

City of Toronto

Waste Composition Study 2000/2001

A study of waste generated and diverted by single family and multi family residents in Toronto

WDO Project #: OPT-R1-08



Report Submitted To:

The Waste Diversion Organization

Prepared By:

City of Toronto

March 30, 2000

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WDO ROUND ONE PROJECTS

FINAL REPORT



Project Name: Single and Multi – family, Residential Waste Composition Study

Municipality/Organization: City of Toronto , Solid Waste Management

Municipal Project Manager: Anne Wheatley

Total Funding Provided by WDO: \$25,000

Total WDO Funding Received to Date: \$17,500

Total Project Costs: \$52,249

EXECUTIVE SUMMARY

The last comprehensive waste composition study was conducted for the City of Toronto in 1990. To ensure that waste management programs are being planned based on the latest available information an application was submitted to the Waste Diversion Office and funding was made available to conduct a new comprehensive waste composition study.

The study aimed to create a profile of waste composition and diversion from landfill over two seasons (fall and winter), and included waste generated by residents living in both single family and multi family homes.

In the Fall of 2000, over a period of 3 weeks, garbage and recyclable materials were collected from 20 homes in each of four neighbourhoods with different socioeconomic characteristics. The material was delivered to a large garage at a transfer station and sorted and weighed. This process was repeated in the winter of 2001, except that the material was collected and sorted over a 4 week period to more accurately measure diversion rates where recyclable materials are collected bi - weekly. Yardwaste set aside for separate collection was not collected or included in the study.

In the Fall of 2000, over a period of 3 weeks, a representative sample of garbage and all recyclable materials generated by 4 diverse multi unit buildings was collected and delivered to the transfer station where it was sorted and weighed. In the winter of 2001, over a period of 2 weeks, all garbage and all recyclable material was again collected, and delivered to the transfer station and weighed. A representative sample of garbage and all recyclable materials from all buildings were then sorted and weighed.

The overall composition of waste material from single family homes was found to be similar to that of other Ontario municipalities. The diversion of multi–unit waste from landfill was found to be higher than what was expected.

It is clear that there is potential to divert more material through the City’s existing recycling systems. According to the results of the audit, residents place overall, only about 59% of recyclable fibre, 56% of recyclable plastics, 50% of recyclable metals and 68% of recyclable glass in the recycling system. Greater communication and promotion or mandatory recycling by-laws need to be considered to achieve full diversion. It is also clear that the City will only achieve its goal to divert 80% of waste from landfill by 2009 if the organic and low-grade paper components are processed.

Introduction

The last comprehensive waste composition study was conducted for the City of Toronto in 1990. To ensure that waste management programs are being planned based on the latest available information an application was submitted to the Waste Diversion Office and funding was made available to conduct a new comprehensive waste composition study in 2000/2001.

The study aimed to create a profile of waste composition and diversion from landfill, over two seasons, fall and winter and included waste generated by residents living in both single family and multi family homes. Eighty single family homes and 826 units from multi unit buildings were involved in the audit. Four different areas of the city were included. Garbage and recyclable materials were collected. All of the material collected from curbside was sorted and weighed. All of the recyclable materials and about 20% of the garbage from each multi unit building was sorted and weighed. Each of these processes was repeated over a period of weeks in the fall and in the winter.

Goals of the study were:

- To identify the amount and composition of waste generated by both single family and multi family residents.
- To measure the diversion of waste from landfill in the single family and multi family categories.
- To identify any significant seasonal variations in this composition from fall to winter.
- To measure whether the amount of recyclable materials found in the garbage changed during weeks when recyclable materials were not collected.

Methodology

The neighbourhoods of single family homes and the multi residential buildings were chosen by collection managers who were asked to identify areas and buildings where:

- residents were wealthy and generally spoke English as their first language.
- residents were wealthy and generally spoke a language other than English as their first language.
- residents were lower income and spoke English as their first language.
- residents were lower income and spoke a language other than English as their first language.

One neighbourhood of single family homes, and one multi family building, fitting each of the demographics listed above was identified. The demographics of the areas in which the single family homes and multi unit buildings are located were verified using Statistics Canada data. Neighbourhoods are located in the former municipalities of Etobicoke, York, North York and Scarborough. Twenty single family homes were chosen in each neighbourhood. The multi unit buildings had a total of 826 units. The size of the sample was dictated by the resources available to collect and sort materials. No contact was made with the single family homes and efforts were taken to ensure that residents were not aware of the study to avoid them changing their waste management habits. Materials were collected on the regular collection day for the neighbourhood. Collection was done wherever operationally possible, in the vehicles that residents were accustomed to seeing. Collection workers were instructed to

advise residents if they were questioned that the City was conducting a collection efficiency study. Property managers of the multi unit buildings were contacted and permission obtained to use their buildings in the study. They all agreed not to reveal the study to the building residents.

In the fall of 2000, over a period of 3 weeks, garbage (and recyclable materials depending on the regular collection schedule for that week) was collected from 20 homes in each of the four neighbourhoods that differ in socioeconomic characteristics. Collection workers were instructed to make a note on their run sheets when yardwaste or bulky items or white goods were set out, but not to collect this material. None of these materials are included in the study results for either types of housing. Garbage and recyclable material was delivered to a large garage at a transfer station in former North York and sorted and weighed. The garage was set up with 2 sorting stations laid out as in the diagram on page 11. Materials were sorted into the categories noted on the Waste Audit Results Table at the request of the WDO. These categories are being used across Ontario and will enable the WDO to compare waste generation and diversion data across the province.

This process was repeated in the winter of 2001 except that the material was collected and sorted over a 4 week period to more accurately measure diversion rates where recyclable materials are collected bi-weekly and meet the 4th goal of the project.

Also in the fall of 2000, over a period of 3 weeks, a large sample of garbage and all of the recyclable materials generated by 4 diverse multi unit buildings was collected and delivered to the transfer station where it was sorted and weighed. In the winter of 2001, over a period of 2 weeks, all garbage and all recyclable material was collected, and weighed. A representative sample of garbage and all recyclable materials from all buildings were then sorted and weighed.

Different private sector contractors or City staff completed the collection work depending on the neighbourhood. During the fall collection process a number of errors were made. These included recyclable materials being missed and garbage and recyclable materials being collected from fewer than or more than the identified 20 single family homes. Also, it was initially planned that the material would be collected over a period of 3 weeks from each of the single and multi family areas. This was acceptable for the multi family areas but resulted in a lack of information concerning the recycling habits of single family residents during one week when recyclable materials were not collected. There was only one collection error made in one neighbourhood during the winter project. Recyclable materials were not



collected during week #4 from one neighbourhood, so it was necessary to collect garbage and recyclable materials at the end of the project to make up for the missed collection.

Actual data collected was entered onto the Excel spreadsheets provided by the WDO and then manipulated. In the case of the fall data, adjustments were made for the collection errors where there were differences in the number of households included and the number of weeks of the survey. Actual data from the winter session was then added to the adjusted fall data. Waste Audit Results Tables were prepared for the single family homes and for the multi family buildings. Lastly, the results were manipulated to reduce the number of multi family units to correspond with the number of single family homes, and the duration of each survey adjusted to provide a basis for comparison. The spreadsheets were then correlated.

The sorting work was completed by city staff. This work was done in a conscientious manner, with great attention to detail. In general the same person was responsible for the same material stream each day reducing the chance of error. Typically 4 people worked around a table. Blue boxes and 90 gallon recycling carts were lined with thin, see through plastic bags and used for gathering the sorted materials. These containers were placed around a table made from a polyethylene covered 4'x8' plywood sheet sitting on oil drums. Each container correctly identified material as designated by the WDO list. A highly accurate scale was used to weigh each material either at the end of the sorting or while we went along depending on the generation rate of the material. One individual was assigned to record material weights ensuring consistency in data collection.

Results

The following pages detail the garbage and recyclable materials generated by single family homes and the garbage and recyclable materials generated by multi-unit homes. The third spreadsheet is the result of combining the 2 previous spreadsheets together.

The overall composition of waste material from single family and multi family homes was found to be similar to that of other Ontario municipalities with the exception of old corrugated cardboard and mixed paper which were both about 25% higher for single family homes than in other municipalities. One explanation for this could be the higher percentage of home offices in Toronto verses other cities. It could also be due, at least in part, to the fact that in one sample from single family homes there was a disproportionately large amount of paper and cardboard. It would appear from the evidence that one of the residents in the area had brought home numerous boxes of fibre material from his work in order to purge it.

The diversion of waste from landfill result was found to be higher than the City of Toronto's reported overall annual diversion. This is likely due to the small size of the sample and the spanning of the study over 2 seasons rather than 4. Aluminum generation, as an example, would increase markedly in the summer months as soft drink consumption increases. This higher summer generation was missed by our 2 seasons long study. Also, it is problematic to try to extrapolate study results from a small sample to a population of 2.4 million people. Although it may be possible to multiply generation rates of individual materials by the population and arrive at the annual total tonnage generated and diverted in Toronto, it was not perceived as a useful approach.

The percent of recyclable waste diverted from landfill in the multi unit buildings studied was relatively high. The City offers a recycling program to multi-unit buildings. Greater than 372,000 units or about 83% of all the units in Toronto are set up to divert recyclable materials from landfill. All four of the buildings we studied have recycling programs. Three out of four buildings have indoor recycling rooms, which may increase participation in the programs.

Seasonal variations were found for single family homes in the categories of yardwaste and hazardous waste. There was slightly more paint, used oil and flammable material found in the fall as more people conduct repairs and maintenance on homes and vehicles in the fall than in the winter. Due to climate conditions there was decidedly more yardwaste found in the garbage in the fall than was found in the winter. Other categories did not seem to be affected by the movement from fall to winter.

The final goal was to assess whether every other week recycling affects the amount of recyclable material found in the garbage during non recycling weeks. Table I details the materials found in the garbage during a recycling week and a non-recycling week in York. There was a similar lack of pattern associated with the set out habits of residents in the other single family neighbourhoods studied. Every second week recycling collection did not seem to affect set out habits in any conclusive way.

Table 1: York – Comparison Between Recycling and Non-recycling Garbage Content

Material in Garbage	Recycling week	% of total	Non-recycling week
Fibre	29kgs	30%	20kgs
Plastics	.6kgs	14%	1.55kgs
Metal	1.5kgs	42%	1.65kgs
Glass	3.5kgs	13%	1.95kgs

It is clear that there is potential to divert more material through the City's existing recycling systems. Residents place overall, only about 59% of fibre, 56% of plastics, 50% of metals and 68% of available glass in the recycling system.

Table 2 From Single family and multi family combined - results table

Material	Amount Generated kgs	Amount Recycled kgs	Percent Recycled kgs
Recyclable Fibre	4290	2534	59%
Recyclable Plastics	133	75	56%
Recyclable Metal	282	142	50%
Recyclable Glass	695	473	68%
Total	5400	3224	60%

Greater communication and promotion or perhaps even legislation needs to be considered to achieve full diversion. It is also clear that the City will only achieve its goal to divert 80% of waste from landfill by 2009 if the organic and low-grade paper components are processed.

Transferability to Other Regions / Municipalities in Ontario

Every municipality should conduct a waste composition study. Knowing what materials are in the waste stream and in what quantities is the first step in developing a plan to deal with these materials.

Toronto's apartment recycling program could be implemented in other municipalities across the Province where a large proportion of people live in multi family buildings. Buildings are provided with signage for chute rooms, blue bags for each unit, recycling carts or bins for each recycling stream and instruction cards for all residents. Collection is provided by the City.

Waste Audit Results Tables

Waste Audit Results Table							page 1 of 2			
Single Family Results – Fall and Winter			6 week survey			Number of households: 80				
Waste collection streams	BB	Blue Box	Organics	Garbage	Generation			Recovery		
Waste sort categories and descriptions	Y	Net Weight (kg)	Net Weight (kg)	Net Weight (kg)	Total Net Weight (kg)	Percent of Total (%)	kilograms per hhld per year	Blue Box Rate (%)		
1. PAPER FIBRES										
Newspaper	ONP, inserts	Y	1148		251	1398	16.03	152	82%	
Magazines & paperpacks	OMG, catalogues, soft covers	Y	191		141	332	3.81	36	58%	
Phone Books	OTB	Y	33		11	44	1	5	75%	
Cardboard	OCC	Y	198		197	395	5	43	50%	
Boxboard/Rolls	OBB	Y	72		152	224	3	24	32%	
Mixed Papers	junk mail, fine household papers	Y	145		300	446	5	48	33%	
Molded Pulp	egg cartons, drink trays	Y	4		14	18	0	2	23%	
Books	hard covered	Y	6		9	15	0	2	38%	
Kraft Paper	paper bags	Y	9		32	41	0	4	21%	
Spiral Wound	frozen juice, pringles type packaging		1		13	14	16	2	5%	
Tissue/Toweling	tissues, napkins, paper towels		7		252	258	3	28	3%	
Other Paper	multi-layered, waxed, wrapping, fast food		18		43	61	0	7	29%	
Gable Top Cartons	milk, juice		3		28	30	0	3	9%	
Aseptic Containers	tetra type packaging		0		8	8	0	1	6%	
Sub-total Paper Fibres			1,835	0	1,451	3,284	38	356	56%	
2. PLASTICS										
PETE Soft Drink	# 1 soft drink	Y	16		9	25	0	3	63%	
LCBO containers	alcoholic beverage containers	Y	9		1	10	0	1	91%	
PETE Other	water, juice, food, dish soap, trays		24		18	42	0	5	58%	
HDPE bottles	# 2	Y	30		23	534	1	6	56%	
PVC	# 3, bottles, packaging		4		6	10	0	1	41%	
LDPE & PP Bottles	# 4 and # 5, squeezable		3		11	13	0	1	18%	
PS	# 6, trays, cups, packaging		3		60	63	1	7	4%	
Recyclable Film	shopping bags, milk pouches,		5		102	107	1	12	4%	
Non-Recyclable Film	garbage bags, chip bags, shrink wrap		1		177	178	2	19	1%	
Wide Mouth Tubs & Lids	# 2, 4, 5 & 6		3		39	43	0.0	5	10%	
Other Containers	# 7, trays, bottles, unmarked plastics		5		27	31	4	3	14%	
Other Plastics	non-pkg, garden hose, VCR tape, toys		4		163	167	2	18	3%	
Sub-total Plastics			108	0	637	743	8	81	15%	
3. METALS										
Aluminum Cans	food & beverage cans	Y	20.70		9	30	0	3	69%	
Aluminum Foil Trays	pie plates, etc	Y	3.51		15	18	0	2	19%	
Steel Cans	food & beverage cans	Y	78.55		48	128	2	14	62%	
Aerosol Cans	empty		3.56		6	9	0	1	39%	
Paint Cans	empty		0.00		5	5	0	1	0%	
Other Metal	scrap metal, other containers, bikes		3.72		97	100	1	11	4%	
Sub-total Metals			110	0	181	290	3	31	38%	

Waste Audit Results Table									
Single Family Results – Fall and Winter									page 2 of 2
Waste collection streams	BB	Blue Box	Organics	Garbage	Generation			Blue Box	
Waste sort categories and descriptions	Y	Net Weight (kg)	Net Weight (kg)	Net Weight (kg)	Total Net Weight (kg)	Percent of Total (%)	kg. per hhld per year	Recovery Rate (%)	
4. GLASS									
LCBO Clear		74		30	103	1	11	71%	
LCBO Coloured		115		21	137	1	15	84%	
Clear		122		70	192	2	21	64%	
Coloured		39		10	49	1	5	80%	
Other Glass		10		44	54	1	6	18%	
Sub-total Glass		360	0	175	535	6	58	67%	
5. HOUSEHOLD SPECIAL WASTES									
Batteries		0		7	7	0	1		
Paint		0		18	18	0	2		
Motor Oil		0		1	1	0	0		
Flammables		0		3	3	0	0		
Other HSW		0		12	12	0	1		
Sub-total HSW		0	0	41	41	0	4		
6. COMPOSTABLES									
Vegetable Food, Animal Food Waste		1		2160	2,160	25	234		
Grass, Woody Yard, Other Yard Waste		0		378	378	4	41		
Animal waste		0		220	221	3	24		
Wood ashes		0		0	0	0	0		
Sub-total Compostables		1	0	2,758	2,759	32	299		
7. OTHER WASTE MATERIALS									
Textiles		0		189	189	2	20		
Building Renovations		0		394	394	4	43		
White Goods	Y	0		0	0	0	0		
Sanitary Products		0		244	244	3	26		
Electronics/Appliances		0		67	67	1	7		
Rubber		0		12	13	0	1		
Furniture		0		86	86	1	9		
Other		0		77	77	1	8		
Sub-total Other Waste Materials		0	0	1,069	1,070	12	116		
Total weight in kilograms		2,413	0	6,310	8,723		945		
Total percentages by waste type		28%	0%	72%	100%				
Notes:									

Waste Audit Results Table

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Multi Family Buildings Results– Fall and Winter		5 week survey				Number of households: 826			
Waste collection streams		BB	Blue Box	Organics	Garbage	Generation			Recovery
Waste sort categories and descriptions		Y	Net Weight (kg)	Net Weight (kg)	Net Weight (kg)	Total Net Weight (kg)	Percent of Total (%)	kilograms per hhd per year	Blue Box Rate (%)
1. PAPER FIBRES									
Newspaper	ONP, inserts	Y	4098		2051	6148	16	77	67%
Magazines & paperpacks	OMG, catalogues, soft covers	Y	711		536	1247	3	16	57%
Phone Books	OTB	Y	110		48	157	1	2	70%
Cardboard	OCC	Y	611		502	1112	3	14	55%
Boxboard/Rolls	OBB	Y	297		713	1010	3	13	29%
Mixed Papers	junk mail, fine household papers	Y	404		1533	1937	5	24	21%
Molded Pulp	egg cartons, drink trays	Y	19		63	82	0	1	23%
Books	hard covered	Y	7		33	40	0	1	18%
Kraft Paper	paper bags	Y	7		115	122	0	2	6%
Spiral Wound	frozen juice, pringles type packaging		4		46	50	0	1	8%
Tissue/Toweling	tissues, napkins, paper towels		4		1237	1241	3	16	0%
Other Paper	multi-layered, waxed, wrapping, fast food		12		219	232	1	3	5%
Gable Top Cartons	milk, juice		11		146	158	1	2	7%
Aseptic Containers	tetra type packaging		1		38	40	0	0	3%
Sub-total Paper Fibres			6,296	0	7,280	13,576	36	171	46%
2. PLASTICS									
PETE Soft Drink	# 1 soft drink	Y	36		68	104	0	1	34%
LCBO containers	alcoholic beverage containers	Y	7		9	16	0	0	43%
PETE Other	water, juice,(food, dish soap, trays .05)		74		98	172	0	2	43%
HDPE bottles	# 2	Y	125		132	257	1	3	48%
PVC	# 3, bottles, packaging		12		22	34	0	0	35%
LDPE & PP Bottles	# 4 and # 5, squeezable		6		31	37	0	0	16%
PS	# 6, trays, cups, packaging		14		292	306	1	4	5%
Recyclable Film	shopping bags, milk pouches,		21		689	710	2	9	3%
Non-Recyclable Film	garbage bags, chip bags, shrink wrap		11		969	980	3	12	1%
Wide Mouth Tubs & Lids	# 2, 4, 5 & 6		24		163	187	0	2	13%
Other Containers	# 7, trays, bottles, unmarked plastics		6		104	110	0	1	6%
Other Plastics	non-pkg, garden hose, VCR tape, toys		46		547	593	2	7	8%
Sub-total Plastics			382	0	3,124	3,506	9	44	11%
3. METALS									
Aluminum Cans	food & beverage cans	Y	53		111	164	1	2	32%
Aluminum Foil Trays	pie plates, etc	Y	1		105	106	0	1	1%
Steel Cans	food & beverage cans	Y	280		367	646	2	8	43%
Aerosol Cans	empty		6		36	42	0	1	14%
Paint Cans	empty		1		0	1	0	0	100%
Other Metal	scrap metal, other containers, bikes		10		409	419	1	5	2%
Sub-total Metals			351	0	1,028	1,378	4	17	25%

Waste Audit Results Table

Multi Family Buildings Results - Fall and Winter

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Waste collection streams		BB	Blue Box	Organics	Garbage	Generation			Blue Box
Waste sort categories and descriptions		Y	Net Weight (kg)	Net Weight (kg)	Net Weight (kg)	Total Net Weight (kg)	Percent of Total (%)	kg. per hhld per year	Recovery Rate (%)
4. GLASS									
LCBO Clear	clear glass alcoholic beverages	Y	212		223	436	1	5	49%
LCBO Coloured	coloured glass alcoholic beverages	Y	378		152	530	2	7	71%
Clear	food & beverage containers	Y	382		350	732	2	9	52%
Coloured	food & beverage containers	Y	77		66	142	0	2	54%
Other Glass	lightbulbs, window glass, cups, ceramics		49		242	291	1	4	17%
Sub-total Glass			1,098	0	1,033	2,131	6	27	52%
5. HOUSEHOLD SPECIAL WASTES									
Batteries	all types		0		16	17	0	0	
Paint	mostly half to full containers		0		178	178	1	2	
Motor Oil	used oil, filters		0		1	0	0	0	
Flammables	starter fluid, solvents		0		1	1	0	0	
Other HSW	sharps, drugs, acids, antifreeze		0		99	99	0	1	
Sub-total HSW			0	0	295	295	1	4	
6. COMPOSTABLES									
Vegetable Food, Animal Food Waste	vegetable and fruit peelings, meats, fats, oils		9		11721	11,730	31	148	
Grass, Woody Yard, Other Yard Waste	grass clippings, brush, branches, wood chips, leaves, soil, garden wastes		0		246	246	1	3	
Animal waste	feces, animal litter and bedding		0		859	859	2	11	
Wood ashes	fireplaces & wood stoves		0		2	2	0	0	
Sub-total Compostables			9	0	12,828	12,837	34	162	
7. OTHER WASTE MATERIALS									
Textiles	clothing, shoes		3		755	758	2	10	
Building Renovations	drywall, lumber, carpeting		0		1498	1,498	4	19	
White Goods	large appliances	Y	0		111	112	0	1	
Sanitary Products	diapers, napkins		0		1016	1,016	3	13	
Electronics/Appliances	small appliances, computers, radios		0		334	334	1	4	
Rubber	tires, mats, tubing		0		77	77	0	1	
Furniture	sofas, chairs, cabinets		0		43	42	0	1	
Other	materials not classified elsewhere		1		83	84	0	1	
Sub-total Other Waste Materials			4	0.0	3,917	3,921	10	49	
Total weight in kilograms			8,140	0	29,505	37,645		474	
Total percentages by waste type			22%	0%	78%	100%			

Notes:

Waste Audit Results Table

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Single Family and Multi Family Combined Results – Fall and Winter 6 week survey
Number of households:160

Waste collection streams	BB	Blue Box	Organics	Garbage	Generation			Recovery	
					Total Net Weight (kg)	Percent of Total (%)	kilograms per hhld per year	Blue Box Rate (%)	
Waste sort categories and descriptions	Y	Net Weight (kg)	Net Weight (kg)	Net Weight (kg)	Total Net Weight (kg)	Percent of Total (%)	kilograms per hhld per year	Blue Box Rate (%)	
1. PAPER FIBRES									
Newspaper	ONP, inserts	Y	1624		489.19	2113.10	16.13	114	77%
Magazines & paperpacks	OMG, catalogues, soft covers	Y	274		203.23	477.05	3.64	26	57%
Phone Books	OTB	Y	45		16.51	61.85	0.47	3	73%
Cardboard	OCC	Y	270		255.03	524.37	4.00	28	51%
Boxboard/Rolls	OBB	Y	107		234.54	341.46	2.61	18	31%
Mixed Papers	junk mail, fine household papers	Y	192		478.53	670.68	5.12	36	29%
Molded Pulp	egg cartons, drink trays	Y	6		21.00	27.26	0.21	1	23%
Books	hard covered	Y	7		12.97	19.46	0.15	1	33%
Kraft Paper	paper bags	Y	9		45.72	55.07	0.42	3	17%
Spiral Wound	frozen juice, pringles type packaging		1		18.50	19.74	0.15	1	6%
Tissue/Toweling	tissues, napkins, paper towels		7		395.26	402.51	3.07	22	2%
Other Paper	multi-layered, waxed, wrapping, fast food		19		68.96	88.28	0.67	5	22%
Gable Top Cartons	milk, juice		4		44.73	48.76	0.37	3	8%
Aseptic Containers	tetra type packaging		1		12.10	12.70	0.10	1	5%
Sub-total Paper Fibres			2,566	0	2,296	4,862	37	263	53%
2. PLASTICS									
PETE Soft Drink	# 1 soft drink	Y	20		17	37	0	2	54%
LCBO containers	alcoholic beverage containers	Y	10		2	12	0	1	83%
PETE Other	water, juice, food, dish soap, trays		33		29	62	1	3	53%
HDPE bottles	# 2	Y	45		39	84	1	5	53%
PVC	# 3, bottles, packaging		5		9	14	0	1	39%
LDPE & PP Bottles	# 4 and # 5, squeezable		3		14	17	0	1	18%
PS	# 6, trays, cups, packaging		4		94	99	1	5	4%
Recyclable Film	shopping bags, milk pouches,		7		182	189	2	10	4%
Non-Recyclable Film	garbage bags, chip bags, shrink wrap		3		289	292	2	16	1%
Wide Mouth Tubs & Lids	# 2, 4, 5 & 6		7		58	65	0	4	11%
Other Containers	# 7, trays, bottles, unmarked plastics		5		39	44	0	2	12%
Other Plastics	non-pkg, garden hose, VCR tape, toys		10		227	236	2	13	4%
Sub-total Plastics			152	0	999	1,151	9	62	13%
3. METALS									
Aluminum Cans	food & beverage cans	Y	27		22	49	0	3	55%
Aluminum Foil Trays	pie plates, etc	Y	4		27	31	0	2	12%
Steel Cans	food & beverage cans	Y	111		92	202	2	11	55%
Aerosol Cans	empty		4		10	14	0	1	30%
Paint Cans	empty		0		5	5	0	0	3%
Other Metal	scrap metal, other containers, bikes		5		144	149	1	8	3%
Sub-total Metals			151	0	300	450	3	24	33%

Waste Audit Results Table

Single Family and Multi Family Combined Results - Fall and Winter

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Waste collection streams	BB	Blue Box	Organics	Garbage	Generation			Blue Box
					Total Net Weight (kg)	Percent of Total (%)	Kg per hhld per year	
Waste sort categories and descriptions	Y	Net Weight (kg)	Net Weight (kg)	Net Weight (kg)	Total Net Weight (kg)	Percent of Total (%)	Kg per hhld per year	Recovery Rate (%)
4. GLASS								
LCBO Clear		99		56	154	1	8	64%
LCBO Coloured	Y	159		39	198	2	11	80%
Clear	Y	167		111	278	2	15	60%
Coloured	Y	48		17	65	0	4	74%
Other Glass		15		73	88	1	5	17%
Sub-total Glass		488	0	296	783	6	42	62%
5. HOUSEHOLD SPECIAL WASTES								
Batteries		0		9	9	0	0	
Paint		0		39	39	1	2	
Motor Oil		0		1	1	0	0	
Flammables		0		3	3	0	0	
Other HSW		0		23	23	0	1	
Sub-total HSW		0	0	75	75	1	4	
6. COMPOSTABLES								
Vegetable Food, Animal Food Waste		2		3,522	3,524	27	191	
Grass, Woody Yard, Other Yard Waste		0		407	407	3	22	
Animal waste		0		320	320	2	17	
Wood ashes		0		0	0	0	0	
Sub-total Compostables		2	0	4,249	4,251	32	230	
7. OTHER WASTE MATERIALS								
Textiles		0		276	277	2	15	
Building Renovations		0		568	568	4	31	
White Goods	Y	0		13	13	0	1	
Sanitary Products		0		362	362	3	20	
Electronics/Appliances		0		106	106	1	6	
Rubber		0		21	21	0	1	
Furniture		0		91	91	1	5	
Other		0		87	87	1	5	
Sub-total Other Waste Materials		0	0	1,524	1,525	12	83	
Total weight in kilograms		3,359	0	9,739	13,098		709	
Total percentages by waste type		26%	0%	74%	100%			
Notes:								
Yardwaste cannot be assumed to be generated at the same rate (or at all) for multi family as for single family. Do not use the generation per unit amount noted here.								

Waste Composition Study Budget

Budget Expenditures, Services and Equipment - 2000/2001 Waste Composition Study				
Part Number	Description	Qty	Price	Extension
Sorting staff	12.5 weeks x 4 people			20000.00
Supervisory and analyst staff	17 weeks x 1 analyst staff			10,000.00
Apron, Bib front – waterproof, 33" X 45"	800000394 – River Stores	8	5.97	47.76
Garbage bag, poly clear, 35"X50" ,125/CTN	800000960 – Brant Stores	30	11.47	344.10
Safety Toe, Rubber Boot – knee length	800000519 – River Stores	5	20.00	100.00
Corn broom – heavy duty, with handle	800004633 – Brant Stores	2	6.10	12.20
Barn broom with handle	800008635 & 800004653 – Brant Stores	3	2.92	8.76
Safety Orange Coveralls – large size	District 1&2 Collections	10	25.00	250.00
rubber gloves	800000451- Brant Stores	50	2.76	138.00
Cowhide gauntlet glove	800000446 1 - River Stores	60	3.65	219.00
Safety w/clear lens – goggles	800002418 – Brant Stores	5	4.38	21.90
Safety w/clear lens – glasses	800002419 - Brant Stores	5	2.66	13.30
Yellow Safety Helmet	800002421 – River Stores	8	20.30	162.40
Dust Mask	800002427 – Brant Stores	2	19.80	39.60
Garden Rake	800004179 – Brant Stores	2	18.76	37.52
Cultivator	800004122 - Brant Stores	5	16.54	82.70
Shrub Rake with handle – 6 tines	800004197 – Brant Stores	2	9.97	19.94
Rake, leaf w/handle	800004199 – Brant Stores	3	17.37	52.11
Shovel – Snow, Square Mouth w/handle	800004252 - Brant Stores	4	14.28	57.12
Tape, Masking, 1"	800004739 – Brant Stores	10	1.67	16.70
Tape Duct, 2"	800004740 - River Stores	2	9.72	19.44
Ear Protector	800002423 – Brant Stores	10	0.29	2.90
Sharps container B	800001054 - Brant Stores	1	3.05	3.05
Salad Tongs	Restaurant Supply Store	6	6.40	38.40
Markers	800002162 - Brant Stores	10	1.05	10.50
Markers	800002191 – Brant Stores	10	0.95	9.50
Pens	800002054 box of 12 – Brant Stores	1	1.80	1.80
Recycling Carts	District 1&2 Collections	10	85.00	850.00
Recycling Boxes (blue boxes)	District 1&2 Collections	60	5.33	320.00
Wide Drywall Trowel	(retail)	2	10.00	20.00
Magnets	(retail)	4	1.41	5.63
Plywood 4 x 8 sheets 3/4' factory grade	River Street Stores	3	35.00	105.00
Table Support	45 gallon drums	8	15.00	120.00
Scale	(retail)	1	1500.00	1500.00
Easels	Grand and Toy	4	54.99	240.00
Poly film in 100' rolls	Brant Stores	6	16.63	99.77
Garbage Cans	Brant Stores	8	10.00	80.00
Signage	4 main categories on 4 x bristol board sheets			200.00
Signage	individual categories, 4 sets of each			
Services	Collections (Contractors Districts 1&2 Miller and Canadian Waste - single family)			7800.00
Collection	Collections (In house Districts 3&4 overtime costs and regular for vehicle & labour - single family and multi family)			9200.00
Total				52249.10

Acknowledgements

This study was completed with the help of many. Some assisted with small tasks and others managed collections or stood for days on end sorting through garbage and recyclable materials.

Thanks very much!

Andy, Ben, Beth, Carmen, Carolyn, Daryl, Diane, Fiona, Frank, Geoff, Gord, Joe, John, Jon, Katie, Kevin, Lawson, Margaret, Mary, Michele, Norm, Pap, Paul, Ray, Renee, Roy, Silvio, Tony and Tammy and anyone else I've forgotten to mention.

From, Anne

