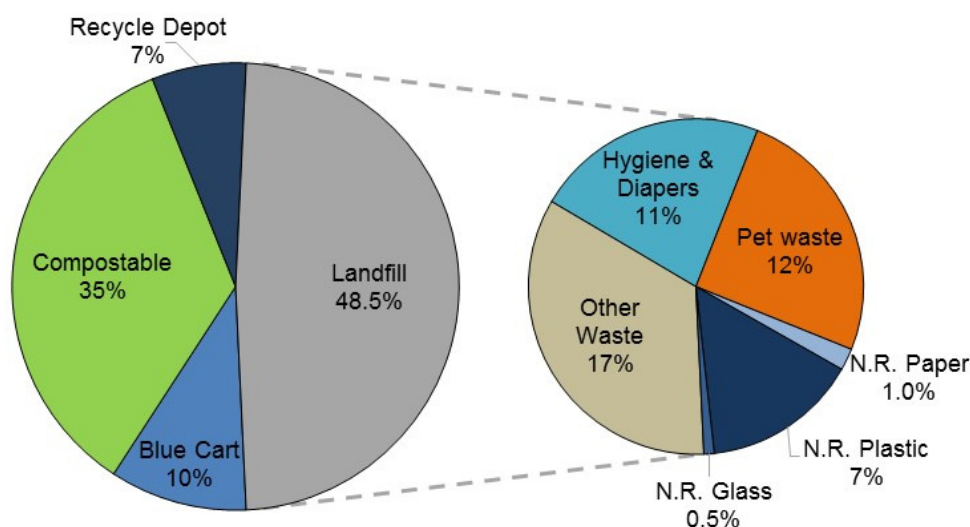
Sixty five houses in the sample set out garbage. In total there were seventy three garbage bags that were collected and audited, with a total weight of 616.4 kilograms. This represents an average of 9.5 kilograms per household, based on 100 households in the total sample.

Figure 1 shows the representation of material found in the garbage, by category. Blue Cart material found in the garbage includes recyclable paper, plastic, glass, beverage containers, and tin and aluminum food containers; Recycling Depot material includes textiles, electronics, polystyrene packaging and household hazardous waste (HHW); Compostable is Organic waste; and Landfill is garbage that is properly destined for a landfill. Compostable garbage contained large quantities of edible food (which includes containers filled with food) and inedible food. Results are in 0page 19. Additional photos taken from the audit are shown in Appendix F:page 22.

The adjacent pie chart in Figure 1 breaks out the types of materials that were properly placed in garbage bags to go to the landfill. This landfill material consisted largely of Pet Waste, Hygiene and Diapers, and Other Waste which includes tissues, fines, composite materials, vacuum bags, furnace filters and rubber.

The remaining sub-categories of Non-Recyclable Waste included Non-Recyclable (NR) plastic which comprised take-out forks, straws, and wrappers; Non-Recyclable Paper which included waxy coated containers, gift bags with ribbon handles, and composite containers like a Pringle container; Non-Recyclable Glass which comprised ceramics; and Non-Recyclable Metal which included dirty aluminum foil, can opener, ratchet, nuts and bolts, and cookie sheets.

Figure 1 – Garbage Composition from the September 2017 Audit



At 35 percent the organic fraction in the garbage is significant since Airdrie has an organics program. However, audit data from waste audits in other communities have found garbage containing between thirty and thirty-eight percent of organics when communities have an organics collection program (*Tri-Region Organics Processing Feasibility Study, 2015*). A recent audit of residential waste in Halifax, where they have had curbside organic collection since 1999, found 14% compostable organic material in the garbage.

Organic Material

35% of the material found in the garbage could be composted instead of sent to a landfill.



Discarded chicken balls



Food in containers



Compostable paper towel



Edible food



Inedible food

Recyclables

Improvements can be made to divert recyclable materials; containers should be rinsed prior to recycling



Plastic cups



Mixed paper



Plastic bottles



Tin cans and aluminum foil

Textiles

Textiles should not go to a landfill. They can be collected and taken to the Recycling Depot.



Household



Clothing

Hazardous Waste and Special Handling



Alkaline battery



Oil filter



Aerosol containers

Landfill



Straws



Umbrella



Single use coffee pods



Plastic case



Drywall debris



Furnace filter



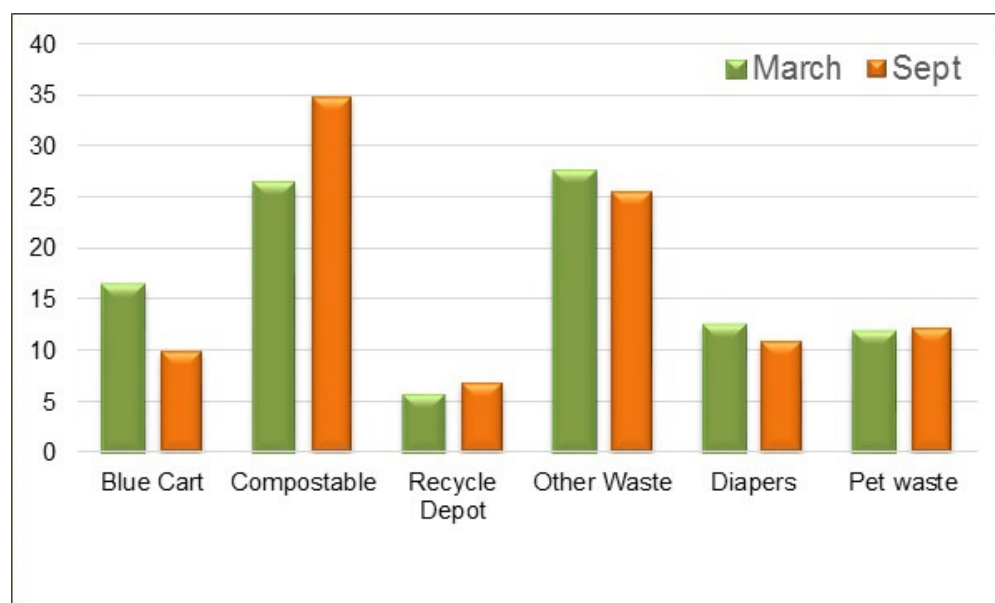
Garden hose and non-recyclable plastic

5.3 Comparison between the March and the September Garbage Stream

Figure 2 compares the two audits. There were fewer recyclables in the garbage after the introduction of the blue cart program. This suggests that residents may find it more convenient

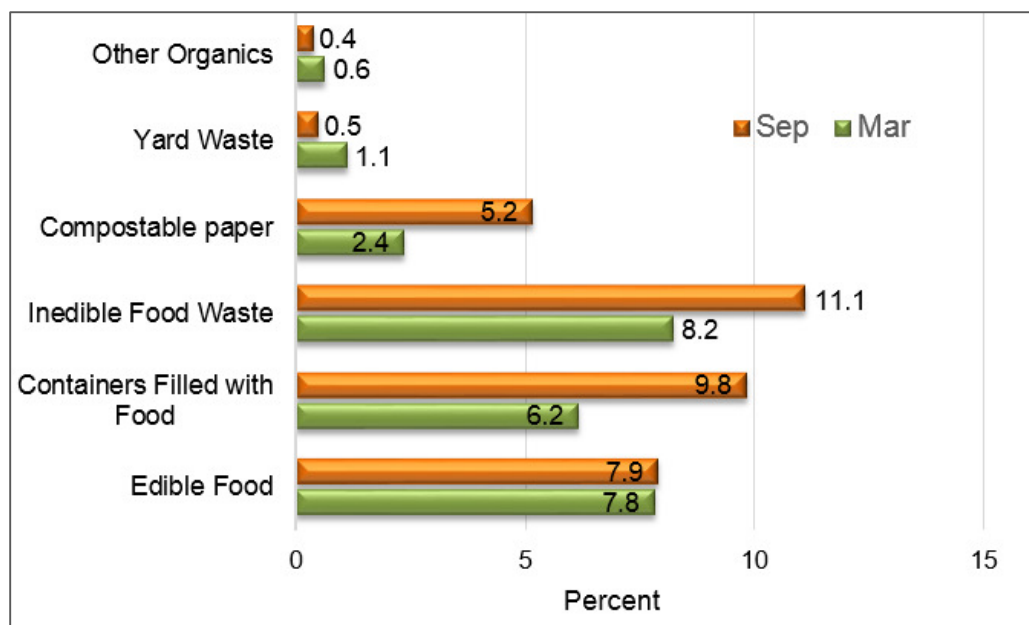
to use the blue cart program than go to the recycling depot. We also noted, as would be expected, a complementary downward trend for landfilled garbage (March audit was 52% and September audit was 48.5%). However Airdrie did change the garbage service level when the curbside recycling program was implemented. Previously residents could place out two units of garbage for collection whereas in April that went down to one bag of garbage. This could also be a contributing factor to the decrease in garbage.

Figure 2 – Comparison of March and September Garbage Audit Results



Unfortunately, more compostable material is found in the September garbage audit as shown in Figure 2. As such, Figure 3 charts the different sub-categories of Organic Waste. The main reason seems to be an increase in edible food waste ending up in the garbage, specifically food that is still in packaging.

Figure 3 – Comparison of the Organic Waste category for March and September Audits

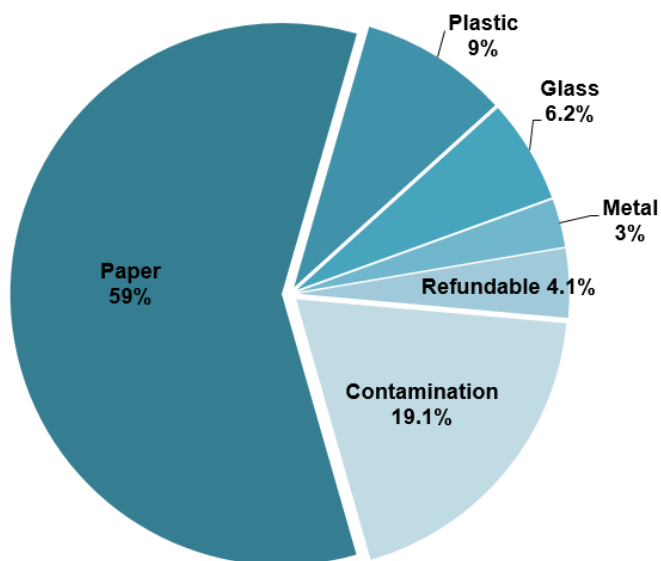


5.4 Recycling Stream Audit Results

The sixty three recycling carts that were collected and audited over the two days contained a total of 441.9 kilograms of material. This represents an average of 4.5 kilograms per household, based on 100 households in the total sample. When the contamination is removed from the total recycled material this drops to 3.6 kilograms per household recycled.

The results presented in Appendix E:page 21, show the breakdown of the subcategories and the material types by all the categories. Figure 4 aggregates the items that do not belong in the recycling cart as contamination. Contamination included electronics, textiles, and bags of material unless it was filled with film or shredded paper. This is because these items would be pulled off at the Material Recycling Facility (not opened and sorted) and sent to a landfill.

Figure 4 – Recycling Composition



Recyclable Material

Paper including cardboard and newspaper was the largest category of materials recycled by weight.



Newspaper



Tin Cans



Mixed paper



Rigid plastic containers



Film in bags



Glass jars

Contamination

The recycling stream had 19.1% contamination and included materials like the following.



Textiles



Garbage in bags & plastic strapping



Electronics & non-recyclable metal



Plastics with no number



Polystyrene

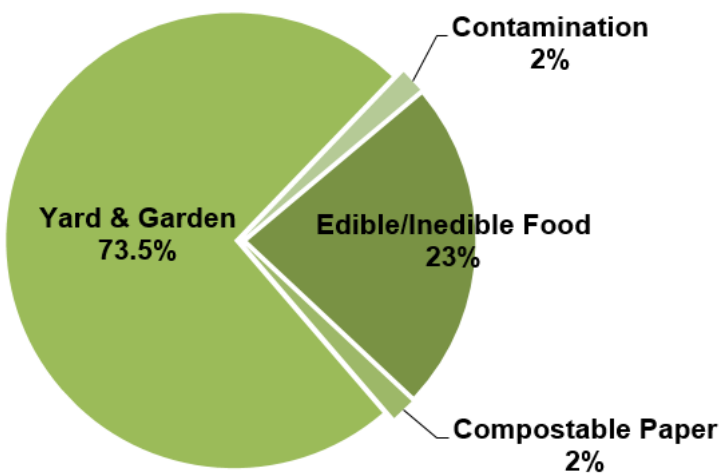


Silicon freezer packs

5.5 Organic Waste Stream Audit Results

The fifty organic collection carts that were picked up and audited over the two days contained a total of 1365 kilograms of material. This represents an average of 13.6 kilograms per household, based on 100 households in the total sample. The results in Appendix E: page 21, show the breakdown of the subcategories and the material types by all the categories. Figure 5 categorizes all items that do not belong in the organics cart as contamination.

Figure 5 – Organic Waste Composition



Organic Material

Almost three quarters of the organic material was yard waste.



Edible food



Inedible food



Yard waste

Contamination

The organics stream had 2% contamination and included materials like the following.



Food in containers



Single serve coffee pods



Styrofoam and a battery



Plastic containers



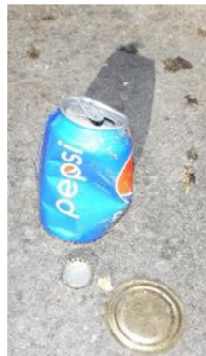
Plastic film



Plastic posts



Landscape fabric



Metal



Stuffed toy

6 Garbage Audit Observations and Interpretations

The following observations arise from the information gathered through the audit.

Organics in Garbage

Implementing a Community-Based Social Marketing program foster the proper behaviours of putting food scraps in the kitchen catcher and green cart could substantially increase compliance and food waste diversion. This should be undertaken soon as it is noted that the amount of food waste increased between the March and September audits, an undesirable trend. Table 1 further supports the impact initiatives in this area could have on organics ending up in the landfill.

Residents need to be reminded that garbage, plastic bags, and plastic containers do not belong in the organics cart. Heavy materials such as sod should also be discouraged. Consider green cart inspections. A Green Team would go to different neighbourhoods and sticker green carts with either a “thanks” or “oops” sticker. An “oops” sticker would be placed on a green cart that has unacceptable materials and a “thanks” sticker would be attached to a green cart that had no contamination.

7 Annual Data (2016) Extrapolations

Using City of Airdrie tonnages the average single-family home generated 9.5 kilograms of garbage in 2016. This was the same generation rate in the September audit, which was down from 14.2 kilograms per household in the March audit.

In 2016, 8,194 tonnes of garbage was sent to landfill. Applying the garbage composition percentages to the 2016 tonnages, Table 1 shows the calculate tonnes of material going to the landfill that could have otherwise been diverted using other programs. We define this as missed opportunities.

Table 1 – Material Missed Opportunities

Material	September Audit (tonnes)	March Audit (tonnes)
Organics	2860	2158
Recycling	819	1340
Divertible items (e.g. Styrofoam packaging, textiles, HHW & electronics).	523	463
Number of residential houses	17696	17359

The calculated numbers indicate that the blue cart had an impact on the amount of recycling ending up in the landfill. However, there is a need to change the sorting behaviors of residents to divert organics from their garbage to the green cart program. This needs to be addressed as a priority, as changing to the proper behaviour will become more difficult as the habit of doing it improperly becomes more established.

While seasonal variation and adjustments to collection methodology have an impact on the numbers, as does the margin of error of the sample, the increase in Recycling and the decrease in Organics from March to September is significant, and the opportunity to divert more material is clear.

Appendix A: Glossary

Bi-weekly – collection of a green cart every second week

Blue Cart – recyclable material that is sent to a processor for recycling

Compost – a soil-like substance from the breakdown of organic materials that takes place at a composting facility.

Contamination – items that are in a recycling or organics program that should not be in those programs.

Garbage – material that is sent to a landfill

Green Organics Cart – also referred to as the green cart and organics

HHW – Household Hazardous Waste

Organics – material that is biodegradable and can be processed at a composting facility to produce compost.

Recycling Depot – a location for residents to divert items that are not accepted in the Blue Cart

N.R. – Non-recyclable

Waste Composition or Waste Audit – generic term describing the proportion of various materials in a given waste stream

Appendix B: Audit Categories

Paper		Description
	Newsprint, Magazines, Flyers	
	Mixed Paper	Boxboard, envelopes, paper, brown paper bags, clean food containers, tetra soup containers, egg carton
	Cardboard	
	Other Recyclable Paper	Fountain cups, coffee cups
Plastic		
	Plastics #1-#7	Detergent bottles, HDPE #2, clam shells, takeout cups
	Plastic Film (LDPE)	Ziplock, food film, packaging wrap
	Styrofoam packaging	Computer packaging
Glass		
	Glass Food Containers	Jars
Metal		
	Steel Cans & Aluminum foil	Food cans and tin foil trays (clean)
Organics		
	Edible Food Waste	Sandwich, whole fruit
	Inedible Food Waste	Peels, bones, pits
	Compostable paper	Food soiled napkins, paper plates no waxy liner, french fry boxes, brown fast food bags, flour bags, parchment paper. Paper with organic residue would go in this category.
	Containers Filled with Food	Sour cream container, dipping sauce containers
	Yard & Garden	Plants and flower
	Other Organic Waste	Stir sticks, chop sticks, tooth picks, popsicle sticks, compostable takeout foodware
Beverage Containers		
	Refundables	Plastic, aluminum, tetra, pouches, glass
Electronics		
	Personal Electronics	IT accessories, toothbrush, headphones, watch, camera
	Other	Audio, Visual, Kitchen and Power Tools
Textiles		
	Clothing and Footwear	Textiles, footwear and costumes
	Household	Pillow, curtain, bedding, lunch kits, reusable bags,
	Other textiles	Rags, outdoor textlies, strapping
Household Hazardous Wastes		
	Aerosol cans	
	Other	Batteries, AUOMA containers, fluorescent bulb; incandescent bulbs
Other Waste		
	Other Waste	Cig butts, elastics, rubber gloves, hand lotion tubes, meat pads, tissue, babywipes, toothpaste tubes, q-tips, composite material, containers of grease, padded envelopes
	Fines	Small stuff and sweepings
	Non-Recyclable Paper	Cotton balls, cigarette foils, waxy paper, waxed boxboard, gift bags with fabric handles, composite containers like pingles chips, paper bags with a plastic liner
	Non-Recyclable Plastic	Straws, forks, wrappers, chip bags, pizza plastic, flimsy plastic, styrofoam food containers, toys, durable goods
	Glass & Ceramics	Ceramics
	Non-Recyclable Metal	Food contaminated tin foil, tools, stapler,
	Garbage Bags	Film used to contain waste
	C&D Waste	Fibreglass, paint brushes, drywall, sandpaper, sawdust
	Hygiene & Diapers	Tissue, washroom waste, diapers, feminine products
	Pet waste	Kitty litter and doggy bags

Appendix C: Alberta Plastic Recycling Association Categories

Category	Sub-Category	Description
Rigid	PET (#1) - rigid containers & jars - clear, coloured & black	Heinz Ketchup, Kraft Miracle Whip, Hellman's Mayonnaise, cooking oil, dish soap, honey, Listerine
Rigid	HDPE (#2)	Margarine tubs, laundry detergent, bleach, household cleaner/spray containers
Rigid	LDPE (#4) - squeezable bottles & containers	Mustard, some Tupperware
Non-recycle	HDPE (#2) - pails, buckets & drums > 5 litres	Soap and gels in bulk, cat litter, fertilizer, milk (shipping) crates
Non-recycle	PP (#5) - pails, buckets ≥ 5 litres	Mop buckets
Non-recycle	Durable goods	Plastic lawn chairs, Rubbermaid tubs, toys, mud flaps, garden hose (clarify this and item 18)
Non-recycle	LDPE foam	Foam packaging - the white thin product that would protect some items before going in the box with "styrofoam"/
Non-recycle	PP (#5) - woven	Bulk potato bags, feed bags
Non-recycle	PVC (#3) - film wrap & pliable	Glad Cling Wrap (has better cling properties than #2 /#4), teething rings, chew toys for pets
Non-recycle	Other Rigid	Healthcare/cosmetic products, plant post/trays, unmarked/coded packaging, VCR tapes, actual CD disc, toys, games and reusables
Non-recycle	Crunchy film	Gruit bags, over-wrap for paper towel, beverage lawn and garden bags, cracker bags, over wrap for cookie trays
Non-recycle	PS (#6) - expand foam- white, coloured & black	Meat trays, poultry trays, packing foam for durable goods, plates, bowls, egg cartons (The pad on the trays goes to Other Waste)
Non-recycle	Other (#7 & un-marked) - polycarbonates & mixed resins	Non-PET blister packs, some Tupperware, plant packaging and trays, cutlery/utensils (no number)
Non-recycle	Multi-material - composite	Toothpaste tubes, chip bags, toy packaging, plastic/foil pouches, chocolate chip cookie wrappers
Non-recycle	Laminates - film & bags (85% plastic plus other bonded materials)	Meat, poultry and fish wrap, bacon and cheese packaging
Non-recycle	Pouches	Frozen fruit bag, laundry detergent bag, baby food pouch, beef jerky pouches, anything with a zipper like top (some dog food were pouches too)
Non-recycle	Polystyrene	Hot or cold beverages
Non-recycle	No number.	Straws, credit cards
Non-recycle	No number.	Lids
K-Cups	K-Cups	Keurig, Maxwell House, non-compostable types
Garbage Bags	Garbage bags	Black or white or clear bags that held garbage or blue bags for recycling containment
Flexible	PET (#1) - thermoform - clear, coloured & black	Clamshells, sealable cake trays, microwave dinner trays, blister packs, egg cartons
Flexible	PP (#5) - bottles, containers & caps natural, coloured & black	Margarine tubs, yogurt tubs, medicine bottles, shampoo bottles, some Tupperware, takeout soup bowls
Flexible	Rigid	Ice coffee, lemonade, smoothie, solo cup (numbered)
Flexible	PS (#6) - extruded containers - clear & opaque	Berry containers, muffin containers, clamshell take-out containers, utensils/cutlery, CD cases, coffee lids
Film	HDPE (#2) & LDPE (#4) - grocery/retail carry out bags ad foodstuffs	Sobeys, Superstore, Walmart, Shoppers, Canadian Tire, freezer bags, ziplock bags, sandwich, bags, Shrink wrap, dry cleaner garment bags, bread bags, toilet paper overwrap

Appendix D: September and March Garbage Results

Material Category	Garbage				
Location	Mon kg	Tues kg	Total kg		
Paper					
Newsprint, Magazines, Flyers	3.7	0.8	4.5	0.7	
Mixed Paper	9.5	7.2	16.6	2.7	
Cardboard	-	0.3	0.3	0.1	
Other - Recyclable Paper	1.9	1.5	3.4	0.6	
Total Paper	15.1	9.8	24.9	4.0	
Plastics					
Plastics #1-#7	8.1	6.5	14.6	2.4	
Plastic Film (LDPE) (#14)	6.3	4.5	10.8	1.7	
Styrofoam packaging	0.5	0.3	0.7	0.1	
Total Plastic	14.8	11.3	26.1	4.2	
Glass					
Glass Food Containers	1.3	3.5	4.7	0.8	
Total Glass	1.3	3.5	4.7	0.8	
Metal					
Steel Cans & Aluminum foil	3.0	1.9	4.9	0.8	
Total Metal	3.0	1.9	4.9	0.8	
Organic Waste					
Edible Food Waste	31.5	17.6	49.1	7.9	
Inedible Food Waste	48.2	20.8	69.0	11.1	
Compostable Paper	22.0	10.1	32.1	5.2	
Containers Filled with Food	36.5	24.5	61.1	9.8	
Yard & Garden	3.1	0.1	3.2	0.5	
Clean Wood	2.3	-	2.3	0.4	
Other Organic Waste	0.1	0.1	0.2	0.0	
Total Organic Waste	143.7	73.2	216.9	34.9	
Beverage Containers					
Refundables	1.1	0.6	1.7	0.3	
Plastic Refundables	0.4	0.1	0.5	0.1	
Total Beverage Containers	1.5	0.7	2.2	0.4	
Electronics					
E-Waste	3.0	0.3	3.3	0.5	
Other	0.1	0.8	0.9	0.1	
Total Electronics	3.1	1.1	4.2	0.7	
Textiles					
Clothing and Footwear	3.3	12.8	16.1	2.6	
Household	4.6	5.8	10.4	1.7	
Other	7.4	0.9	8.3	1.3	
Total Textiles	15.2	19.5	34.8	5.6	
Household Hazardous Waste					
Aerosols	0.7	0.5	1.2	0.2	
Other	1.0	0.7	1.7	0.3	
Total HHW	1.7	1.2	2.9	0.5	
Non-Recyclable Waste					
Other Waste	25.0	22.4	47.3	7.6	
Fines	3.2	2.9	6.1	1.0	
Non-Recyclable Paper	4.9	1.5	6.4	1.0	
Non-Recyclable Plastic	21.8	23.8	45.6	7.3	
Non-Recyclable Glass & Ceramics	2.0	1.0	3.0	0.5	
Non-Recyclable Metal	6.2	3.2	9.4	1.5	
Garbage Bags	14.4	5.1	19.5	3.1	
C&D waste	16.9	4.4	21.3	3.4	
Hygiene & Diapers	47.49	20.7	68.1	11.0	
Pet waste	50.7	25.4	76.1	12.2	
Total Other Waste	192.4	110.4	302.8	48.7	
Total	390	231	621	100	

September 2017

March 2017

Material Category	Garbage			
Location	Mon kg	Tues kg	Total kg	%
Paper				
Newsprint, Magazines, Flyers	14.2	4.8	19.0	2.7
Mixed Paper	21.7	7.8	29.4	4.2
Cardboard	4.9	2.9	7.8	1.1
Other - Recyclable Paper	3.6	1.8	5.3	0.8
Total Paper	44.4	17.2	61.6	8.7
Plastics				
Plastics #1-#7	12.9	5.3	18.2	2.6
Plastic Film (LDPE)	12.6	3.9	16.5	2.3
Styrofoam packaging	0.7	0.2	0.9	0.1
Total Plastic	26.2	9.4	35.6	5.0
Glass				
Glass Food Containers	3.8	1.2	5.0	0.7
Total Glass	3.8	1.2	5.0	0.7
Metal				
Steel Cans & Aluminum foil	6.2	2.9	9.0	1.3
Total Metal	6.2	2.9	9.0	1.3
Organic Waste				
Edible Food Waste	45.3	10.2	55.4	7.8
Inedible Food Waste	47.8	10.7	58.5	8.2
Compostable Paper	11.2	5.5	16.7	2.4
Containers Filled with Food	31.6	12.1	43.7	6.2
Yard & Garden	4.2	3.9	8.1	1.1
Clean Wood	0.8	2.3	3.1	0.4
Other Organic Waste	0.6	0.6	1.2	0.2
Total Organic Waste	141.5	45.2	186.7	26.3
Beverage Containers				
Refundables	5.1	0.6	5.7	0.8
Total Beverage Containers	5.1	0.6	5.7	0.8
Electronics				
E-Waste	0.4	0.1	0.5	0.1
Other	10.5	2.6	13.1	1.8
Total Electronics	10.9	2.7	13.6	1.9
Textiles				
Total Textiles	12.1	7.6	19.6	2.8
Other Waste				
Other Waste	121.6	18.7	140.3	19.8
Non-Recyclable Paper	8.8	5.5	14.3	2.0
Non-Recyclable Plastic	17.5	4.5	22.0	3.1
Glass & Ceramics	5.8	3.7	9.6	1.3
HHW	4.9	1.1	6.0	0.8
Diapers*	81	15.0	96.0	13.5
Pet waste/ other non-compostable	56.3	27.6	83.9	11.8
Total Other Waste	295.9	76.2	372.0	52.5
Total	545.9	162.9	708.8	100

Appendix E: September Recycling and Organic Results

Material Category	Recycle				Annual tonnes/ yr	Organics			
	Mon kg	Tues kg	Total kg	%		Mon kg	Tues kg	Total kg	%
Paper									
Newsprint, Magazines, Flyers	55.8	38.6	94.4	21.1	1379.4	-	13.2	13.2	1.0
Mixed Paper	43.6	47.6	91.2	20.4	1332.1	0.6	-	0.6	0.0
Cardboard	55.9	21.1	77.0	17.2	1123.9	-	0.9	0.9	0.1
Other - Recyclable Paper	0.9	0.7	1.6	0.4	24.0	-	0.2	0.2	0.0
Total Paper	156.2	108.0	264.2	59.0	3859.4	0.6	14.3	14.9	1.1
Plastics									
Plastics #1-#7	18.4	12.0	30.4	6.8	444.5	0.1	-	0.1	0.0
Plastic Film (LDPE) (#14)	3.7	4.8	8.5	1.9	124.3	0.2	-	0.2	0.0
Styrofoam packaging	0.6	0.0	0.6	0.1	8.8	0.0	-	0.0	0.0
Total Plastic	22.7	16.8	39.5	8.8	577.7	0.3	0.0	0.3	0.0
Glass									
Glass Food Containers	15.7	12.0	27.7	6.2	404.3	-	-	0.0	0.0
Total Glass	15.7	12.0	27.7	6.2	404.3	0.0	0.0	0.0	0.0
Metal									
Steel Cans & Aluminum foil	6.6	6.2	12.8	2.9	187.2	-	-	0.0	0.0
Total Metal	6.6	6.2	12.8	2.9	187.2	0.0	0.0	0.0	0.0
Organic Waste									
Edible Food Waste	0.1	0.2	0.3	0.1	4.2	69.6	57.4	127.1	9.3
Inedible Food Waste	-	-	0.0	0.0	0.0	62.6	115.9	178.5	13.1
Compostable Paper	0.2	0.7	0.9	0.2	13.4	10.8	11.6	22.4	1.6
Containers Filled with Food	-	-	0.0	0.0	0.0	0.1	9.5	9.6	0.7
Yard & Garden	-	-	0.0	0.0	0.0	351.6	649.4	1001.0	73.3
Clean Wood	-	-	0.0	0.0	0.0	-	0.5	0.5	0.0
Other Organic Waste	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Total Organic Waste	0.2	1.0	1.2	0.3	17.6	494.8	844.3	1339.1	98.1
Beverage Containers									
Refundables	10.8	4.7	15.4	3.4	225.1	0.8	0.0	0.8	0.1
Plastic Refundables	1.5	1.5	3.0	0.7	43.5	0.8	0.0	0.8	0.1
Total Beverage Containers	12.2	6.2	18.4	4.1	268.5	1.6	0.1	1.6	0.1
Electronics									
E-Waste	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Other	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Total Electronics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Textiles									
Clothing and Footwear	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Household	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Other	0.5	-	0.5	0.1	6.6	0.2	0.1	0.3	0.0
Total Textiles	0.5	0.0	0.5	0.1	6.6	0.2	0.1	0.3	0.0
Household Hazardous Waste									
Aerosols	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Other	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Total HHW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Recyclable Waste									
Other Waste	30.6	7.1	37.7	8.4	550.4	0.1	1.0	1.1	0.1
Fines	8.1	4.1	12.2	2.7	178.7	-	-	0.0	0.0
Non-Recyclable Paper	5.3	1.6	6.8	1.5	99.6	0.1	-	0.1	0.0
Non-Recyclable Plastic	11.4	9.8	21.2	4.7	310.1	1.6	0.5	2.2	0.2
Non-Recyclable Glass & Ceramics	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Non-Recyclable Metal	0.1	6.1	6.2	1.4	90.0	-	0.1	0.1	0.0
Garbage Bags	-	0.1	0.1	0.0	0.8	0.0	0.1	0.1	0.0
C&D waste	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Hygiene & Diapers	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Pet waste	-	-	0.0	0.0	0.0	2.2	3.5	5.7	0.4
Total Other Waste	55.6	28.6	84.2	18.8	1229.7	4.1	5.1	9.2	0.7
Total	269	179	448	100	6544	501	864	1365	100

Appendix F: Additional Photos from the Audit



Image 1: Delivery Monday garbage sample



Image 2: Monday organic sample



Image 3: A full recycling cart not picked up as it was not pulled out



Image 4: Not ready for pickup



Image 5: Recycling delivered



Image 6: Recycling Contamination



Image 7: Picking out specific recycle material



Image 8: The team wore respirators during the garbage sort