The City of Toronto

STREETS LITTER AUDIT

2004

PREPARED FOR

Works and Emergency Services,
Solid Waste Management Services Division

DRAFT 1 Report
PREPARED BY MGM Management
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Acknowledgements

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Executive Summary

The City of Toronto conducted a Litter Audit in 2002. That report detailed the composition and occurrence of litter in the City and reported results to the Clean Streets Working Group, then to Works Committee and Council. Part of the recommendations approved by City Council was to re-audit the litter sites in two years to determine whether progress was made in reducing littering within the City of Toronto.

The Toronto Litter Survey 2004 was done using the same methodology used in 2002. The 2004 survey was conducted in June, using a proven methodology similar to the one originally developed and used in Florida, USA. This methodology was chosen because it had been accepted and peer reviewed in response to the Florida State Legislature's wishes to have a simple, repeatable method for counting litter on public property.

The original 2002 Toronto litter survey used GIS (GPS) coordinates to obtain all potential road sections within the City. From these segments 375 potential sites for litter counting were located. In total, the survey teams audited 247 sites. In 2004, the same 247 sites selected in 2002 were audited again.

Litter was classified as "large" for those items over 4 square inches in size or as "small" litter for items <4 sq. in.. Eighty-four sub-categories of large litter (see Sub-categories of Litter – Pg. 18) and 16 sub-categories (Pg. 17) for small litter were used. Gum deposits were added as a 16th small litter category in the 2004 audit, at the request of City staff.

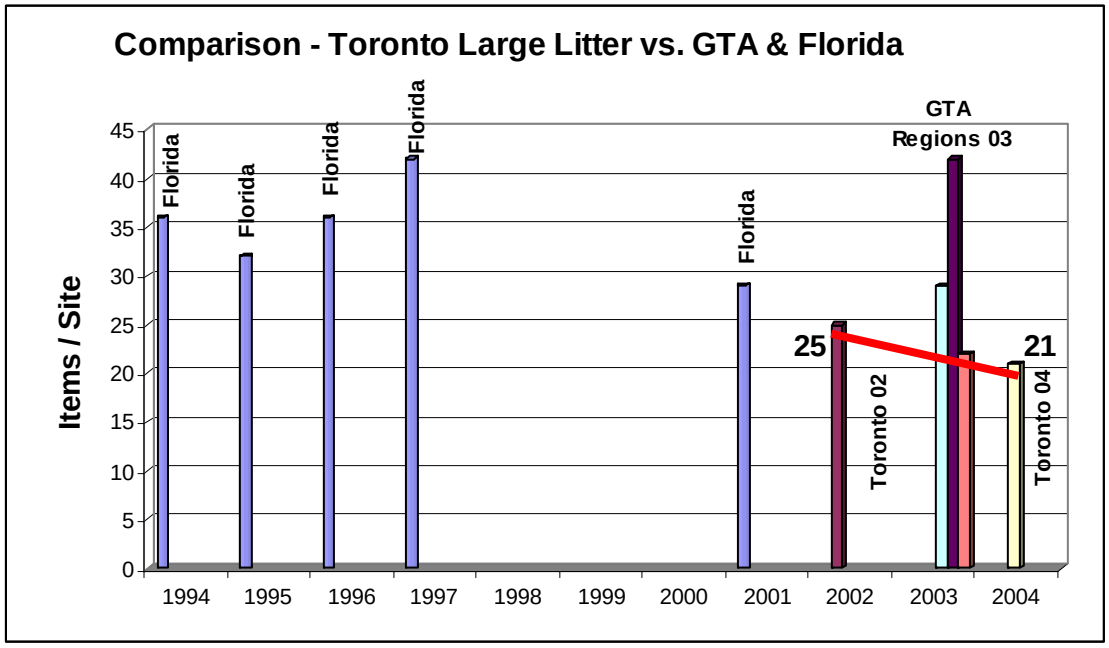
Litter Audit Results

A total of 5,243 pieces of large litter were counted during the 2004 litter audit. This was an average of 21 pieces of large litter per site, compared to the average of 25 pieces per site in 2002. This is a 16% decrease in large litter items per site in 2004 compared to the 2002 litter survey.

In 2003, surveys were also conducted in the Regions of Peel, Durham and York, using the same methodology. Figure A, below, compares the City of Toronto to other GTA jurisdictions and Florida, all of which have been surveyed using this methodology.

Paper products, when amalgamated, represent the largest "material type" of litter (including paper, paperboard, cardboard, towels, napkins, newspapers, books, flyers, printed materials, business forms, stationary). Paper products were 39.7% of large litter items counted (2,080 of 5,243 pieces). In 2002 paper products represented 42% of large litter items.

FIGURE A – City of Toronto
– Large Litter vs. Other Jurisdictions

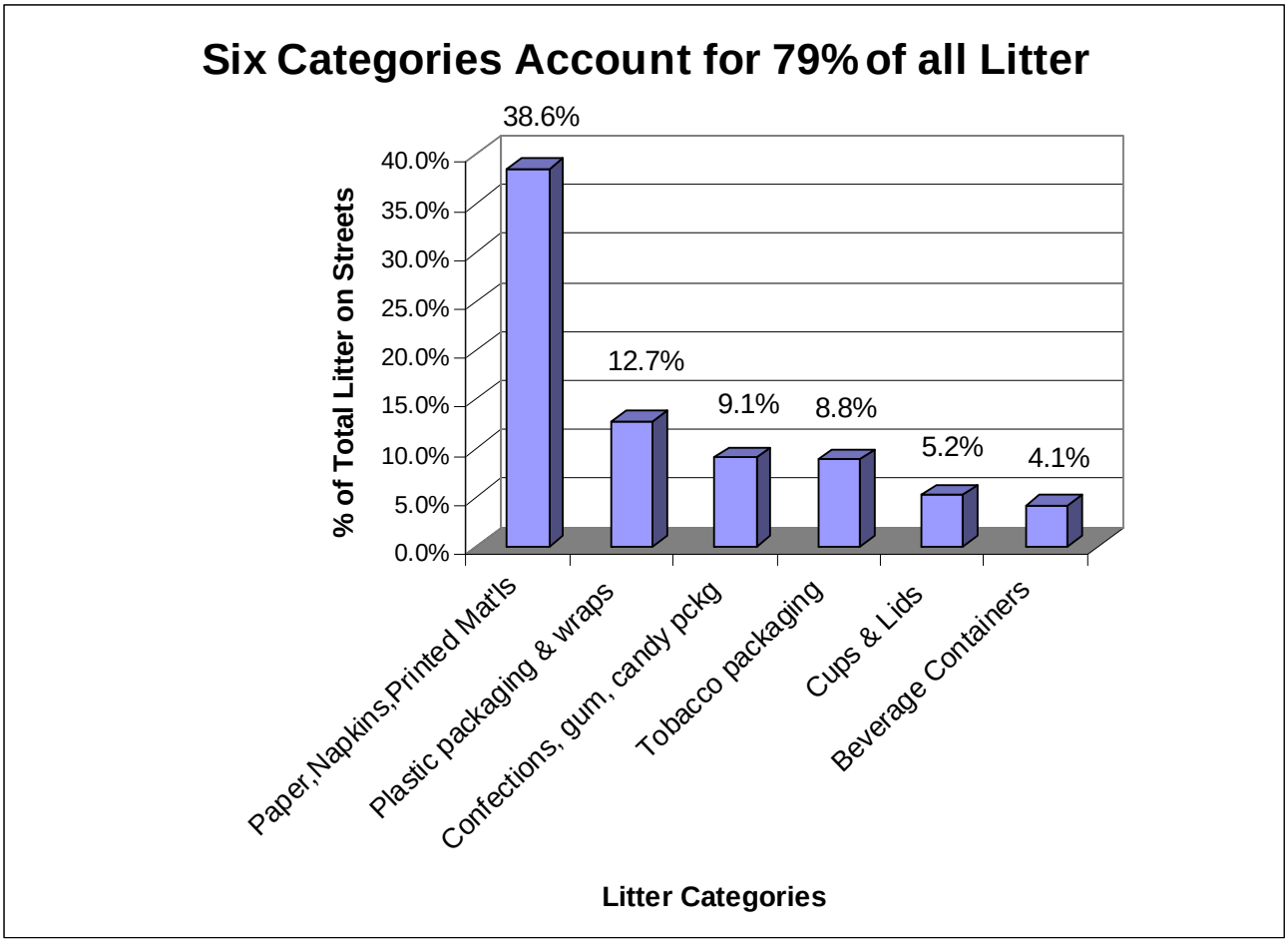


The second most significant "material type" observed was plastic materials (plastic packaging, wrap, bags-non-retail, drink cups, jars, bottles, composites, utensils, zip bags, trays, plates, retail bags, carrying rings), which were 15.2% of total litter counted (796 of 5,243 pieces of large litter counted). In 2002 plastic products represented 21% of total large litter.

Significant sectors of packaging that contribute to large litter include take-out food packaging such as hot & cold cups, lids, take out wrap, take-out bags, trays and food containers, which account for 11.9% of total litter (626 of 5,243 pieces). In 2002 take-out food litter accounted for 15% of the litter observed.

Beverage packaging litter was 5.2 % of all large litter counted (273 of 5,243 pieces of large litter counted), with soft drinks/ sports drinks being 2.7 % of all large litter, beer containers were 0.2 % , wine /liquor <0.1% of the large litter observed in the Toronto 2004 audit. In 2002 beverage container litter accounted for 4.9% of total large litter observed.

Figure B - Six Categories Account for 79% of all Litter



When examining the item counts for large litter, we observed that 33% of the sites (82 of 247) had litter counts greater than the average of 21 items per site count. Appendix 1 provides details of the ranking of sites from "most littered" to "least littered," and provides information identifying their location / Ward.

Small litter is a difficult component of litter to count. The methodology restricts counting small litter except in defined slices or as samples within a site. Small litter is often badly weathered and hard to identify by field crews.

In the 2004 litter audit, the City of Toronto requested that gum deposits on pavement and sidewalks be added as a new small litter category. Chewing gum when weathered becomes dark in colour (black) and is difficult to remove. It is recognizable as gum because it remains slightly raised from the surface, rather than appearing flat like a stain. Field auditors were careful to count only deposits believed to be chewing gum residues.

In 2002, small litter was sampled to test the statistical validity of the small litter methodology. Concerns were identified with respect to the relatively small sample size of these small litter samples, and the City asked the consultant to consider an improved methodology for future litter audits. Also, there was concern raised after the 2002 audit that the methodology for small litter should include the data on tobacco and gum. For the 2004 audit, the small litter methodology was enhanced to conduct a statistically valid small litter baseline sample at 47 sites –called "Super Sites." By enhancing the small litter methodology, the 2004 "Super Site" data forms the baseline for comparison in future audits.

In total, 49,928 pieces of small litter were counted at the 47 "Super Sites." Over half of all small litter was chewing gum (~ 26,000 items). Several sites had over 2,000 gum deposits in the 350 ft^2 site area. Over 5,700 cigarette butts were also counted at the 47 sites. At some individual sites, over 400 butts were counted. The 2004 "Super Site" small litter results are not directly comparable to 2002 results because different methodologies were used. The 2004 data establishes a baseline for subsequent small litter site audits. The results suggest the need for some form of specialized litter receptacles that are safe and convenient for citizens to use for proper disposal of tobacco debris and chewing gum.

1.0 Introduction

1.1 Overview

Litter is a problem virtually everywhere where disposable / recyclable packaging is used. People have personal opinions about what litter is – the reality is much different.

People have a perception that select groupings of products make up the majority of litter. People also believe that everyone else, but themselves, are the people that litter. Field research shows that a broad range of people contribute to littering.

Various researchers describe a different picture. They show that beverage containers are about 8% - 15% (Daniel Syrek of the Institute for Applied Research), Florida State University at Gainesville, Center for Marine Conservation, and Keep America Beautiful, Keep Florida Beautiful etc. – as well as Beverage Recovery in Canada research in Newfoundland and Ontario). Beverage container litter includes milk cartons and bottles, pop, beer, liquor, wine, coolers, sips, cups etc. The purpose of this report is to outline the methodology and results of a litter audit survey conducted in the City of Toronto in June 2004.

Three notable litter surveys have been done in Ontario as benchmark studies. Ontario Multi-Material Recycling Inc. (OMMRI) conducted two of these in 1990 and 1992 for a selected sample of sites in the Province. The third Ontario-based survey was conducted by MGM Management, for the City of Toronto in the summer of 2002.

In the USA – over 30 litter count surveys have been done by Syrek, (and reviewed by MGM Management). More recently five excellent surveys have been completed across all of the 29 counties of Florida by the University of Florida at Gainesville. MGM Management has been trained in the methods of both the Syrek and U of Florida techniques, directly by those researchers.

In some instances, local environmental groups have done litter counting. These methodologies may not be scientific in their development and they tend to not be reproducible. Measurement techniques need to be unbiased, scientifically rigorous, and reproducible to be defensible. Comparison to other jurisdictions is not usually possible, with local methods. This survey's approach can be reproduced and compared.

This survey uses a statistically proven and recognized method of identifying litter survey sites and for counting litter.

In 1993 the Florida Legislature directed the Florida Centre for Solid and Hazardous Waste Management to conduct a statewide litter count. The Centre had developed a method for surveying litter that was understandable, simple and statistically valid. The City of Toronto Litter Survey 2004 has been conducted using a similar methodology.

2.0 City of Toronto Litter Survey - Methodology

This chapter summarizes the methodology used for the City of Toronto Litter Survey 2004.

The City of Toronto Litter Survey counted “accumulated litter”. This is as compared to “fresh litter” counts, where a sight is cleaned, then researchers return after a set time to count the number of pieces of litter that have been deposited. Accumulated litter allows for an examination of the occurrence of litter as it is has developed over time. Fresh litter count surveys are much more labour intensive than accumulated litter counts.

2.1 Site Selection Process

2.1.1 Random Site Selection

In selecting sites to survey it is important to have an unbiased method of selection. The survey teams are not allowed judgment in the field in selecting sites, but rather this is done using a pre-selection technique. In this way, neither the “dirtiest” nor the “cleanest” locations are picked. The survey teams count litter at sites that are selected well in advance of traveling to the location.

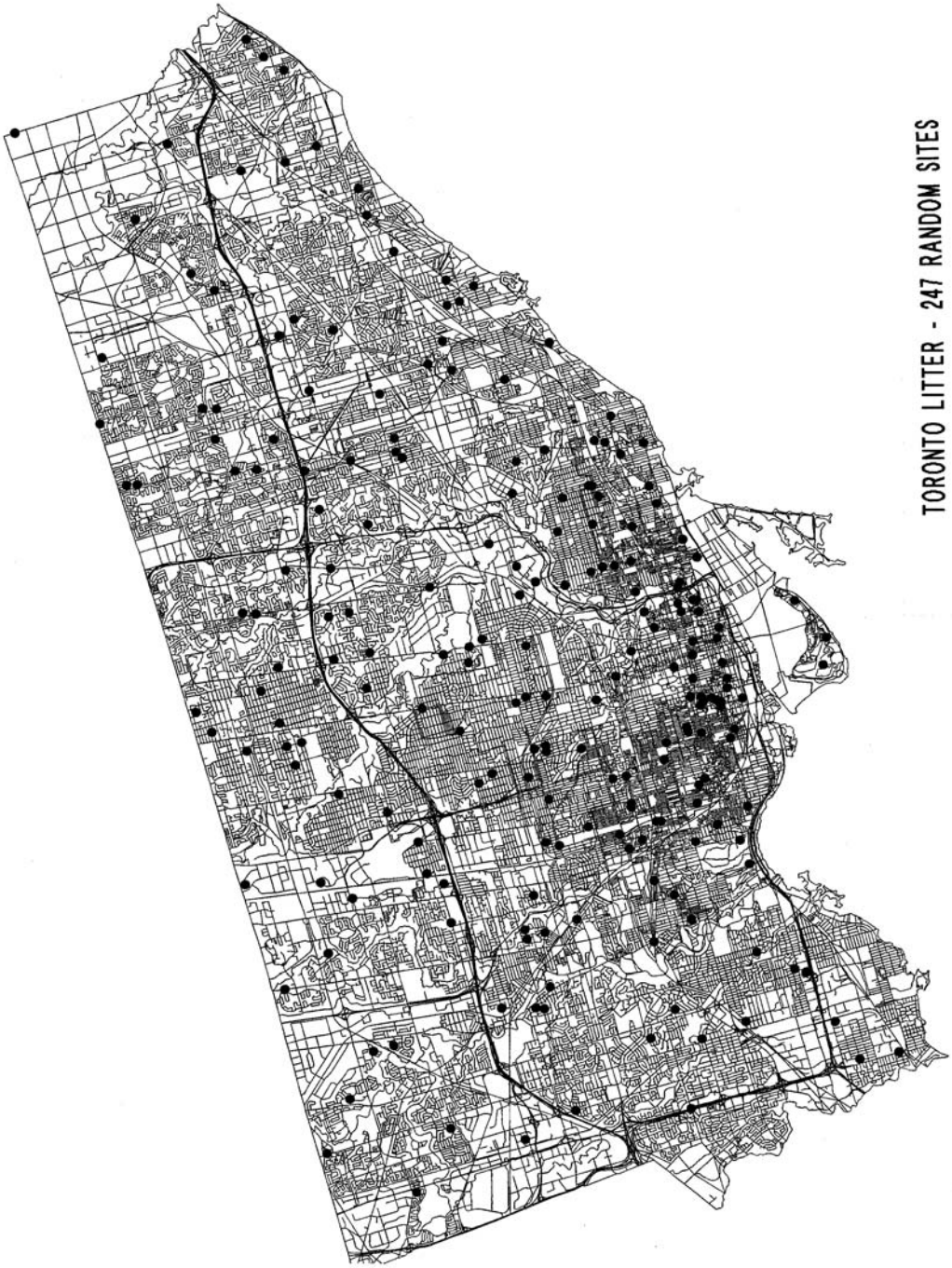
To select sites for the City of Toronto Litter Survey 2004, a geographical information system (GIS) database for the City of Toronto was acquired (software used was ArcView GIS 3.2 by Environmental Systems Research Institute Inc.). Using the program, centre-line coordinates for all potential public street locations within the City of Toronto were selected.

Then using a random number generator feature of a spreadsheet program (Microsoft Excel) samples of this data were assembled. The data locations outputted centre-line locations for 375 potential sites. These were then chosen with 70% of the locations within the more populated or downtown-urban areas within the City, while the remaining 30% of sites represented the rest of the City’s residential and commercial settings.

From these 375 potential locations, 250 sites were chosen as possible sites for detailed audits. From these potential sites 247 actual sites in the City of Toronto were audited.

Figure 1 - Map - 247 Random Sites

Sites were chosen by computer using GIS software.



The potential sample sites were plotted for the entire City of Toronto on a GIS generated map, then teams used detailed street maps to more correctly locate the sites. Using, Greater Toronto & Area Map Book, 2003 edition (Perly's Inc. – www.perlys.com), each site location was examined. Sites were rejected if they were located:

- on major highways / freeways
- location was on a bridge
- location clearly within a construction area
- on railway / subway rights-of-way
- on hydroelectric power line rights-of-way
- on / within water (ponds, rivers, streams/ lakes)
- access was difficult or impossible
- if located on industrial or private lands

Using a site description form, each site had directions written for the field team to locate and travel to the site. The directions were written in a manner that would allow any field team to find the site easily. Field teams were asked to travel to the sites using these directions so that no bias towards whether the site was dirty or clean would be introduced.

For each site the location of the audit site, was marked in each field teams Perly's map book, to allow teams to find the sites.

2.2 Detailed Site Files

The site team then created an individual site file for each location chosen to be examined in the field. The file contains the following:

- discrete site location ID number
- photocopy of Perly's general map page – major intersections
- travel directions sheet
- photographic label card (for taking photos on-site)
- Large Litter Site Surveyor Form - (for recording large litter observed)
- Small Litter Item Count form (for recording small litter)
- Aerial photograph of the site

2.3 Conducting a Site Survey

Teams were paired in groups of two. Each team worked independently, reporting their activities to the Manager of the project. The Region was divided into work sectors, with three teams of two surveyors assigned site files accordingly.

Upon being assigned site files each surveying team traveled to the sites. The directions followed to arrive at the sites were those described above. The teams approached the sites from the directions requested and located the site.

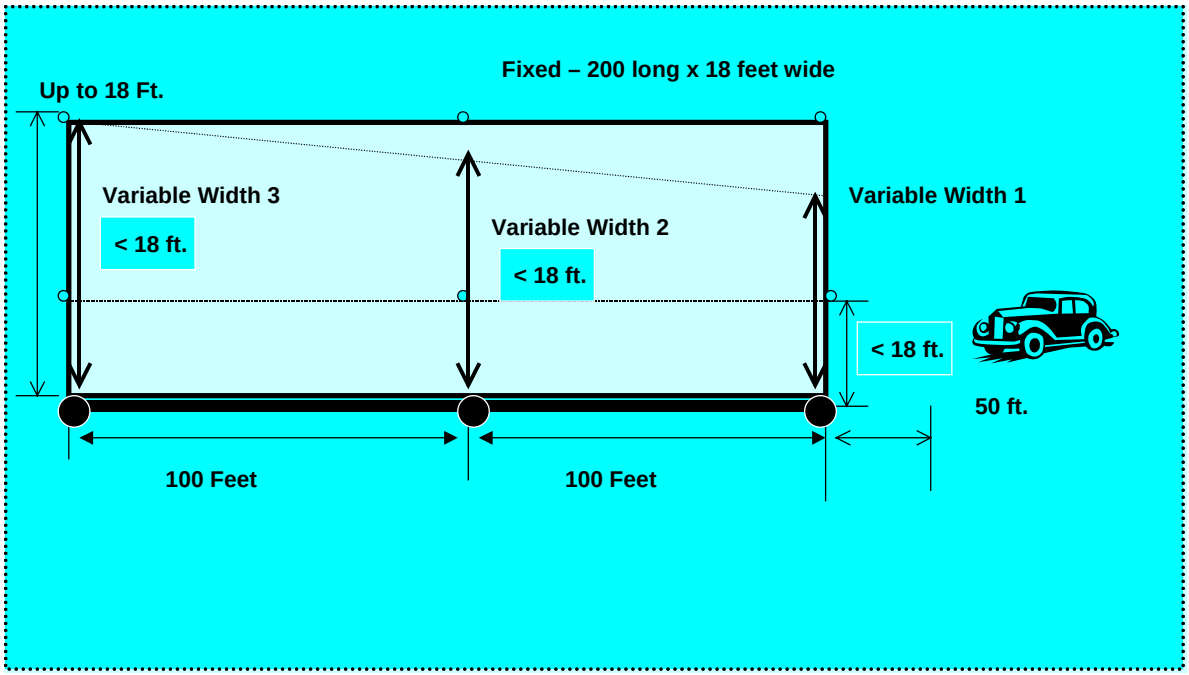
Upon arriving at a site, the teams safely parked their vehicles. Traffic cones were place behind the vehicle, and team members dressed in fluorescent orange/ yellow traffic vests to increase visibility. The teams then reported their arrival to the Project Manager by cellular telephone.

Beginning at the front of the parked car, the team used a "wheeled-measuring-device" to measure 50 feet ahead of the vehicle. Using street marking paint, an X was drawn on

the pavement ahead of the vehicle, to denote the staring point of the survey site. From this point the team measured an additional 100 feet, marking the roadway with another X to show the mid-point of the survey site. A final measurement of an additional 100 feet, marked with an X on the pavement, denoted the end of the survey site. Each site was therefore 200 feet in length.

The width of the site was measured from 1.5 feet inside the curb (in towards the centre of the roadway) to the outer edge of the site, up to a maximum width of 18 feet. The rule was set to include 1.5 feet into the street since the curb is a normal catchment structure, and the municipality is responsible for cleaning up litter caught by this structure. The maximum site width was 18 feet and a site that is 200 feet long by 18 feet wide is designated as a "fixed" site. In many instances a site is less than 18 feet wide. This may occur in commercial areas where storefronts are less than 18 feet from the roadways (plus 1.5 feet into the road). Sites less than 18 feet in width are designated as "variable" sites.

Figure 2 - Schematic of Survey Site



2.4 Classification of Large Litter

For purposes of classifying litter, and in accordance with the methods used in previous litter surveys conducted by us, large litter was defined to be that which is over 4 square inches in size. Three templates were provided each survey team of an area of 4 square inches in rectangle, square and round shapes to aid field teams.

2.5 Classification of Small Litter

Small litter were those pieces of debris that were less than 4 square inches in size. The nature of the small litter survey was to sample the small litter in three transacts, or slices, of the site. A frame made of 1/2 inch P.V.C. plastic tubing was constructed to act as a frame. The frame was 1 foot wide and 5 feet long. A surveyor would look for and count small litter in three samples, one at the start of the site, one at the mid-point and one at the end of the site. At each transact section; three flips of the frame are done, thus surveying 15 square feet of the site – repeated three times.

Figure 3 – Small Litter Templates

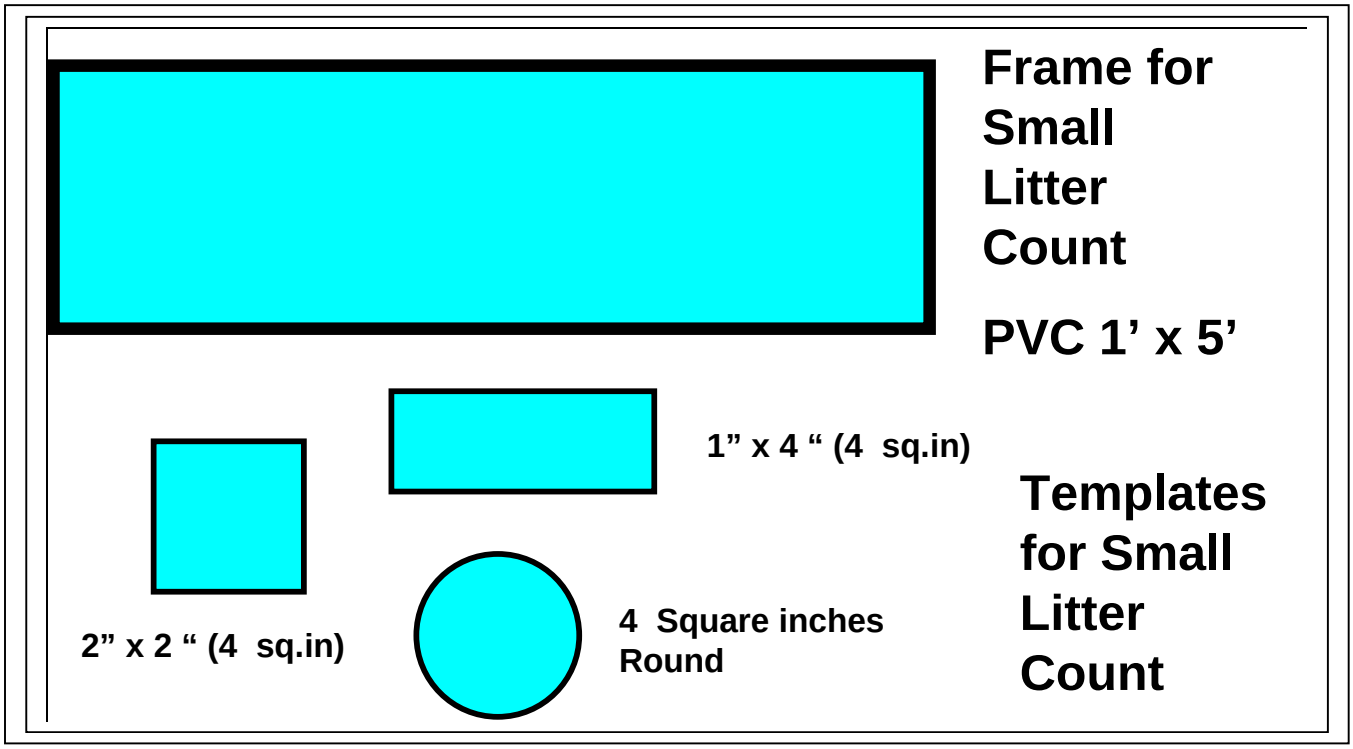


Figure 4 – Site Set-up – Small Litter

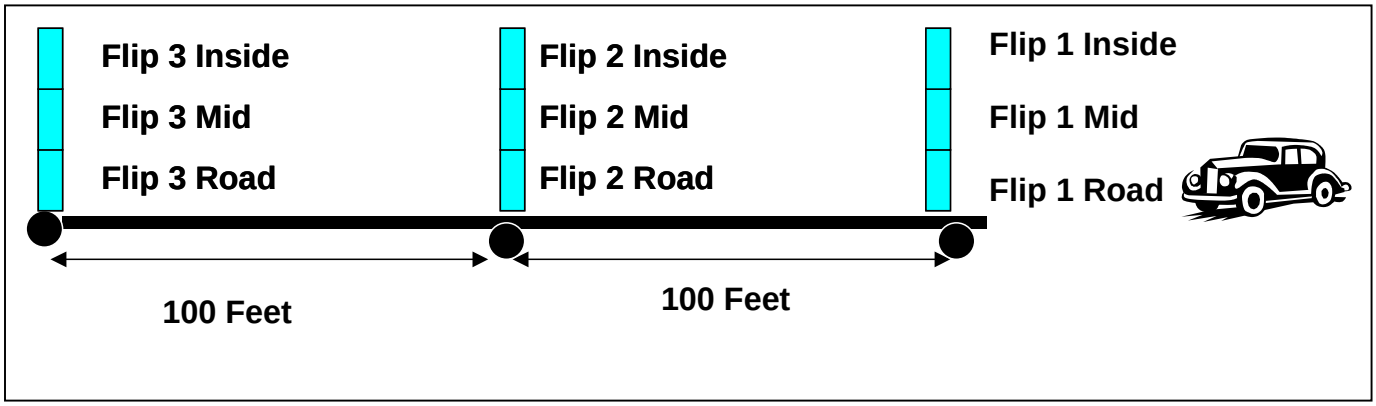


TABLE 1 - Categories of Small Litter

The categories in the litter counts under 4 square inches that were examined are:

- cigarette butts/ debris
- other tobacco
- bottle caps
- straws
- candy packaging & wrappers
- polyfoam packing materials
- other polystyrene debris
- glass
- paper
- plastic film
- hard plastic
- aluminum / foil debris
- rubber
- metal (not aluminum)
- other materials
- gum (added to 2004 small litter survey at request of City of Toronto)

TABLE 2 - Categories of Large Litter

Eighty-four sub-categories of large litter were counted, including:

Major Category	Sub-Category Number	Large Litter	Sub-Category Name	Material
1	1	Beer Cans	Beverage	metal
	2	Beer Bottles (glass)	Beverage	glass
	3	Soft Drink (glass)	Beverage	glass
	4	Soft Drink (cans)	Beverage	metal
	5	Soft Drink (plastic)	Beverage	plastic
	6	Sport Drink (glass)	Beverage	glass
	7	Sport Drink (plastic)	Beverage	plastic
	8	Water (glass)	Beverage	glass
	9	Water (plastic)	Beverage	plastic
	10	Wine/ Liquor (glass)	Beverage	glass
	11	Wine/ Liquor (plastic/other)	Beverage	plastic
	12	Milk/Juice (Plastic)	Beverage	plastic
	13	Milk/Juice (glass)	Beverage	glass
	14	Milk/Juice (Gable Top)	Beverage	paper
2	15	Foil Pouches	Other Packaging	composite
	16	Aseptic (Box)	Other Packaging	composite
	17	Broken Glass Container	Other Packaging	glass
	18	Six pack plastic rings	Other Packaging	plastic
	75	Foil containers	Other Packaging	metal
3	19	Plastic drink cups	Cups	plastic
	20	Paper Cups (cold)	Cups	paper
	21	Paper Cups (Hot)	Cups	paper
	22	Polystyrene cups (foam)	Cups	plastic
	23	Other paper cups	Cups	paper
	24	Cup Lids, Pieces lids	Cups	plastic
4	25	Plastic retail bags	Bags	plastic
	26	Paper retail bags	Bags	paper
	27	Paper bags - fast food	Bags	paper
	28	Plastic bags - not retail	Bags	plastic
	29	Paper bags - not retail	Bags	paper
	30	Zipper bags/ sandwich	Bags	plastic
5	31	Cardboard boxes/ box mat'l	Other Packaging	paper
	32	Paperboard (cereal type)	Other Packaging	paper
	33	Paper Beverage Cases	Other Packaging	paper
	34	Polystyrene clamshells	Other Packaging	plastic
	35	Paper clamshells	Other Packaging	paper
	36	Other Plastic Shells/Boxes	Other Packaging	plastic
6	37	Plastic Jars / Bottles/ Lids	OTHER CNTRS.	plastic
	38	Glass jars/ bottles misc.	OTHER CNTRS.	glass
	39	Cans - steel	OTHER CNTRS.	metal
	40	Cans - aluminium	OTHER CNTRS.	metal
	41	Container lids	OTHER CNTRS.	
	42	Aerosol cans (paint, oils, etc.)	OTHER CNTRS.	metal
7	43	Paper Food Wrap	Food Wraps/ Cntrs	paper
	44	Paper / foil composite wrap	Food Wraps/ Cntrs	composite
	45	Plastic wrap	Food Wraps/ Cntrs	plastic
	54	Condiment package (salt, ketchup, vinegar etc.)	Take-Out Extras	
	55	Utensils	Take-Out Extras	plastic
	56	Name Brand (Fast Food etc.) Towels / Napkins / Serviettes	Take-Out Extras	paper
	57	Paper Fast Food Plates	Take-Out Extras	paper
	58	Poly Fast Food Plates	Take-Out Extras	plastic
	59	Other Plastic FF Plates	Take-Out Extras	plastic
	60	Plates - Other Mat's	Take-Out Extras	
8	46	Polystyrene Trays	Trays	plastic
	47	Paper Trays	Trays	paper

	48	Other Mat'l Trays (what?)	Trays
9	49	Gum wrappers	Confectionary/Snack
	50	Candy bar wraps	Confectionary/Snack
	51	Candy pouches	Confectionary/Snack
	52	Sweet packaging (describe)	Confectionary/Snack
	53	Other confectionery (describe)	Confectionary/Snack
	63	Snack food packaging	Confectionary/Snack
10	61	Clothing or clothing pieces	Cloth
	62	Other cloth	Cloth
11	64	Plastic packaging other	Other Miscellaneous plastic
	65	Paper packaging other	Paper/ Fibre Mat'l paper
	66	Plastic / composite other	Other Miscellaneous
	67	Foil materials / foil pieces	Other Miscellaneous metal
12	68	No Brand Name Towels / Napkins / Serviettes	Paper/ Fibre Mat'l paper
	69	Lottery ticket debris	Paper/ Fibre Mat'l paper
	70	Printed material (newspapers, flyers, books etc.)	Paper/ Fibre Mat'l paper
	71	Stationary (school, business etc.)	Paper/ Fibre Mat'l paper
	72	Receipts (business forms, bus transfers, etc.)	Paper/ Fibre Mat'l paper
13	73	Cigarette / cigar debris (>4")	Tobacco
	74	Tobacco other (packs, matches, cellophane)	Tobacco
14	76	Misc. Paper	Other Miscellaneous paper
	77	Misc. Plastic	Other Miscellaneous plastic
	78	Misc. Paperboard	Other Miscellaneous paper
	79	Misc. Cardboard	Other Miscellaneous paper
	80	Misc. Glass	Other Miscellaneous glass
	81	Vehicle & Metal Road Debris	Other Miscellaneous
	82	Construction debris	Other Miscellaneous
	83	Tire & Rubber debris	Other Miscellaneous rubber
	84	Home Articles	Other Miscellaneous

Table 3 - Detailed Descriptions of Large Item Categories

1	Beer Cans	All brands of consumer beer can containers
2	Beer Bottles (glass)	Refillable and non-refillable beer bottles, all sizes
3	Soft Drink (glass)	Soft drinks, carbonated, non-carbonated, flavoured drinks in glass containers
4	Soft Drink (cans)	Soft drinks, carbonated, non-carbonated, flavoured drinks in metal can containers
5	Soft Drink (plastic)	Soft drinks, carbonated, non-carbonated, flavoured drinks in plastic containers, all sizes
6	Sport Drink (glass)	Sport drinks, carbonated or non-carbonated, flavoured drinks in glass containers, all sizes
7	Sport Drink (plastic)	Sport drinks, carbonated or non-carbonated, flavoured drinks in plastic containers, all sizes
8	Water (glass)	Packaged water, carbonated or non-carbonated, flavoured drinks in glass containers, all sizes
9	Water (plastic)	Packaged water, carbonated or non-carbonated, flavoured drinks in plastic containers, all sizes
10	Wine/ Liquor (glass)	Wine & liquor in glass, all sizes
11	Wine/ Liquor (plastic/other)	Wine & liquor in plastic or any other formats, all sizes
12	Milk/Juice (Plastic)	Milk or juice containers, packages in plastic
13	Milk/Juice (glass)	Milk or juice containers, packages in glass
14	Milk/Juice (Gable Top)	Milk or juice containers, packages in gable top paper cartons, all sizes
15	Foil Pouches	All packaged goods in foil packaging, pieces of foil materials
16	Aseptic (Box)	Drink-in-box, juice, fluids, other
17	Broken Glass Container	Glass fragments
18	Six pack plastic rings	Retainer plastic for carrying cans
19	Plastic drink cups	Cups, all sizes, all resin types
20	Paper Cups (cold)	Cups, all sizes, all paper types - cold drinks
21	Paper Cups (Hot)	Cups, all sizes, all paper types - hot drinks
22	Polystyrene cups (foam)	Cups, all sizes, all polystyrene types - hot drinks
23	Other paper cups	Cups, other materials
24	Cup Lids, Pieces lids	Fragments and pieces of cups
25	Plastic retail bags	Whole and pieces of retail plastic bags
26	Paper retail bags	Whole and pieces of retail paper bags
27	Paper bags – fast food	Whole and pieces of fast food outlet paper bags

28	Plastic bags – not retail	Whole and pieces of plastic bags, not retail i.e. dry cleaning
29	Paper bags - not retail	Paper bags & sacs, example leaf bag debris
30	Zipper bags/ sandwich	plastic lunch bags and sacs
31	Cardboard boxes/ box mat'l	All cardboard and box materials
32	Paperboard (cereal type)	Cereal, shoe boxes and pieces etc.
33	Paper Beverage Cases	Paper material outer packaging for beverage products
34	Polystyrene clamshells	Whole and pieces of take-away or other Styrofoam containers
35	Paper clamshells	Whole and pieces of take-away or other paper containers
36	Other Plastic Shells/Boxes	PET, PVC, HDPE , other material shells
37	Plastic Jars / Bottles/ Lids	All jars, bottles etc, plastic, non beverage, example dish detergent bottle
38	Glass jars/ bottles misc.	All jars, bottles not described above, in glass
39	Cans – steel	Food, non-food and other product steel can containers
40	Cans - aluminum	Food, non-food and other product aluminum can containers
41	Container lids	All lids, closures, and pieces > 4 sq. in.
42	Aerosol cans (paint, oils, etc.)	Aerosol cans, tops, lids - all products
43	Paper Food Wrap	Wrap for food, commercial & non-commercial; example meat wrap,
44	Paper / foil composite wrap	Wrap for food or non-food items, commercial & non-commercial; example hamburger paper/ foil composite wrap,
45	Plastic wrap	All plastic wrap types, food, non-food
46	Polystyrene Trays	Trays for take-out, non-take out, microwavable, display etc
47	Paper Trays	Trays for take-out, non-take out, microwavable, display etc
48	Other Mat'l Trays (what?)	Trays for take-out, non-take out, microwavable, display etc
49	Gum wrappers	Packaging used to seal, sell gum products
50	Candy bar wraps	Packaging used to seal, sell candy products
51	Candy pouches	Packaging used to seal, sell candy products - pouch format
52	Sweet packaging (describe)	Packaging used to seal, sell confections (cakes, pies, sweet snack products
53	Other confectionery (describe)	All other packaging for confectionaries

54	Condiment package (salt, ketchup, vinegar etc.)	Pouches, containers, creamers etc
55	Utensils	Forks, knives, chop sticks etc
56	Name Brand (Fast Food etc.) Towels / Napkins / Serviettes	Towels & napkins etc with brand identification identifiable
57	Paper Fast Food Plates	Paper Plates, used to serve fast food
58	Poly Fast Food Plates	Polystyrene Plates, used to serve fast food
59	Other Plastic FF Plates	Other Material Plates, used to serve fast food
60	Plates - Other Materials	Plates for other than fast food applications, i.e. picnic plates used by families
61	Clothing or clothing pieces	All cloth, clothing pieces, and clothing discarded on the site
62	Other cloth	Tarps, industrial fabrics etc
63	Snack food packaging	All snack food (i.e.. Salty snacks, chips)
64	Plastic packaging other	Plastic packaging otherwise not described
65	Paper packaging other	Paper packaging otherwise not described
66	Plastic / composite other	All paper and composite debris not previously described
67	Foil materials / foil pieces	Foils and pieces, aluminum food foils, industrial foils
68	No Brand Name Towels / Napkins / Serviettes	Napkins and towels - no brand identification
69	Lottery ticket debris	Tickets, and gaming items
70	Printed material (newspapers, flyers, books etc.)	All printed material, commercially printed
71	Stationary (school, bus. etc.)	Includes school papers, written items, other printed materials such as business forms
72	Receipts (business forms, bus transfers etc.)	Receipts, business items, invoices, packing slips, bus transfers, commercial tickets (concerts, cinema)
73	Cigarette / cigar debris (>4")	Tobacco items

74	Tobacco other (packs, matches, cellophane)	Packages, wrappers, tobacco foil products, lighters, matchboxes
75	Foil containers	Foil containers (ice cream wraps)
76	Misc. Paper	All other non-described paper material, whole or shredded, unidentifiable as another category
77	Misc. Plastic	All other non-described plastic material, whole or shredded, unidentifiable as another category
78	Misc. Paperboard	All other non-described paperboard material, whole or shredded, unidentifiable as another category
79	Misc. Cardboard	All other non-described cardboard material, whole or shredded, unidentifiable as another category
80	Misc. Glass	All other non-described glass material, whole or broken, unidentifiable as another category
81	Vehicle & Metal Road Debris	Debris associated with transportation, private or commercial
82	Construction debris	Debris associated with construction, private or commercial
83	Tire & Rubber debris	Rubber materials, tire pieces, shock absorbers, sheet rubber or pieces
84	Home Articles	All non-described household items, (i.e.. Lamps, electrical, lawn chairs, etc)

2.6 Survey Counts

At each site, and upon setting the site up, the team would select one surveyor to commence the large litter survey count, and record the names of branded items examined on the site. The other surveyor would commence the small litter survey, using the method described above.

To commence the large litter survey, the field technician first checked his/her tape recorder.

Once it was determined to be functioning properly, the surveyor read aloud the description sections of the Surveyor Site Form. This information described the site number, date, digital photos taken, camera used, start time, type of site (residential, industrial, commercial, downtown core), type of roadway, whether road is divided, grass height, evidence of a clean-up, stop sign/ traffic light visible, fast food near-by, convenience store nearby, described the litter catch points (grass mow line, hedge, fence, other), and provided a visual litter rating on a subjective basis. All photographs are part of the archival record for this survey – and are part of the electronic database supplied to the Region.

The visual litter rating is an "opinion" expressed by the surveyor as to whether the site is dirty (highest rating = 4) or clean (lowest rating = 1).

Once this information was recorded the surveyor proceeds to walk the site slowly, taping his/ her observations into the tape-recorder as they observe the site. Proceeding in a serpentine path - back and forth across the site until the surveyor has walked the site up to the mid-point. The surveyor noted that they had reached the mid-point, then continuing on observing litter up to the end the site boundary, making verbal notations of the litter observed and describing them into the 84 sub-categories of litter. This completed "Pass One". The surveyor then repeated the observations (Pass Two) over the site, using the same procedure, but in the opposite direction. Results of the two passes are used in data analysis.

2.7 Documentation & File Management

At each site the teams were required to make a tape-recorded record of their observations. At the end of doing the verbal entries into the recorder, a team member then transcribed the verbal observations onto Surveyor Site Forms. In this way the verbal record was recorded as a written data set for the site.

These forms were later transcribed into a database for analysis. Each site's observation forms were transcribed at the site before leaving the location. If a recording problem occurred, the site was redone.

Each form was returned to the file folder for archival purposes.

2.8 Photographic Record of the Site

At each site location, the surveyor team took digital photographs. One shot taken at the start of the site, looking towards the end of the site – away from the vehicle. The second shot was taken in the mid-point of the site – looking across the width of the site. And the final photograph was taken at the end of the site – looking back towards the start of the site (towards the vehicle). The purpose of the photographs is to set the scene of the site – not to detail litter on the ground.

In each case the number of photographs at each site was recorded on the Surveyor Site Form. The site-specific digital photographs were downloaded to the database of the survey, as an archival record of the site during the audit period.

Figure 5 - Site Photographs

2.9 Branded Litter Observations

Using the Surveyor Site Form (with 84 sub-categories of large litter) as a guide, data was also gathered for observing Branded Litter. Branded litter is large litter (i.e. over 4 square inches) that has a recognizable brand name affixed. Where doubt occurred in the brand of the item no entry was made.

Team surveyors verbally identified litter by brand name, which was later transcribed onto the Surveyor Site forms, for data entry and analysis.

2.10 Survey Schedule and Progress

The field survey team was assembled for training on June 14, 2004. At this time an orientation and safety training session was conducted. During the week of June 14, 2004, field teams received field and safety equipment. A field trial at one site occurred on June 14th. The fieldwork in the City of Toronto was completed by July 7th, 2004. All data had been transcribed and the process of entering data for analysis commenced.

Mark McKenney, of MGM Management and Mr. Allan Mazur, Works & Emergency Services – Waste Management Division, audited the field work of the surveyor teams to assure quality control.

It was determined the two-person surveyor team could perform between 6 – 10 sites per day allowing for breaks, lunch and travel time.

3.0 Large Litter Survey Results

Field observations were dictated into tape recorders, then later transcribed onto Surveyor Site Forms/ Branded Item form and Small Item Count Sheets.

Forms were then inputted into a Microsoft Access database for analysis.

3.1 Discussion of Large Litter Results

Litter counted for the City of Toronto Litter Survey 2004, were grouped into 14 broad group categories.

- Other (incl. misc. paper)
- Other Packaging (salty snacks etc)
- Cups (hot, cold drinks)
- Tobacco products
- Bags (paper, plastic)
- Food wraps
- Plates
- Paper (printed mat's, news)
- Confectionary (candy)
- Beverage containers
- Other Containers (not beverage)
- Take out extras (condiments etc)
- Cloth / Clothing
- Trays

In total 5,243 pieces of large litter were counted. This equates to an average of 21 items per site based upon the 247 sites re-audited.

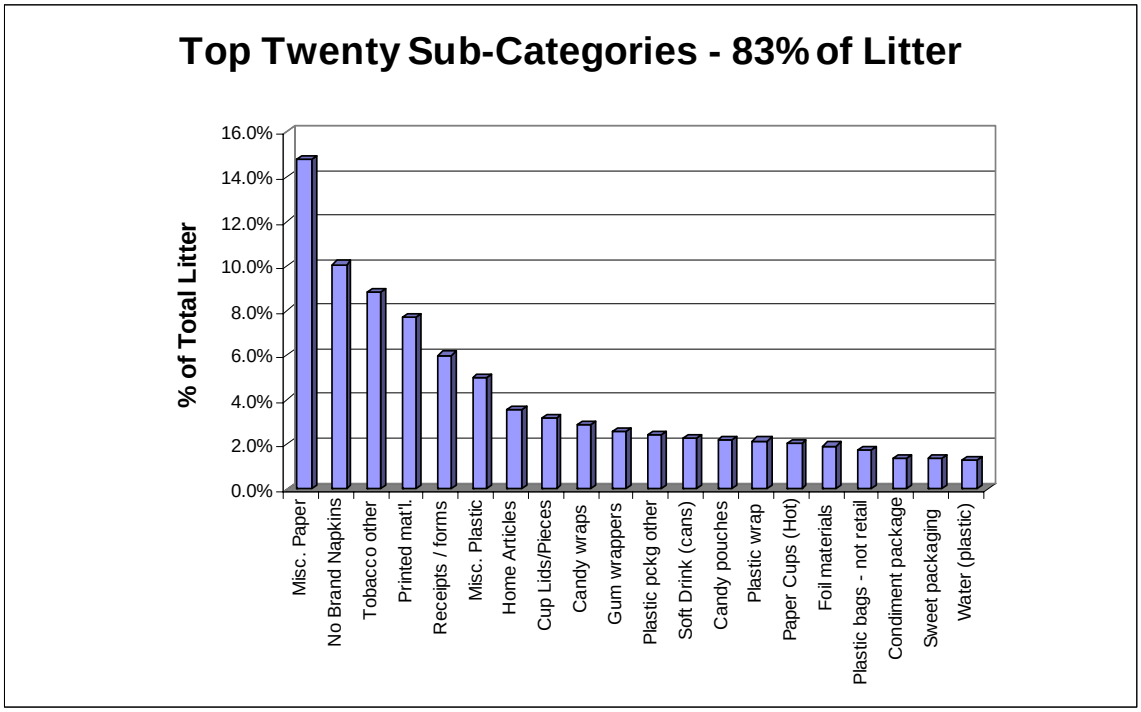
The largest category of litter observed, at 26% (1,379 items counted of 5,243 total items counted) was the broad miscellaneous category called Other Miscellaneous, which includes the following litter:

Foil containers	Foil containers - no other category
Misc. paper / paperboard/ cardboard	Paper pieces, cardboard & paperboard pieces - no other category
Misc. plastic	Plastics - no other category
Misc. glass	Glass - no other category
Vehicle & Metal Debris	Vehicle & tire pieces, metal debris
Construction debris / Home articles/ rubber	Such as wood, brick, cladding, appliance debris etc.

Paper materials including napkins, cardboard, paperboard were nearly as significant at 26% of total litter counted. (1,363 pieces of litter of 5,243 total items counted)

There are a relatively small number of sub-categories of litter that make up the majority of the items counted. In the case of the City of Toronto Litter Survey 2004, 20 sub-categories accounting for 83% of the total pieces of litter counted.

Figure 6 - 20 Categories Equal 83 % of Litter



Large Litter	Total Items	% of Total	
Misc. Paper	776	14.8%	
No Brand Napkins	528	10.1%	
Tobacco other	464	8.8%	
Printed mat'l.	404	7.7%	
Receipts / forms	315	6.0%	
Misc. Plastic	260	5.0%	
Home Articles	186	3.5%	
Cup Lids/Pieces	166	3.2%	
Candy wraps	151	2.9%	
Gum wrappers	137	2.6%	
Plastic pckg other	127	2.4%	
Soft Drink (cans)	121	2.3%	
Candy pouches	115	2.2%	
Plastic wrap	114	2.2%	
Paper Cups (Hot)	107	2.0%	
Foil materials	102	1.9%	
Plastic bags - not retail	94	1.8%	
Condiment package	72	1.4%	
Sweet packaging	72	1.4%	
Water (plastic)	67	1.3%	83.4%

Table 4 - Summary of All Litter Observed

	Large Litter	Total Items	% of Total	
1	Misc. Paper	776	14.8%	
2	No Brand Napkins	528	10.1%	
3	Tobacco other	464	8.8%	
4	Printed mat'l.	404	7.7%	
5	Receipts / forms	315	6.0%	
6	Misc. Plastic	260	5.0%	
7	Home Articles	186	3.5%	
8	Cup Lids/Pieces	166	3.2%	
9	Candy wraps	151	2.9%	
10	Gum wrappers	137	2.6%	
11	Plastic pckg other	127	2.4%	
12	Soft Drink (cans)	121	2.3%	
13	Candy pouches	115	2.2%	
14	Plastic wrap	114	2.2%	
15	Paper Cups (Hot)	107	2.0%	
16	Foil materials	102	1.9%	
17	Plastic bags - not retail	94	1.8%	
18	Condiment package	72	1.4%	
19	Sweet packaging	72	1.4%	
20	Water (plastic)	67	1.3%	83.4%
21	Plastic drink cups	45	0.85%	
22	Misc. Cardboard	42	0.80%	
23	Other cloth	39	0.74%	
24	Stationary (school, business etc.)	38	0.72%	
25	Lottery ticket debris	37	0.70%	
26	Paper Cups (cold)	36	0.68%	
27	Plastic Jars / Bottles/ Lids	34	0.65%	
28	Construction debris	34	0.64%	
29	Polystyrene cups (foam)	33	0.62%	
30	Snack food packaging	33	0.62%	
31	Paper Food Wrap	29	0.54%	
32	Paper packaging other	28	0.52%	
33	Aseptic (Box)	27	0.51%	
34	Plastic / composite other	27	0.51%	
35	Misc. Paperboard	26	0.49%	
36	Vehicle & Metal Road Debris	25	0.47%	
37	Tire & Rubber debris	22	0.42%	
38	Paper bags - fast food	22	0.41%	
39	Clothing or clothing pieces	21	0.40%	
40	Utensils	21	0.40%	
41	Zipper bags/ sandwich	19	0.35%	
42	Paper / foil composite wrap	17	0.31%	
43	Paper bags - not retail	15	0.29%	
44	Paperboard (cereal type)	15	0.29%	
45	Name Brand (Fast Food etc.) Towels / Napkins / Serviettes	13	0.25%	
46	Other confectionery (describe)	13	0.24%	
47	Paper retail bags	12	0.23%	
48	Soft Drink (plastic)	11	0.21%	
49	Plastic retail bags	11	0.20%	

50	Cigarette / cigar debris (>4")	9	0.17%
51	Milk/Juice (Gable Top)	9	0.16%
52	Beer Bottles (glass)	8	0.15%
53	Sport Drink (plastic)	8	0.14%
54	Container lids	7	0.13%
55	Milk/Juice (Plastic)	7	0.13%
56	Polystyrene Trays	7	0.12%
57	Poly Fast Food Plates	6	0.11%
58	Misc. Glass	6	0.10%
59	Paper Fast Food Plates	5	0.10%
60	Cardboard boxes/ box mat'l	5	0.09%
61	Foil containers	5	0.09%
62	Milk/Juice (glass)	5	0.09%
63	Other Plastic Shells/Boxes	5	0.09%
64	Broken Glass Container	4	0.08%
65	Foil Pouches	4	0.08%
66	Cans - aluminium	4	0.07%
67	Cans - steel	4	0.07%
68	Glass jars/ bottles misc.	4	0.07%
69	Other paper cups	4	0.07%
70	Paper clamshells	4	0.07%
71	Polystyrene clamshells	4	0.07%
72	Paper Trays	3	0.05%
73	Paper Beverage Cases	2	0.04%
74	Sport Drink (glass)	2	0.04%
75	Water (glass)	2	0.04%
76	Wine/ Liquor (plastic/other)	2	0.04%
77	Soft Drink (glass)	2	0.03%
78	Beer Cans	1	0.02%
79	Six pack plastic rings	1	0.02%
80	Wine/ Liquor (glass)	1	0.02%
81	Other Mat'l Trays (what?)	1	0.01%
82	Plates - Other Mat's	1	0.01%
		5243	100%

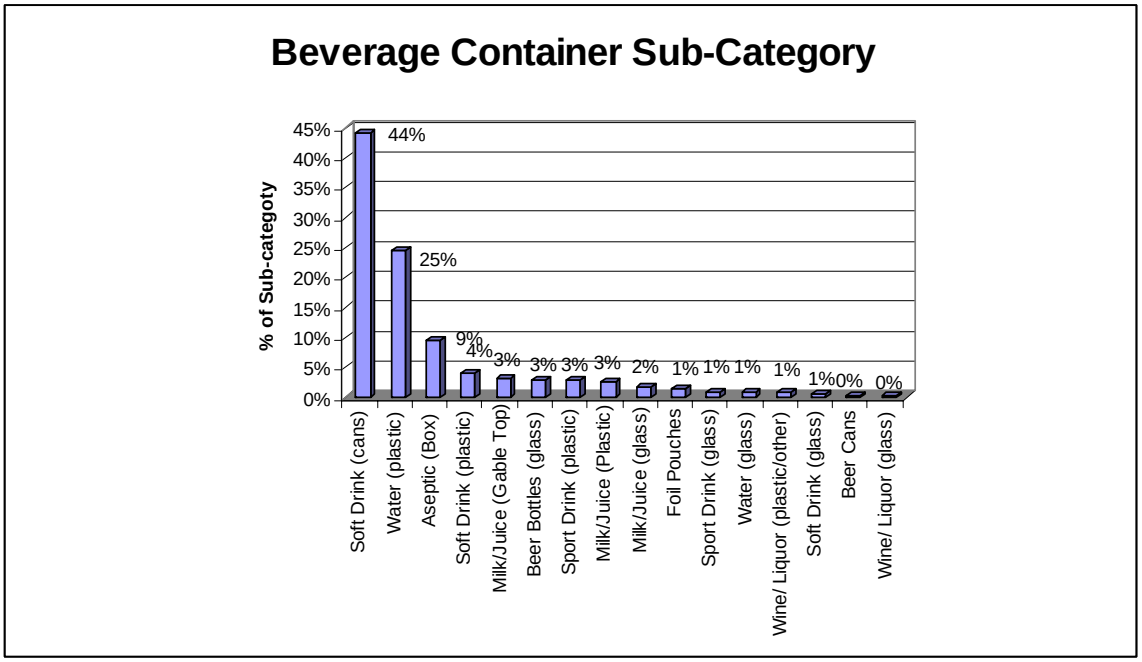
3.2 Detailed Analysis by Major Category

3.2.1 Beverage Containers

(soft drink, beer, wine/liquor, sports, water)

Beverage Container Summary

	Items	% of Sub-Category	% of Total Litter
Soft Drink (cans)	121	44%	2.31%
Water (plastic)	68	25%	1.29%
Aseptic (Box)	26	9%	0.50%
Soft Drink (plastic)	11	4%	0.21%
Milk/Juice (Gable Top)	9	3%	0.16%
Beer Bottles (glass)	8	3%	0.15%
Sport Drink (plastic)	8	3%	0.14%
Milk/Juice (Plastic)	7	3%	0.13%
Milk/Juice (glass)	5	2%	0.09%
Foil Pouches	4	1%	0.08%
Sport Drink (glass)	2	1%	0.04%
Water (glass)	2	1%	0.04%
Wine/ Liquor (plastic/other)	2	1%	0.04%
Soft Drink (glass)	2	1%	0.03%
Beer Cans	1	0%	0.02%
Wine/ Liquor (glass)	1	0%	0.02%
	277	100%	5.24%



Discussion:

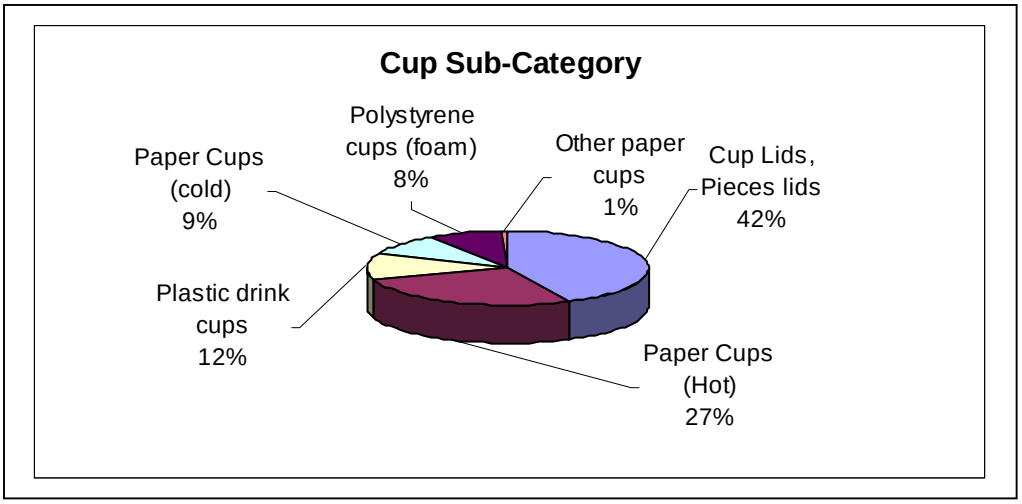
The total beverage category yielded a count of 277 items, or 5.2% of the total litter counted as compared to 4.9% of total litter in the Toronto Litter Survey 2002.

Soft drink cans (2.31% and plastic (0.21%) and glass (.03%) containers represented 2.6% of total litter counted in the City of Toronto Litter Survey 2004. This compares with 2.8% in the Toronto Litter Survey 2002.

Water containers yielded 25% of beverage litter and 1.3% of the total litter observed. Beer containers of glass and can origin were a small contributor at 3% of the beverage litter sub-category and 0.2 % of total litter. Liquor and wine, and coolers represented < 0.1% of total litter.

3.2.2 Cups

Cups Summary			
	Items	% of Sub-Category	% of Total Litter
Cup Lids, Pieces lids	166	42%	3.2%
Paper Cups (Hot)	107	27%	2.0%
Plastic drink cups	45	12%	0.9%
Paper Cups (cold)	36	9%	0.7%
Polystyrene cups (foam)	33	8%	0.6%
Other paper cups	4	1%	0.1%
	391	100%	7.5%



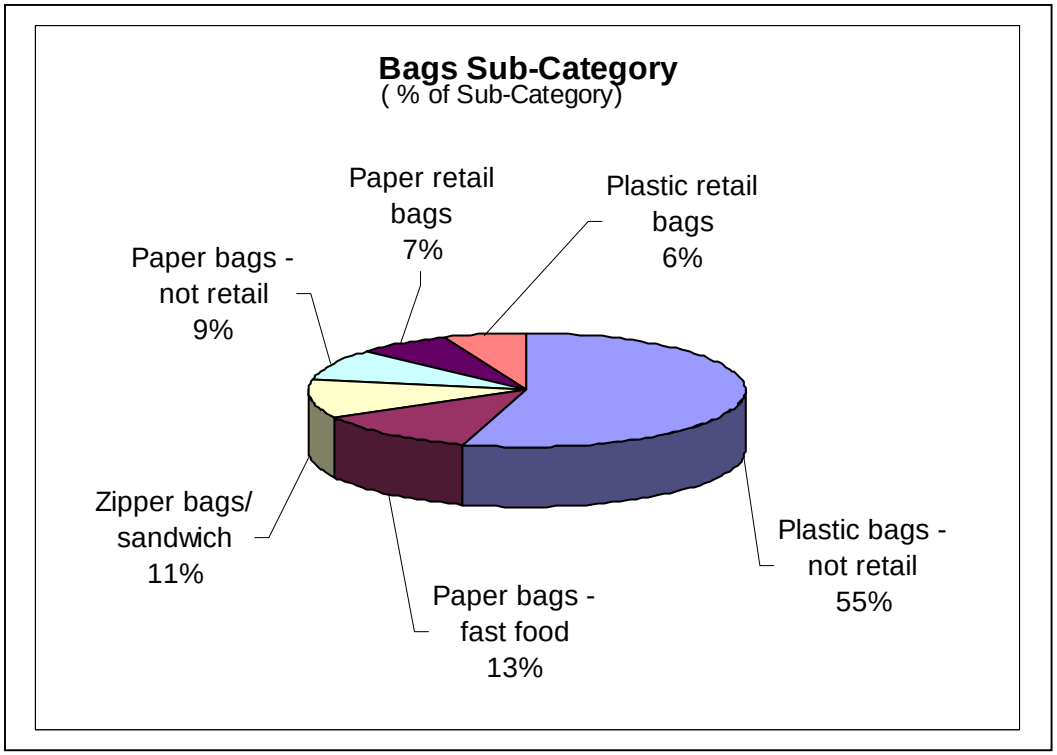
Discussion:

Cup litter includes hot and cold drink cups. This is indicative of wastes from a variety of over-the-counter food providers, whereby litter is then deposited on public lands. The category includes, polystyrene cups as well as lids and pieces of lids from hot and cold drink containers.

The sub-category yielded 7.5% of the total litter counted in the City of Toronto Litter Survey 2004, compared to 5.8% in 2002. Cup lids and pieces remain the most significant items in this sub-category (44% of the sub-category vs. 47% in 2002). Hot cups remain the most significant type of littered cup (27% of sub-category 2004 vs. 25% in 2002). Relatively few brands of cups were observed in the field.

3.2.3 Bags

Bags Summary			
	Items	% of Sub-Category	% of Total Litter
Plastic bags - not retail	94	54%	1.78%
Paper bags - fast food	22	12%	0.41%
Zipper bags/ sandwich	19	11%	0.35%
Paper bags - not retail	15	9%	0.29%
Paper retail bags	12	7%	0.23%
Plastic retail bags	11	6%	0.20%
	173	100%	3.29%

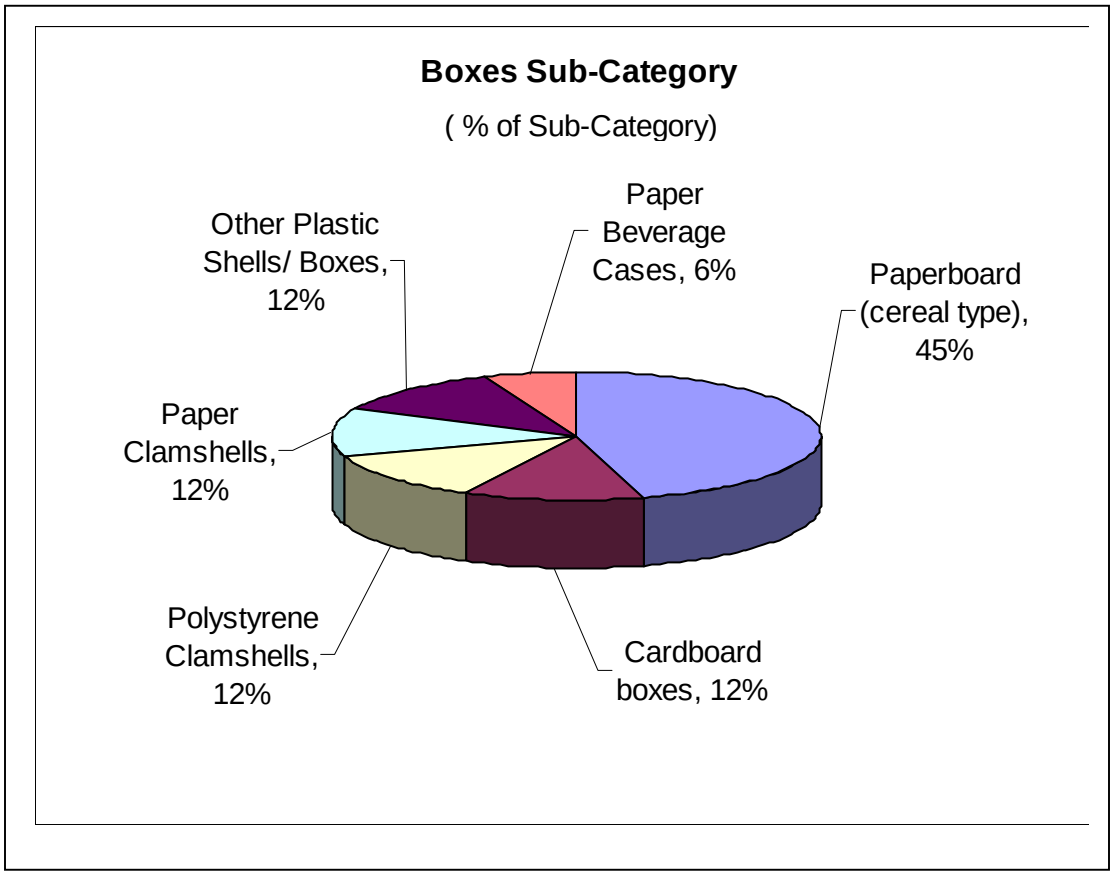


Discussion:

Bags that were not retail in nature, such as dry cleaning bags, or other non-identifiable bags represented 1.78% of total litter, or 54% of this sub-category. Paper bags from fast food outlets represented 0.41 % of total litter or 12% of this sub-category, retail plastic bags were 6%, while paper bags that were not retail in origin were only 9% of this sub-category. Zipper bags (0.35% of total litter and 11% of this sub-category), were most notable in areas where citizens consume lunches brought from home (parks, bench areas etc). Bags represented 3.3% of total large litter in the 2004 audit compared to 3.0% in the 2002 audit.

3.2.4 Boxes

Boxes Summary			
	Items	% of Sub-Category	% of Total Litter
Paperboard(cereal type)	15	45%	0.29%
Cardboard boxes	4	12%	0.08%
Polystyrene Clamshells	4	12%	0.08%
Paper Clamshells	4	12%	0.08%
Other Plastic Shells/ Boxes	4	12%	0.08%
Paper Beverage Cases	2	6%	0.04%
	33	100%	0.63%



Discussion:

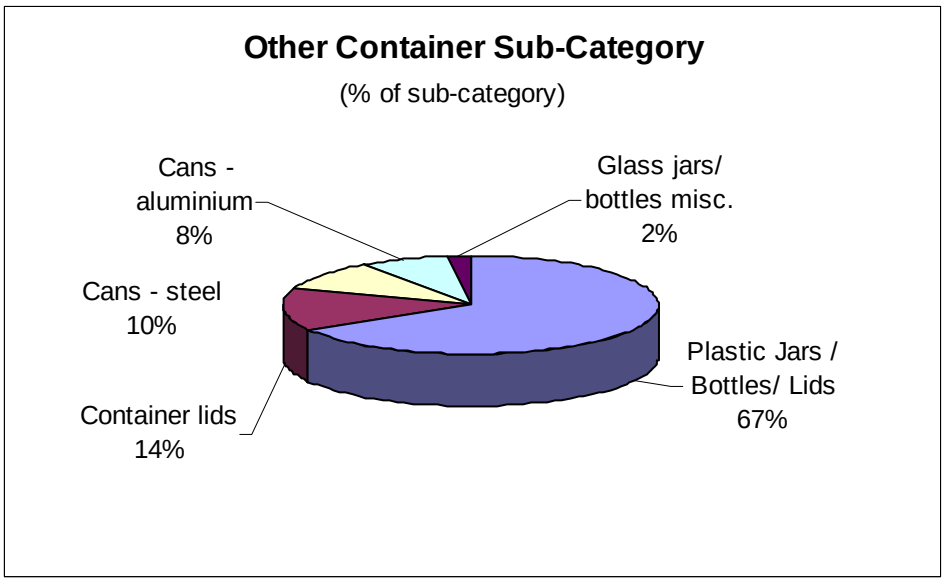
Paperboard boxes and cardboard boxes represented over 45% of this category, which is in itself relatively small as a component of total litter (< 1 % of total litter).

Fast food clamshell boxes of all material types were also a small proportion of the litter found in this category.

The boxes sub-category represented 0.6% of total large litter counted in the 2004 re-audit, as compared to 1.3% of total litter in the 2002 litter audit.

3.2.5 Other Containers (non-beverage)

Other Containers Summary			
	Items	% of Sub-Category	% of Tot Litter
Plastic Jars / Bottles/ Lids	34	67%	0.65
Container lids	7	14%	0.13
Cans - steel	5	10%	0.10
Cans - aluminium	4	8%	0.08
Glass jars/ bottles misc.	1	2%	0.02
	51	100%	0.97%



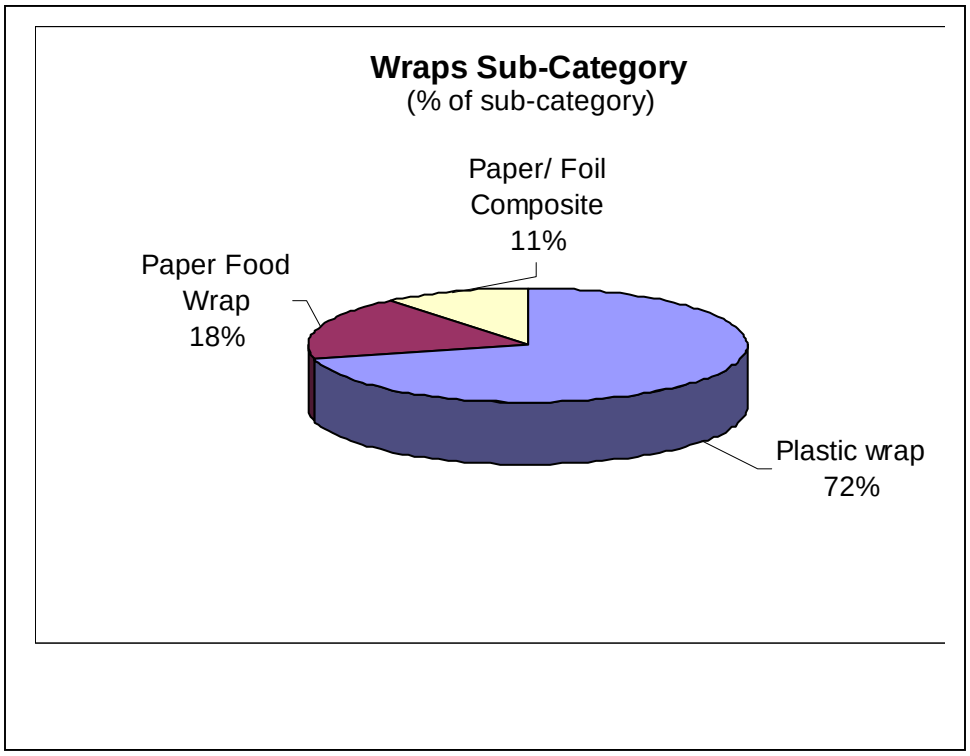
Dis

Co[illegible] total large litter counted, compared to 3.2% in the Toronto Litter Survey 2002. Plastic bottles and jars containers of various types made up the majority of this category (67%). Glass containers, container lids, and aluminum and steel containers other than beverage made up the remaining 33% of the category.

This sub-category was 3.0% if total large litter in the 2004 survey, compared to 3.2% in the Toronto Litter Survey 2002.

3.2.6 Wraps

Wraps Summary			
	Items	% of Sub-Category	% of Total Litter
Plastic wrap	114	72%	2.2%
Paper Food Wrap	28	18%	0.5%
Paper/ Foil Composite	17	11%	0.3%
	159	100%	3.0%



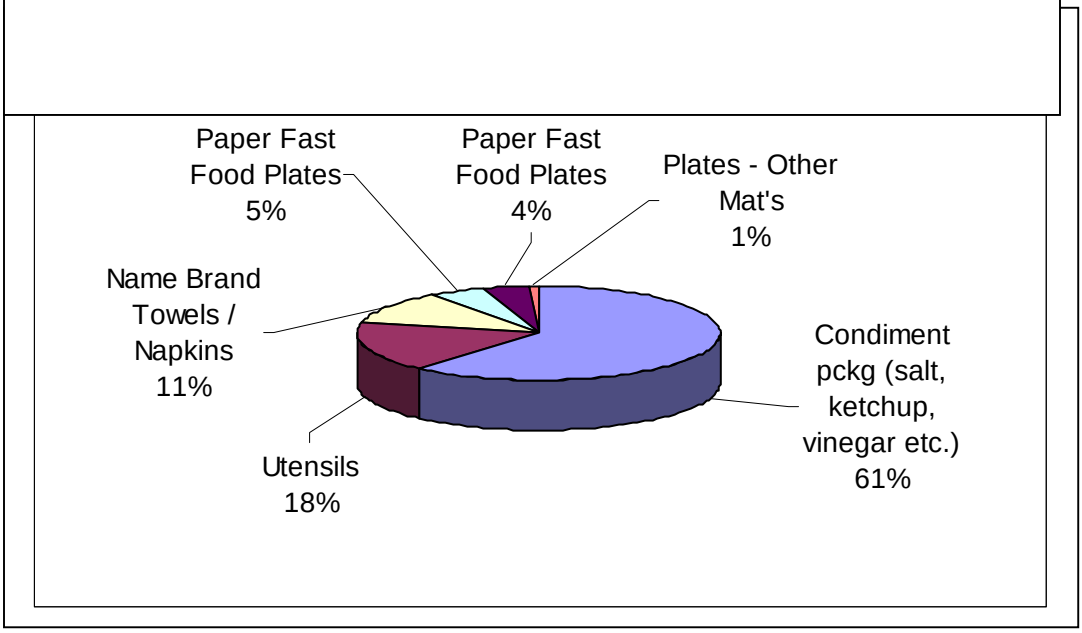
Discussion:

Within this category are items which are used to wrap food for consumption off premises, mainly from fast food outlets. Plastic wraps accounted for the majority of the wrap observed, at 72% of the sub-category, and 2.2% of total large litter counted. Paper wrap accounted for 18% of the sub-category (0.5% of total) and paper / foil composite material wraps accounted for 11% of the total found in this sub-category (0.3% of total litter).

This sub-category was 3.0% of total large litter in the 2004 survey, compared to 1.2% in the Toronto Litter Survey 2002.

3.2.7 Take Out Extras

Take Out (Fast Food) Extras	Items	%of Sub-Category	%of Total Litter
Condiment pckg (salt, ketchup, vinegar etc.)	73	61%	1.39%
Utensils	21	18%	0.40%
Name Brand Towels / Napkins	13	11%	0.25%
Paper Fast Food Plates	6	5%	0.11%
Paper Fast Food Plates	5	4%	0.10%
Plates - Other Mat's	1	1%	0.02%
	119	100%	2.27%



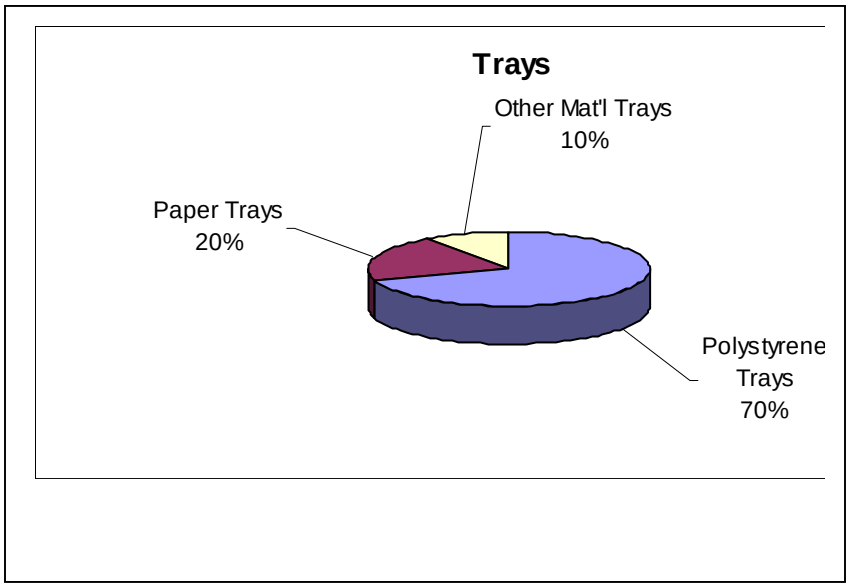
Discussion:

The sub-category of Take-out Food Extras includes condiment packages (ketchup, vinegar, salt, pepper etc.) and utensils used by patrons of fast food establishments. Condiment packaging accounted for 61% of the large litter attributed to this sub-category. Also included are napkins/ towels that are identifiable to a fast-food outlet, accounting for 11% of this sub-category. This category yielded a count of 119 pieces of litter, or 2.27% of the total litter observed in the survey, which is considered significant.

In the 2002 survey, this sub-category represented 2.7% of total large litter.

3.2.8 Trays

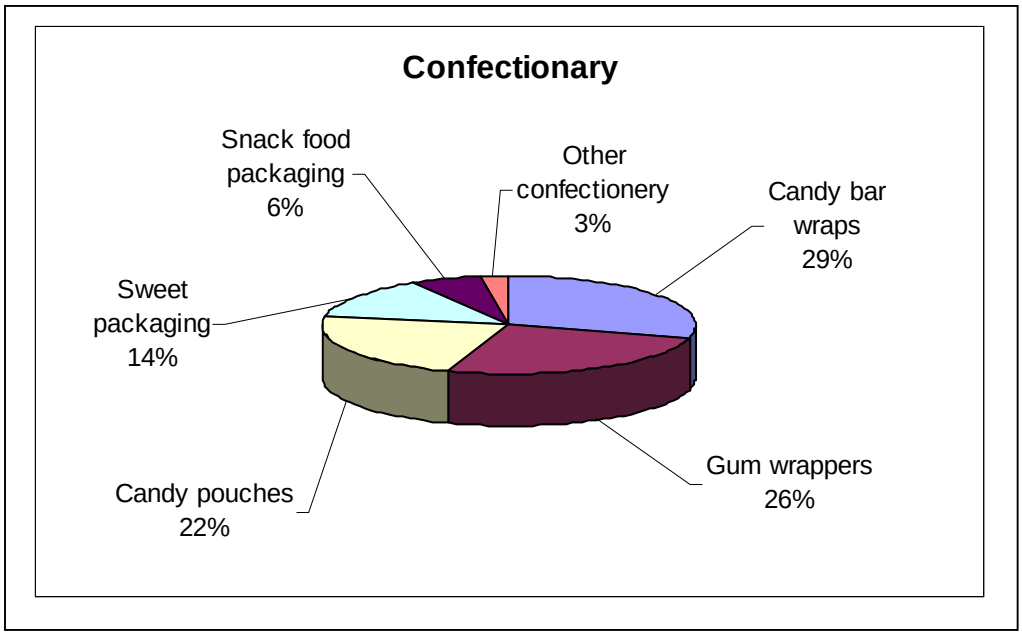
Trays			
	Items	% of Sub-Category	% of Total Litter
Polystyrene Trays	7	70%	0.13%
Paper Trays	2	20%	0.04%
Other Mat'l Trays	1	10%	0.02%
	10	100%	0.19%



Trays represented a relatively small category of large litter at 0.2 % of items counted. Trays are used by take-out food locations to allow ease of transport for their customers of their food products (i.e. coffee shops).

3.2.9 Confectionary

Confectionary Packaging			
	Items	%of Sub-Category	%of Total Litter
Candy bar wraps	151	29%	2.88%
Gum wrappers	137	26%	2.61%
Candy pouches	115	22%	2.19%
Sweet packaging	72	14%	1.37%
Snack food packaging	32	6%	0.61%
Other confectionery	13	3%	0.25%
	520	100%	9.92%



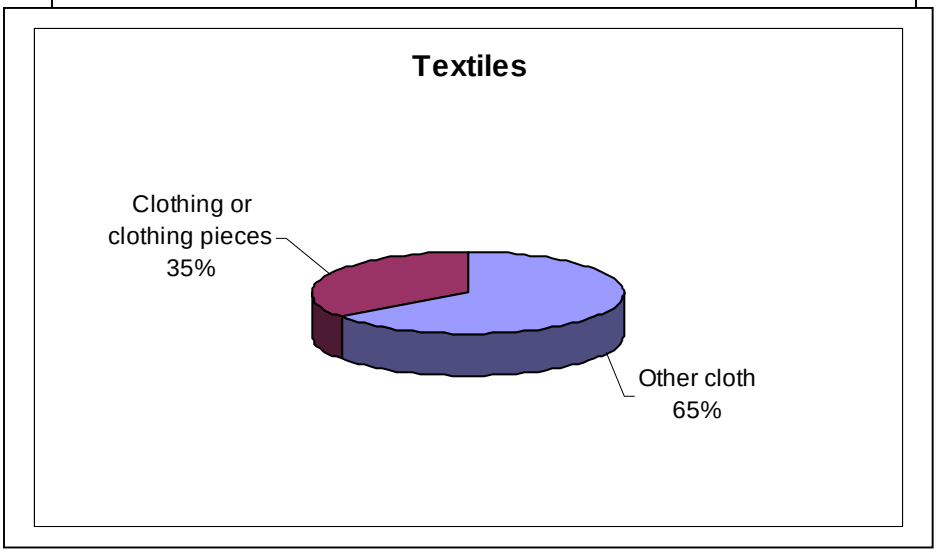
Discussion:

The next sub-category of interest is that of confectionary products. These represent candy wraps, candy bar wraps, outer and inner packaging and pouches. Gum packaging waste was a significant component of the litter observed in this survey.

The survey catalogues 520 large litter items in this segment, representing a significant amount of large litter at nearly 10 % of the total large litter observed, compared to a contribution of 8.5% of total large litter in the 2002 audit. Gum and candy wrappers were a major source of this sub-category in both the 2002 and 2004 litter audits.

3.2.10 Textiles

Textiles			
	Items	% of Sub-Category	% of Total Litter
Other cloth	39	65%	0.74%
Clothing or clothing pieces	21	35%	0.40%
	60	100%	1.14%

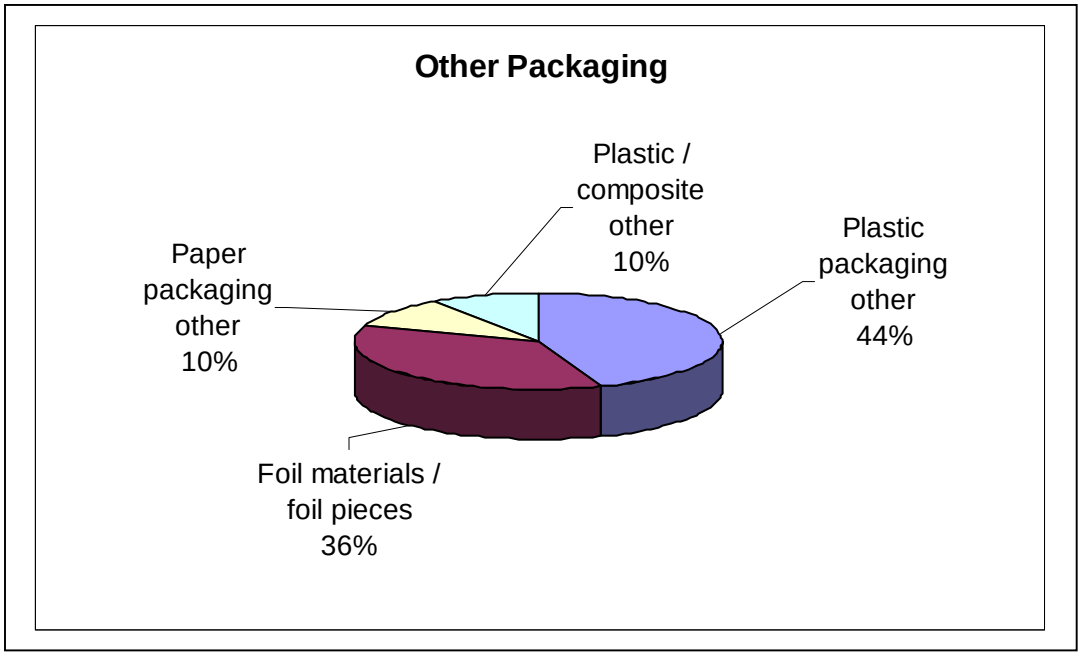


Discussion

In total 60 items of textile materials were counted, representing 1.14% of total litter items counted.

3.2.11 Other Packaging

Other Packaging	Items	% of Sub-Category	% of Total Litter
Plastic packaging other	126	45%	2.4%
Foil materials / foil pieces	102	36%	1.9%
Paper packaging other	28	10%	0.5%
Plastic / composite other	27	10%	0.5%
	283	100%	5.4%

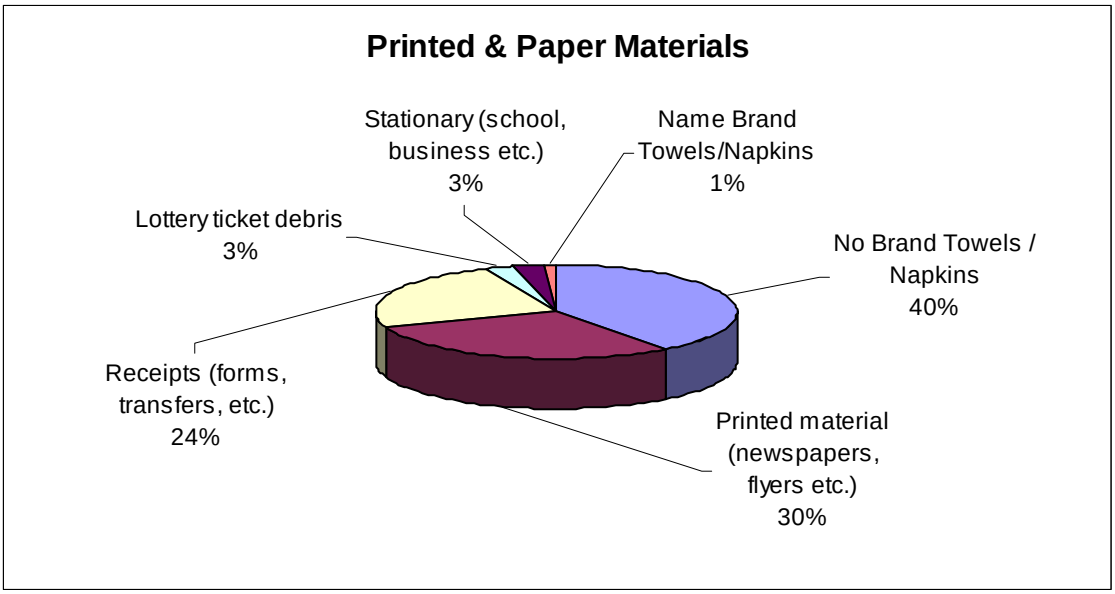


Discussion

This sub-category included packaging that did not fit in other sub-categories, but which was still identifiable. In total 283 items in this category were counted, representing a significant amount of large litter at 5.4 % of total litter items counted.

3.2.12 Printed & Fibre Materials

Printed & Paper Materials			
	Items	% of Sub Category	% of Total Litter
No Brand Towels / Napkins	528	39.6%	10.1%
Printed material (newspapers, flyers etc.)	403	30.2%	7.7%
Receipts (forms, transfers, etc.)	315	23.6%	6.0%
Lottery ticket debris	37	2.8%	0.7%
Stationary (school, business etc.)	37	2.8%	0.7%
Name Brand Towels/Napkins	13	1.0%	0.2%
	1,333	100.0%	25.4%

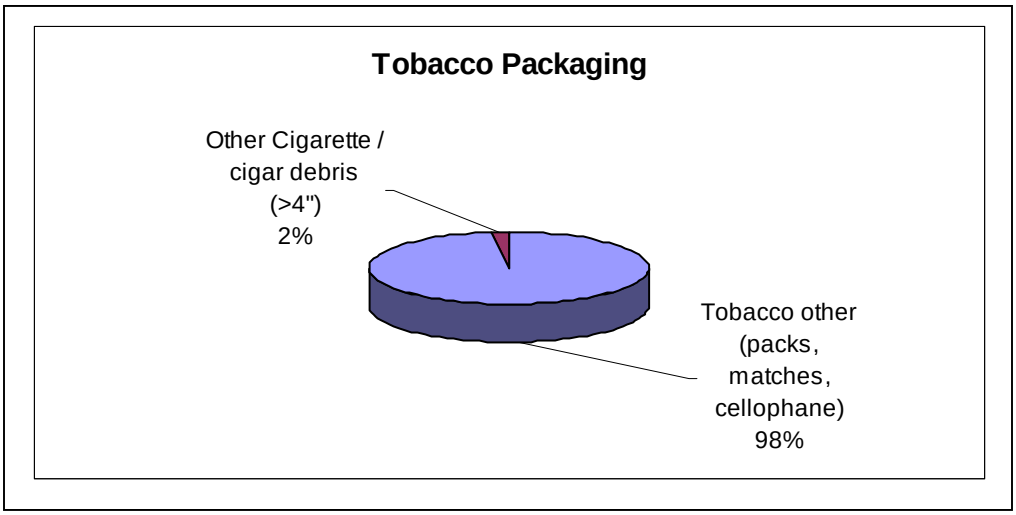


Discussion

This sub-category included a total 1,333 items, representing a significant 25 % of total large litter items counted. The contribution of printed and paper materials in the 2004 survey were proportionally greater than that observed in the 2002 litter survey. In 2002, 1,322 items (from a total of 6,200 total items – 21.3%) were observed in this sub-category versus 25.4% of total large items in 2004, an increase of 4%. Towels and napkins represented 40% of the sub-category materials counted, much of which may be associated with take-out foods; however most of these materials could not be positively identified by brand. Printed materials were the next most significant part of this category (newspapers, flyers, other printed materials) at 30%of the sub-category, and on its own, represented 8% of large litter items observed in the re-audit. Receipts and tickets were also significant (many of these were TTC transit transfers) at 24% of the sub-category and 6% of total large litter.

3.2.13 Tobacco

Tobacco Packaging			
	Items	% of Sub-Category	% of Total Litter
Tobacco other (packs, matches, cellophane)	464	98%	8.85%
Other Cigarette / cigar debris (>4")	9	2%	0.17%
	473	100%	9.02%



Discussion

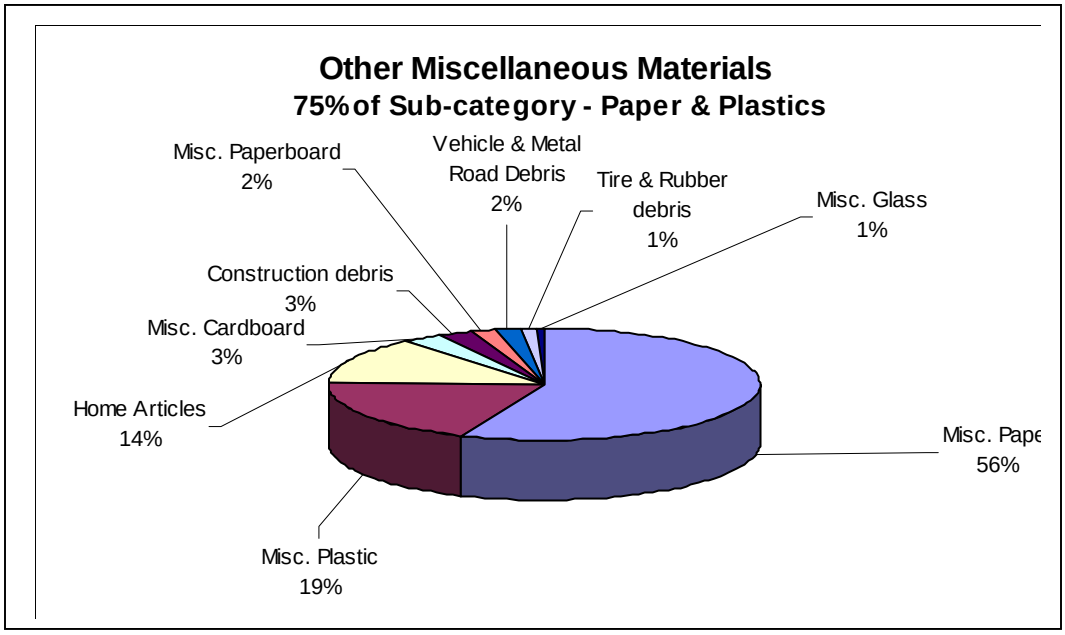
At 9.0% of total litter, tobacco litter, greater than 4 inches in size, is a significant amount of large litter observed on Toronto sites. The majority of the litter was cellophane pack wrappings, foil and paper packaging that tobacco products are sold in. This finding (9.0% of total large litter) is significantly greater than that observed in the 2002 survey where the tobacco packaging sub-category represented 3.8% of large litter counted.

The occurrence of smoking outside of public buildings may be a factor on this increase in large tobacco litter on Toronto streets.

3.2.14 Other Miscellaneous

(Includes misc. paper, misc. plastic, misc. cardboard, misc. paperboard, vehicle & road debris, construction debris, home articles)

Other Miscellaneous Materials			
	Items	% of Sub-Category	% of Total Litter
Misc. Paper	776	56%	14.8%
Misc. Plastic	260	19%	5.0%
Home Articles	186	14%	3.5%
Misc. Cardboard	43	3%	0.8%
Construction debris	35	3%	0.7%
Misc. Paperboard	26	2%	0.5%
Vehicle & Metal Road Debris	25	2%	0.5%
Tire & Rubber debris	17	1%	0.3%
Misc. Glass	7	1%	0.1%
	1375	100%	26.2%



Discussion:

This sub-category yielded the largest segment of litter observed in the City of Toronto Litter Survey 2004, and this observation is consistent with the 2002 litter audit observations. In total 1,375 pieces of large litter fell into this general category.

Miscellaneous materials are those that cannot be identified other than by the material type or likely origin of the litter. Paper materials accounted for 776 large litter items in this sub-category (56%) or a significant 14.8% of total large litter counted. Miscellaneous

plastic materials accounted for 260 items, 19% of the sub-category and 5% of all the large litter counted in the re-audit survey. Taken together, paper, paperboard and cardboard materials comprised 61% of this sub-category, and 16% of all the large litter counted. This finding is consistent with the 2002 litter audit where these unidentified materials accounted for 21% of total large litter.

This category is difficult to quantify in terms of the kinds of products that the litter derived from. These categories consisted of bits of stationary, newspapers, flyers, and often included shredded paper from lawn mowing. This material derives from a plethora of sources, that once weathered or when grass is mowed it is shredded into indistinguishable pieces.

4.0 Small Litter Survey Results

4.1 Discussion of Small Litter Results

The categories examined in the litter counts of items less than 4 square inches in size are:

- cigarette butts/ debris
- other tobacco
- bottle caps
- straws
- candy packaging
- polyfoam packing materials
- other polystryrene debris
- glass
- paper
- plastic film
- hard plastic
- aluminum / foil debris
- rubber
- metal (not aluminum)
- other materials
- **chewing gum** (this sub-category added at the request of the City of Toronto)

The 2002 methodology only allowed the researchers to count small litter that fell within the three same size sample areas on a given site (transacts) – three 15 square foot segments of a site. Accordingly, the small litter counts may or may not have recorded some of the small litter existing on a site. However, the benefit of this method is its rigor. Every site was handled in the same way. Thus, a fair and objective examination of small litter was presented.

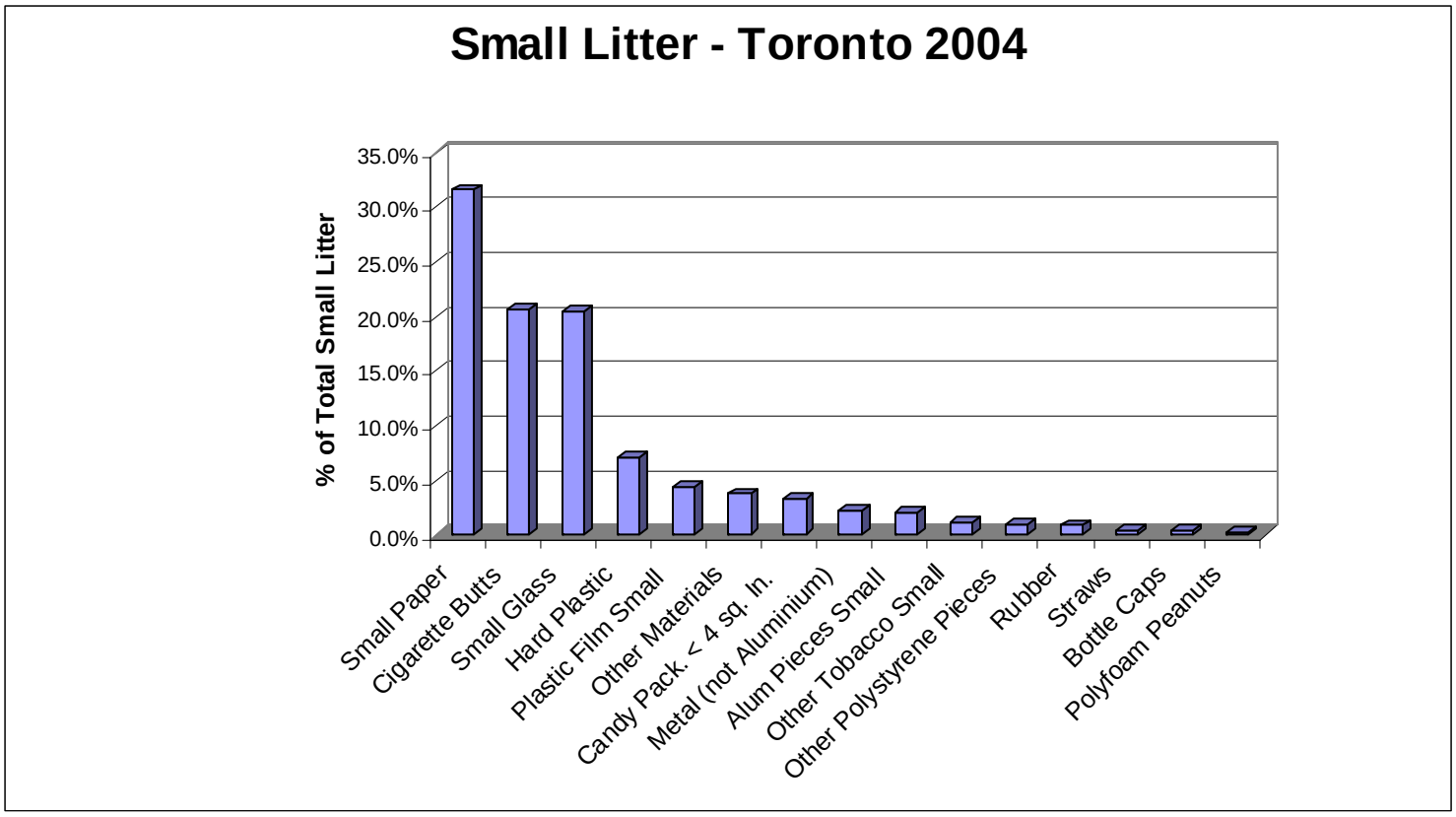
In order to compare the 2004 small litter data to that observed in 2002, chewing gum litter was excluded in this section's discussion. More detailed examination of the contributions of chewing gum deposits to the small litter category on city streets is discussed in Section 5.0.

In 2002, small litter was sampled to test the statistical validity of the small litter methodology. Concerns were identified with respect to the relatively small sample size of small litter items. The City asked the consultant to consider an improved methodology for future litter audits. Also, there was concern raised after the 2002 study that the methodology for small litter should be enhanced in future audits to improve the data on certain types of small litter, notably tobacco and gum. For the 2004 audit the small litter methodology was enhanced to conduct a statistically valid small litter baseline sample at 47 sites – euphemistically called "Super-Sites". By enhancing the small litter methodology, the 2004 data form the baseline for comparison in future audits.

In 2004, 47 sites were selected for small litter sampling. These "Super Sites" all had above average large litter counts. In total, 49,928 pieces of small litter were counted at the 47 "Super Sites." Over half of all small litter was chewing gum (~ 26,000 items). Several sites had over 2,000 gum deposits in the 200 x 18 foot area of the site. Cigarette butts were also counted at the 47 sites for a total of over 5,700 cigarette butts. At some sites over 400 butts were counted on individual sites. The 2004 "Super Site" small litter results are not directly comparable to 2002 results because different

methodologies were used. The 2004 data establishes a baseline for subsequent small litter site audits. The results suggest the need for some form of specialized litter receptacles that are safe and convenient for citizens to use for proper disposal of tobacco debris and chewing gum.

Small litter is difficult to control, in that it is “manufactured” by a combination of degradation (weather) and man-made activities (vehicle traffic, mowing, etc.).



Toronto 2004 Small Litter – by Category

1	Small Paper	896	31.6%
2	Cigarette Butts	584	20.6%
3	Small Glass	583	20.6%
4	Hard Plastic	204	7.2%
5	Plastic Film Small	125	4.4%
6	Other Materials	107	3.8%
7	Candy Pack. < 4 sq. In.	96	3.4%
8	Metal (not Aluminium)	64	2.3%
9	Alum Pieces Small	59	2.1%
10	Other Tobacco Small	31	1.1%
11	Other Polystyrene Pieces	28	1.0%
12	Rubber	25	0.9%
13	Straws	14	0.5%
14	Bottle Caps	13	0.5%
15	Polyfoam Peanuts	7	0.2%
		2836	100.0%
16	Gum deposits	809	
	Total with Gum Incl.	3645	
	% Gum of Total		22%

Various small pieces of paper made up 32% of the small litter items recorded. Cigarette butts and other tobacco products were identified as contributing 21% and 1 % respectively, totaling 22 % of small litter.

Glass pieces were 21% of the total small litter, whereas small pieces of plastic combined were 12%.

Using the original (2002) small litter audit methodology, small litter makes an underestimated contribution to the total litter count. The methodology examined only 45 square feet of a 3,600 sq. foot fixed site (1.25% of the site). This approach was used because a full small litter count at a 200 x 18 foot fixed site is extremely labour intensive, taking one to two hours to complete.

Notwithstanding this labour issue, the 2004 survey examined 47 sites for small litter in order to provide the City of Toronto with a better understanding and methodology for examining the contribution of small litter to the overall litter issue. These data are reported in Section 5.0.

5.0 Small Litter - Super Site Survey Results

As discussed in Section 4, small litter is difficult to audit for several reasons. Small litter is sampled in 45 sq. ft. from a total site area usually consisting of 3,600 sq. feet, thus the sampling area is 1.25% of the total site area. Another problem with counting small litter is that in grassy areas, such as lawns, park fields and undeveloped lands small litter falls below the grass layer and is hard to observe.

In order to better understand the composition of small litter at designated sites a new methodology – called "Super Sites" was devised. In determining which sites would be examined those with higher than average item count (i.e. > 21 items per site) were chosen. This was done to ensure that there would be small litter present on the site and that the composition sampling would be meaningful.

The Super Sites were examined for small litter by observing all the small litter possible over the entire 3,600 square feet of the site. The average time required to do a Super Site was bout 2 hours per site. In total 47 sites were examined by survey crews in the 2004 audit work.

Part of the instructions to the consultant from the City of Toronto was to determine the contribution of chewing gum on city streets. A 16th sub-category of small litter – Gum was therefore added. Gum deposits are distinguished as a blackened or darken raised spot on pavement. Gum may be also observed as a globular deposit if not stuck onto a hard surface. Care was taken in instructing audit surveyors how to identify gum on pavement - and care was taken not to count stains or other deposits that were encountered.

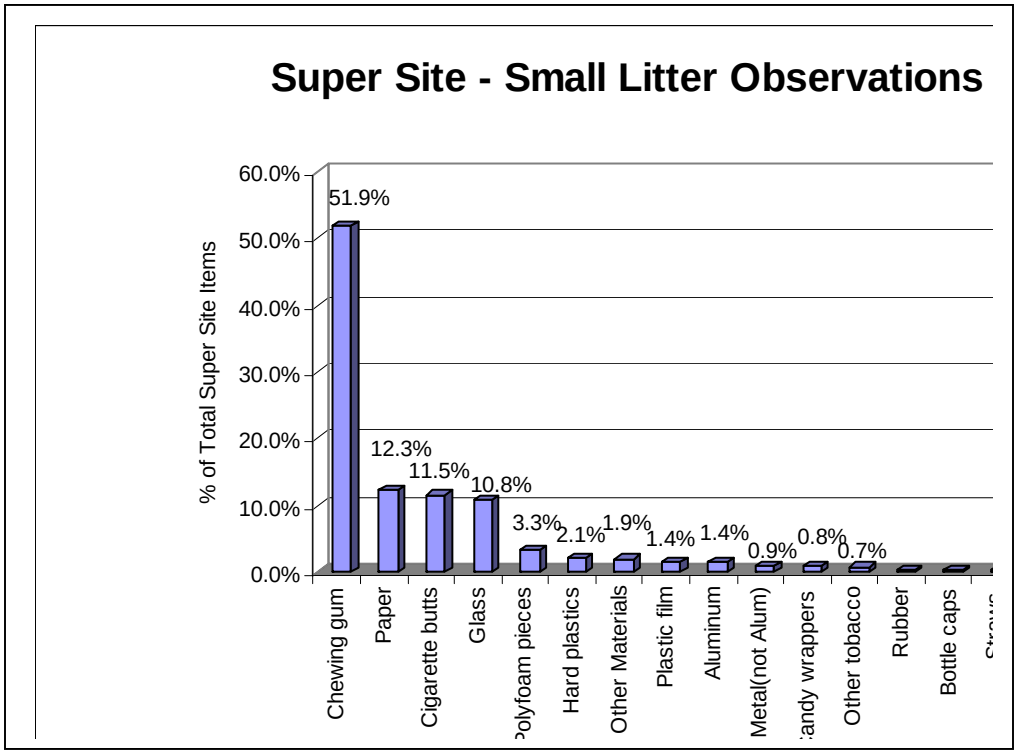
Nearly 52 % of all of the small litter observed (25,895 observations from a total of 49,928 small items counted) at the 47 Super Sites was identified as chewing gum deposits. A few sites had over 2,000 gum deposits within the site boundary. This is a significant finding and points to this sub-category of litter as an issue on Toronto street. Since the Super Site methodology, although painstaking, is a much larger small litter sample compared to the previously used methodology we are confident that the results indicate a significant contribution by chewing gum to the occurrence of small litter on Toronto street. It must also be remembered that gum deposits do no degrade quickly, and tend to accumulate with time. It is difficult to remove these deposits from pavement.

After chewing gum deposits, the next largest contributing sub-category of small litter are paper pieces, at 6,132 or 12.3% of total small litter as determined by this methodology.

Tobacco products, cigarette butts (5,751) and other tobacco small litter (matches etc) (361) also are 12% of the total small litter observed using this methodology. This is still a very significant contribution to small litter on city streets.

Chewing gum, cigarette and tobacco products, paper and glass pieces account for 87% of the small litter observed.

Super Site Small Litter Observations			
Chewing gum	25,895	51.9%	
Paper	6,132	12.3%	
Cigarette butts	5,751	11.5%	Top 4 Items
Glass	5,399	10.8%	86.5%
Polyfoam pieces	1,660	3.3%	
Hard plastics	1,031	2.1%	
Other Materials	938	1.9%	
Plastic film	715	1.4%	
Aluminum	707	1.4%	
Metal(not Alum)	468	0.9%	
Candy wrappers	421	0.8%	
Other tobacco	361	0.7%	
Rubber	184	0.4%	
Bottle caps	136	0.3%	
Straws	112	0.2%	
Polyfoam peanuts	18	0.0%	
	49,928	100%	



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APPENDIX 1 - Super Site – Small Litter Data

SUPER SITE - Small Litter Data

	Site ID Number	Site Name	Perley's Map Coord.	1 Cigarette Butts	2 Other Tobacco Small	3 Bottle caps	4 Straws	5 Candy Wrappers	6 Polyfoam Peanuts	7 Polyfoam Pieces	8 Glass	9 Paper	10 Plastic Film	11 Hard Plastic	12 Aluminum	13 Rubber	14 Metal (not Alum.)	15 Other Material	16 Chewing Gum	Site Total
6	260	Spadina Ave	4-E6	116	5	1	1	0	0	0	183	285	31	45	0	5	29	62	4104	4,867
4	211	John St(2)	2-E1	53	0	1	0	6	0	0	195	59	0	8	2	1	4	12	3834	4,175
15	301	Bloor St. W.(2)	4-D3	266	5	1	2	3	0	0	63	177	15	19	0	2	13	64	2866	3,496
5	307	Dundas St. W	4-D6	158	53	0	3	2	0	4	1588	128	18	27	9	0	18	17	1233	3,258
18	305	Spadina Ave.(2)	4-E5	137	26	1	1	5	0	0	113	70	4	28	0	0	13	9	2337	2,744
14	300	Bloor St. W.	4-C3	37	30	0	0	2	0	1	112	16	2	4	1	1	9	14	1647	1,876
43	023	Canmotor Ave.	22-B1	68	10	18	3	7	0	1078	127	171	22	29	40	8	15	6	184	1,786
11	306	Kensington Ave.	4-D6	225	13	9	0	0	0	0	126	225	18	18	3	13	20	114	986	1,770
3	323	John St.	2-E1	234	0	3	1	15	0	0	93	65	0	12	10	2	6	51	1161	1,653
21	256	King St. W	2-F1	101	2	0	1	0	0	0	33	30	2	6	0	1	6	37	1366	1,585
20	335	Frederick St.	3-B2	189	19	0	1	5	0	2	28	67	7	26	13	1	5	7	1165	1,535
38	111	Finch Ave W.	20-B4	569	6	8	10	27	1	65	11	382	44	56	165	5	10	7	27	1,393
40	155	Eglington Ave. E	27-E4	437	8	9	12	16	0	31	52	283	57	71	88	6	21	2	154	1,247
19	213	George St.	3-A1	115	4	2	3	1	0	2	289	102	10	24	2	0	9	43	507	1,113
2	316	Wellington St. W	2-D1	362	0	6	3	19	0	0	362	104	1	32	4	1	8	19	152	1,073
8	309	Dundas St. W	4-D6	101	4	1	0	0	0	0	133	55	7	18	4	2	12	14	707	1,058
10	321	Queen St. W	4-E6	68	26	0	2	0	0	0	225	66	2	15	0	6	27	17	591	1,045
47	336	The Esplanade	3-B1	84	28	0	5	4	0	0	11	143	10	16	38	2	5	1	618	965
45	052	Portland St.	2-D2	126	2	10	3	15	3	27	357	206	14	30	38	0	4	4	49	888
35	092	York Mills Rd.	9-D3	94	0	2	1	8	0	7	15	551	22	27	33	1	5	13	16	795
34	077	Doris Ave	11-A4	162	5	3	2	8	2	285	0	123	17	26	39	29	13	46	0	760

44	069	Wilson Ave.	18-C4	114	12	3	0	27	3	5	152	183	29	38	102	5	3	11	54	741
9	261	Augusta Ave.	4-D5	56	1	0	0	1	2	66	59	1	6	0	0	0	1	25	515	733
26	032	Caledonia Rd.	16-E6	121	0	2	10	56	0	3	35	415	51	9	0	0	16	13	0	731
41	153	Kennedy Rd.	27-E4	257	0	9	3	12	0	2	15	138	33	23	28	3	6	2	174	705
16	324	Cooper St.	3-A2	61	88	4	4	9	0	14	102	184	28	33	0	3	0	42	100	672
42	028	Runnymede Rd.	14-B2	44	0	3	1	0	0	3	185	55	5	7	11	3	9	42	290	658
46	212	Colbourne St.	3-A1	62	6	3	2	5	0	8	85	106	9	25	13	0	6	1	271	602
30	112	Jane St.	20-A1	156	0	2	2	30	0	0	10	290	32	39	1	0	16	9	0	587
17	058	Glasgow St.	4-E5	89	1	7	0	0	0	1	140	39	14	41	0	5	10	37	114	498
28	116	Tretheway Dr.	16-A2	8	0	0	3	24	0	4	3	292	58	21	3	0	21	1	17	455
32	114	Chesswood Dr.	20-F4	183	0	1	4	10	0	1	1	167	20	29	2	0	12	13	4	447
37	202	Esander St.	7-E5	109	3	10	6	15	6	2	24	79	17	21	13	64	18	24	12	423
39	158	Warden Ave	27-B1	91	2	1	2	7	0	31	88	106	11	19	16	3	3	3	35	418
24	021	Browns Line	32-D4	201	0	0	0	18	0	2	84	69	1	13	1	0	13	10	1	413
36	096	Bayview Ave	7-C2	103	1	0	0	7	0	5	11	121	7	32	21	0	9	4	90	411
7	308	Hickory St.	4-E6	33	0	5	0	0	0	0	62	60	13	84	2	0	11	81	48	399
31	110	Sheppard Ave. W	20-B6	130	0	3	7	19	0	0	3	127	16	12	1	1	17	12	38	386
27	104	Brookhaven Dr.	16-B1	38	0	1	9	21	0	2	76	86	20	8	0	1	13	4	27	306
33	026	Maria St.	14-B1	37	0	0	2	7	0	0	19	86	5	9	2	2	11	11	82	273
29	025	St. Clair Ave. W	26-E6	55	0	3	0	5	0	4	30	49	13	6	1	2	3	1	55	227
13	254	Clinton St.	4-C4	26	0	0	1	1	1	2	59	61	7	5	1	1	2	10	42	219
22	317	Adelaide St. W	2-D1	17	0	1	1	0	0	0	22	15	1	7	0	0	0	2	98	164
23	315	Niagara St.	2-C2	13	0	2	0	0	0	0	5	10	6	4	0	1	7	12	86	146
1	029	Spring Rd.	14-C5	31	0	1	1	0	0	1	4	32	3	3	0	1	7	4	17	105
12	051	Alberta Ave.	4-B1	5	1	0	0	2	0	2	7	33	7	3	0	2	1	2	10	75
25	041	Whytock Ave.	14-E4	9	0	0	0	2	0	0	2	20	0	3	0	1	1	3	11	52
																				0
		47	Sites Sampled																	0
				5751	361	136	112	421	18	1660	5399	6132	715	1031	707	184	468	938	25895	49,928
																			Check Sum	49,928
				11.5%	0.7%	0.3%	0.2%	0.8%	0.0%	3.3%	10.8%	12.3%	1.4%	2.1%	1.4%	0.4%	0.9%	1.9%	51.9%	100.0%

NOTES:

APPENDIX 2 – Site Locations & Wards

Site #	Ward	Perlys Map	Coord	Site_name	Directions
1	1	40	F1	Markbrook Lane	Steele/Kipling, south of Steeles to Markbrook; site on Markbrook
2	1	40	C4	Glenhollow Ave.	Finch/Hwy 27, wets on Finch, south on Halusia, east on Briarwood, south on Glenhollow Ave.
3	1	38	F1	Amoro Dr.	Rexdale/Kipling, north on Kipling, west on Westhumber, south on Amoro 3.5 blocks to site; site on Amoro
4	2	38	D4	Iron St.	Dixon Rd./Martin Grove, north on Martingrove, west on Belfield, just north on Iron
5	2	28	D6	Lockheed Blvd	Lawrence/Scarlett, north on Scarlett Rd., to Lockhead Blvd.; site two blocks west on Lockheed Blvd.
6	2	26	D1	Westona St.	Lawrence/Royal York Rd, east on Lawrence two blocks; site just south on Westona
7	2	26	E2	Kingdom St.	Weston/Lawrence, south on Scarlett Rd, east on Kingdom St.; Site on Kingdom St. between Brownlea Ave and Waterton Rd. on south side.
8	4	36	E1	Martin Grove Rd. (was Tollington)	Dixon/Martin Grove, south on Martin Grove; site on west side of Martin Grove Rd. just past Waterbury Dr.
11	4	26	B5	Aylesbury Rd.	Rathburn/Islington, go north on Islington two blocks, west on Aylesbury, two blocks just before Thornbury; site on Aylesbury on south side
12	3	36	B6	Rathburn Rd.	Renforth Rd. - Eglinton Ave. west from intersection go south on Renforth Rd.. to Rathburn. Go west Rathburn Rd and stop before The West Mall
13	4	24	B1	Finchley Rd.	Bloor/Islington, north on Islington past Dundas St., east on Hilldowntree 2 blocks, south on Finchley; site on west side of Finchley Rd.
14	4	24	A1	Burnhamthorpe Park Blvd.	Burnhamthorpe/Kipling, go east on Burnhamthorpe 1 block, north on Wembley, then west on Burnamthorpe.
16	5	24	A3	Fieldway Rd.	Bloor/Kipling, east on Bloor under railroad tracks, south on Green Lands, west on Fieldway; site on Fieldway Rd. just past the CPR Spur on north side
17	5	24	D5	Elderidge Ave.	Prince Edward Dr./Bloor, south on Prince Edward Dr. west on Elderidge Ave.; site on Elderidge Ave. just after turning corner where street turns north.
18	5	24	B6	Rosewood Ave.	Royal York Rd/The Queensway, go west on the Queensway 6 blocks, north on Loma Rd, west on Rosewood Ave.

20	6	32	D2	Valermo Dr.	Horner Ave/Browns line, go north on Browns Line 2 blocks, east on Valermo Rd, 1.5 blocks
21	6	32	D4	Browns Line	Browns Line/Lakeshore, north on Browns Line; site is on east side of Browns Line just over the bridge and before Dover Dr.
23	5	22	B1	Canmotor Ave	The Queensway/Islington, east on the Queensway, go south on Canmoltor Ave, just past Cavern
24	11	28	D5	Oak St.	401/Weston Rd, south on Weston 5 blocks, east on Oak St.; site on south side of Oak St. just before Yelland St.
25	13	26	E6	St. Clair Ave. W	Jane St/St. Clair Ave. W - go West on St. Clair Ave W, to Scarlett Rd. - site is site is on St. Clair Ave. W at corner of Scarlett Rd & St. Clair Ave. W
26	13	14	B1	Maria St.	Runnymede /Dundas, go east on Dundas, north on Johns, east on Maria St..
27	13	24	F2	Methuen Ave.	Bloor/Jane, go north on Jane to Methuen Ave. go west on Methuen Ave.
28	13	14	B2	Runnymede Rd.	Dundas/Runnymede, go south on Runnymede till just before Annette
29	13	14	C5	Spring Rd.	The Queensway/Parkside Dr., go west on Queensway then north on Spring Rd,; site is on east side of Spring Rd. just before Deer Pen Rd.
30	17	16	F5	Nairn Ave.	Rogers Rd/Dufferin St., go west on Rogers Rd 5 blocks, north on Nairn Ave just past Teignmouth
31	17	14	D1	Osler St.	Old Weston Rd /St. Clair Ave W, go east on St. Clair 2 blocks then just south on Osler St.
32	17	16	E6	Caledonia Rd.	Caledonia/St. Clair Ave W, go north on Caledonia about 50 ft.
33	17	14	E1	Uxbridge Ave.	Old Weston Rd/Davenport Rd, go east on Davenport 5 blocks, south on Uxbridge Ave.
34	17	14	F1	Ashburnham Rd.	Davenport Rd/Dufferin St., go west on Davenport 3 blocks, then north on Greenlaw Ave., then east on Ashburnham Rd.; site is on the south side of Ashburnham Rd. just past Via Italia.
35	17	14	F1	McFarland Ave.	Davenport rd/Dufferin St., west on Davenport 1 block, then north on McFarland to the intersection of Ashburnham/McFarland intersection.
36	14	14	E2	Dupont St.	Dupont/Landsdown, west on Dupont till just before Campbell Ave
37	14	14	E2	Campbell Ave.	Dupont/Lansdowne, west on Dupont, south on Campbell, just before Antler
38	14	14	D4	Indian Trail	Bloor/Parkside Dr., go east on Bloor, south on Indian Gr, east on Indian Trail
39	14	14	D5	Sunnyside Ave.	Parkside Dr./Bloor St. W, south on Parkside Dr. to Grenadier, east on Grenadier, south on Sunnyside Ave. just south of Grenadier

40	14	14	E6	Queen St. W.	Queen/Lansdowne Ave; west on Queen until Callender St.; site on north side of Queen St. between Callander St. and Triller Ave.
41	18	14	E4	Whytock Ave.	Bloor/Lansdowne, south on Landsdowne 1600 ft. then go west on Whytock Ave. and site is on north side of Whylock just after the curve
42	18	14	F4	Muir Ave.	Dundas St. W/Dufferin St., go south on Dufferin, west on Lindsay, north on Sheridan , east on Muir
43	18	4	A5	Macklem Ave.	Dufferin/Dundas, go north on Dufferin, turn right onto Parr St.; when you turn north Parr St. becomes Macklem Ave.; site on west side of Mackelm Ave.
44	19	4	B3	Pendrith St.	Ossington/Bloor, north on Ossington 2 blocks, right on Pendrith; site on Pendrith St.just after Roblocke Ave.
45	19	4	B6	Crawford St.	Queen St.. W/Bathurst St heading west on Queen St., turn north onto Crawford St.; site on Crawford St. just north of Logie Pl..
46	19	2	B1	Stafford St.	Queen/Bathurst. From Queen/Bathurst, head west on Queen, go south on Niagara, head west on Richmond St., turn south onto Stafford; site on Stafford St. just before Adelaide St. W
47	19	4	C5	Mansfield Ave.	Bathurst/Dundas St. W on Dundas from intersection to Claremont St. Site on Mansfield past Clinton St.
48	19	4	C4	Euclid Av.	College St./Bathurst, west on college St. to Euclid Ave. Site on Euclid Av, midway between Ulster St. and College St.
49	19	4	C5	Palmerston Ave.	College St./Bathurst, west on College St. to intersection of college and Palmerston. Site on Palmerston
50	17	4	B1	Benson Ave.	St. Clair Av/Dufferin Av. East on St. Clair Ave, south on Alberta to intersection with Benson Ave. Site is on Benson.
51	17	4	B1	Alberta Ave.	Dufferin & Davenport; E on Davenport to Alberta Ave., site on Alberta Ave.
52	20	2	D2	Portland St.	Bathurst St/Front St., east on front St.. from intersection to Portland St. Site is on Portland St. and Front St., but before Wellington St. W.
53	20	4	C6	Wolseley St.	Queens St. W/Bathurst St., east on Queen to Ryerson Av, north on Ryerson to intersection of Ryerson and Wolseley St. Site is at intersection of Ryerson and Wolseley St., on Wolseley.
54	20	4	C6	Dennison Ave.	Dundas ST./Bathurst St., go east on Dundas to Dennison Avenue. Site is on west side of Denison Ave. between Wolsely St. and Queen St.

55	20	2	D1	Augusta Ave.	Bathurst/Queen, from intersection go east on Queen to Augusta Av, go north on Augusta to intersection of Augusta and Woseley; site on Augusta, just off Woseley
56	20	4	D6	Napanee Ct.	Dundas/Bathurst, east on Dundas till you hit Vanauley St. go south on Vanauley and then go east on Napanee. Site on Napanee.
57	20	4	D6	Kensington Ave.	Spadina/Dundas, west on Dundas then north on Kensington, about 200 feet in. Site on east side of Kensington Ave.
58	20	4	E5	Glasgow St.	College/Spadina, go south on Spadina, east on Cecil, north on Glasgow
59	20	4	E5	Elm St.	University/College, south on University 2 blocks, west on Elm, just after Murray St.
60	20	2	E1	Oxley St.	Queen/Spadina, south on Spadina 3 blocks, then east on Oxley; site 50 feet east of Spadina
61	27	4	F5	Grenville St.	Yonge/College, go west on College, north on Bay, west ibti /Grenville St.; site on north side of Grenville St. beginning at intersection.
62	21	6	B3	Old Park Rd.	Bathurst/Eglinton - go west on Eglinton Ave. to Old Park Rd., north on Old Park Rd.; site is 50 feet north of Ridge Hill Dr. on east side.
63	21	6	D4	Vesta Dr.	Eglinton/Bathurst, east on Bathurst 2 blocks, south on Vesta Dr. 1/2 block
64	21	6	D4	Ava Rd.	Bathurst/Eglington, south on Bathurst 3 blocks, east on Ava Rd, 2 blocks to the intersection of Ava/Rosemary; site on south side of Ava Rd just before Rosemary Rd
65	21	6	D4	Vesta Dr.	Bathurst/Eglington, east on Eglinton, south on Vesta Dr. ; site on Vesta Dr. just south of Ava Rd. on west side of street
66	21	6	C6	Bathurst St.	St. Clair/Bathurst, north on Bathurst past Claxton/Lonsdale site on Bathurst immediately after Lonsdale, east side
67	7	30	C5	Windhill Cres.	Finch/Weston, go west on Finch to Weston, go south on Weston, west on Lanyard, south (left) on Unser Gt., then first left onto Windhill Cres; site on north side of Windhill Crescent
68	7	30	D5	Franson Cres.	Finch/Weston, go west on Finch to Weston, south on Weston to Coronado , west on Coronado, and north on St. Lucie, west on Franson; site on west side of Franson Cres.
69	9	18	C4	Wilson Ave.	Jane/Wilson, east on Wilson past Ridge Rd.; site on Wilson
70	8	20	E5	Tuscan Gate	Keele St./Sheppard Ave. West - turn East onto Sheppard Ave. W go past bridge turn left (north) onto Tuscan , site on Tuscan

71	10	8	B2	Josephine Rd.	Sheppard Ave./Bathurst Ave., south on Bathurst Ave., right on Down's Drive, Left on Clanton Park Rd, left onto Josephine Rd.; site on Josephine Rd. on west side
72	10	10	C6	Heaton St.	Sheppard/Bathurst, south on Bathurst, take right on Codsell and L onto Heaton's; site on Heatons
73	23	10	F2-3	Newtonbrook Blvd.	Yonge/Finch, north on Yonge to Drewry, west on Drewry to Hilda , south on Hilda to Newtonbrook; site on south side of Newtonbrook Blvd.
74	23	10	E4	Churchill Ave.	Yonge/Finch, north of Yonge on Churchill, past Senlac; site on Churchill
75	23	10	E4	Tamworth Rd.	Yonge/Finch, from last location go east on Churchill, north on Tamworth, site on east side of Tamworth starting at intersection of Churchill Ave/Tamworth Rd.
76	23	10	E5	Tamworth Rd.	Yonge/Finch, south on Yonge, east (right) on Park Home Ave. , go north (right) on Tamworth; site on east side of Tamworth beginning at intersection of Park Home Ave./Tamworth Rd
77	23	11	A4	Doris Ave. (was Grandview)	Yonge St./Finch Ave. - south on Young St., east on Church Ave. north on Doris Ave.; site is on east side of Doris Ave just past Grandview Way
78	23	11	C4	Byng Ave.	Yonge/ Finch, west on Finch past Bayview, make left on Estelle going south, turn right (west) on third street -- Byng; site on Byng past Wilfred
79	24	11	A2	Dumont St.	Yonge/Steeles, south of Steeles on Yonge, east on Newton, north on Dumont; site on east side of Dumont St.
80	24	11	B1	Michigan Dr.	Yonge/ Steeles, east of Yonge on Steeles, turn south (right) on Whitman, east on Michigan; site on Michigan Dr.
81	24	11	D5	Wycliffe Ave.	Finch/Bayview, south on Bayview, east on Wycliffe; site on Wycliffe Ave.east of Whitelock Cres.
82	33	21	A4	Cobblestone St.	Finch/Leslie, south of Finch on Leslie, east on Van Horne Ave, north on Seneca Dr.; site on Cobblestone west of Seneca
83	33	21	A5	Leslie St.	Finch/Leslie, on Leslie, south of Finch, south of Corning Rd ; site on Leslie near Lesgay
84	33	19	B1	George Henry Blvd.	Sheppard & Don Mills - South on Don Mills , West on George Henry Blvd., on George Henry after Farmview Cres.
85	34	19	F3	Roywood Dr.	401 & Victoria Park, south of 401 on Victoria Park, west on York Mills, north on Ness, right (east) on Lynedock Cres.,turn onto Roywood just past school; site on Roywood on corner of Roywood and Niantic Cres.
86	34	19	B3	Don Mills Rd.	York Mills/Don Mills Rd.- go north on Don Mills Rd., past Moatfield Dr. before Graydon Hall Dr.; site on Don Mills

87	34	19	E5	Aldenham Cres.	York Mills/Don Mills, east on York Mills south on Valleywoods Rd. east on Brookbanks Dr., connect to Underhill Dr., south on Underhill Dr. then west onto Cassandra Blvd, left (south) onto Aldenham; site on Aldenham
88	25	17	A1	Tottenham Rd.	Leslie/Lawrence, south on Leslie, left on Lawrence, first left off Lawrence go on Totterham; site at Totterham
89	25	9	F3	Riderwood Dr.	Leslie/Sheppard, south on Leslie past 401, turn east on Bannatyne, left on Riderwood past Orchid; site on Riderwood
90	25	9	F2	Ealing Dr.	Leslie/401, south (left) on Leslie to Bannatyne, past Stubbs, to Ealing; site on Ealing
91	25	9	D2	Wimpole Dr.	Bayview/401, south on Bayview, past 401, 2nd toad east on Wimpole; site on Wimpole
92	25	9	D3	York Mills Rd.	Bayview/401, south on Bayview, east on York Mills; site on YorkMills after Communite Centre by Wilket Creek
93	25	9	B3	Danville Dr.	Bayview/York Mills, go west on York Mills, N on Upper Highland, east on Danville; site on Danville
94	25	9	C6	Bayview Ave	Bayview/Lawrence, south on Bayview right before Lawrence on west side
95	25	7	B2	Stratford Cres.	Bayview/Lawrence, south of Lawrence on Bayview to Blythwood, right on Blythdale to Stratford Cres. - site on Stratford Cres
96	25	7	C2	Bayview Ave.	Bayview Ave./ Lawrence Ave. : south on Bayview past Lawrence Ave.; site on Bayview just past Bythwood, before Sunnydene Cres.
97	25	8	F5	Deloraine Ave.	Yonge/Wilson, south on Yonge, past Wilson, west on Deloraine; site on Deloraine
98	16	6	F3	Henning Ave.	Yonge/Elington, west on Eglington from Yonge, turn right (north) on the second street, Henning Ave. site on Henning
99	15	6	C1	Glenmount Ave.	Bathurst/Eglinton, north on Bathurst, west on Glengrove; south on Glenmount; site at intersection of Glengrove and Glenmount just south of Glengrove (west side)
100	15	6	C1	Dalemount Ave.	Bathurst/Lawrence, south on Bathurst, west Dell Park, north on Dalemount; site on Dalemount, east side
101	15	6	A4	Lanark Ave.	Dufferin/Eglington, east of Dufferin on Eglington, or west of Bathurst, then south on Oakwood, then right/west on Lanark; site on Lanark
102	15	16	E3	Ronald Ave.	Dufferin/Elington, west on Eglington turn south (left) onto Ronald Rd.; site on Ronald Rd.after Bowie and before Schell Ave.

103	12	16	C2	Amesbury Dr.	Keele / Lawrence , south on Keele Avewest on Flamborough, S on Amesbury, go to Gotham Court , U - Turn, so site is on Amesbury looking North , 50 Ft. past Gotham
104	12	16	B1	Brookhaven Dr.	Jane/Lawrence, east on Lawrence past Jane turn south on Brookhaven : site is 500 ft after Fox
105	12	16	A1	Thurodale Ave.	Jane/Lawrence, east on Lawrence, south on Brookhaven, west on Thurodale : site is 200 ft after Duckworth on Thurodale
106	12	16	A4	Lampton Ave. (was Astoria)	Jane/Eglington, east on Eglington then south on Guestville Ave. to Astoria, west on Astoria Ave. which turns into Lambton Ave.; site is on Lambton west of Chryessa Ave.
107	9	18	E4	Cornelius Pkwy.	Keele/Wilson, south on Keele, east on Wilson to Cornelius; site is on Cornelius and Graham Rd. at the corner
108	9	18	E3	Murray Rd.	Keele/Wilson, east on Wilson, take first left (north) on Murray, past Katherine; site on Murray Rd. North of Spalding
109	9	18	F3	Beffort Rd.	Dufferin/Wilson, north on Dufferin past Wilson, Dufferin becomes Beffort Rd; site is 200 ft. north of where Dufferin turns into Beffort
110	9	20	B6	Sheppard Ave. W	Keele St./ Sheppard, west of Keele, site is 300 ft. before Arleta Ave.
111	8	20	B4	Finch Ave. W	Jane / Finch , E on Finch - Approx 200 ft. E of Driftwood St.
112	8	20	A1	Jane St.	Jane / Steele, W on Steeles to Jane, S on Jane past Hallmar, site on Jane
113	8	20	F1	Magnetic Dr.	Dufferin & Steeles, on Steele west of Dufferin, turn south onto Alness St; take first left (east) onto Magnetic Dr.; site on Magnetic Dr.
114	8	20	F4	Chesswood Dr.	Finch & Dufferin , on Finch W of Dufferin, S on second street, Chesswood before Champagne, site on Chesswood
115	16	8	E6	Lawrence Ave. W	Lawrence Ave, East of Avenue Rd. - 200 ft. east of Avenue Rd. - Site West of bus shelter on North Side in front of Medical Clinic
116	12	16	A2	Tretheway Dr	Jane/Lawrence, south on Jane past Lawrence, east on Tretheway past Millennium; site on Tretheway
117	16	6	E1	Avenue Rd.	Yonge / Lawrence - S on Yonge, west on Lawrence, S on Avenue Rd., site is past Caribou Rd. , on Avenue Rd.
118	13	14	B5	Woodland Hts.	Queensway/Parkside -Located W of Grenadier Pond - High Park; site on Woodland Hts. Up hill after Y intersection
119	6	32	F2	Butterick Rd.	The Queensway/Kipling. South on Kipling to Evans Ave, west on Evans Ave to Butterick. Site on Butterick, midway between beginning and end of street

120	32	15	E6	Queen St. East	Queen/Woodbine. East on Queen 100 ft after Wineva
121	32	15	E5	Glen Stewart Ave.	Kingston Rd./Victoria Pk. West on Kingston Rd. and south 200 ft, turn west on Glen Stewart Ave.; site on Glen Stewart Ave. just before Glen Stewart Ave. turns north.
122	30	15	A5	Walpole Ave.	Danforth/Greenwood, south on Greenwood and east on Walpole 100 ft; site on Walpole
123	32	15	C2	Barker Ave.	Victoria Park/St. Clair Ave. E, west on St. Clair Ave. E to O'Connor Drive, south/west on O'Connor Dr. to Woodbine Ave, south on Woodbine to Barker Ave. (8th street on left); Site begins 100 feet before Coleridge Ave.
124	31	15	F2	Halsey Ave.	St. Clair /Victoria Park, south on Victoria Park, southwest on Dawes Rd., east (right) onto Halsey Ave., Site on north side of Halsey Ave. - beginning 100 ft. from intersection
125	32	15	C4	Aldridge Ave.	Danforth/Coxwell, east on Danforth, south on Aldridge 100 ft.; site on Aldridge
126	32	15	B6	Ashdale Ave.	Queen/Coxwell, Ashdale, west on Queen St. E past Ashdale Ave (one way south only) to Kent Rd., north on Kent Rd then east onto Dundas St. E then south onto Ashdale Ave. site on east side of Ashdale Ave. (opposite side of street to direction of travel) 100 ft. from Queen St. E
127	32	15	B6	Orchard Park Blvd.	Queen St./Coxwell Ave. east on Queen, past Orchard Park. Blvd. (one way south only) to Penny La north on Penny La; to Orchard Pk. Blvd. south on Orchard Pk. Blvd; site on west side of Orchard Park Blvd 200 ft. in from intersection of Queen St & Orchard Park Blvd.
128	32	15	E4/5	Wayland Ave.	Gerard St./Main St., travel east on Gerrard St. to Wayland Ave.; go south on Wayland Ave. 500 ft.; site on west side of Wayland Ave. just past Swanwick Ave.
129	32	15	E4	Gerrard St. E	Gerrard St. E/Main, travel east on Gerrard St. E; site on Gerrard St. E 200 ft. after Malvern Ave.
131	44	49	B4	Ellesmere Rd.	Ellesmere/Morningside, east on Ellesmere and stop just after you pass Mirrow Ct. (Mirrow Ct. is west of Conlins Rd.); site is on the right/south side of Ellesmere between Mirrow and Conlins Rd..
132	44	15	F5	Kingston Rd	Queen St./Woodbine Ave. - north on Woodbine Ave. turn east onto Kingston Rd.; site on south side of Kingston Rd. 50' past Silver Birch Ave/

133	44	49	D1	Hedge End Rd.	Meadowvale/Sheppard, go west on Sheppard to Hedge End Rd, make turn left (right) onto Hedge End Rd.; site is on south side of Hedge End Rd. just after the street curves.
134	44	47	F1	Portsmouth Dr.	Meadowvale/Lawrence, go east on Lawrence to Portsmouth, go south on Portsmouth,; site is at corner just as Portsmouth turns east
135	44	47	E5	Broadbridge Dr.	Lawrence/Port Union, go east on Lawrence past Port Union to East Ave up to Baronial Crt, make a right/east on Baronial; site on Broadbridge past Hartsville Ave.
136	44	47	D6	Moorefield Dr.	Lawrence/Port Union, go east on Lawrence, north on Brimforest Gate, west on Moorefield 200 ft. on the north side; site on Moorefield Dr.
137	44	47	B2	Manse Rd	Lawrence/Manse, go south on Manse; site is on west side of street in the 235 manse Rd. Complex
138	43	37	F3	Galloway Rd.	Lawrence Ave./Markham Rd. - east on Lawrence Ave. to Galloway Rd., south on Galloway; site is 200' south of Chantrey Crt.
139	43	37	E3	Leverhume Cres.	Lawrence/Galloway, travel south on Galloway to westlake Rd. past San Cres. To Leverhume Cres. site on Leverhume
140	42	51	F1	Scarborough-Pickering Town line	Markham Rd./401 - North on Markham Rd., east on Steels Ave. to Scarborough-Pickering Town line; site is 500ft South on west side of street;
141	42	51	B4	Littles Rd.	(Old) Finch Ave./Morningside Ave., east on Old Finch Ave.; right (south) on Littles Rd. until you pass Goodall Dr.; site is on west side of Littles Rd. just after bus shelter.
142	31	17	F6	St Clair Ave. E	St Clair Ave. E/Victoria Park, west on St Clair Ave. 3 blocks
143	31	17	D6	Northdale Blvd.	Victoria Park/St. Clair E, west on St. Clair E, north on O'Connor, west on Curity, south on Cranfield, west on Northdale; site on Northdale between Hollanger and Cranfield
144	29	15	B3	Monarch Park Ave.	Coxwell/Danforth, north on Coxwell from Danforth, turn left/west on Glebeholme then north onto Monarch Park Ave.; site on Monarch Park Ave. halfway between Gleveholme Blvd. and Milverton Blvd.
145	29	15	B2	Plains Rd.	Danforth/Coxwell, north on Coxwell Av to Plains, go west on Plains Rd. 250 m; site is Plains Rd
146	30	3	F1	Caroline Ave.	Queen/Pape, travel east on Queen St. E to Caroline Ave turn south on Caroline Ave site is halfway between Queen and Eastern Ave

147	30	5	E4	Frizzell Ave.	Danforth/Pape, travel south on Pape turn west onto Frizzell; site on north side of Frizzell Ave. beginning 100 ft. from intersection of Pape Ave./Frizzell Ave.
148	29	5	E3	Selkirk St.	Pape/Danforth, E on Danforth, north/left on Pape, right/west on Selkirk; site on Selkirk
149	29	5	E2	Pape Ave	Danforth/Pape Ave.; turn North on Pape Ave.; site is on Pape Ave. just past Mortimer Ave. across from Centennial College
150	30	3	E1	Booth Ave.	Queen/Broadview, , turn south on Broadview, E on eastern , turn south on Booth Follow Booth 500 ft; site on Booth
151	29	5	E1	Fernwood Gardens	Pape Ave. /Danforth Ave., north on Pape Ave., west on Woodville Ave., north on Broadview Ave., west on Fernwood Grdns; site on Fernwood 50' west pf Broadview Ave.
152	35	25	D1	Zenith Dr.	Birchmount/St. Clair, south on Birchmount, east on Zenith 50 ft.; site on Zenith
153	35	27	E4	Kennedy Rd.	Kennedy/Eglington, south on Kennedy; site on west side of Kennedy Rd. 200ft past Merrian Rd.
154	35	27	F4	Verdun Ave.	Eglinton/Midland, south on Midland, turn east on Verdun; site on Verdun, 50 ft after Commonwealth
155	35	27	E4	Eglinton Ave. E	Eglinton Ave./Kennedy Rd. - east on Eglinton Ave., 400'; site on south side of Eglinton adjacent to Go Station.
156	37	27	B1	Sherwood Ave.	Victoria Park/Lawrence, east on Lawrence to Pharmacy, south on Pharmacy turn east on Sherwood; site on Sherwood, 50 ft. after Courton
157	37	27	B1	Laxford Ave.	Pharmacy/Lawrence, south on Pharmacy turn east on Sherwood, turn north on Waxford, follow Waxford to Laxford, site on Laxford
158	37	27	B1	Warden Ave.	Warden/Lawrence, south on Warden; site on Warden 100 ft. south of Danube Dr.
159	37	29	B5	Princemere Cr	Kennedy/Lawrence, north on Warden turn west on Princemere, site at northwest corner of Princemere Cr.; site on Princemere
160	37	27	D1	Flora Dr.	Kennedy/Lawrence, south on Kennedy turn west on to Flora, follow flora to the northwest corner of street site is 200 f\t. from northwest corner; site on Flora
161	40	29	E4	Ellesmere Rd.	Lawrence Ave./Midland Ave. - north on Midland Ave., west on Ellesmere Rd. ; site on Ellesmere Rd. on north boulevard of transit loop
162	40	29	B3	Crocus Dr.	Ellesmere/Warden, west on Ellesmere turn north on Crocus to west corner of street, 100 ft.east, from northwest corner; site on Crocus

163	40	29	D1	Murmouth Rd.	Sheppard/Birchmount, south on Birchmount, turn east on Cass turn south on Murmouth Rd, 200 ft south on Murmouth; site on Murmouth
164	40	31	B6	Kellen St.	Warden/Sheppard, travel north on Warden, turn east on Wardencourt turn south on Nortonwille, turn east on Kellen 200 ft.; site on Kellen
165	40	31	B5	Huntingwood Dr.	Sheppard/Warden, on north on Warden turn east on Huntingwood 100 ft. after Dunmurray Blvd.; site on Huntingwood
166	39	31	D5	Kilchurn Castle Dr.	Kennedy/Sheppard, north on Kennedy, turn west on Huntingwood Dr., turn south 100 ft on Kilchurn Castle Dr.; site on Kilchurn Castle Dr. Between Huntingwood Dr. and Inverary Cres.
167	39	31	D1	Sanwood Blvd.	McNicoll/Birchmount, travel north on Birchmount turn east onto Sanwood 200 ft; site on Sanwood Blvd.
168	39	31	D1	Chapel Park Sq.	Birchmount/Steeles; travel east on Steele's turn south on Grove Av., turn west on Canongate, turn northwest on Chapel Park Sq. 100 ft.; site on Chapel Park Sq.
169	41	31	E5	Midland Ave	Sheppard/Midland, north on Midland, 50 ft north of Havendale; site on Midland
170	41	31	F5	Crockamhill Dr.	Huntingwood/Midland, east on Huntingwood, north on Crookamhill Dr., 100ft.; site on Crockamhill Dr.
171	40	31	F1	Scoville Sq.	Brimley/Steeles, south on Brimley, west on Royal and northeast on Scoville, 160 ft.; site on Scoville
172	41	41	C2	Maybrook Dr.	McNicoll/McCowan, east on McNicoll, north on Maybrook 500 ft. site on Maybrook
173	32	15	F5	Victoria Park Ave.	Victoria Park Ave./Kingston Rd; go south on victoria park, Site begins 100 ft south of Victoria Park Ave./Kingston Rd. intersection on west side.
174	36	25	E3	Wynnview Crt.	Birchmount/Kingston, east on Kingston to Glen Everest, E on Glen Everest to Wynnnview; site south on Wynnview 200 ft
175	36	25	E5	Sloley Rd.	Kingston/Dorset, south on Dorset, east on Sloley 50 ft.; site on Sloley
176	36	37	A5	Randall Cres.	Eglinton/McCowan, go west on McCowan, west on Phyllis, west on Randall 100 ft.; site on Randall
177	36	37	A5	Randall Cres.	Eglington/McCowan, south on McCowan right/east on Phyllis, south 500ft.; Randall
178	36	37	A6	Kingston Rd	Kingston/McCowan, 500 ft. west of McCowanl site on Kingston Rd.
179	36	37	D4	Eglinton Ave. E	Eglinton E/Markham, 200 ft. east of Markham; site on Eglinton
180	38	39	A5	Suraty Ave.	Lawrence/McCowan, north on McCowan, west on Meldazy, south on Kentcliff and west on Suraty 100ft; site on Suraty

181	38	39	B4	Lynnbrook Dr.	Ellesmere/McCowan, east on Ellesmere, south on Parkington, east on Lynnbrook 100 ft; site on Lynnbrook
182	38	39	B3	Progress Ave.	Ellesmere/McCowan, north on McCowan, east on Progress, 200ft; site on Progress
183	42	39	D1	Sheppard Ave. E	Sheppard/Markham, east on Sheppard 600 ft.; site on south side of Sheppard just east of Progress Ave.
184	42	41	E6	Unita Gr. (Grove)	Sheppard/Markham Rd, east on Sheppard, north on Washburn, northwest on Mammoth Hall Trail , northeast on Unita Gr. 50 ft.; site on Unita Gr.
201	30	5	D4	Broadview Ave.	Danforth/Broadview; site on Broadview, go south on Broadview, just past Montcrest Blvd.
202	26	7	E5	Esandar St.	Eglington & Bayview, E on Eglington, S on Laird Dr., E on Esandar , site on Esandar just after railroad tracks
203	22	7	C4	Cleveland St.	Bayview/Eglington, west on Eglington to Cleveland, south on Cleveland 1 km to site; site on Cleveland just below Belsize
204	22	6	F4	Berwick Ave.	Yonge/Eglington, south on Yonge, left/west on Berwick; site is on north side half way between Yonge and Duplex
205	22	6	F5	Chaplin Cres	St. Clair/Yonge, north on Yonge to Chaplin, go west on Chaplin ; site on Chaplin Cres. Immediately after intersection of Chaplin Cres./Duplex Ave. on the north side
206	22	4	E1	Avenue Rd.	Bloor/Avenue, north on Avenue to Edmund, from Edmund, north beyond Clarendon; site on Avenue Rd
207	27	4	F2	Roxborough St. W	Yonge/Bloor, north on Yonge St. then left/east on Roxborough; site on Roxborough on north side
208	27	5	A3	Mt. Pleasant Rd.	Yonge/Bloor, east on Bloor, left/north on Mt. Pleasant; site on Mt. Pleasant between Rosedale Valley and Elm
209	28	5	B4	Prospect St.	Yonge/Wellesley, east on Wellesley, south on Parliament, west/right on Amelia, past Rose; site on Prospect St.
210	27	5	A6	Mutual St.	Yonge/Carlton, east on Carlton, at third rd turn right/south onto Mutual; site on Mutual south of Dundas;
211	20	2	E1	John St.	Corner of King St. / John Street , Site on John St. immediately north of intersection King/John
212	28	3	A1	Colbourne St.	King/Yonge, south on Yonge, turn left (east) on King, right (south) on Church St., West on Wellington , at Scott Street, turn N then Colburne is at first Stop Sign, site on Colbourne
213	28	3	A1	George St.	Yonge/Front, south on Yonge, East on Front, south (right) on Jarvis. Site on George St.

214	28	3	B1	Richmond St. E.	Queen/Sherbourne, east Queen past Sherbourne, past Parliament, turn right on Power St., west on Richmond St. E; site on Richmond St. E between Parliament St. and Power St.
215	28	5	B6	Pashler Ave.	Dundas/Sherbourne, east on Dundas past Sherbourne, past parliament, south on parliament, east to Shuter, north on Regent St., east on St. Bartholomew St.., north to Pashler, site on Pashler
216	28	3	C1	Bright St.	Yonge/Queen, east on Queen, past Yonge, past parliament, right (south) on Bright St. (do not pass King St. E.) ; site on Bright St. between Queen St. and King St. on east side.
217	28	5	C6	Dundas St. E	Dundas/Sherbourne St.; east on Dundas past parliament, past Sackville, between Sumach (on the left side) Sherbourne and Wyattmark on right. Site on Dundas
218	30	5	D6	Carroll St.	Broadview/Queen; travel west on Queen; turn onto Carroll St.; site is on west side of Carroll St. before Matilda Ave.
219	30	5	D6	Kintyre Ave.	Broadview/Queen, travel north on Broadview to Kintyre, turn west on Kintyre; site 300 ft. from intersection
220	28	2	D5	Lake Shore Ave.	2 km south of Hanlan's point ferry dock on Lake Shore (50 feet from Gibraltar (Centre for the Arts)
221	32	15	D3	Cedarvale Ave.	South on Woodbine to Danforth, E on Danforth , north on Cedarvale Ave.; site on east side of Cedarvale past Strathmore Blvd.
222	26	17	B4	Don Mills Rd.	Don Mills Road/Eglinton Ave. East near the Ontario Science Centre Parking Lot
223	26	7	F6	Millwood Rd	Eglington / Bayview - E on Eglinton Rd., S on Laird which becomes Millwood; site on Millwood Rd just before Leaside Bridge
224	26	7	F5	Overlea Blvd.	Eglington / Bayview, E on Eglington , S on Millwood rd., E on Overlea- site on Overlea between Leaside Park Dr. & Thorncliff Park Dr.
250	19	2	B1	Stafford St.	Bathurst/King, west on King, west to Stafford, south on Stafford just before Canniff St.; site on Stafford
251	20	4	F6	University Ave	University / Queen , N on University - site is on east side of University Ave. just before Armoury St.
252	28	2	F6	Avenue (of the Island)	on Toronto Island - on Avenue of the Island about 600 meters north of Lake Shore Ave.
254	19	4	C4	Clinton St.	Bloor W/Dufferin, east on \bloor from intersection, past Christie to Clinton, south on Clinton to Clinton Pl.; site is on east side of Clinton St.
256	28	2	F1	King St. W.	University / King , site is on King - S side 50 feet E from University Ave.

257	28	5	C4	Parkview Ave.	Parliament/Wellesley, east on Wellesley past Parliament until you hit Parkview, north on Parkview until you reach the end of the street
258	28	3	B1	Sackville St.	Sherbourne/Queen, east on Queen, south on Sackville past Ray, site on Sackville
259	27	4	F6	Dundas St. W.	Yonge St./Dundas St. W; west on Dundas; site is on South side of Dundas, in front of Eatons Centre,
260	20	4	E6	Spadina Ave.	Queen/Spadina, go north on Spadina to Dundas; site is just above the Dundas/Spadina intersection, northward; site on Spadina
261	20	4	D5	Augusta Ave.	Bathurst/Spadina, north on Spadina from intersection to Oxford, west to Augusta; site is south of Oxford, left side
270	28	3	B5	Lake Shore Ave.	Toronto Island - Go to Wards island, south on Withrow, then west on Lake Shore site is 500 meters west of Algonquin on Lake Shore Ave.
271	36	25	E3	Wynnview Crt.	Birchmount/Kingston, east on Kingston to Glen Everest, E on Glen Everest to Wynnnview; site south on Wynnview at end of street
300	19	4	C3	Bloor St. W	Bloor St, between Euclid and Manning
301	20	4	D3	Bloor St. W.	Bloor / Bathurst , Go E on Bloor , site 1/2 block E of Albany
302	20	4	D4	Sussex Ave.	Bathurst / Bloor ; E on Bloor past Bathurst , S on Spadina - site is on Sussex 200 ft. from Spadina
303	20	4	D4	Borden St.	Harbord / Bathurst , N on Bathurst to Harbord, E on Harbord to Borden , S on Borden , site 200 ft. South
304	20	4	D5	Lippincott St.	College/ Bloor , N on Bathurst, east on Ulster St, S on Lippincott - site is on Lippincott 200 Ft. before College
305	20	4	E5	Spadina Ave.	College / Spadina - on Spadina South past College - site on Spadina
306	20	4	D6	Kensington Ave.	Spadina / Dundas - go N on Spadina , W on Baldwin , S on Kensington - site half way between Fitzroy / Dundas on Kensington
307	20	4	D6	Dundas St. W.	Dundas / Spadina - W on Dundas , 100 ft. past Kensington
308	20	4	D6	Hickory St.	Dundas / Bathurst - S on Bathurst - E on Dundas, N on Hickory - site on Hickory
309	20	4	D6	Dundas St. W.	Dundas / Bathurst - S on Bathurst, E on Dundas, past Carlyle, site is on Dundas
310	20	4	D6	Eden PL	Queen / Bathurst - S on Bathurst past Dundas, E on Carr St. , S on Eden - site on Eden at corner
311	19	4	C5	Euclid Ave.	Dundas/ Bathurst - S on Bathurst W on Dundas , S on Euclid , site is an alley on W side of Euclid

312	19	4	C5	Mansfield Ave.	College / Bathurst : S on Bathurst - W on College - S on Manning , W on Mansfield;- site on Mansfield before Clinton St.
313	19	4	B5	Crawford St.	Bathurst / Dundas : S on Bathurst , W on Dundas - N on Crawford - site past Cinder St.
315	19	2	C2	Niagara St.	Bathurst / King , S on Bathurst to Tecumseth Place , turn south onto Tecumseth St. - S to Niagara , site on Niagara St. starting at corner of Tecumseth St. and Niagara
316	20	2	D1	Wellington St. W	Spadina / Wellington - turn W on Wellington - site is 100 ft. E of Portand St.
317	20	2	D1	Adelaide St. W	Intersection Bathurst / north on Bathurst St. to Adelaide , Turn E on Adelaide ;siite on Adelaide just past Brant St.
318	20	2	D1	Augusta Ave.	Queen / Spadina - west on Queen past Spadina until Augusta - E side - site on Augusta
320	20	4	E6	Sullivan St.	Spadina / Dundas - go S on Spadina , to Grange Ave., E on Grange to Huron , S on Huron to Sullivan - E on Sullivan 0 Site between Grange St & Beverly St.
321	20	4	E6	Queen St. W.	Queen / university , W on Queen about 100 ft. W of University
323	20	2	E2	John St.	Wellington / John : Front & John , go N on John , site on John before Wellington , beside CBC Centre
324	28	3	A2	Cooper St.	Yonge / Queens Quay E., go E on Queens Quay to Cooper , north on Cooper
326	27	4	F4	St. Nicholas St.	Yonge / Bloor - W on Bloor , S on St. Nicholas - 100 ft. after St. Mary
328	27	5	A4	Gloucester St.	Yonge & Bloor St., South on Yonge, East on Gloucester - site is on north side of Gloucester St. 50 feet west of (before) Church St.
329	27	4	F5	Grosvenor St.	Yonge / Bloor - from Yonge turn W on Grosvenor,; site is on north side of Grosvenor St. beginning 100 ft. after Bay St.
330	28	5	B4	Ontario St.	Bloor / Parliament: turn W on Aberdeen , S on Ontario St. - site is 100 ft. on Ontario St.
332	27	5	B5	Gerrard St. E.	Gerrard / Sherbourne ; site is west on Gerrard 200 ft. on north side.
333	28	5	B6	Dundas St. E.	Dundas / Parliament , west of Parliament on Dundas. 10 ft. east of Berkley / Dundas on S side
334	28	3	B1	Richmond St. E.	Richmond St../ Sherbourne St.; site is west on Richmond St. between Sherbourne & George St. on north side.
335	28	3	B2	Frederick St.	Jarvis / King , S on Jarvis , E on King , South on Frederick St.
336	28	3	B1	The Esplanade	Parliament/Front; go westy on Front St, turn left onto Berkely and then west on Espalande - near Parliament

337	41	31	E5	Midland Ave (was site 169A)	Kennedy Rd./Sheppard Ave; go east on Sheppard Ave. turn left (north) onto Midland Ave.; site on east side of on Midland Ave in front of Agincourt Highschool . Note: In 2002 Survey was site 169A now 337-
338	7	30	B3	Benrubin Dr.	Note: In 2002 Survey was site 66A now 338 - Kipling/Finch, go east on Finch, north on Milady, east on Firenza; site on Benrubin

Total Sites 247

APPENDIX 3 – Site Rankings

APPENDIX 3 - Large Litter - Site Rankings

Site Number	Ward	Site_Name	Items/ Site		Sites
55	20	Augusta Ave.	134	Above average	
32	17	Caledonia Rd.	110	Above average	
316	20	Wellington St. W	108	Above average	
155	35	Eglinton Ave. E	107	Above average	
112	8	Jane St.	105	Above average	
111	8	Finch Ave. W	90	Above average	
202	26	Esandar St.	88	Above average	
43	18	Macklem Ave.	82	Above average	
254	19	Clinton St.	80	Above average	
182	38	Progress Ave.	77	Above average	
150	30	Booth Ave.	70	Above average	
77	23	Doris Ave. (was Grandview)	66	Above average	
124	31	Halsey Ave.	65	Above average	
305	20	Spadina Ave.	64	Above average	
104	12	Brookhaven Dr.	59	Above average	
324	28	Cooper St.	58	Above average	
258	28	Sackville St.	57	Above average	
25	13	St. Clair Ave. W	56	Above average	
33	17	Uxbridge Ave.	54	Above average	
122	30	Walpole Ave.	54	Above average	
143	31	Northdale Blvd.	51	Above average	
213	28	George St.	50	Above average	
114	8	Chesswood Dr.	49	Above average	
323	20	John St.	49	Above average	
85	34	Roywood Dr.	48	Above average	
318	20	Augusta Ave.	47	Above average	
37	14	Campbell Ave.	47	Above average	
110	9	Sheppard Ave. W	44	Above average	
42	18	Muir Ave.	42	Above average	
209	28	Prospect St.	42	Above average	
306	20	Kensington Ave.	41	Above average	
154	35	Verdun Ave.	39	Above average	
48	19	Euclid Av.	38	Above average	
63	21	Vesta Dr.	37	Above average	
86	34	Don Mills Rd.	37	Above average	
313	19	Crawford St.	37	Above average	
31	17	Osler St.	36	Above average	
141	42	Littles Rd.	36	Above average	
223	26	Millwood Rd	36	Above average	
57	20	Kensington Ave.	36	Above average	
224	26	Overlea Blvd.	36	Above average	
125	32	Aldridge Ave.	35	Above average	
69	9	Wilson Ave.	34	Above average	
106	12	Lampton Ave. (was Astoria)	34	Above average	
330	28	Ontario St.	33	Above average	
41	18	Whytock Ave.	33	Above average	
217	28	Dundas St. E	31	Above average	
20	6	Valermo Dr.	31	Above average	
120	32	Queen St. East	30	Above average	
53	20	Wolseley St.	30	Above average	
96	25	Bayview Ave.	30	Above average	
116	12	Tretheway Dr	30	Above average	
131	44	Ellesmere Rd.	30	Above average	
156	37	Sherwood Ave.	30	Above average	
172	41	Maybrook Dr.	28	Above average	
40	14	Queen St. W.	27	Above average	
4	2	Iron St.	27	Above average	
47	19	Mansfield Ave.	27	Above average	
35	17	McFarland Ave.	26	Above average	
52	20	Portland St.	26	Above average	
129	32	Gerrard St. E	25	Above average	
307	20	Dundas St. W.	25	Above average	

312	19	Mansfield Ave.	25	Above average		
8	4	Martin Grove Rd. (was Tollington)	25	Above average		
23	5	Canmotor Ave	25	Above average		
184	42	Unita Gr. (Grove)	25	Above average		
123	32	Barker Ave.	24	Above average		
219	30	Kintyre Ave.	24	Above average		
34	17	Ashburnham Rd.	24	Above average		
179	36	Eglinton Ave. E	24	Above average		
12	3	Rathburn Rd.	23	Above average		
28	13	Runnymede Rd.	23	Above average		
158	37	Warden Ave.	23	Above average		
211	20	John St.	23	Above average		
218	30	Carroll St.	23	Above average		
260	20	Spadina Ave.	23	Above average		
115	16	Lawrence Ave. W	23	Above average		
26	13	Maria St.	22	Above average		
173	32	Victoria Park Ave.	22	Above average		
221	32	Cedarvale Ave.	22	Above average		
301	20	Bloor St. W.	22	Above average		
51	17	Alberta Ave.	22	Above average	82	33%
203	22	Cleveland St.	21	Average		
310	20	Eden PL	21	Average		
333	28	Dundas St. E.	21	Average		
59	20	Elm St.	21	Average		
66	21	Bathurst St.	21	Average		
88	25	Tottenham Rd.	21	Average		
117	16	Avenue Rd.	21	Average		
153	35	Kennedy Rd.	21	Average		
178	36	Kingston Rd	21	Average		
336	28	The Esplanade	21	Average	10	4%
16	5	Fieldway Rd.	20	Below average		
206	22	Avenue Rd.	20	Below average		
220	28	Lake Shore Ave.	20	Below average		
329	27	Grosvenor St.	20	Below average		
58	20	Glasgow St.	20	Below average		
222	26	Don Mills Rd.	20	Below average		
250	19	Stafford St.	20	Below average		
303	20	Borden St.	20	Below average		
326	27	St. Nicholas St.	20	Below average		
92	25	York Mills Rd.	19	Below average		
142	31	St Clair Ave. E	19	Below average		
171	40	Scoville Sq.	19	Below average		
46	19	Stafford St.	18	Below average		
76	23	Tamworth Rd.	18	Below average		
332	27	Gerrard St. E.	18	Below average		
62	21	Old Park Rd.	17	Below average		
119	6	Butterick Rd.	17	Below average		
300	19	Bloor St. W	17	Below average		
21	6	Browns Line	17	Below average		
70	8	Tuscan Gate	17	Below average		
214	28	Richmond St. E.	17	Below average		
29	13	Spring Rd.	16	Below average		
105	12	Thurodale Ave.	16	Below average		
183	42	Sheppard Ave. E	16	Below average		
204	22	Berwick Ave.	16	Below average		
205	22	Chaplin Cres	16	Below average		
165	40	Huntingwood Dr.	16	Below average		
133	44	Hedge End Rd.	15	Below average		
144	29	Monarch Park Ave.	15	Below average		
335	28	Frederick St.	15	Below average		
18	5	Rosewood Ave.	15	Below average		
152	35	Zenith Dr.	15	Below average		
7	2	Kingdom St.	14	Below average		
79	24	Dumont St.	14	Below average		

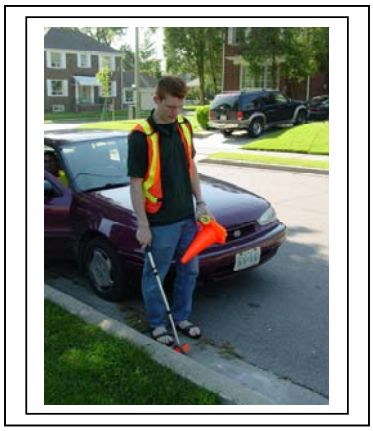
164	40	Kellen St.	14	Below average			
167	39	Sanwood Blvd.	14	Below average			
201	30	Broadview Ave.	14	Below average			
304	20	Lippincott St.	14	Below average			
38	14	Indian Trail	14	Below average			
308	20	Hickory St.	14	Below average			
94	25	Bayview Ave	13	Below average			
107	9	Cornelius Pkwy.	13	Below average			
147	30	Frizzell Ave.	13	Below average			
169	41	Midland Ave	13	Below average			
24	11	Oak St.	13	Below average			
45	19	Crawford St.	13	Below average			
113	8	Magnetic Dr.	13	Below average			
337	41	Midland Ave (was site 169A)	12	Below average			
44	19	Pendrith St.	11	Below average			
90	25	Ealing Dr.	11	Below average			
148	29	Selkirk St.	11	Below average			
162	40	Crocus Dr.	11	Below average			
170	41	Crockamhill Dr.	11	Below average			
315	19	Niagara St.	11	Below average			
1	1	Markbrook Lane	11	Below average			
49	19	Palmerston Ave.	11	Below average			
78	23	Byng Ave.	11	Below average			
97	25	Deloraine Ave.	11	Below average			
146	30	Caroline Ave.	11	Below average			
215	28	Pashler Ave.	11	Below average			
11	4	Aylesbury Rd.	10	Below average			
27	13	Methuen Ave.	10	Below average			
68	7	Franson Cres.	10	Below average			
72	10	Heaton St.	10	Below average			
101	15	Lanark Ave.	10	Below average			
102	15	Ronald Ave.	10	Below average			
145	29	Plains Rd.	10	Below average			
160	37	Flora Dr.	10	Below average			
207	27	Roxborough St. W	10	Below average			
261	20	Augusta Ave.	10	Below average			
61	27	Grenville St.	10	Below average			
168	39	Chapel Park Sq.	10	Below average			
39	14	Sunnyside Ave.	9	Below average			
67	7	Windhill Cres.	9	Below average			
73	23	Newtonbrook Blvd.	9	Below average			
83	33	Leslie St.	9	Below average			
98	16	Henning Ave.	9	Below average			
135	44	Broadbridge Dr.	9	Below average			
137	44	Manse Rd	9	Below average			
210	27	Mutual St.	9	Below average			
338	7	Benrubin Dr.	9	Below average			
149	29	Pape Ave	9	Below average			
302	20	Sussex Ave.	9	Below average			
2	1	Glenhollow Ave.	8	Below average			
6	2	Westona St.	8	Below average			
60	20	Oxley St.	8	Below average			
89	25	Riderwood Dr.	8	Below average			
100	15	Dalemount Ave.	8	Below average			
126	32	Ashdale Ave.	8	Below average			

128	32	Wayland Ave.	8	Below average		
151	29	Fernwood Gardens	8	Below average		
309	20	Dundas St. W.	8	Below average		
36	14	Dupont St.	8	Below average		
54	20	Dennison Ave.	8	Below average		
65	21	Vesta Dr.	8	Below average		
159	37	Princemere Cr	8	Below average		
163	40	Murmouth Rd.	8	Below average		
256	28	King St. W.	8	Below average		
317	20	Adelaide St. W	8	Below average		
3	1	Amoro Dr.	7	Below average		
50	17	Benson Ave.	7	Below average		
74	23	Churchill Ave.	7	Below average		
132	44	Kingston Rd	7	Below average		
257	28	Parkview Ave.	7	Below average		
334	28	Richmond St. E.	7	Below average		
14	4	Burnhamthorpe Park Blvd.	7	Below average		
56	20	Napanee Ct.	7	Below average		
84	33	George Henry Blvd.	7	Below average		
87	34	Aldenham Cres.	7	Below average		
91	25	Wimpole Dr.	7	Below average		
95	25	Stratford Cres.	7	Below average		
138	43	Galloway Rd.	7	Below average		
81	24	Wycliffe Ave.	6	Below average		
99	15	Glenmount Ave.	6	Below average		
212	28	Colbourne St.	6	Below average		
252	28	Avenue (of the Island)	6	Below average		
270	28	Lake Shore Ave.	6	Below average		
328	27	Gloucester St.	6	Below average		
13	4	Finchley Rd.	6	Below average		
64	21	Ava Rd.	6	Below average		
75	23	Tamworth Rd.	6	Below average		
175	36	Sloley Rd.	6	Below average		
251	20	University Ave	6	Below average		
321	20	Queen St. W.	6	Below average		
17	5	Elderidge Ave.	5	Below average		
30	17	Nairn Ave.	5	Below average		
118	13	Woodland Hts.	5	Below average		
127	32	Orchard Park Blvd.	5	Below average		
136	44	Moorefield Dr.	5	Below average		
177	36	Randall Cres.	5	Below average		
259	27	Dundas St. W.	5	Below average		
93	25	Danville Dr.	5	Below average		
103	12	Amesbury Dr.	5	Below average		
108	9	Murray Rd.	5	Below average		
109	9	Beffort Rd.	5	Below average		
5	2	Lockheed Blvd	4	Below average		
71	10	Josephine Rd.	4	Below average		
140	42	Scarborough-Pickering Town line	4	Below average		
176	36	Randall Cres.	4	Below average		
121	32	Glen Stewart Ave.	4	Below average		
174	36	Wynnview Crt.	4	Below average		
311	19	Euclid Ave.	4	Below average		
320	20	Sullivan St.	4	Below average		
80	24	Michigan Dr.	3	Below average		
82	33	Cobblestone St.	3	Below average		
157	37	Laxford Ave.	3	Below average		
181	38	Lynnbrook Dr.	3	Below average		
216	28	Bright St.	3	Below average		
139	43	Leverhume Cres.	3	Below average		
161	40	Ellesmere Rd.	3	Below average		
208	27	Mt. Pleasant Rd.	2	Below average		
271	36	Wynnview Crt.	2	Below average		
134	44	Portsmouth Dr.	2	Below average		
180	38	Suraty Ave.	2	Below average		
166	39	Kilchurn Castle Dr.	1	Below average	155	63%
			5243		247	100%

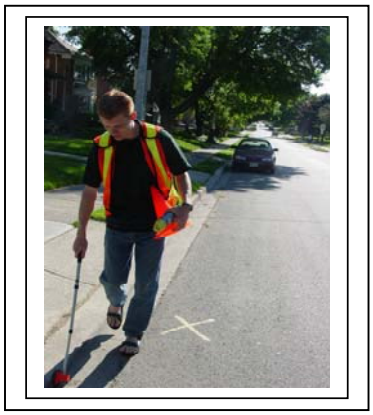
APPENDIX 4 - Photos - Setting up a Site

Large Litter Count

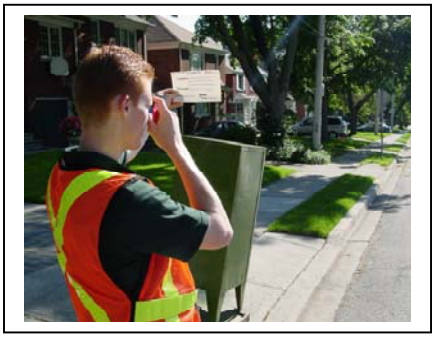
- Team Arrives at the site, Measures 50ft. ahead of car, sets up site



- Marks starting point – mid-point and end of site



- Takes photos of site



- Then walks site – describing the large litter – and dictating into a tape recorder

Photos - Small Litter – Set up and Counting

- While team member is completing large litter count – small litter frame is used to examine small litter

- Small litter is examined at close range In order to see, count and describe

- Three “flips” counted at each site