

GTA Public Space and Schools Opportunity Analysis

Technical Memorandum #3

**E&E Fund project #105 –
Enhanced Blue Box Recovery Project
March 2006**

Final Report
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Table of Contents

1.0 Background.....	3
2.0 Public Space Study Methodology.....	5
2.1 Sources of Waste Audited.....	6
2.2 Preparing the Sample.....	6
3.0 Results of Public Space Audit.....	9
3.1 PET Fraction - Containers.....	10
4.0 Public Space Study Conclusions.....	11
5.0 GTA School Opportunity Analysis.....	11
APPENDIX 1 – Field Data.....	13
APPENDIX 2 – Plastics & Plastic Containers.....	17
APPENDIX 3 – Separated Results – Public Space Audits.....	20
APPENDIX 4 – Halton Region – Schools Waste Composition Audit.....	27

1.0 Background

The City of Toronto and the Regions of Peel, York and Durham - in collaboration with MGM Management as the project coordinator - applied for funding support to Stewardship Ontario's Efficiency & Effectiveness Fund (E&E Fund) for a project to increase the recovery rate of under-recovered recyclables in the "Golden Horseshoe" area. This target area consists of those municipalities stated above, plus the City of Hamilton and the Regions of Niagara and Halton. Together, this group of municipalities represents approximately 49% of total households (HH) in Ontario.

The project was recommended by Waste Diversion Ontario's Municipal – Industry Program Committee (MIPC) and approved by the Board of Stewardship Ontario in early 2005, as the Enhanced Blue Box Recovery Project – E & E Project # 105.

This project included two core research areas – technical research and communications research – and was comprised of eight different research projects (summarized below).

Technical Research

In order to determine where available recyclables "resided," four technical research studies were approved under project 105. These were designed to provide supporting information to set priorities for targeting certain sectors of the waste stream, with a view to increasing recovery.

Study 1 – Examined (in cooperation with the Aluminum Association) the Inflow / Outflow of Used Beverage Containers (Project 105 Tech Memo #1)

Study 2 – Developed a protocol to sample and examine residual materials from Material Recycling Facilities (MRF) (Project 105 Tech Memo #2)

Study 3 – Examined the availability of recyclables in public space and school trash (Project 105 Tech Memo #3)

Study 4 – Summarized all data from waste composition audits, public space audits, MRF residue audits, and school recycling in order to estimate available recyclable segments in target municipalities (Project 105 Segmentation Analysis). This is the key technical research document from this project.

Communications Research

The second strand of research consisted of gathering information on householders' attitudes and behaviours regarding Blue Box recycling. Two main reports – one focusing on qualitative focus group research and the other on the results of a quantitative (benchmark) telephone survey – as well as an Executive Summary of those two documents were produced. The fourth (and core) report in this area – the Strategic Communications Plan – draws on both the technical and communications research and provides the overall direction recommended for the communications campaign. It includes communication messages aimed at specific segments of the target populations where Blue Box recycling can be further optimized in the "Golden Horseshoe" area.

The eight inter-related studies undertaken as part of Project 105 are presented on the next page.

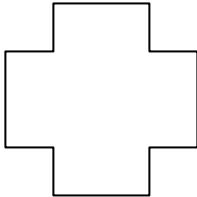
**Seven Studies Supporting the Enhanced Blue Box Recovery Project
(E&E Project # 105)**

Technical Memorandum 1 – Ontario Aluminum End Market Study

Technical Memorandum 2 – MRF Residue Analysis

Technical Memorandum 3 – Public Space and Schools Analysis

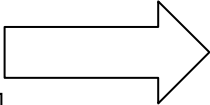
Core Technical Study: GTA Segmentation Analysis



Focus Group Research (Qualitative work)

Benchmark Report (Quantitative work)

Executive Overview (Benchmark Survey and Focus Groups)



**Core Communications Report:
Strategic Communication Plan**

2.0 Public Space Study Methodology

The Public Space Opportunity Study was designed to examine the **composition of waste collected in public space locations**. The research was designed to determine the quantities of available recyclables in those settings.

Stewardship Ontario contracted MGM Management to supervise and manage this project. MGM Management is a Toronto-based consultancy specializing in waste management and litter audit projects. ENTEC Inc., a Durham Region-based waste management engineering firm, worked in partnership with MGM Management in the development and execution of the project.

The first task undertaken by the consultant was to refer to the Stewardship Ontario document "Request for Quotations – Blue Box Waste Audit Programs 2005". This document clearly sets out the standardized methodology for conducting Stewardship Ontario sponsored waste composition studies. The work carried out under the Public Space Opportunities Study relied on this methodology.

The consultant polled "waste auditing" service providers and requested a quotation for carrying out two waste composition audits in the summer of 2005. One audit was intended to support this project (the Public Space Opportunities Study), while the second audit related to Materials Recycling Facility (MRF) residues, a distinct technical study commissioned as part of Project # 105. The MRF Residue audit results are reported under separate cover.

Requests for quotations for the two waste composition audits referred to above were sent to 7 Ontario-based firms, and responses were received from 4 companies. ENTEC Inc. and MGM Management independently, then cooperatively, examined each proposal and evaluated them on the basis of the following criteria: quality of the proposal (demonstrated understanding of the issues); experience; price; and availability. The assignment to perform the two audits was awarded to Associated Environmental Technologies (AET) of Waterloo, ON.

Upon retaining AET, the consultant proceeded to negotiate with Project 105 partner municipalities (Regions of Peel, York, Durham and the City of Toronto). Discussions revolved around the availability of public space waste, availability of in-kind resources, in particular dedication of a truck to the study, ability to provide a location where the audit team could work, etc. It was determined that the best fitting partner municipality for carrying out the Public Space Opportunities Study waste composition audits was the City of Toronto.

We acknowledge the assistance of key City of Toronto staff, namely:

- Mr. Geoff Rathbone – Acting General Manager, Solid Waste Management
- Mr. Richard Butts - Acting Executive Director, Municipal Licensing & Standards
- Mr. Joe O'Neill - Manager of Operations, Solid Waste Collections
- Mr. Rick Yez – Supervisor of Solid Waste Collections
- Mr. Lino Passoa – Manager of Litter Operations
- Mr. Craig Bartlett – Solid Waste Management, Manager Processing Operations
- Mr. Bill Jackson – Solid Waste Management, Supervisor, Litter Collections
- Mr. Doug Drew – Solid Waste Management, Supervisor, Scarborough Transfer Station
- Mr. Mike Netsle - Solid Waste Management, Supervisor, Scarborough Transfer Station
- Ms. Bonnie Ballam, Solid Waste Management, Coordinator, Contracted Services

The City of Toronto assisted the consultant by allowing the audit team to set up in a dedicated space at the Scarborough Transfer Station, located at 1 Transfer Place, Scarborough. This space was well lighted, had suitable ventilation and electrical power, and allowed for segmented waste samples to be transferred from the tipping floor to the sample area by front-end loader.

The consultant met with representatives from the City and ENTEC Inc. at the Scarborough Transfer Station on August 10, 2005 to discuss final preparations for the audit to take place during the week of Aug 15 – 19, 2005. City staff assisted in providing an outline of what public space wastes were available. City staff agreed to assign a dedicated truck and driver to the project during the sample period.

On August 15th representatives from the City, MGM Management and ENTEC Inc. were again on-site and met with AET Inc. in the morning to begin the survey. AET had three staff present and participating in the waste composition field work through the Aug 15 – 19, 2005 period.

2.1 Sources of Waste Audited

City staff began collecting waste from EU Can OMG Style street bins early on the morning of August 15, 2005. EU Can OMG Style bins are stainless steel multiple compartment street waste & recyclable collection bins. The City of Toronto has 3,308 such containers on city streets. For the purpose of the Public Space Opportunities Study waste audit, only garbage (waste) materials were collected by the dedicated truck. No recyclables were collected, as the objective of the study was to determine what recyclables were being “wasted” in the garbage stream.

In addition to OMG-Style bins, public space (street) waste was also collected from open top street receptacles. On August 15 – 16 – 17th, the auditors examined waste collected from these receptacles located in the former areas of North York, East York and the former City of Toronto (downtown).

Furthermore, the City of Toronto requested that street cleaning waste, originating from their “MadVAC” street vacuums, also be audited. MadVAC’s are commercial street vacuum machines, which collect waste that is deposited on public property (usually downtown sidewalks and store front areas). The City also suggested and supplied waste from “sweep & broom” operations. The City of Toronto operates an extensive street sweeping activity, which relies on the mechanical pick up of littered materials by city staff. These waste materials were audited on August 17 – 18th, 2005.

The final source of public space waste was obtained from the city of Toronto’s Parks Department. This waste originated from open top and wire mesh trash receptacles in two parks: Lakeshore Park and Parkdale Park. These waste materials were audited on August 19th 2005.

2.2 Preparing the Sample

City staff picked up waste as described above and brought it to a designated area on the tipping floor of the Scarborough Transfer Station.

Upon arrival, AET staff met the driver of the dedicated collection vehicle and obtained pertinent information related to location of pick-ups and the type of waste that was in the load. Each delivery of waste was weighed upon arrival at the Scarborough Transfer

Station, and weighed out to determine the total weight of the full sample. The weight of the sample was calculated using the tare weight and loaded weight values of the front-end loader. Waste was then dumped onto the tipping floor and a sub-sample was prepared. The sub-sample was prepared using a front-end loader that coned (mixed) and then quartered the full sample into a more workable sub-sample size.

The total sample collected in the five days of public space auditing was 4,680 kilograms of trash from bins located in the former North York, East York, City of Toronto, MadVAC waste, sweep & broom (street cleanup services) and Parks waste.

From this sample, after coning and quartering, the total weight of sub-samples examined was 1,050 kilograms, which was audited according to the Stewardship Ontario list of audit categories of waste, in accordance with the *Blue Box Waste Audit Programs 2005 Sampling Protocol* published by Stewardship Ontario. The categories are outlined in Table 1 below.

Table 1:

Stewardship Ontario - List of Waste Audit Categories	
1. PAPER	4. METALS
Newspaper - Dailys and Weeklys	Aluminum Food & Beverage Cans
Newspaper - Other	Aluminum Foil & Trays
Telephone Books/Directories	Other Aluminum Containers
Magazines & Cataglogues	Steel Food & Beverage Cans
Mixed Fine Papers	Steel Aerosol Cans
Books	Steel Paint Cans
Other Paper	Other Metal
2. PAPER PACKAGING	5. GLASS
Corrugated	LCBO Clear
Kraft Paper	LCBO Coloured
Boxboard/Cores	Clear
Molded Pulp	Coloured
Paper Cups and Paper Ice-Cream Containers	Other Glass
Laminated Paper Packaging	6. HOUSEHOLD SPECIAL WASTE
Composite Cans	Batteries
Gable Top Cartons	Paint & Stain
Aseptic Containers	Motor Oil
Tissue/Toweling	Other HSW Liquids
	Other HSW
3. PLASTICS	7. ORGANICS
PET Water Bottles >750ml	Food Waste
PET Water Bottles <750ml	Yard Waste
PET Soft Drink Bottles	Pet Waste
PET Other Beverage Bottles	8. OTHER MATERIALS
PET Other Bottles & Jars	Diapers & Sanitary Products
PET Other Packaging	Textiles
HDPE Beverage Bottles (#2)	Carpeting
PVC Bottles & Jars (#3)	Construction & Renovation
Other Bottles, Jars & Jugs (#4,5,7)	Computer/IT Equipment
Polystyrene Packaging (#6)	Telecom Equipment
Wide Mouth Tubs & Lids (#2,4,5)	TV & Audio Equipment
Large HDPE & PP Pails & Lids (>4 litres, <25 litres)	Small Kitchen Appliances
Polyethylene Plastic Bags & Film - Packaging	Other Electronics
Polyethylene Plastic Bags & Film -Non-Packaging	Tires & Other Rubber
Laminated Other Plastic Bags & Film	Ceramics
Other Rigid Plastic Packaging	Furniture
Durable Plastic Products	Mattresses
	Other Large Bulky Items
	Other Waste

Stewardship Ontario PET categories were expanded slightly as outlined in Table 2. These additional categories were added at the request of one of Stewardship Ontario's stewards who has a particular interest in the breakdown of PET packaging in the Ontario garbage stream. The Public Space Opportunity Study audits thus reflect this expanded data collection.

Table 2: Additional PET categories used for the Public Space Audits

Material Category	Description / Examples
PET Water Bottles	#1 water bottles, all sizes
PET Soft Drink Bottles	#1 soft drink bottles, all sizes
PET Other Beverage Bottles	#1 juice, isotonic, liquor, etc. bottles
PET Other Bottles & Jars	#1, cooking oil, peanut butter, dish soap, mouthwash, etc.
PET Other Packaging	#1, bakery, clamshells, trays, ovenable/microwaveable trays, egg cartons

AET staff instructed city staff to dump the sub-sample in the dedicated area inside the transfer station. AET staff then opened all trash bags, examined all waste available and sorted that material into the authorized categories. Each category was placed in a pre-weighed container; the category weight was recorded upon completion of the hand sorting exercise.

Upon completing the sorting and the weighing, AET recorded their field data into a laptop computer, which had been pre-programmed to sum the categories and develop weights and splits by approved categories.

3.0 Results of Public Space Audit

Trash in public space bins is well understood to be heavily contaminated. The Public Space Opportunities audits were designed to determine whether there were sufficient quantities of recoverable and valuable recyclables in the public space waste stream to warrant targeted recovery efforts through the E&E Fund. Table 3 presents a summary of the audit results.

Table 3:

Summary - Public Space Audits - August 2005		
Weight of Sub-sample (kg)		
	1,050.0	
	kg in sub-sample	% of Total
Organics	367.17	36.5%
Paper	231.96	23.0%
Plastics	108.21	10.7%
Paper Packaging	123.12	12.2%
Other Materials	89.73	8.9%
Glass	54.80	5.4%
Metals	25.73	2.6%
HH Special Waste	<u>5.98</u>	<u>0.6%</u>
Sub-total	1,006.7	100.0%
Unidentified waste	43.30	
	1,050.00	
Total ONP Paper	140.33	13.9%
Other recyclable paper	87.70	8.7%
Animal waste	73.09	7.3%
Total Plastic bags	42.53	4.2%
Total PET plastic	37.37	3.7%
Total aluminum	15.48	1.5%
Total aluminum beverage	14.20	1.4%
Total HDPE	3.78	0.4%

As expected, organic material makes up the largest component of trash in public space receptacles and sources. This organic fraction consists of food waste (45%), yard waste (35%), and animal (pet) wastes (20%).

Paper materials are present in public space waste in form of loose paper (ONP, stationary, printed paper, flyers, coupons, tickets etc), which make up 23% of the public space waste. Paper packaging (cartons, blister cards, fast food boxes, paper cups, etc.) provide another 12% of public space waste. Total fibre available is about equal to the organic fraction (by weight) at 35% (23% paper + 12% paper packaging). This study did not determine the quality of the fibre fraction, in terms of its viability as a recyclable stream.

Old newspaper, a readily recyclable material, represents 14% by weight of the public space trash sample examined. The data indicates 23 % (by weight) of public space garbage is paper / fibre that may be recoverable, depending upon contamination levels.

Plastic materials consist of various resin types used as packaging or rigid material. These include HDP bottles and jars; HDPE lids and caps, PP bottles, jars, lids and caps; PVC packaging, tubs and lids, pails and large format products; plastic film (LDPE, LLDPE, other); polystyrene products and packaging; and other plastic waste.

Plastics make up 10.7% by weight (108 kilos) of the sub-sample. Plastic film makes up a significant portion of the plastics in public space trash. Plastic film and plastic packaging constitute a clearly more significant fraction of this waste when viewed on a volume basis – this measurement however, was beyond the scope of this study.

Somewhat surprisingly, glass packaging was less than 10% (by weight) of the total public space audit sample. This likely reflects the change in beverage packaging away from glass and towards plastics packaging.

One of the objectives of the audit was to determine whether some of the more valuable recyclable materials are present in significant quantities in public space trash. These materials are: HDPE, PET, and aluminum, and to some degree usable fibre.

Total HDPE in public trash was very small (0.4%). PET from all sources was 37 kilos in the total sample of 1,050 kg or just under 4%. Aluminum (cans, foil) was an even smaller proportion of the total sample at 15.5 kilos or 1.5%.

The only fraction of recyclables that may be present in significant quantities are fibre materials. We are doubtful however, that the fibre fraction is economical to recover from public waste bins due to the high cost of collection, waste transfer, and subsequent incremental processing costs (although small).

3.1 PET Fraction - Containers

As outlined above, the consultant examined the specific occurrence of PET and other plastic beverage containers in public space garbage in order to better define the proportions of these containers in public trash.

Detailed information is presented in Appendix 2. Data is summarized in table 4 below.

Table 4

Summary of PET Results			
Number of samples	9		
Sub-sample Total weight (kg)	1050	% of sub-sample	% of plastics
Total plastic in sub-sample (kg)	108	10.3%	
Total PET Water bottles (kg)	19.81	1.89%	18.3%
Total Soft drink PET(kg)	5.22	0.497%	4.8%

PET water bottles are a significant proportion of PET beverage containers in public space garbage, by a ratio of 3.8 : 1 (19.8 kilo/ 5.2 kilo).

4.0 Public Space Study Conclusions

The purpose of this study was to determine the **availability of recyclables in the Public Space waste stream**. Detailed results on the performance of the various bin types examined in this study are presented in Appendix 3 of this report, with a performance summary appearing on page 19. The following conclusions can be drawn from this research:

- Fibre materials comprise about 35% by weight of the open space waste stream. The feasibility of recovering this material cost-effectively however, was beyond the scope of this research and remains unknown.
- Other valuable materials (HDPE, PET, and aluminum) are present in relatively low quantities in public trash and it is questionable whether these can be recovered cost effectively.
- Organic waste represents about 36% of the total weight of public space garbage.
- The occurrence of PET water bottles in municipal public space trash is significant compared to other beverage packaging.

It should be noted that this research in no way challenges the inherent value or the cost-effectiveness of collecting public space recyclables. Many municipalities make recycling bins available in public spaces both to capture recyclable materials and to reduce litter. The purpose of this particular study was not to evaluate the merit of these activities; it was simply **to determine whether the public space waste stream presented an opportunity for significant and cost effective recovery of Blue Box materials** (as compared against other potential sources of recyclables).

The City of Toronto collects a significant amount of recyclables from OMG recycling bins. According to City staff 3,776 tonnes of recyclables were collected from the city's 3,632 OMG bins in 2005. The data obtained from this study indicates that approximately 1,194 additional tonnes of recyclables are currently being disposed of (i.e. not recycled) in public space trash annually. According to these numbers, approximately 4,970 (3,776 +1,194) tonnes of recyclables are generated annually from the streets of Toronto. Using the projected 2006 population data for the City of Toronto (2,638,505), it can be estimated that the annual public space recycling generation rate for Toronto is 2 kg/capita.

5.0 GTA School Opportunity Analysis

With over 900,000 students enrolled in elementary and secondary high schools in the GTA, it is valid to consider whether there are untapped recycling opportunities available from this sector.

There have been few, if any, comprehensive waste composition studies conducted across the various school boards in the GTA to determine the potential of recycling more materials from schools. In both 2003 and 2005, Tetra Pak Canada Inc. retained the services of R. Bull Environmental Services to conduct waste and recyclable audits at several schools in Halton Region, west of Toronto. Although the audits were mainly concerned with determining the performance of aseptic containers (juice cartons) and gable top cartons, the study also provided information on other recyclables in school settings. Two elementary school and two high schools were chosen and audited in both

years. The audits examined the waste (garbage) generated for one day at each school, as well as the recyclables generated over a 5-day period.

A summary of the waste composition audits conducted at four schools in Halton Region is presented in Appendix 4. This data is used as a basis for estimating the school recycling potential in the GTA. It should be noted however, that these results are drawn from an unrepresentatively small sample size (less than 1% of the GTA student population and 11% of the Halton Region school enrollment). The comments provided are therefore for illustration and gross extrapolation purposes only.

Table 5 below extrapolates the data from the Halton audits to estimate the total amount of recyclables that may be available in GTA schools, assuming identical generation rates as in the Halton sample schools.

Table 5

Untapped Recycling Opportunities in GTA Schools								
Total Students in Elementary Schools	705,332							
Total Students in Secondary Schools	336,892							
Total Reported - Adult Students	45,000							
	1,087,224							
Recyclables Available	Paper	PET	HDPE	Alum Cans	Glass	Tetra	Gable	Total
kg / capita / yr.	3.74	0.76	0.16	0.35	0.24	0.62	0.37	6.24
Total Recyclables Not Recovered (kg)	4,060,782	826,290	176,674	384,605	260,934	670,002	404,991	
Total Recyclables Not Recovered (tonnes)	4,061	826	177	385	261	670	405	6,784
50% Recover of Available (tonnes / yr)	2,030	413	88	192	130	335	202	3,392
33% Recover of Available (tonnes / yr)	1,340	273	58	127	86	221	134	2,239
Approx Scrap price (per tonne)	\$100	\$425	\$500	\$1,800	\$0	\$75	\$75	
Approx value of Recyclables @ 50% recovery	\$203,039	\$175,587	\$44,168	\$346,145	\$0	\$25,125	\$15,187	\$809,251
Approx value of Recyclables @ 33% recovery	\$134,006	\$115,887	\$29,151	\$228,456	\$0	\$16,583	\$10,024	\$534,106

APPENDIX 1 – Field Data

GTA Public Space Waste Audit Program 2005 - Waste Sort Results

Record Number:		1	1	2	2	3	3	4	4
Municipality:		East York & City of Toronto	East York & City of Toronto	East York & City of Toronto	East York & City of Toronto	North York	North York	North York	North York
Sample Area:		OMG Bins		Open Top Street Bins		Open Top Street Bins		OMG Bins	OMG Bins
Sample Size (kg):		270		170		340		430	
Sub-Sample Size (kg)		160		100		100		130	
Date Collected (month/day/year):		08/15/05		08/15/05		08/16/05		08/16/05	
Audit Supervisor:		S. Freiburger		S. Freiburger		S. Freiburger		S. Freiburger	
Audit Sort Team:		J. McKenzie L. Freiburger		J. McKenzie L. Freiburger		J. McKenzie L. Freiburger		J. McKenzie L. Freiburger	
Waste Stream:		garbage		garbage		garbage		garbage	
Material Category	Accepted? ("X" if accepted in	Net Weight (kg)		Net Weight (kg)		Net Weight (kg)		Net Weight (kg)	
1. PAPER			29.52		20.01		24.07		55.77
Newspaper - Dailys and Weeklys		7.66		11.11		8.20		22.20	
Newspaper - Other		12.36		4.95		7.89		23.91	
Telephone Books/Directories		0.00		0.00		0.00		0.00	
Magazines & Catalogues		1.31		1.08		4.21		5.28	
Mixed Fine Papers		7.12		2.60		3.63		3.89	
Books		0.71		0.00		0.00		0.15	
Other Paper		0.36		0.27		0.14		0.34	
2. PAPER PACKAGING			14.71		7.66		9.25		19.54
Corrugated		2.34		0.02		0.07		1.24	
Kraft Paper		1.14		0.59		0.94		1.80	
Boxboard/Cores		3.85		2.05		2.40		4.15	
Molded Pulp		0.31		0.08		0.28		0.52	
Paper Cups and Paper Ice-Cream Containers		2.83		1.82		1.51		3.68	
Laminated Paper Packaging		0.38		0.50		0.36		0.74	
Composite Cans		0.05		0.04		0.12		0.05	
Gable Top Cartons		0.37		0.38		0.11		0.67	
Aseptic Containers		0.21		0.14		0.18		0.22	
Tissue/Toweling		3.23		2.04		3.28		6.47	
3. PLASTICS			16.34		9.09		9.99		16.08
PET Water Bottles >750ml		0.11		0.10		0.16		0.00	
PET Water Bottles <750ml		1.15		1.15		1.50		0.94	
PET Soft Drink Bottles		0.41		0.38		0.63		0.37	
PET Other Beverage Bottles		0.39		0.49		0.34		0.32	
PET Other Bottles & Jars		0.00		0.13		0.17		0.39	
PET Other Packaging		0.28		0.22		0.20		0.46	
HDPE Beverage Bottles (#2)		0.33		0.28		0.43		0.45	
PVC Bottles & Jars (#3)		0.03		0.13		0.03		0.05	
Other Bottles, Jars & Jugs (#4,5,7)		0.16		0.06		0.17		0.14	
Polystyrene Packaging (#6)		1.69		1.09		1.28		2.49	
Wide Mouth Tubs & Lids (#2,4,5)		0.32		0.11		0.14		0.08	
Large HDPE & PP Pails & Lids (>4 litres, <25 litres)		0.00		0.00		0.00		0.00	
Polyethylene Plastic Bags & Film - Packaging		5.58		2.20		1.84		3.53	
Polyethylene Plastic Bags & Film - Non-Packaging		3.11		1.01		1.80		2.60	

	1	1	2	2	3	3	4	4
	East York &	East York &	East York &	East York &	North York	North York	North York	North York
	OMG Bins		Open Top		Open Top		OMG Bins	OMG Bins
	270		170		340		430	
	160		100		100		130	
	08/15/05		08/15/05		08/16/05		08/16/05	
	S. Freiburger		S. Freiburger		S. Freiburger		S. Freiburger	
	J. McKenzie L. Freiburger		J. McKenzie L. Freiburger		J. McKenzie L. Freiburger		J. McKenzie L. Freiburger	
	garbage		garbage		garbage		garbage	
	Net Weight (kg)		Net Weight (kg)		Net Weight (kg)		Net Weight (kg)	
4. METALS		1.65		1.89		2.13		1.90
Aluminum Food & Beverage Cans	0.49		1.44		1.14		0.60	
Aluminum Foil & Trays	0.14		0.14		0.19		0.32	
Other Aluminum Containers	0.00		0.00		0.00		0.00	
Steel Food & Beverage Cans	0.71		0.29		0.80		0.64	
Steel Aerosol Cans	0.07		0.00		0.00		0.26	
Steel Paint Cans	0.00		0.00		0.00		0.00	
Other Metal	0.24		0.02		0.00		0.08	
5. GLASS		5.45		4.99		8.55		2.68
LCBO Clear	1.04		0.55		1.51		0.20	
LCBO Coloured	2.26		0.82		1.09		0.00	
Clear	1.32		3.59		5.52		1.83	
Coloured	0.44		0.00		0.00		0.15	
Other Glass	0.39		0.03		0.43		0.50	
6. HOUSEHOLD SPECIAL WASTE		0.03		3.03		0.56		0.04
Batteries	0.03		0.07		0.09		0.04	
Paint & Stain	0.00		0.00		0.00		0.00	
Motor Oil	0.00		0.00		0.00		0.00	
Other HSW Liquids	0.00		2.96		0.00		0.00	
Other HSW	0.00		0.00		0.47		0.00	
7. ORGANICS		74.11		45.72		41.61		34.80
Food Waste	46.36		35.15		28.21		24.53	
Yard Waste	3.20		0.24		5.76		0.41	
Pet Waste	24.55		10.33		7.64		9.86	
8. OTHER MATERIALS		10.00		1.33		17.15		5.77
Diapers & Sanitary Products	3.15		0.64		0.60		2.05	
Textiles	1.69		0.61		0.63		2.39	
Carpeting	0.00		0.00		0.00		0.00	
Construction & Renovation	2.22		0.00		2.63		0.00	
Computer/IT Equipment	0.00		0.00		0.00		0.00	
Telecom Equipment	0.00		0.00		0.00		0.00	
TV & Audio Equipment	0.00		0.00		0.18		0.00	
Small Kitchen Appliances	0.00		0.00		0.00		0.00	
Other Electronics	0.00		0.00		3.55		0.00	
Tires & Other Rubber	0.00		0.00		0.00		0.00	
Ceramics	0.00		0.00		0.26		0.73	
Furniture	0.00		0.00		0.00		0.00	
Mattresses	0.00		0.00		0.00		0.00	
Other Large Bulky Items	0.00		0.00		0.00		0.00	
Other Waste	2.94		0.08		9.30		0.60	
Total	151.81	151.81	93.72	93.72	113.31	113.31	136.58	136.58

GTA Public Space Waste Audit Program 2005 - Waste Sort Results

		5	5	6	6	7	7	8	8	9
Record Number:		5	5	6	6	7	7	8	8	9
Municipality:		Downtown Toronto	Downtown Toronto	Downtown Toronto	Downtown Toronto	Downtown Toronto	Downtown Toronto	Downtown Toronto	Downtown Toronto	Parkdale & Lakeshore
Sample Area:		MadVac - Streets		Sweep & Broom Streets		Sweep & Broom Streets		MadVac - Streets		Parks
Sample Size (kg):		430		240		200		1940		660
Sub-Sample Size (kg):		90		100		100		100		150
Date Collected (month/day/year):		08/16/05		08/16/05		08/17/05		08/17/05		08/19/05
Audit Supervisor:		S. Freiburger		S. Freiburger		S. Freiburger		S. Freiburger		S. Freiburger
Audit Sort Team:		J. McKenzie L. Freiburger		J. McKenzie L. Freiburger		J. McKenzie L. Freiburger		J. McKenzie L. Freiburger		J. McKenzie L. Freiburger
Waste Stream:		garbage		garbage		garbage		garbage		garbage
Material Category	Accepted? ("X" if accepted in	Net Weight (kg)		Net Weight (kg)		Net Weight (kg)		Net Weight (kg)		Net Weight (kg)
1. PAPER			21.79		19.99		28.30		21.56	
Newspaper - Dailys and Weeklys		4.13		2.22		2.18		2.52		1.74
Newspaper - Other		5.82		6.21		8.57		5.75		2.91
Telephone Books/Directories		0.00		0.00		0.81		0.00		2.46
Magazines & Catalogues		2.51		3.03		4.69		1.93		0.97
Mixed Fine Papers		8.82		8.26		11.72		11.17		2.21
Books		0.00		0.00		0.00				
Other Paper		0.51		0.27		0.33		0.19		0.66
2. PAPER PACKAGING			17.46		10.76		13.20		13.75	
Corrugated		1.03		0.87		1.86		1.16		2.19
Kraft Paper		1.06		0.89		1.00		1.47		1.72
Boxboard/Cores		5.69		3.45		3.93		3.40		2.86
Molded Pulp		0.19		0.25		0.16		0.21		0.06
Paper Cups and Paper Ice-Cream Containers		3.07		1.99		2.13		3.17		3.02
Laminated Paper Packaging		0.48		0.29		0.28		0.34		0.52
Composite Cans		0.04		0.00		0.07		0.05		
Gable Top Cartons		0.15		0.15		0.78		0.26		0.49
Aseptic Containers		0.22		0.17		0.35		0.27		1.23
Tissue/Toweling		5.53		2.70		2.64		3.42		4.70
3. PLASTICS			15.03		12.44		10.30		16.53	
PET Water Bottles >750ml		0.28		0.20		0.31		0.27		0.36
PET Water Bottles <750ml		4.59		2.07		1.63		3.53		1.46
PET Soft Drink Bottles		1.06		0.75		0.60		0.79		0.23
PET Other Beverage Bottles		1.14		0.43		0.66		0.88		1.04
PET Other Bottles & Jars		0.00		0.11		0.28		3.00		0.00
PET Other Packaging		0.02		0.13		0.00		0.18		1.08
HDPE Beverage Bottles (#2)		0.30		0.37		0.11		0.19		0.27
PVC Bottles & Jars (#3)		0.00		0.00		0.00		0.20		0.00
Other Bottles, Jars & Jugs (#4,5,7)		0.08		0.09		0.17		0.17		0.52
Polystyrene Packaging (#6)		2.66		1.55		1.60		2.06		2.40
Wide Mouth Tubs & Lids (#2,4,5)		0.00		0.21		0.00		0.00		0.19
Large HDPE & PP Pails & Lids (>4 litres, <25 litres)		0.00		0.00		0.00		0.00		0.00
Polyethylene Plastic Bags & Film - Packaging		0.47		0.67		0.38		0.62		2.79
Polyethylene Plastic Bags & Film - Non-Packaging		2.48		2.71		2.55		2.95		5.24
Laminated Other Plastic Bags & Film		0.74		0.56		0.42		0.54		1.37
Other Rigid Plastic Packaging		0.12		0.08		0.18		0.34		0.00
Durable Plastic Products		1.09		2.51		1.41		0.81		1.99

	5	5	6	6	7	7	8	8	9
	Downtown Toronto	Downtown Toronto	Downtown Toronto	Downtown Toronto	Downtown Toronto	Downtown Toronto	Downtown Toronto	Downtown Toronto	Parkdale & Lakeshore
MadVac - Streets			Sweep & Broom Streets		Sweep & Broom Streets		MadVac - Streets		Parks
430			240		200		1940		660
90			100		100		100		150
08/16/05			08/16/05		08/17/05		08/17/05		08/19/05
S. Freiburger			S. Freiburger		S. Freiburger		S. Freiburger		S. Freiburger
J. McKenzie L. Freiburger			J. McKenzie L. Freiburger		J. McKenzie L. Freiburger		J. McKenzie L. Freiburger		J. McKenzie L. Freiburger
garbage			garbage		garbage		garbage		garbage
Net Weight (kg)			Net Weight (kg)		Net Weight (kg)		Net Weight (kg)		Net Weight (kg)
4. METALS		3.51		3.44		3.52		3.13	
Aluminum Food & Beverage Cans	2.72		1.69		1.82		2.69		1.61
Aluminum Foil & Trays	0.16		0.04		0.03		0.06		0.20
Other Aluminum Containers	0.00		0.00		0.00		0.00		
Steel Food & Beverage Cans	0.16		0.64		0.41		0.30		0.52
Steel Aerosol Cans	0.00		0.00		0.00		0.00		
Steel Paint Cans	0.00		0.00		0.00		0.00		
Other Metal	0.47		1.07		1.26		0.08		2.23
5. GLASS		1.28		11.69		8.83		1.92	
LCBO Clear	0.20		1.27		0.83		0.33		3.36
LCBO Coloured	0.00		3.86		4.29		0.00		1.43
Clear	0.53		5.80		3.52		1.59		3.34
Coloured	0.15		0.76		0.00		0.00		1.28
Other Glass	0.40		0.00		0.19		0.00		
6. HOUSEHOLD SPECIAL WASTE		0.00		0.12		0.21		0.00	
Batteries	0.00		0.12		0.06		0.00		0.11
Paint & Stain	0.00		0.00		0.00		0.00		1.88
Motor Oil	0.00		0.00		0.00		0.00		
Other HSW Liquids	0.00		0.00		0.15		0.00		
Other HSW	0.00		0.00		0.00		0.00		
7. ORGANICS		32.88		29.94		25.34		41.73	
Food Waste	2.48		7.15		3.29		2.63		14.94
Yard Waste	30.40		22.26		22.05		38.85		6.17
Pet Waste	0.00		0.53		0.00		0.25		19.93
8. OTHER MATERIALS		4.23		3.56		3.12		2.34	
Diapers & Sanitary Products	0.09		0.41		0.00		0.00		1.04
Textiles	3.52		1.94		1.90		2.22		9.50
Carpeting	0.00		0.00		0.00		0.00		
Construction & Renovation	0.35		1.12		0.00		0.00		
Computer/IT Equipment	0.00		0.00		0.00		0.00		
Telecom Equipment	0.00		0.00		0.00		0.00		
TV & Audio Equipment	0.00		0.00		0.00		0.00		
Small Kitchen Appliances	0.00		0.00		0.00		0.00		
Other Electronics	0.00		0.00		0.00		0.00		
Tires & Other Rubber	0.00		0.02		0.00		0.00		
Ceramics	0.00		0.00		0.00		0.00		0.91
Furniture	0.00		0.00		0.00		0.00		
Mattresses	0.00		0.00		0.00		0.00		
Other Large Bulky Items	0.00		0.00		0.00		0.00		26.70
Other Waste	0.27		0.07		1.22		0.12		4.08
Total	96.18	96.18	91.94	91.94	92.82	92.82	100.96	100.96	145.91

APPENDIX 2 – Plastics & Plastic Containers

15-Aug-05			15-Aug-05			16-Aug-05		
East York & City of Toronto OMG Bins			East York & City of Toronto Open Top Street Bins			North York Open Top Street Bins		
Kilograms			Kilograms			Kilograms		
PLASTICS			PLASTICS					
Polyethylene Plastic Bags & Film -Packaging	5.58		Polyethylene Plastic Bags & Film -Packaging	2.20		Polyethylene Plastic Bags & Film Packaging	1.84	
Polyethylene Plastic Bags & Film -Non-Packaging	3.11		PET Water Bottles <750ml	1.15		Polyethylene Plastic Bags & Film Non-Packaging	1.80	
Polystyrene Packaging (#6)	1.69		Polystyrene Packaging (#6)	1.09		PET Water Bottles <750ml	1.50	
Durable Plastic Products	1.16		Polyethylene Plastic Bags & Film -Non-Packaging	1.01		Polystyrene Packaging (#6)	1.28	
PET Water Bottles <750ml	1.15		Durable Plastic Products	0.93		PET Soft Drink Bottles	0.63	
Laminated Other Plastic Bags & Film	0.93		Laminated Other Plastic Bags & Film	0.62		Laminated Other Plastic Bags & Film	0.50	
Other Rigid Plastic Packaging	0.69		PET Other Beverage Bottles	0.49		Durable Plastic Products	0.47	
PET Soft Drink Bottles	0.41		PET Soft Drink Bottles	0.38		HDPE Beverage Bottles (#2)	0.43	
PET Other Beverage Bottles	0.39		HDPE Beverage Bottles (#2)	0.28		PET Other Beverage Bottles	0.34	
HDPE Beverage Bottles (#2)	0.33		PET Other Packaging	0.22		Other Rigid Plastic Packaging	0.33	
Wide Mouth Tubs & Lids (#2,4,5)	0.32		Other Rigid Plastic Packaging	0.19		PET Other Packaging	0.20	
PET Other Packaging	0.28		PET Other Bottles & Jars	0.13		PET Other Bottles & Jars	0.17	
Other Bottles, Jars & Jugs (#4,5,7)	0.16		PVC Bottles & Jars (#3)	0.13		Other Bottles, Jars & Jugs (#4,5,7)	0.17	
PET Water Bottles >750ml	0.11		Wide Mouth Tubs & Lids (#2,4,5)	0.11		PET Water Bottles >750ml	0.16	
PVC Bottles & Jars (#3)	0.03		PET Water Bottles >750ml	0.10		Wide Mouth Tubs & Lids (#2,4,5)	0.14	
PET Other Bottles & Jars	0.00		Other Bottles, Jars & Jugs (#4,5,7)	0.06		PVC Bottles & Jars (#3)	0.03	
Large HDPE & PP Pails & Lids (>4 litres, <25 litres)	0.00		Large HDPE & PP Pails & Lids (>4 litres, <25 litres)	0.00		Large HDPE & PP Pails & Lids (>4 litres, <25 litres)	0.00	
Total Plastics	16.34	% of Sort	Total Plastics	9.09	% of Sort	Total Plastics	9.99	% of Sort
Total Sample Size	151.81		Total Sample Size	93.72		Total Sample Size	113.31	
Plastics Proportion of Total Sample	→	10.76%	Plastics Proportion of Total Sample	→	9.70%	Plastics Proportion of Total Sample	→	8.82%
Non-Film PET / HDPE in Total Sample	2.88	1.90%	Non-Film PET / HDPE in Total Sample	2.86	3.05%	Non-Film PET / HDPE in Total Sample	3.57	3.15%
Total PET Water Bottles	1.26	7.71%	Total PET Water Bottles	1.25	13.75%	Total PET Water Bottles	1.66	16.62%
Total Soft Drink PET	0.41	2.51%	Total Soft Drink PET	0.38	4.18%	Total Soft Drink PET	0.63	6.31%
Total Other Beverage PET	0.39	2.39%	Total Other Beverage PET	0.62	6.82%	Total Other Beverage PET	0.34	3.40%

16-Aug-05		
	North York OMG Bins	
	Kilograms	
PLASTICS		
Polyethylene Plastic Bags & Film -Packaging	3.53	
Durable Plastic Products	2.73	
Polyethylene Plastic Bags & Film -Non-Packaging	2.60	
Polystyrene Packaging (#6)	2.49	
PET Water Bottles <750ml	0.94	
Laminated Other Plastic Bags & Film	0.93	
Other Rigid Plastic Packaging	0.60	
PET Other Packaging	0.46	
HDPE Beverage Bottles (#2)	0.45	
PET Other Bottles & Jars	0.39	
PET Soft Drink Bottles	0.37	
PET Other Beverage Bottles	0.32	
Other Bottles, Jars & Jugs (#4,5,7)	0.14	
Wide Mouth Tubs & Lids (#2,4,5)	0.08	
PVC Bottles & Jars (#3)	0.05	
PET Water Bottles >750ml	0.00	
Large HDPE & PP Pails & Lids (>4 litres, <25 litres)	0.00	
Total Plastics	16.08	% of Sort
Total Sample Size	136.58	
Plastics Proportion of Total Sample	→	11.77%
Non-Film PET / HDPE in Total Sample	3.01	2.20%
Total PET Water Bottles	0.94	5.85%
Total Soft Drink PET	0.37	2.30%
Total Other Beverage PET	0.32	1.99%

16-Aug-05		
	Downtown Toronto MadVac - Streets	
	Kilograms	
PLASTICS		
PET Water Bottles <750ml	4.59	
Polystyrene Packaging (#6)	2.66	
Polyethylene Plastic Bags & Film - Non-Packaging	2.48	
PET Other Beverage Bottles	1.14	
Durable Plastic Products	1.09	
PET Soft Drink Bottles	1.06	
Laminated Other Plastic Bags & Film	0.74	
Polyethylene Plastic Bags & Film - Packaging	0.47	
HDPE Beverage Bottles (#2)	0.30	
PET Water Bottles >750ml	0.28	
Other Rigid Plastic Packaging	0.12	
Other Bottles, Jars & Jugs (#4,5,7)	0.08	
PET Other Packaging	0.02	
PET Other Bottles & Jars	0.00	
Wide Mouth Tubs & Lids (#2,4,5)	0.00	
Large HDPE & PP Pails & Lids (>4 litres, <25 litres)	0.00	
PVC Bottles & Jars (#3)	0.00	
Total Plastics	15.03	% of Sort
Total Sample Size	96.18	
Plastics Proportion of Total Sample	→	15.63%
Non-Film PET / HDPE in Total Sample	7.39	
Total PET Water Bottles	4.87	32.40%
Total Soft Drink PET	1.06	7.05%
Total Other Beverage PET	1.14	7.58%

16-Aug-05		
	Downtown Toronto Sweep & Broom Streets	
	Kilograms	
PLASTICS		
Polyethylene Plastic Bags & Film Non-Packaging	2.71	
Durable Plastic Products	2.51	
PET Water Bottles <750ml	2.07	
Polystyrene Packaging (#6)	1.55	
PET Soft Drink Bottles	0.75	
Polyethylene Plastic Bags & Film Packaging	0.67	
Laminated Other Plastic Bags & Film	0.56	
PET Other Beverage Bottles	0.43	
HDPE Beverage Bottles (#2)	0.37	
Wide Mouth Tubs & Lids (#2,4,5)	0.21	
PET Water Bottles >750ml	0.20	
PET Other Packaging	0.13	
PET Other Bottles & Jars	0.11	
Other Bottles, Jars & Jugs (#4,5,7)	0.09	
Other Rigid Plastic Packaging	0.08	
PVC Bottles & Jars (#3)	0.00	
Large HDPE & PP Pails & Lids (>4 litres, <25 litres)	0.00	
Total Plastics	12.44	% of Sort
Total Sample Size	91.94	
Plastics Proportion of Total Sample	→	13.53%
Non-Film PET / HDPE in Total Sample	4.27	4.64%
Total PET Water Bottles	2.27	18.25%
Total Soft Drink PET	0.75	6.03%
Total Other Beverage PET	0.43	3.46%

17-Aug-05			
Downtown Toronto			
Sweep & Broom Streets			
Kilograms			
PLASTICS			
Polyethylene Plastic Bags & Film -Non-Packaging	2.55		
PET Water Bottles <750ml	1.63		
Polystyrene Packaging (#6)	1.60		
Durable Plastic Products	1.41		
PET Other Beverage Bottles	0.66		
PET Soft Drink Bottles	0.60		
Laminated Other Plastic Bags & Film	0.42		
Polyethylene Plastic Bags & Film -Packaging	0.38		
PET Water Bottles >750ml	0.31		
PET Other Bottles & Jars	0.28		
Other Rigid Plastic Packaging	0.18		
Other Bottles, Jars & Jugs (#4,5,7)	0.17		
HDPE Beverage Bottles (#2)	0.11		
PET Other Packaging	0.00		
PVC Bottles & Jars (#3)	0.00		
Wide Mouth Tubs & Lids (#2,4,5)	0.00		
Large HDPE & PP Pails & Lids (>4 litres, <25 litres)	0.00		
Total Plastics	10.30	% of Sort	
Total Sample Size	92.82		
Plastics Proportion of Total Sample	→		11.10%
Non-Film PET / HDPE in Total Sample	3.59		3.87%
Total PET Water Bottles	1.94		18.83%
Total Soft Drink PET	0.60		5.83%
Total Other Beverage PET	0.66		6.41%

17-Aug-05			
Downtown Toronto			
MadVac - Streets			
Kilograms			
PLASTICS			
PET Water Bottles <750ml	3.53		
PET Other Bottles & Jars	3.00		
Polyethylene Plastic Bags & Film - Non-Packaging	2.95		
Polystyrene Packaging (#6)	2.06		
PET Other Beverage Bottles	0.88		
Durable Plastic Products	0.81		
PET Soft Drink Bottles	0.79		
Polyethylene Plastic Bags & Film - Packaging	0.62		
Laminated Other Plastic Bags & Film	0.54		
Other Rigid Plastic Packaging	0.34		
PET Water Bottles >750ml	0.27		
PVC Bottles & Jars (#3)	0.20		
HDPE Beverage Bottles (#2)	0.19		
PET Other Packaging	0.18		
Other Bottles, Jars & Jugs (#4,5,7)	0.17		
Wide Mouth Tubs & Lids (#2,4,5)	0.00		
Large HDPE & PP Pails & Lids (>4 litres, <25 litres)	0.00		
Total Plastics	16.53	% of Sort	
Total Sample Size	100.96		
Plastics Proportion of Total Sample	→		16.37%
Non-Film PET / HDPE in Total Sample	5.31		5.26%
Total PET Water Bottles	3.80		22.99%
Total Soft Drink PET	0.79		4.78%
Total Other Beverage PET	0.88		5.32%

19-Aug-05			
Parkdale & Lakeshore			
Parks			
Kilograms			
PLASTICS			
Polyethylene Plastic Bags & Film Non-Packaging	5.24		
Polyethylene Plastic Bags & Film Packaging	2.79		
Polystyrene Packaging (#6)	2.40		
Durable Plastic Products	1.99		
PET Water Bottles <750ml	1.46		
Laminated Other Plastic Bags & Film	1.37		
PET Other Packaging	1.08		
PET Other Beverage Bottles	1.04		
Other Bottles, Jars & Jugs (#4,5,7)	0.52		
PET Water Bottles >750ml	0.36		
HDPE Beverage Bottles (#2)	0.27		
PET Soft Drink Bottles	0.23		
Wide Mouth Tubs & Lids (#2,4,5)	0.19		
PET Other Bottles & Jars	0.00		
PVC Bottles & Jars (#3)	0.00		
Large HDPE & PP Pails & Lids (>4 litres, <25 litres)	0.00		
Other Rigid Plastic Packaging	0.00		
Total Plastics	18.94	% of Sort	
Total Sample Size	145.91		
Plastics Proportion of Total Sample	→		12.98%
Non-Film PET / HDPE in Total Sample	4.44		3.04%
Total PET Water Bottles	1.82		9.61%
Total Soft Drink PET	0.23		1.21%
Total Other Beverage PET	1.04		5.49%

APPENDIX 3 – Separated Results – Public Space Audits

The Public Space Audit examined a variety of sources of public trash. These included OMG-EUCAN stations, open top street trash receptacles, open bins in parks; as well as MadVac waste and sweeper/broom trash.

The consultant examined the composition of trash from containers collected in a 3 hour period each morning of the audit. City of Toronto staff report that in a 3 – hour period a crew will service on average 40 bins, depending on the locations serviced.

Detailed audit results, broken down to allow examination of each type of trash receptacle, appear in the data tables in this appendix.

Organic materials (pet waste, yard wastes, etc.) are the most significant waste category in the trash (22% by weight). Furthermore, park trash bins yielded significantly more trash per unit than OMG-EUCAN bins (16.05 kg/bin vs. 6.1kg/bin respectively)¹.

The OMG – EUCAN bins appear to be effective in collecting paper and plastic recyclables, which is likely a function of their widespread deployment in that city (3,632 bins across the City of Toronto from which 3,776 tonnes of recyclables were collected in 2005).

The average trash collected from OMG – EUCAN bins and open top trash bins was 7.5 kg/bin (8.85 kg/bin for OMG – EUCAN and 6.24 kg/bin for open top). Extrapolating these figures, one full collection cycle of all Toronto public space trash cans would generate 28.1 tonnes of mixed garbage. PET was determined to represent 3.5% of the total trash weight or 981 kg (~ 1 tonne). HDPE represents 0.4% of the total trash collected or 112 kilograms.

Taken together, metals represent 2.6% (730 kg) of the public space waste stream by weight, of which aluminum weight is estimated at 421 kilograms for one full cycle of all OMG – EUCAN bins. At the current market price of \$2.10 CAD per kg aluminum, this represents \$884 / 3,632 bins = \$0.24 per bin in aluminum revenue.

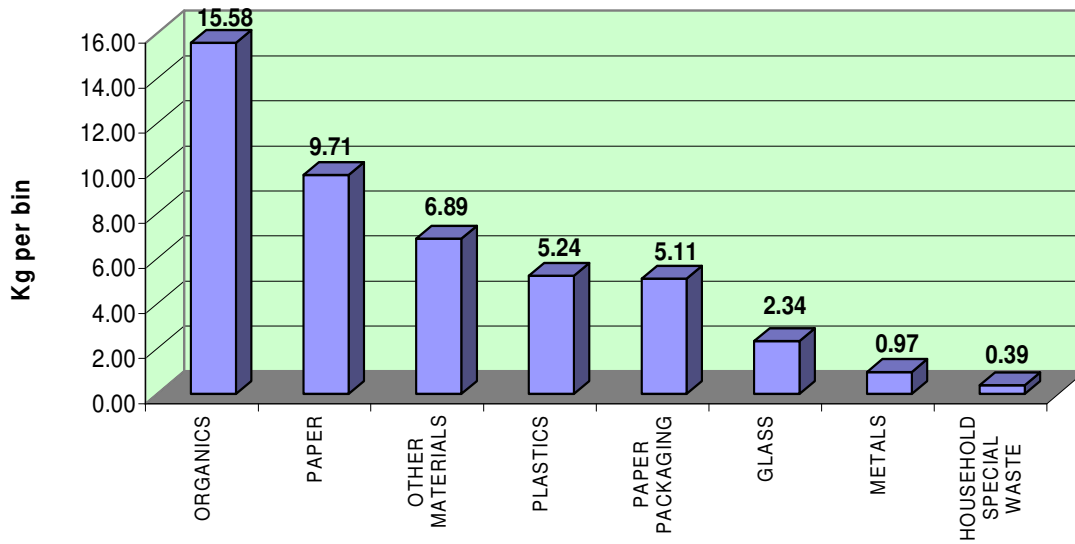
A summary of this data is charted on the next page.

¹ Assuming an average value of 40 bins collected per 3 hour shift

ORGANICS
PAPER
OTHER MATERIALS
PLASTICS
PAPER PACKAGING
GLASS
METALS
HOUSEHOLD SPECIAL WASTE

	Park Bins (Kg/bin)	EU Can - OMG Bins (East york & Toronto) (Kg/bin)	EU Can - OMG Bins (North York) (Kg/bin)	OPEN TOP (East York) (Kg/bin)	OPEN TOP (North York) (Kg/bin)	Total by Material (kg)
ORGANICS	4.51	3.13	2.88	1.93	3.13	15.58
PAPER	1.20	1.25	4.61	0.84	1.81	9.71
OTHER MATERIALS	4.65	0.42	0.48	0.06	1.29	6.89
PLASTICS	2.08	0.69	1.33	0.38	0.75	5.24
PAPER PACKAGING	1.85	0.62	1.62	0.32	0.70	5.11
GLASS	1.04	0.23	0.22	0.21	0.64	2.34
METALS	0.50	0.07	0.16	0.08	0.16	0.97
HOUSEHOLD SPECIAL WASTE	0.22	0.00	0.00	0.13	0.04	0.39
Totals	16.05	6.405	11.300	3.954	8.520	46.23
Averages	16.05		8.852		6.237	

Public Space Trash Bins- Kg/Bin - by Material



APPENDIX 3- OMG and Open Top Bins Segregated

GTA Public Space Waste Audit Program 2005 - Waste Sort Results
EU Can / OMG Type Bins

TABLE 1

Record Number:		1	1					4	4			
Municipality:		East York & City of Toronto	East York & City of Toronto					North York	North York			
Sample Area:		OMG Bins	OMG Bins					OMG Bins	OMG Bins			
Sample Size (kg):		270		Bin sample size	40			430		Bin sample size	40	
Sub-Sample Size (kg)		160	270 / 160	sample factor	1.688			130		sample factor	3.308	
Date Collected (month/day/year):		08/15/05						08/16/05				
Audit Supervisor:		S. Freiburger						S. Freiburger				
Audit Sort Team:		J. McKenzie L. Freiburger						J. McKenzie L. Freiburger				
Waste Stream:		garbage						garbage				
Material Category	Accepted? ("X" if accepted in recycling program)	Net Weight Sub-Sample (kg)		Weight Per Bin - Sub-Sample (kg)	Weight Per Bin - Total Sample (kg)	Weight Per bin by Category (kg)		Net Weight (kg)		Weight Per Bin - Sub-Sample (kg)	Weight Per Bin - Total Sample (kg)	Weight Per bin by Category (kg)
1. PAPER		29.52	0.738		1.2454			55.77	1.39			4.61
Newspaper - Dailies and Weeklys		7.66	0.19	0.323				22.20	0.56	1.84		
Newspaper - Other		12.36	0.31	0.521				23.91	0.60	1.98		
Telephone Books/Directories		0.00	0.00	0.000				0.00	0.00	0.00		
Magazines & Catalogues		1.31	0.03	0.055				5.28	0.13	0.44		
Mixed Fine Papers		7.12	0.18	0.300				3.89	0.10	0.32		
Books		0.71	0.02	0.030				0.15	0.00	0.01		
Other Paper		0.36	0.01	0.015				0.34	0.01	0.03		
2. PAPER PACKAGING		14.71	0.368		0.6206			19.54	0.49			1.62
Corrugated		2.34	0.06	0.099				1.24	0.03	0.10		
Kraft Paper		1.14	0.03	0.048				1.80	0.05	0.15		
Boxboard/Cores		3.85	0.10	0.162				4.15	0.10	0.34		
Molded Pulp		0.31	0.01	0.013				0.52	0.01	0.04		
Paper Cups and Paper Ice-Cream Containers		2.83	0.07	0.119				3.68	0.09	0.30		
Laminated Paper Packaging		0.38	0.01	0.016				0.74	0.02	0.06		
Composite Cans		0.05	0.00	0.002				0.05	0.00	0.00		
Gable Top Cartons		0.37	0.01	0.016				0.67	0.02	0.06		
Aseptic Containers		0.21	0.01	0.009				0.22	0.01	0.02		
Tissue/Toweling		3.23	0.08	0.136				6.47	0.16	0.54		
3. PLASTICS		16.34	0.409		0.6893			16.08	0.40			1.33
PET Water Bottles >750ml		0.11	0.00	0.005				0.00	0.00	0.00		
PET Water Bottles <750ml		1.15	0.03	0.049				0.94	0.02	0.08		
PET Soft Drink Bottles		0.44	0.01	0.017				0.37	0.01	0.03		
PET Other Beverage Bottles		0.39	0.01	0.016				0.32	0.01	0.03		
PET Other Bottles & Jars		0.00	0.00	0.000				0.29	0.01	0.03		
PET Other Packaging		0.28	0.01	0.012				0.46	0.01	0.04		
HDPE Beverage Bottles (#2)		0.33	0.01	0.014				0.45	0.01	0.04		
PVC Bottles & Jars (#3)		0.03	0.00	0.001				0.05	0.00	0.00		
Other Bottles, Jars & Jugs (#4,5,7)		0.16	0.00	0.007				0.14	0.00	0.01		
Polystyrene Packaging (#6)		1.69	0.04	0.071				2.49	0.06	0.21		
Wide Mouth Tubs & Lids (#2,4,5)		0.32	0.01	0.014				0.08	0.00	0.01		
Large HDPE & PP Pails & Lids (>4 litres, <25 litres)		0.00	0.00	0.000				0.00	0.00	0.00		
Polyethylene Plastic Bags & Film - Packaging		5.58	0.14	0.235				3.53	0.09	0.29		
Polyethylene Plastic Bags & Film - Non-Packaging		3.11	0.08	0.131				2.60	0.07	0.22		
Laminated Other Plastic Bags & Film		0.93	0.02	0.039				0.93	0.02	0.08		
Other Rigid Plastic Packaging		0.69	0.02	0.029				0.60	0.02	0.05		
Durable Plastic Products		1.16	0.03	0.049				2.73	0.07	0.23		
4. METALS		1.65	0.04		0.0696			1.90	0.05			0.16
Aluminum Food & Beverage Cans		0.49	0.01	0.021				0.60	0.02	0.05		
Aluminum Foil & Trays		0.14	0.00	0.006				0.32	0.01	0.03		
Other Aluminum Containers		0.90	0.00	0.000				0.00	0.00	0.00		
Steel Food & Beverage Cans		0.71	0.02	0.030				0.84	0.02	0.05		
Steel Aerosol Cans		0.07	0.00	0.003				0.26	0.01	0.02		
Steel Paint Cans		0.00	0.00	0.000				0.00	0.00	0.00		
Other Metal		0.24	0.01	0.010				0.08	0.00	0.01		
5. GLASS		5.45	0.14		0.2299			2.68	0.07			0.22
LCBO Clear		1.04	0.03	0.044				0.20	0.01	0.02		
LCBO Coloured		2.26	0.06	0.095				0.00	0.00	0.00		
Clear		1.32	0.03	0.056				1.83	0.05	0.15		
Coloured		0.44	0.01	0.019				0.15	0.00	0.01		
Other Glass		0.39	0.01	0.016				0.50	0.01	0.04		
6. HOUSEHOLD SPECIAL WASTE		0.03	0.00		0.0013			0.04	0.00			0.00
Batteries		0.03	0.00	0.001				0.04	0.00	0.00		
Paint & Stain		0.00	0.00	0.000				0.00	0.00	0.00		
Motor Oil		0.00	0.00	0.000				0.00	0.00	0.00		
Other HSW Liquids		0.00	0.00	0.000				0.00	0.00	0.00		
Other HSW		0.00	0.00	0.000				0.00	0.00	0.00		
7. ORGANICS		74.11	1.85		3.1265			34.80	0.87			2.88
Food Waste		46.36	1.16	1.956				24.53	0.61	2.03		
Yard Waste		3.20	0.08	0.135				0.41	0.01	0.03		
Pet Waste		24.55	0.61	1.036				9.86	0.25	0.82		
8. OTHER MATERIALS		10.00	0.25		0.4219			5.77	0.14			0.48
Diapers & Sanitary Products		3.15	0.08	0.133				2.05	0.05	0.17		
Textiles		1.69	0.04	0.071				2.39	0.06	0.20		
Carpeting		0.00	0.00	0.000				0.00	0.00	0.00		
Construction & Renovation		2.22	0.06	0.094				0.00	0.00	0.00		
Computer/IT Equipment		0.00	0.00	0.000				0.00	0.00	0.00		
Telecom Equipment		0.00	0.00	0.000				0.00	0.00	0.00		
TV & Audio Equipment		0.00	0.00	0.000				0.00	0.00	0.00		
Small Kitchen Appliances		0.00	0.00	0.000				0.00	0.00	0.00		
Other Electronics		0.00	0.00	0.000				0.00	0.00	0.00		
Tires & Other Rubber		0.00	0.00	0.000				0.00	0.00	0.00		
Ceramics		0.00	0.00	0.000				0.73	0.02	0.06		
Furniture		0.00	0.00	0.000				0.00	0.00	0.00		
Mattresses		0.00	0.00	0.000				0.00	0.00	0.00		
Other Large Bulky Items		0.00	0.00	0.000				0.00	0.00	0.00		
Other Waste		2.94	0.07	0.124				0.60	0.02	0.05		
Non-identified Material in Sub-Sample		151.81						136.58				11.294
Total		8.19	160.00	3.795		6.404		136.58	3.415			11.294

Note: Toronto - Public Works reports average rate of pickups are : 110 stops (bins) in 8 hrs. (14/ hr). sample collected in 3 hrs each day from ~ 40 bins

Average for this type of public space bin
(East York, City of Toronto & North York samples combined)

8.85
Kg/ bin

GTA Public Space Waste Audit Program 2005 - Waste Sort Results
Parks Type Bins

Record Number:					
Municipality: 9			Weight Per Bin - Sub-Sample (kg)	Weight Per Bin - Total Sample (kg)	Weight Per bin by Category (kg)
Sample Area: Parkdale & Parks					
Sample Size (kg): 660		Bin sample	40	City Owned	?
Sub-Sample Size (kg): 150		sample factor	4.400		
Date Collected (month/day/year): 08/19/05					
Audit Supervisor: S. Freiburger					
Audit Sort Team: J. McKenzie					
Waste Stream: garbage					
Material Category	Accepted? ('X' #)	Net Weight (kg)			
1. PAPER		10.95	0.274		1.2045
Newspaper - Dailys and Weeklys		1.74	0.04	0.19	
Newspaper - Other		2.91	0.07	0.32	
Telephone Books/Directories		2.46	0.06	0.27	
Magazines & Catalogues		0.97	0.02	0.11	
Mixed Fine Papers		2.21	0.06	0.24	
Books		0.00	0.00	0.00	
Other Paper		0.66	0.02	0.07	
2. PAPER PACKAGING		16.79	0.420		1.8469
Corrugated		2.19	0.05	0.24	
Kraft Paper		1.72	0.04	0.19	
Boxboard/Cores		2.86	0.07	0.31	
Molded Pulp		0.06	0.00	0.01	
Paper Cups and Paper Ice-Cream Containers		3.02	0.08	0.33	
Laminated Paper Packaging		0.52	0.01	0.06	
Composite Cans		0.00	0.00	0.00	
Gable Top Cartons		0.49	0.01	0.05	
Aseptic Containers		1.23	0.03	0.14	
Tissue/Toweling		4.70	0.12	0.52	
3. PLASTICS		18.94	0.474		2.0834
PET Water Bottles >750ml		0.36	0.01	0.04	
PET Water Bottles <750ml		1.46	0.04	0.16	
PET Soft Drink Bottles		0.23	0.01	0.03	
PET Other Beverage Bottles		1.04	0.03	0.11	
PET Other Bottles & Jars		0.00	0.00	0.00	
PET Other Packaging		1.08	0.03	0.12	
HDPE Beverage Bottles (#2)		0.27	0.01	0.03	
PVC Bottles & Jars (#3)		0.00	0.00	0.00	
Other Bottles, Jars & Juugs (#4,5,7)		0.52	0.01	0.06	
Polystyrene Packaging (#6)		2.40	0.06	0.26	
Wide Mouth Tubs & Lids (#2,4,5)		0.19	0.00	0.02	
Large HDPE & PP Pails & Lids (>4 litres, <25 litres)		0.00	0.00	0.00	
Polyethylene Plastic Bags & Film - Packaging		2.79	0.07	0.31	
Polyethylene Plastic Bags & Film -Non-Packaging		5.24	0.13	0.58	
Laminated Other Plastic Bags & Film		1.37	0.03	0.15	
Other Rigid Plastic Packaging		0.00	0.00	0.00	
Durable Plastic Products		1.99	0.05	0.22	
4. METALS		4.56	0.114		0.5016
Aluminum Food & Beverage Cans		1.61	0.04	0.18	
Aluminum Foil & Trays		0.20	0.01	0.02	
Other Aluminum Containers		0.00	0.00	0.00	
Steel Food & Beverage Cans		0.52	0.01	0.06	
Steel Aerosol Cans		0.00	0.00	0.00	
Steel Paint Cans		0.00	0.00	0.00	
Other Metal		2.23	0.06	0.25	
5. GLASS		9.41	0.235		1.0351
LCBO Clear		3.36	0.08	0.37	
LCBO Coloured		1.43	0.04	0.16	
Clear		3.34	0.08	0.37	
Coloured		1.28	0.03	0.14	
Other Glass		0.00	0.00	0.00	
6. HOUSEHOLD SPECIAL WASTE		1.99	0.050		0.2189
Batteries		0.11	0.00	0.01	
Paint & Stain		1.88	0.05	0.21	
Motor Oil		0.00	0.00	0.00	
Other HSW Liquids		0.00	0.00	0.00	
Other HSW		0.00	0.00	0.00	
7. ORGANICS		41.04	1.026		4.5144
Food Waste		14.94	0.37	1.64	
Yard Waste		6.17	0.15	0.68	
Pet Waste		19.93	0.50	2.19	
8. OTHER MATERIALS		42.23	1.056		4.6453
Diapers & Sanitary Products		1.04	0.03	0.11	
Textiles		9.50	0.24	1.05	
Carpeting		0.00	0.00	0.00	
Construction & Renovation		0.00	0.00	0.00	
Computer/IT Equipment		0.00	0.00	0.00	
Telecom Equipment		0.00	0.00	0.00	
TV & Audio Equipment		0.00	0.00	0.00	
Small Kitchen Appliances		0.00	0.00	0.00	
Other Electronics		0.00	0.00	0.00	
Tires & Other Rubber		0.00	0.00	0.00	
Ceramics		0.91	0.02	0.10	
Furniture		0.00	0.00	0.00	
Mattresses		0.00	0.00	0.00	
Other Large Bulky Items		26.70	0.67	2.94	
Other Waste		4.08	0.10	0.45	
		145.91	3.648		16.050
Non-identified Material in Sub-Sample		4.09			
Total		145.91			

Note: Toronto - Public Works reports average rate of pickups are : 110 stops (bins) in 8 hrs. (14/ hr). sample collected in 3 hrs each day from ~ 40 bins

Average for this type of public space bin
(East York, City of Toronto & North York samples combined) **16.05**
Kg/ bin

APPENDIX 3 - OMG and Open Top Bins Segregated

TABLE 4

GTA Public Space Waste Audit Program 2005 - Waste Sort Results

Mad VAC - Street Sweeping (1)

Record Municipality	5		8		8		Average	
	Downtown Toronto	Downtown Toronto			Downtown Toronto	Downtown Toronto		
Sample Area	MadVac - Streets		MadVac - Streets					
Sample Size (Kg)	430	Sample Factor	4.479		1940	Sample Factor	19.208	
Sub-Sample (kg)	96	MadVACs in Sample	Unknown		101	MadVACs in Sample	Unknown	
Date	08/16/05				08/17/05			
Supervisor	S. Freiburger				S. Freiburger			
Auditors	J. McKenzie L. Freiburger				J. McKenzie L. Freiburger			
Waste	garbage				garbage			
	Net Weight (kg)	Total Weight Sub-Sample (kg)	Weight of MadVAC Material (kg)	Weight MadVAC Street Sweepings by Category (kg)	Net Weight (kg)	Total Weight Sub-Sample (kg)	Weight of MadVAC Material (kg)	Weight MadVAC Street Sweepings by Category (kg)
PAPER		21.79	18.50	97.60		21.56		414.12
Newspaper - Dailys and Weeklys	4.13		18.50		2.52		48.40	
Newspaper - Other	5.82		26.07		5.75		110.45	
Telephone Books/Directories	0.00		0.00		0.00		0.00	
Magazines & Catalogues	2.51		11.24		1.93		37.07	
Mixed Fine Papers	8.82		39.51		11.17		214.55	
Books	0.00		0.00				0.00	
Other Paper	0.51		2.28		0.19		3.65	
PAPER PACKAGING		17.46	78.21			13.75		264.11
Corrugated	1.03		4.61		1.16		22.28	
Kraft Paper	1.06		4.75		1.47		28.24	
Boxboard/Cores	5.69		25.49		3.40		65.31	
Molded Pulp	0.19		0.85		0.21		4.03	
Paper Cups and Paper Ice-Cream Containers	3.07		13.75		3.17		60.89	
Laminated Paper Packaging	0.48		2.15		0.34		6.53	
Composite Cans	0.04		0.18		0.05		0.96	
Gable Top Cartons	0.15		0.67		0.26		4.99	
Aseptic Containers	0.22		0.99		0.27		5.19	
Tissue/Toweling	5.53		24.77		3.42		65.69	
PLASTICS		15.03	67.32			16.53		317.51
PET Water Bottles >750ml	0.28		1.25		0.27		5.19	
PET Water Bottles <750ml	4.59		20.56		3.53		67.80	
PET Soft Drink Bottles	1.06		4.75		0.79		15.17	
PET Other Beverage Bottles	1.14		5.11		0.88		16.90	
PET Other Bottles & Jars	0.00		0.00		3.00		57.62	
PET Other Packaging	0.02		0.09		0.18		3.46	
HDPE Beverage Bottles (#2)	0.30		1.34		0.19		3.65	
PVC Bottles & Jars (#3)			0.00		0.20		3.84	
Other Bottles, Jars & Jugs (#4,5,7)	0.08		0.36		0.17		3.27	
Polystyrene Packaging (#6)	2.66		11.91		2.06		39.57	
Wide Mouth Tubs & Lids (#2,4,5)	0.00		0.00		0.00		0.00	
Large HDPE & PP Pails & Lids (>4 litres, <25 litres)	0.00		0.00		0.00		0.00	
Polyethylene Plastic Bags & Film - Packaging	0.47		2.11		0.62		11.91	
Polyethylene Plastic Bags & Film -Non-Packaging	2.48		11.11		2.95		56.66	
Laminated Other Plastic Bags & Film	0.74		3.31		0.54		10.37	
Other Rigid Plastic Packaging	0.12		0.54		0.34		6.53	
Durable Plastic Products	1.09		4.88		0.81		15.56	
METALS		3.51	15.72			3.13		60.12
Aluminum Food & Beverage Cans	2.72		12.18		2.69		51.67	
Aluminum Foil & Trays	0.16		0.72		0.06		1.15	
Other Aluminum Containers	0.00		0.00		0.00		0.00	
Steel Food & Beverage Cans	0.16		0.72		0.30		5.76	
Steel Aerosol Cans	0.00		0.00		0.00		0.00	
Steel Paint Cans	0.00		0.00		0.00		0.00	
Other Metal	0.47		2.11		0.08		1.54	
GLASS		1.28	5.73			1.92		36.88
LCBO Clear	0.20		0.90		0.33		6.34	
LCBO Coloured	0.00		0.00		0.00		0.00	
Clear	0.53		2.37		1.59		30.54	
Coloured	0.15		0.67		0.00		0.00	
Other Glass	0.40		1.79		0.00		0.00	
HH SPECIAL		0.00	0.00			0.00		0.00
Batteries	0.00		0.00		0.00		0.00	
Paint & Stain	0.00		0.00		0.00		0.00	
Motor Oil	0.00		0.00		0.00		0.00	
Other HSW Liquids	0.00		0.00		0.00		0.00	
Other HSW	0.00		0.00		0.00		0.00	
ORGANICS		32.88	147.28			41.73		801.55
Food Waste	2.48		11.11		2.63		50.52	
Yard Waste	30.40		136.17		38.85		746.23	
Pet Waste	0.00		0.00		0.25		4.80	
OTHER MAT'L		4.23	18.95			2.34		44.95
Diapers & Sanitary Products	0.09		0.40		0.00		0.00	
Textiles	3.52		15.77		2.22		42.64	
Carpeting	0.00		0.00		0.00		0.00	
Construction & Renovation	0.35		1.57		0.00		0.00	
Computer/IT Equipment	0.00		0.00		0.00		0.00	
Telecom Equipment	0.00		0.00		0.00		0.00	
TV & Audio Equipment	0.00		0.00		0.00		0.00	
Small Kitchen Appliances	0.00		0.00		0.00		0.00	
Other Electronics	0.00		0.00		0.00		0.00	
Tires & Other Rubber	0.00		0.00		0.00		0.00	
Ceramics	0.00		0.00		0.00		0.00	
Furniture	0.00		0.00		0.00		0.00	
Mattresses	0.00		0.00		0.00		0.00	
Other Large Bulky Items	0.00		0.00		0.00		0.00	
Other Waste	0.27		1.21		0.12		2.30	
	96.18		430.81		100.96		1939.23	
		96.18	430.81			100.96		1939.23

APPENDIX 3 - OMG and Open Top Bins Segregated
Street Sweeping (2)

TABLE 5

Record Municipality	6	6			7	7			Average
	Downtown Toronto	Downtown Toronto			Downtown Toronto	Downtown Toronto			
Sample Area	Sweep & Broom Streets				Sweep & Broom Streets				
Sample Size (Kg)	240		Sample factor	2.400	200		Sample factor	2.000	
Sub-Sample (kg)	100				100				
Date	08/16/05				08/17/05				
	Net Weight(kg)	Total Weight Sub-Sample (kg)	Weight of MadVAC Material (kg)	Weight MadVAC Street Sweepings by Category (kg)	Net Weight(kg)	Total Weight Sub-Sample (kg)	Weight of MadVAC Material (kg)	Weight MadVAC Street Sweepings by Category (kg)	
PAPER		19.99		47.98		28.30		56.60	52.288
Newspaper - Dailys and Weeklys	2.22		5.33		2.18		4.36		
Newspaper - Other	6.21		14.90		8.57		17.14		
Telephone Books/Directories	0.00		0.00		0.81		1.62		
Magazines & Catalogues	3.03		7.27		4.69		9.38		
Mixed Fine Papers	8.26		19.82		11.72		23.44		
Books	0.00		0.00		0.00		0.00		
Other Paper	0.27		0.65		0.33		0.66		
PAPER PACKAGING		10.76		25.82		13.20		26.40	26.112
Corrugated	0.87		2.09		1.86		3.72		
Kraft Paper	0.89		2.14		1.00		2.00		
Boxboard/Cores	3.45		8.28		3.93		7.86		
Molded Pulp	0.25		0.60		0.16		0.32		
Paper Cups and Paper Ice-Cream Containers	1.99		4.78		2.13		4.26		
Laminated Paper Packaging	0.29		0.70		0.28		0.56		
Composite Cans	0.00		0.00		0.07		0.14		
Gable Top Cartons	0.15		0.36		0.78		1.56		
Aseptic Containers	0.17		0.41		0.35		0.70		
Tissue/Toweling	2.70		6.48		2.64		5.28		
PLASTICS		12.44		29.86		10.30		20.60	25.228
PET Water Bottles >750ml	0.20		0.48		0.31		0.62		
PET Water Bottles <750ml	2.07		4.97		1.63		3.26		
PET Soft Drink Bottles	0.75		1.80		0.60		1.20		
PET Other Beverage Bottles	0.43		1.03		0.66		1.32		
PET Other Bottles & Jars	0.11		0.26		0.28		0.56		
PET Other Packaging	0.13		0.31		0.00		0.00		
HDPE Beverage Bottles (#2)	0.37		0.89		0.11		0.22		
PVC Bottles & Jars (#3)	0.00		0.00		0.00		0.00		
Other Bottles, Jars & Jugs (#4,5,7)	0.09		0.22		0.17		0.34		
Polystyrene Packaging (#6)	1.55		3.72		1.60		3.20		
Wide Mouth Tubs & Lids (#2,4,5)	0.21		0.50		0.00		0.00		
Large HDPE & PP Pails & Lids (>4 litres, <25 litres)	0.00		0.00		0.00		0.00		
Polyethylene Plastic Bags & Film -Packaging	0.67		1.61		0.38		0.76		
Polyethylene Plastic Bags & Film -Non-Packaging	2.71		6.50		2.55		5.10		
Laminated Other Plastic Bags & Film	0.56		1.34		0.42		0.84		
Other Rigid Plastic Packaging	0.08		0.19		0.18		0.36		
Durable Plastic Products	2.51		6.02		1.41		2.82		
METALS		3.44		8.26		3.52		7.04	7.648
Aluminum Food & Beverage Cans	1.69		4.06		1.82		3.64		
Aluminum Foil & Trays	0.04		0.10		0.03		0.06		
Other Aluminum Containers	0.00		0.00		0.00		0.00		
Steel Food & Beverage Cans	0.64		1.54		0.41		0.82		
Steel Aerosol Cans	0.00		0.00		0.00		0.00		
Steel Paint Cans	0.00		0.00		0.00		0.00		
Other Meta	1.07		2.57		1.26		2.52		
GLASS		11.69		28.06		8.83		17.66	22.858
LCBO Clear	1.27		3.05		0.83		1.66		
LCBO Coloured	3.86		9.26		4.29		8.58		
Clear	5.80		13.92		3.52		7.04		
Coloured	0.76		1.82		0.00		0.00		
Other Glass	0.00		0.00		0.19		0.38		
HH SPECIAL		0.12		0.29		0.21		0.42	0.354
Batteries	0.12		0.29		0.06		0.12		
Paint & Stain	0.00		0.00		0.00		0.00		
Motor Oil	0.00		0.00		0.00		0.00		
Other HSW Liquids	0.00		0.00		0.15		0.30		
Other HSW	0.00		0.00		0.00		0.00		
ORGANICS		29.94		71.86		25.34		50.68	61.268
Food Waste	7.15		17.16		3.29		6.58		
Yard Waste	22.26		53.42		22.05		44.10		
Pet Waste	0.53		1.27		0.00		0.00		
OTHER MAT'L		3.56		8.54		3.12		6.24	7.392
Diapers & Sanitary Products	0.41		0.98		0.00		0.00		
Textiles	1.94		4.66		1.90		3.80		
Carpeting	0.00		0.00		0.00		0.00		
Construction & Renovation	1.12		2.69		0.00		0.00		
Computer/IT Equipment	0.00		0.00		0.00		0.00		
Telecom Equipment	0.00		0.00		0.00		0.00		
TV & Audio Equipment	0.00		0.00		0.00		0.00		
Small Kitchen Appliances	0.00		0.00		0.00		0.00		
Other Electronics	0.00		0.00		0.00		0.00		
Tires & Other Rubber	0.02		0.05		0.00		0.00		
Ceramics	0.00		0.00		0.00		0.00		
Furniture	0.00		0.00		0.00		0.00		
Mattresses	0.00		0.00		0.00		0.00		
Other Large Bulky Items	0.00		0.00		0.00		0.00		
Other Waste	0.07		0.17		1.22		2.44		
	91.94				92.82				203.148
Unidentified materials		8.06		19.344		7.18		14.36	
		91.94		240.00		100.00		200.00	

Appendix 4:

Halton Region - Schools Waste Composition Audits

* Conducted in spring 2005; all data in **kg/capita/yr.**, except %

	Waste + Recyclables		Recyclables Still Available		Rec. Rate	High Schools (Average Recovery)	Elem. Schools (Average Recovery)
	Paper	Recycled	Recycled	Rec. Rate			
School 1 (2003) - High (850 students)	11.30	3.04	8.26	27%			
School 1 (2005) - High (920 students)	8.30	5.77	2.53	70%			
School 2 (2003) - High (2000 students)	6.71	3.04	3.67	45%			
School 2 (2005) - High (1800 students)	4.40	2.20	2.20	50%	48%		
School 3 (2003) - Elementary (780 students)	5.11	3.12	1.99	61%			
School 3 (2005) - Elementary (718 students)	6.60	3.54	3.06	54%			
School 4 (2003) - Elementary (600 students)	6.00	1.67	4.33	28%			
School 4 (2005) - Elementary (560 students)	5.99	2.15	3.84	36%		45%	
Average	6.80	3.07	3.74				
PET Containers							
School 1 (2003) - High (850 students)	1.06	0.02	1.04	2%			
School 1 (2005) - High (920 students)	1.31	0.37	0.94	28%			
School 2 (2003) - High (2000 students)	0.89	0.03	0.86	3%			
School 2 (2005) - High (1800 students)	1.20	0.08	1.12	7%	10%		
School 3 (2003) - Elementary (780 students)	0.24	0.00	0.24	0%			
School 3 (2005) - Elementary (718 students)	0.75	0.27	0.48	36%			
School 4 (2003) - Elementary (600 students)	0.67	0.19	0.48	28%			
School 4 (2005) - Elementary (560 students)	1.28	0.36	0.92	28%		23%	
Average	0.93	0.17	0.76				
HDPE Containers							
School 1 (2003) - High (850 students)	0.14	0.00	0.14	0%			
School 1 (2005) - High (920 students)	0.10	0.00	0.10	0%			
School 2 (2003) - High (2000 students)	0.07	0.00	0.07	0%			
School 2 (2005) - High (1800 students)	0.19	0.02	0.17	11%	3%		
School 3 (2003) - Elementary (780 students)	0.10	0.00	0.10	0%			
School 3 (2005) - Elementary (718 students)	0.41	0.07	0.34	17%			
School 4 (2003) - Elementary (600 students)	0.09	0.00	0.09	0%			
School 4 (2005) - Elementary (560 students)	0.32	0.03	0.29	9%		7%	
Average	0.18	0.02	0.16				
Alum Cans							
School 1 (2003) - High (850 students)	0.68	0.08	0.60	12%			
School 1 (2005) - High (920 students)	0.58	0.14	0.44	24%			
School 2 (2003) - High (2000 students)	0.59	0.01	0.58	2%			
School 2 (2005) - High (1800 students)	0.63	0.08	0.55	13%	13%		
School 3 (2003) - Elementary (780 students)	0.28	0.00	0.28	0%			
School 3 (2005) - Elementary (718 students)	0.65	0.48	0.17	74%			
School 4 (2003) - Elementary (600 students)	0.28	0.21	0.07	75%			
School 4 (2005) - Elementary (560 students)	0.32	0.18	0.14	56%		51%	
Average	0.50	0.15	0.35				
Glass Bottles							
School 1 (2003) - High (850 students)	1.10	0.24	0.86	22%			
School 1 (2005) - High (920 students)	0.29	0.24	0.05	83%			
School 2 (2003) - High (2000 students)	0.30	0.01	0.29	3%			
School 2 (2005) - High (1800 students)	0.24	0.01	0.23	4%	28%		
School 3 (2003) - Elementary (780 students)	0.15	0.00	0.15	0%			
School 3 (2005) - Elementary (718 students)	0.29	0.13	0.16	45%			
School 4 (2003) - Elementary (600 students)	0.26	0.08	0.18	31%			
School 4 (2005) - Elementary (560 students)	0.15	0.15	0.00	100%		44%	
Average	0.35	0.11	0.24				
Tetra Pak							
School 1 (2003) - High (850 students)	0.24	0.00	0.24	0%			
School 1 (2005) - High (920 students)	0.54	0.01	0.53	2%			
School 2 (2003) - High (2000 students)	0.34	0.00	0.34	0%			
School 2 (2005) - High (1800 students)	0.49	0.00	0.49	0%	0.5%		
School 3 (2003) - Elementary (780 students)	0.60	0.00	0.60	0%			
School 3 (2005) - Elementary (718 students)	1.80	0.48	1.32	27%			
School 4 (2003) - Elementary (600 students)	0.38	0.00	0.38	0%			
School 4 (2005) - Elementary (560 students)	1.03	0.00	1.03	0%		7%	
Average	0.68	0.06	0.62				
Gable Top							
School 1 (2003) - High (850 students)	0.09	0.00	0.09	0%			
School 1 (2005) - High (920 students)	0.49	0.01	0.48	2%			
School 2 (2003) - High (2000 students)	0.13	0.00	0.13	0%			
School 2 (2005) - High (1800 students)	0.10	0.00	0.10	0%	1%		
School 3 (2003) - Elementary (780 students)	0.29	0.00	0.29	0%			
School 3 (2005) - Elementary (718 students)	0.99	0.39	0.60	39%			
School 4 (2003) - Elementary (600 students)	0.28	0.01	0.27	4%			
School 4 (2005) - Elementary (560 students)	1.03	0.01	1.02	1%		11%	
Average	0.43	0.05	0.37				