



**Works & Emergency Services
Solid Waste Management Services**

**Etobicoke Residential Curbside Waste Participation and Composition
Study Spring 2003**

April 22 – May 16, 2003

Final Report

Prepared by Policy and Planning Group
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Summary

Toronto's Waste Diversion Task Force 2010 recommended the implementation of a three-stream system to collect residential wastes from single-family households. The three streams are Blue/Grey Box Program Materials, Green Bin Program Materials and Residual Waste. The first two phases of the implementation of the new collection system were completed in Etobicoke in September 2002 and Scarborough in June 2003. Subsequent implementation phases are planned for 2004 and 2005. The City's goal is to have the new three-stream system fully implemented Citywide to single-family households by 2006.

The Etobicoke three-stream program serves approximately 70,000 single-family households. An audit of the 3 material streams set out by 80 single-family households and a participation audit of 400 single-family households from different geographical and socio-economic areas within Etobicoke was completed between April 22 and May 16, 2003. Leaf and Yard wastes are collected separately and were not included in this study.

The purpose of the project was to support the ongoing operation of the three-stream residential collection system in Etobicoke as well as the implementation of the remaining phases of the three-stream collection system. This project was also intended to support the City's investigation of new and emerging technologies, policies and practices for waste diversion.

This project was comprised of two components with separate objectives; a waste audit and a participation audit. The methodology followed was generally in accordance with the Waste Diversion Ontario (WDO) Residential Curbside Waste Audit Guide, as modified to adapt to the requirements of the three stream system in Etobicoke and the objectives of the audit.

The audit results are limited, as they represent the state of a specific area within the City at a specific time. Key results are listed below.

- For the Green Bin Program, the Participation Audit demonstrated that 89% of households set out a Green Bin at least once during the four-week study period. The Blue/Grey Box Program experienced an equivalent level of participation, with 90% of households setting out these materials at least once during the audit.
- For Residual Waste, 92% of households studied set out a total of 6 or fewer items every two weeks and 76% of households set out a total of 3 or fewer items every two weeks.
- Green Bins were weighed over the study period and only 1.37% weighed more than 20 kg. The average Green Bin weight was 9.71 kg. It is estimated that 90% of the Green Bins in Etobicoke weigh between 3.23 and 16.18 kg.
- The average quantity of Green Bin Program Materials collected (including bin liners and contaminants) was 251.2 kg/hhld/yr. The Green Bin Program Materials were found to be comprised of 96.30% (by weight) solicited organic materials, 2.41% film plastic (including bin liners and contaminants) and 1.29% other contaminants.

- Green Bin Program Materials included a significant quantity of film plastic present as a contaminant, i.e. other than film plastic used as a bin liner. Future Green Bin Program support should make a priority of reducing the quantity of contaminant film plastic and other contaminants.
- The average quantity of materials collected by the Blue/Grey Box Program during the study was 297.47 kg/hhld/yr. The Blue/Grey Box Program Materials were found to be comprised of 74.11% (by weight) solicited Grey Box materials, 20.65% solicited Blue Box materials and 5.25% contaminants.
- The average quantity of Residual Waste collected during the study was 328.97 kg/hhld/yr. The Residual Waste was found to be comprised of 30.36% (by weight) Organics, 22.58% Paper Fibres, 22.33% Other Waste Materials, 17.23% Plastics, 4.38% Metals, 2.91% Glass, and 0.20% Household Special Waste. The Residual Waste estimates do not include bulky items, as they were not collected in the audit.
- Residual Waste contained materials accepted in the City's diversion programs. Of the Residual Waste collected during the study, 4.56% was accepted as Blue Box Material, 15.42% was Grey Box Material, 27.79% was Green Bin Material and 6.77% was Yard Waste.
- The average total quantity of solid waste collected (i.e. Green Bin Program Materials, Blue/Grey Box Program Materials and Residual Waste) during the study was 877.79 kg/hhld/yr. The composition by major material type was 38.57% Organics, 34.49% Paper Fibres, 9.31% Plastics, 9.02% Other Waste Materials, 5.15% Glass, 3.37% Metals and 0.09% Household Special Wastes.
- The recovery rate of Green Bin Program Materials during the study was 72.19%. The quantity of Green Bin Program Materials not recovered in the Green Bin Program during the study was 91.63 kg/hhld/yr. The greatest proportion of this was food waste at 63.43%, followed by Tissue/Towelling at 15.27%.
- The recovery rate of Blue/Grey Box Program Materials during the study was 80.27%. The quantity of Blue/Grey Box Program Materials not recovered in the Blue/Grey Box Program during the study was 69.31 kg/hhld/yr. Paper Fibres at 80.21% comprised the largest fraction of the materials not recovered. Plastics, Metals, and Glass comprised the remainder in approximately equal proportions.
- The combined recovery rate, (i.e. the ratio of the sum of solicited Green Bin Program Materials and Blue/Grey Box Program Materials collected by the Green Bin Program and Blue/Grey Box Program respectively to Total Waste Collection) was 59.22%. Other diverted materials, including white goods and Leaf and Yard Waste that were not included in the audit would increase the combined recovery rate. Bulky items and construction and demolition waste not included in the audit would decrease the combined recovery rate.

Several recommendations resulting from completion of the project are listed below.

- The constituent materials list should be reviewed prior to subsequent waste audit projects to compensate for changes in the relative quantities of items classified under the Other Waste category and the Non-Classifiable constituent material category.
- A practical method of quantifying bulky items, white goods and construction and demolition waste needs to be developed.
- Additional audits should be completed to study changes in set out behaviour, seasonal variations, and in other communities 3 to 6 months after the Green Bin Program has been implemented in these areas.

1. Introduction

1.1 Background

Toronto’s Waste Diversion Task Force 2010 recommended the implementation of a three-stream system to collect residential wastes from single-family households. The three components of the three-stream system are Blue/Grey Box Program Materials, Green Bin Program Materials and Residual Waste. Leaf and Yard wastes will continue to be collected separately. The first two phases of the implementation of the new collection system were completed in Etobicoke in September 2002 and Scarborough in June 2003. Subsequent implementation phases are planned for 2004 and 2005. The City’s goal is to have the new three-stream system fully implemented Citywide to single-family households by 2006.

The three-stream collection system for residential solid waste requires single-family residences to separate wastes into three material streams; Blue/Grey Box Program Materials, Green Bin Program Materials and Residual Wastes. Single family residences receive weekly collection of Green Bin Program Materials. The Blue/Grey Box Program Materials and Residual Waste streams are co-collected with the Green Bin Program Materials on alternating weeks. The items listed in Table 1 are set out as Blue/Grey Box Program Materials.

The three-stream collection system was launched in Etobicoke in September 2002, and now serves approximately 70,000 single-family households.

Table 1 – Blue/Grey Box Program Materials Stream

| Place Loose in the Blue Box | Placed Loose in the Grey Box | Bundled or Bagged in or Beside the Grey Box |
|---|-------------------------------------|--|
| Glass Bottles and Jars | Household Paper | Newspapers and Telephone Directories |
| Metal Cans | Gift Wrap and Cards | Magazines, Catalogues and Books |
| Plastic Bottles and Jugs (#1 and #2 only) | Paper Egg Cartons, Rolls and Bags | Corrugated Cardboard |
| Aluminum Foil Containers | Boxboard Boxes | |
| Empty Paint and Aerosol Cans | | |
| Milk Juice and Cartons | | |
| Drink Boxes | | |

Residents are instructed to include the items listed in Table 2 in the residential Green Bin Program Materials stream. Residents set out their Green Bin Program Materials in a 45 litre wheeled cart commonly referred to as “The Green Bin”. Households are also provided with a 7.5 litre kitchen container.

Households are allowed to line their kitchen and curbside containers with non-biodegradable plastic bags and experience thus far indicates that most households prefer to do so. Therefore, most of the Green Bin Program Materials collected at curbside are enclosed in plastic bags.

Table 2 – Green Bin Program Materials Stream

| Material Category | Materials List |
|--------------------------|---|
| Paper fibres | <p>Soiled paper towels</p> <p>Tissues</p> <p>Soiled paper food packaging items which could include:</p> <ul style="list-style-type: none"> • Microwave popcorn bags, ice cream boxes, frozen food packages • Butcher paper, meat wrap • Fast food paper, Chinese food take out carton • Potato bags, paper candy wrappers <p>Paper plates, cups</p> |
| Food | <p>All food materials including fresh, frozen, dried, cooked and prepared foods and leftovers</p> <p>Fruit and vegetable scraps</p> <p>Meat and fish products including skins, fat and entrails</p> <p>Pasta, bread and cereals</p> <p>Dairy products</p> <p>Coffee grinds and filters and tea bags</p> <p>Egg shells</p> <p>Candy and confectionery products</p> |
| Sanitary | Diapers, sanitary and incontinence products |
| Misc. | <p>Houseplants including plant material and soil</p> <p>Animal waste and litter or bedding</p> |

The Residual Waste stream captures all remaining materials not included or captured in the Blue/Grey Box Program or Green Bin Program Materials streams, or by the separate collection programs for Leaf and Yard wastes, white goods and bulky items. White goods and bulky items were not collected as part of this study, although they were noted on collection logs.

The last comprehensive waste composition study was conducted for the City of Toronto in Fall/Winter of 2000/2001. It was a study of single family and multi-residential dwellings throughout different former municipalities in Toronto. The Etobicoke waste audit studied 80

single-family homes throughout different areas of Etobicoke. It was the first audit conducted in an area served by the new three-stream system.

1.2 Objectives

The purpose of this project was to support the ongoing operation of the three-stream residential collection system in Etobicoke as well as the implementation of the remaining phases of the three-stream collection system. This project was also intended to support the City's investigation of new and emerging technologies, policies and practices for waste diversion.

This project was comprised of two components with separate objectives; a waste audit and a participation audit. The objectives of each component are described in the following paragraphs.

The objective of the waste audit component of the project was to produce representative, quantitative information on the rate of waste collection and the partitioning of the waste into the Blue/Grey Box Program and Green Bin Program and Residual Waste streams. It was also an objective of the waste audit to produce information on the quantities of constituent materials in each stream.

Specifically, it was the objective of the waste audit to produce accurate and representative quantitative measurements of the following:

- i) the collection of solid wastes, expressed as kilograms per household per year;
- ii) the weights of materials collected in the Blue/Grey Box, Green Bin and Residual Waste streams, expressed in kilograms per household per year;
- iii) the composition of the Blue/Grey Box and Green Bin materials and Residual Waste streams expressed in terms of the weights of its constituent materials, e.g. paper, plastic, metal etc., reported as kilograms of material per household per year; and,
- iv) the number of containers set out at curbside for collection by each household involved in the waste audit study.

The objective of the Participation Audit component of the project was to produce representative, quantitative information on the relative numbers of households served by the three-stream system in Etobicoke that do and do not regularly set out Blue/Grey Box or Green Bin materials, or Residual Waste for collection.

2. Study Methodology

The sample selection approach was to use a representative sample strategy. A random sample selection strategy as not feasible due to the by-weekly collection schedule. The study methodology was developed with the objective of producing accurate sample results representative of the total population of Etobicoke single-family households served by the new three-stream collection system.

2.1 Waste Audit Household Sample Size

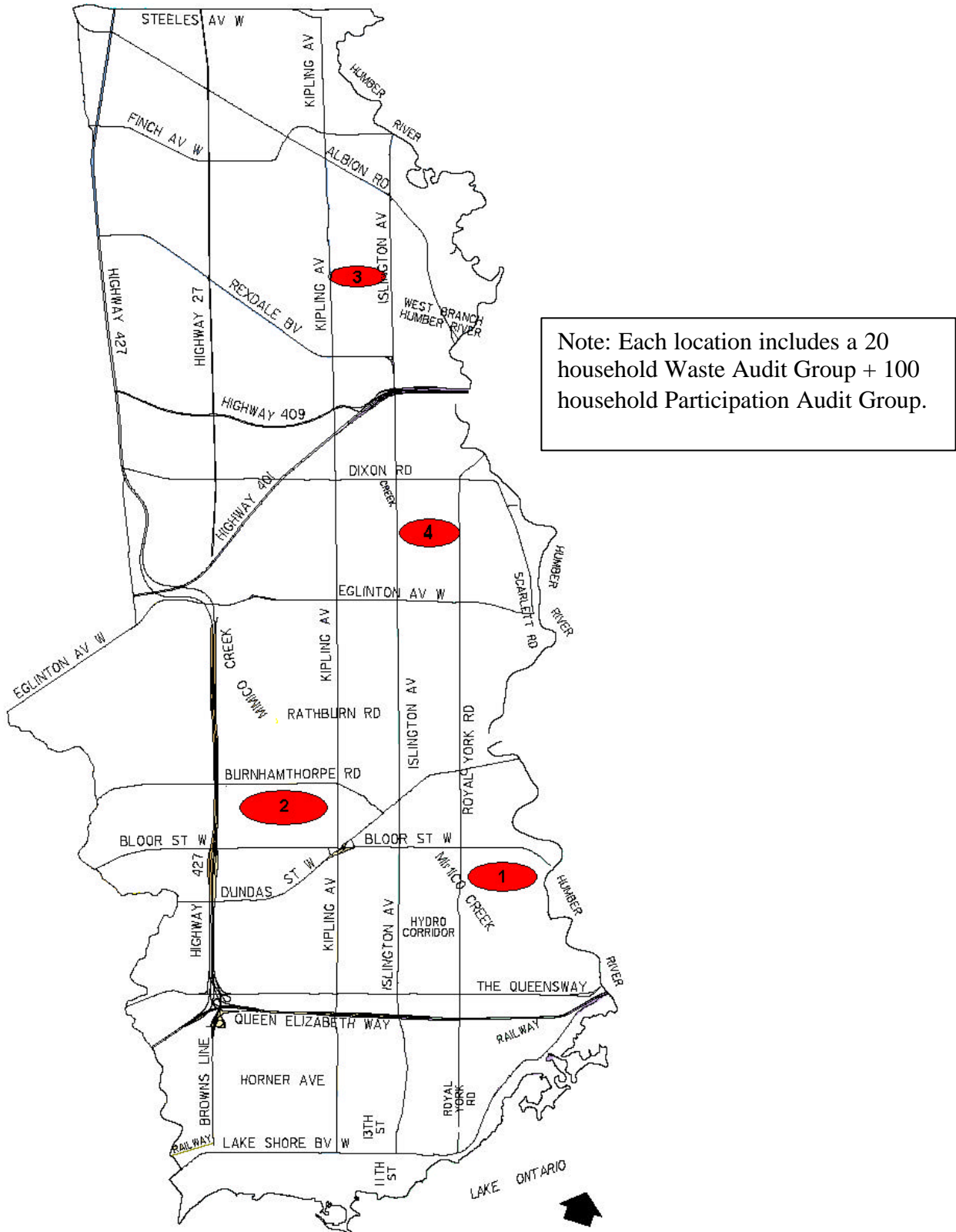
A Sample of four Groups, each of 20 households for a total of 80 households, was used for the waste audit. Experience from previous audits had demonstrated that 4 to 5 sorters could comfortably sort material from 20 to 30 houses in one day. Using 20 households also ensured that there was sufficient material in each Sub-Group to provide a representative sample of waste. A Sub-Group of five households generated on average 87 kg per week of combined waste materials. Klee and Carruth¹ found that no practical or significant increase in precision in solid waste composition study results is obtained by using sample weights of more than 200 lb (90 kg). Hence 90 kg of waste is the minimum sample size that provides a reasonably representative sample, when using random sampling. Each Group was subsequently divided into 4 Sub-groups comprised of 5 houses for comparative data analysis purposes. The division of a Group into four parts also made was sorting and weighing more practical and reduced the likelihood of error, especially with data recording. This becomes significant when sorting through large quantities of material.

2.2 Waste Audit Sample Locations

City of Toronto staff drove to four general pre-selected areas to select 4 Groups of 20 houses for the composition study. Several blocks within each area were surveyed to find appropriate streets for the composition and participation audits. A-typical streets and houses were identified and excluded from further consideration. Main roads were avoided because of traffic and safety concerns they would create during collection. Whenever possible, a street for the composition study was selected that had 20 to 30 houses. Figure 1 shows the locations of the Groups comprising the Sample of single-family households in Etobicoke.

¹ Klee, A.J. and Carruth D. *Sample Weights in Solid Waste Composition Studies*. Journal of the Sanitary Engineering Division. Proceedings of the American Society of Civil Engineers (August, 1970)

Figure 1 – Waste and Participation Audit Group Locations



2.3 Waste Audit Collection Schedule

Residential waste collection in Etobicoke operates on a four-day week schedule, starting Tuesday and ending Friday. The schedule is shown in Table 3.

Table 3 – Waste and Participation Audit Schedule

| Week | Material Collection | Collection Day | | | |
|-------------|----------------------------|-----------------------|------------------|-----------------|---------------|
| | | Tuesday | Wednesday | Thursday | Friday |
| 1 | Green Bin + Blue/Grey Box | Group 1 | Group 2 | Group 3 | Group 4 |
| 2 | Green Bin + Residual Waste | Group 1 | Group 2 | Group 3 | Group 4 |
| 3 | Green Bin + Blue/Grey Box | Group 1 | Group 2 | Group 3 | Group 4 |
| 4 | Green Bin + Residual Waste | Group 1 | Group 2 | Group 3 | Group 4 |

2.4 Participation Audit Sample Size and Locations

The Participation Audit Group consisted of 100 houses on a street or several streets in an area adjacent to the corresponding Waste Audit Group.

2.5 Participation Audit Schedule

Since the Participation Audit Groups were adjacent to the Waste Audit Groups, they had the same collection schedule as the Waste Audit Groups listed in Table 3.

3. Waste Audit Methods

3.1 Waste Collection

The number of items set out in each stream was noted on the Collection Log (Appendix A) for each house in the waste composition study. Collection could not start before 7:00 a.m. Diverse types and sizes of containers used to set out material, particularly Blue/Grey Box Program Materials and Residual Waste. The number of “Containers” set out for each house was determined by approximating how many current standard size Green Bins, Blue/Grey boxes, garbage cans and garbage bags the material at a given house would fill. A bundle of flattened and tied corrugated cardboard would count as one item. A bulky item, such as piece of furniture was counted as one item. Blue/Grey Box, Green Bin, and Residual Waste was emptied into to separate, large clear plastic bags and a label affixed noting the street address number and the Sub-group (a, b, c, or d). Large items set out had labels directly affixed to them. Residual Waste set out in standard garbage bags had labels affixed directly to the bag. Green bin net weights were determined and noted on the Collection Log at the sorting area of the transfer station before this material was sorted by weighing the bag used to collect these materials for each house.

Decisions were made at the time of collection according to the following principles. Material must be set out in accordance with the City of Toronto Residential Waste Collection By-law. Garbage bags full of grass clippings, yard wastes or banned items were left at the curb. Materials set out on the wrong collection week were not collected. Bulky items such as sofas were logged and left at the curb for separate collection.

3.2 Waste Sorting

3.2.1 Constituent Material Categories

The constituent materials list was a modified version of the constituent materials list presented in the Waste Diversion Ontario (WDO) Residential Curbside Waste Audit Guide². On all waste sort worksheets, the following additions and removals were made. A material category, Unemptied Aerosol Cans was added to the parent Household Special Waste. Since White Goods were not included in the scope of this audit, they were removed from the Other Waste Materials parent category. The Blue/Grey Box Program Materials and Residual Waste Audit Worksheets have identical constituent materials list.

Due to the unique nature of the Green Bin Program Materials stream, a new “Source Separated Organics” category replaced the “Organics” category. This was done since it was impossible to separate the different types of food waste (vegetable, animal) from other organic materials accepted in this program, including animal waste and soiled paper products after they are combined, forming an inseparable mixture in the Green Bin. Materials were sorted into Processible Organics (as specified in the Green Bin Program – excluding Diapers), Diapers, Grass, Woody Yard Waste and Other Yard Waste. The remaining waste categories in the Green

² Ontario Waste Diversion Organization Residential Curbside Waste Audit Guide – Revision 2, June 2002

Bin Program Materials Audit Worksheet are the same as for the Blue/Grey Box Program Materials and Residual Waste Audit Worksheets. The worksheets can be found in Appendix A.

3.2.2 Waste Sorting Specifications

Each collection day, one Waste Audit Group's waste was sorted. During the first week Blue/Grey Box and Green Bin Program Materials were sorted. In the second week Residual Waste and Green Bin Program Materials were sorted. This cycle was repeated for the same houses in weeks three and four.

The Blue/Grey Box Program Materials, Green Bin Program Materials, and Residual Waste collected from each Group were sorted in accordance with the following methodology:

For each Sub-Group; and,

For each material or waste stream;

Step 1: calibrate the weighscale;

Step 2: measure and record the weight of the total material or waste stream;

Step 3: remove plastic bags added by collection crew;

Step 4: sort;

Step 5: measure and record weight of each constituent material on the appropriate Waste Audit Worksheet form (presented in Appendix A);

Step 6: empty sorting containers into the bins provided by the City;

Step 7: clear all material from the sorting table.

Repeat for the next material or waste stream; and,

Repeat for the next household sub-group.

To enhance continuity and efficiency, all of a particular material (e.g. Green Bin Program Materials) was sorted before sorting the second material (e.g. either Residual Waste or Blue/Grey Box Program Materials) was begun.

Before sorting was started, an unsorted materials weight for each of the five Sub-Groups, for each waste stream was determined. There was a limit on the amount of sorting residue that was allowed in the sorting process. The ratio of the sum of the weights of all constituent materials to total unsorted weight had to be a minimum of 95%. When sorting Green Bin Program Materials and Residual Waste, every effort was made to separate organic materials from their packaging before weighing. This was achieved by opening all packaging and vigorously shaking the packaging to remove the organic material contents. The extent of sorting was controlled by limiting the relative quantity of unsorted fines and other material in the Non-Classifiable constituent material category. The ratio of Total Non-Classifiable to Total Constituent Materials had to be less than or equal to 10%.

3.3 Participation Audit Methods

Concurrent with the collection of materials from the Waste Audit Group, one individual was sent to survey 100 homes for the Participation Audit component of the study. The surveyor noted the specific house number, how many items of each stream the house set out, and comments on any

unusual set out behaviour on the Participation Audit Log form found in Appendix A. The same houses used for each Group in the first week were monitored for the three subsequent weeks of the study.

3.4 Data Analysis Methods

For all Participation Rate calculations, houses that did not set out any materials in any of the 3 material streams during the four-week study period were excluded. Interval estimates, using the 90% confidence were used in the majority of calculations. The confidence interval is the distance (+/-) about the sample average in which one expects to find the population mean value, 9 times out of 10 (for 90% confidence).

3.4.1 Participation Audit Results Analysis

Depending on the calculation being performed, different interval estimates were used to express the data. The average number of set outs of the Green Bin, Blue/Grey Box and Residual Waste was calculated using equation (1). A squared error value was determined for each of the houses setting out different number of times, from which a standard deviation was determined.

$$\bar{x} = \sum_{i=0}^p f_i i \quad (1)$$

where;

\bar{x} = average number of set outs

$p = 2$ (for the Blue/Grey Box and Residual Waste) or 4 (for the Green Bin)

f_i = number households with i set outs/total number of households

To determine the interval for the number of Residual Waste items set out the Normal distribution was used. A Normal distribution can be used because, with a sample size of 100 or greater, the distribution of sample averages would be Normal. There were a total of 618 set outs for which the number of Residual Waste items set out was noted. The interval calculation used, for 90% confidence, is expressed in equation (2).

$$\bar{x} \pm 1.64 \left(\frac{s}{\sqrt{n}} \right) \quad (2)$$

where;

\bar{x} = average number of items set out

s = population standard deviation of number of items set out

n = total number of set outs

Due to the large sample size, it is reasonable to assume that the Participation Audit Sample standard deviation used in the calculation is a good estimator of the population standard deviation.

3.4.2 Waste Audit Results Analysis

For the Waste Audit component of the study data was recorded for each Sub-Group, each day for every waste stream sorted. From these numbers composite data for each Group for the entire audit was determined. Data analysis for the collection, composition and recovery calculations was performed at the Group level (20 households).

It cannot be assumed that the population distribution of constituent material weights is normal. The sample size (20 households) is not large enough to assume that the sample means (i.e. Group results) are normally distributed. Therefore, the student's *t*-distribution was used. The student's *t*-distribution is defined as the distribution of the random variable *t* which is the "best" that one can do not knowing the population standard deviation.

The objective was to use the Group results to define a confidence interval for the population mean value. With these interval estimates, the true (population) mean values are within the confidence interval 9 times out of 10, (two-tailed) and less than the one-tailed interval limit also 9 times out of 10 (90%).

A Group average and standard error of the four Groups was used. Since the average and standard deviation was determined from four Groups, there are three degrees of freedom. The value of the *t* statistic for a 90% confidence interval and 3 degrees of freedom (n=4) is 1.638 for a one-tailed (less than or equal to) distribution and 2.353 for a two-tailed distribution. The upper limit for the one tailed distribution was calculated by using one-tailed (upper bound only) *t* statistic in equation (3). The upper and lower limits for the two-tailed distribution were determined by using the two-tailed *t* statistic in equation (3). The one-tailed distribution and interval estimate was used for waste items collected in small quantities. The two-tailed distribution and interval estimate was used for waste items collected in larger quantities.

$$\bar{x} \pm \frac{t_{\alpha/2, n-1} s}{\sqrt{n}} \quad (3)$$

where;

\bar{x} = Group average

$t_{\alpha/2, n-1}$ = *t* statistic, a function of the degrees of freedom (n-1) and the confidence level

s = Group standard deviation

n = number of Groups

Green Bin Program Materials Recovery Rates were calculated for each Green Bin Program constituent material by taking the ratio of the specific material recovered in the Green Bin Program and the quantity of the material in the total solid waste stream (i.e. Green Bin + Blue/Grey Box + Residual Waste).

Blue/Grey Box Program Materials Recovery Rates were calculated taking the ratio of material accepted in the Blue/Grey Box Program found in the Blue/Grey Box to the total of these same materials found in the Blue/Grey Box, Green Bin and Residual Waste.

3.5 Waste and Participation Audit Results Disclaimer

All results are expressed on an “as is” basis.

There was a practical limit to the precision of manual sorting and separation that could be achieved. Results must be interpreted as representing the best that can be achieved using a reasonably rigorous methodology.

4. Participation Audit Results

Participation in each of the three material stream collection programs is expressed in terms of the number of set out events (i.e. setting out at least one container/item for collection) in a 4-week period. Each Participation Audit Group studied for four consecutive weeks to include two collection cycles of Blue/Grey Box Program Materials and Residual Waste and to include houses that may not regularly set out materials.

The results presented for the Participation Audit exclude houses that did not participate (i.e. did not set out any materials in any of the 3 material streams) during the four-week study period. A total of 14 out of 400 houses studied in the Participation Audit did not participate during the study. These houses could be vacant or their occupants may have not been present during the study period due to vacations or other circumstances. Participation Audit data is summarized in Appendix B.

4.1 Green Bin Participation

A Green Bin set out rate histogram is shown in Figure 2. The Green Bin cumulative set out rates for the Participation Audit Sample is shown in Figure 3. The average Green Bin set out in the four-week study period was 2.65 setouts/household, with a standard deviation of 0.69 setouts/household. Therefore, we would estimate the population mean set out per 4-week period to be between 2.59 to 2.71 setouts/household, 9 times out of 10.

Figure 2 – Green Bin Set Out Rate Histogram

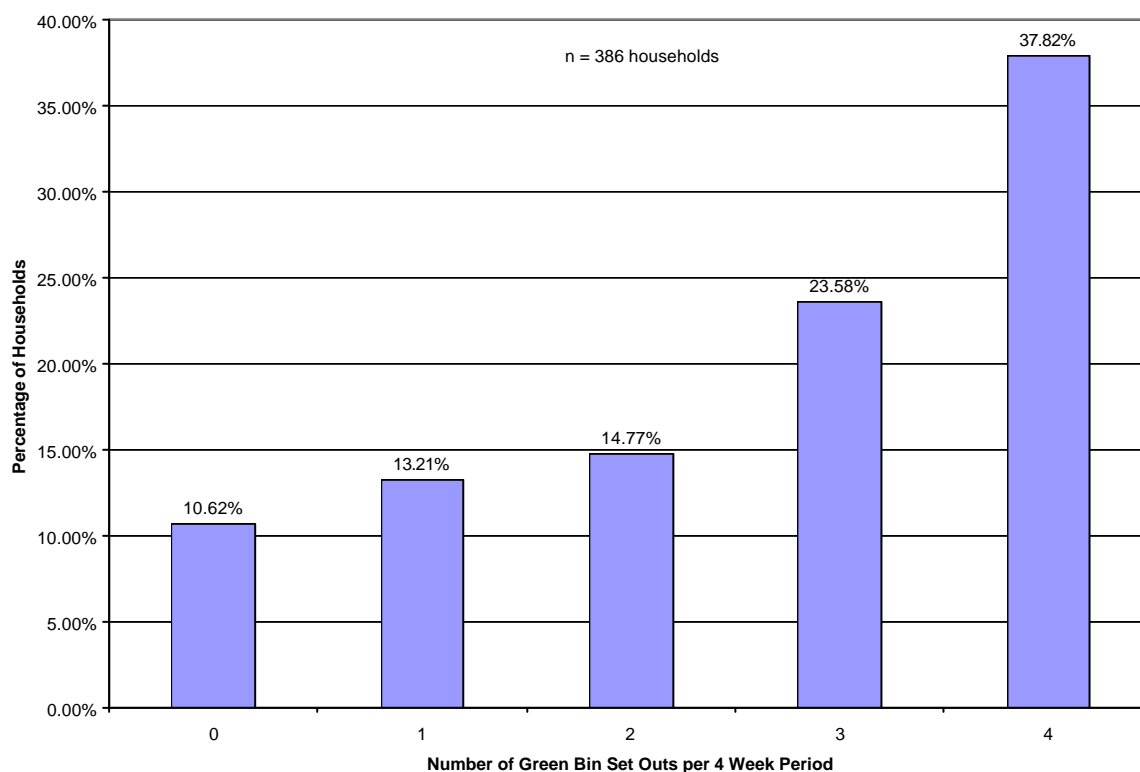
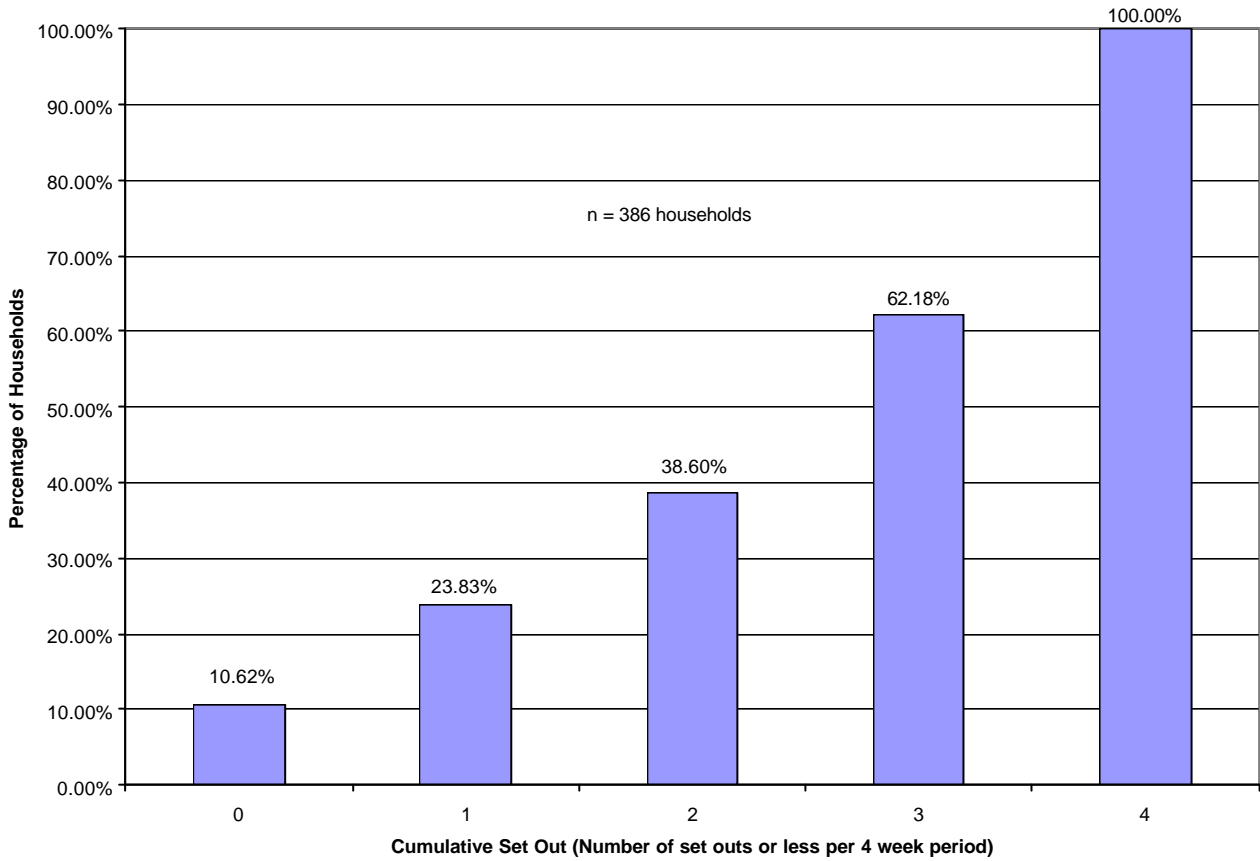


Figure 3 – Participation Audit Green Bin Cumulative Set Out Rate



4.2 Blue/Grey Box Participation

Since Blue/Grey Box Program Materials are collected on a bi-weekly basis, there were two collections of the Blue/Grey Box materials in this study. A Blue/Grey Box set out rate histogram is shown in Figure 4. The Blue/Grey Box cumulative set out rates is shown in Figure 5. The average Blue/Grey Box set out in the four-week study period with two collection cycles was 1.46 setouts/household, with a standard deviation of 0.33 setouts/household. Therefore, we would estimate the population mean set out per 4 week period to be between 1.43 to 1.48 setouts/household, 9 times out of 10.

Figure 4 – Participation Audit Blue/Grey Box Set Out Rate Histogram

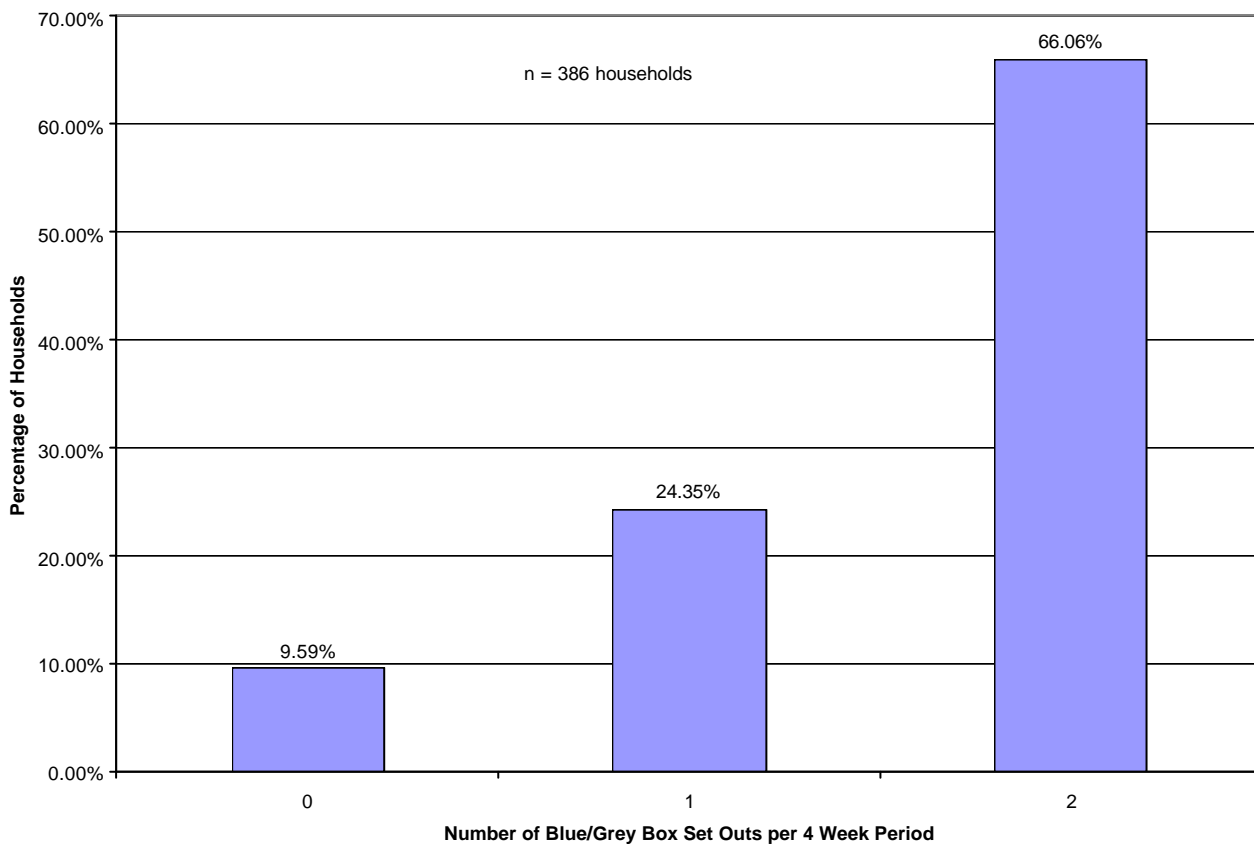
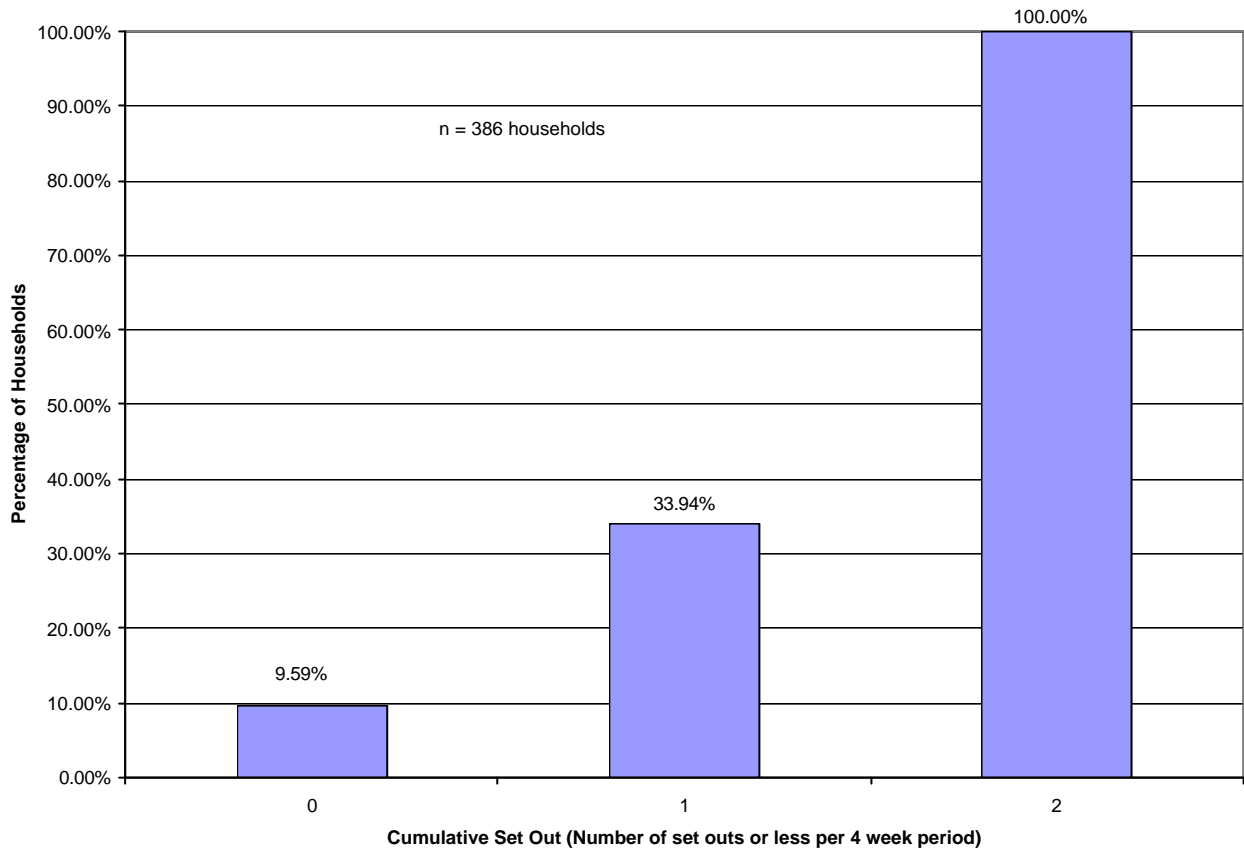


Figure 5 – Participation Audit Blue/Grey Box Cumulative Set Out Rate



4.3 Residual Waste Set Out Rate

Since Residual Waste is collected on a bi-weekly basis, two collections of Residual Waste were observed in this study. A Residual Waste set out rate histogram is shown in Figure 6. Figure 7 shows an overall, cumulative set out rate for Residual Waste. From the chart it is apparent that 60% of households set out Residual Waste for both collection cycles observed during the audit. The average Residual Waste set out in the four-week study period was 1.40 setouts/household, with a standard deviation of 0.33 setouts/household. Therefore, we would estimate the population mean set out per 4 week period to be between 1.37 to 1.43 setouts/household, 9 times out of 10.

Figure 6 – Participation Audit Residual Waste Set Out Rate Histogram

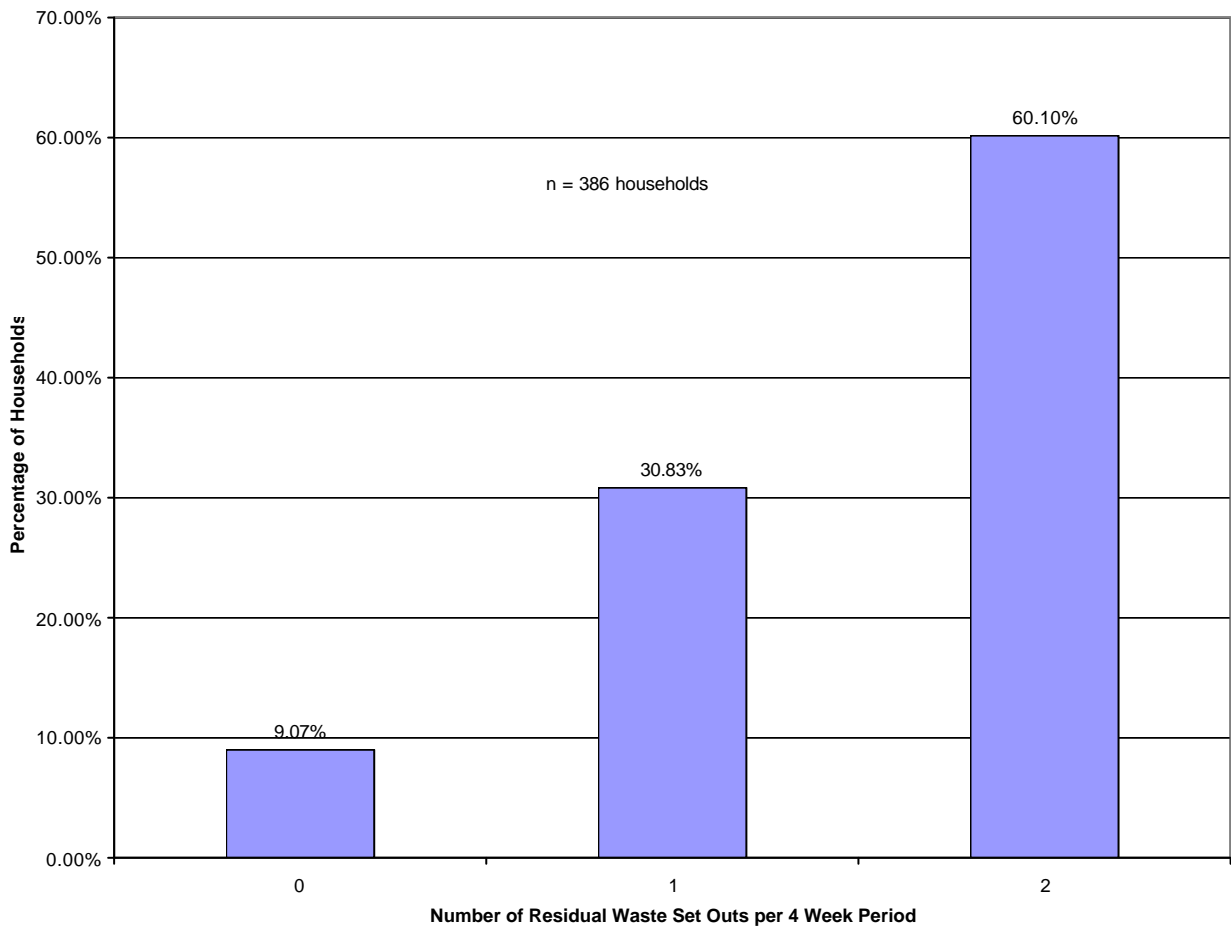
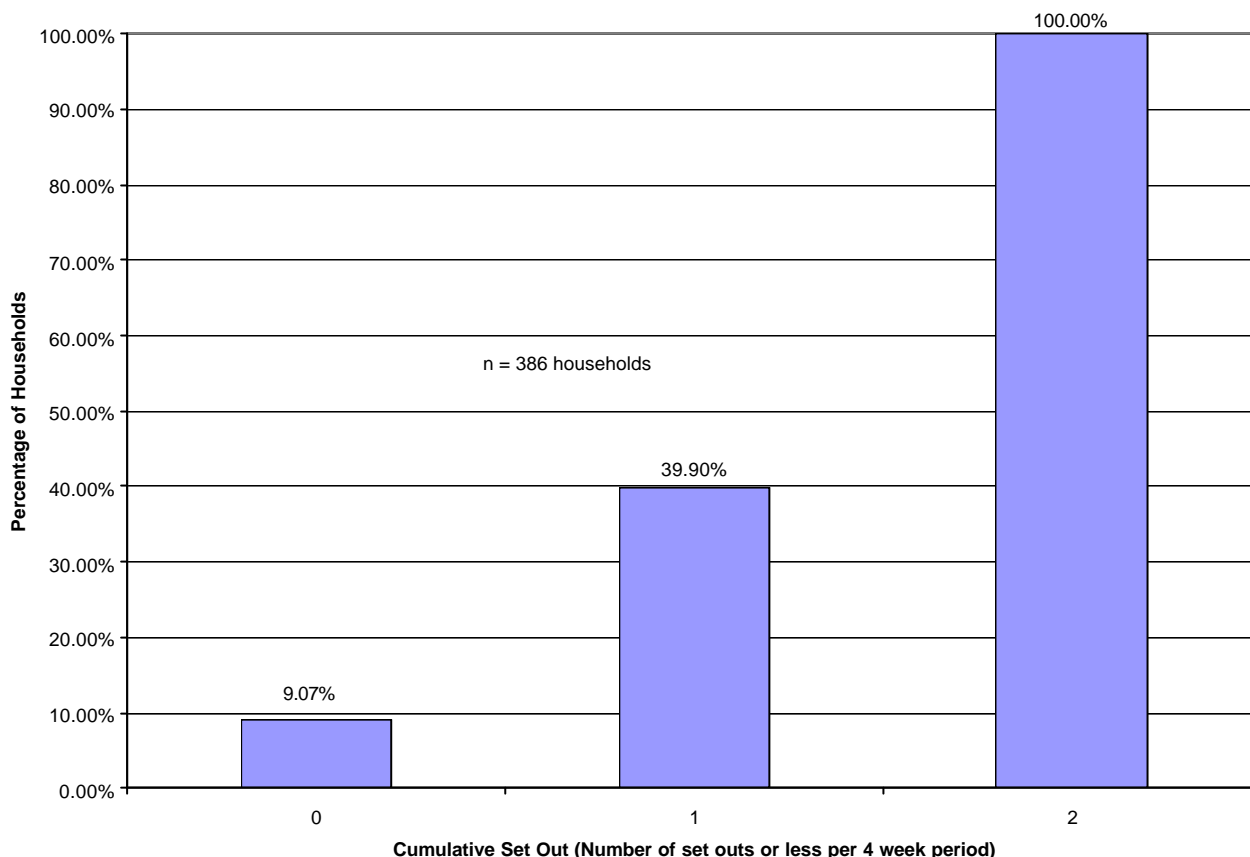


Figure 7 – Participation Audit Residual Waste Cumulative Set Out Rate



A Residual Waste histogram, showing the percentage of set outs with different numbers of Residual Waste items (up to 10 items) is shown in Figure 8. Houses that did not set out any Residual Waste items during the study but did set out other materials are included in the distribution. There were a total of 618 set outs of Residual Waste in weeks 2 and 4. A cumulative distribution of the number of items set out is shown in Figure 9.

Only two houses set out more than 20 items for collection. One set out 21 items and another set out 48 items. It is likely that these set outs resulted from construction or cleaning. Currently, there is a limit in Etobicoke of 6 Residual Waste items for each (by-weekly) collection. It would appear that 92% of households meet this requirement by setting out 6 or less items for collection. During the study 76% of households studied set out 3 or less items each collection.

Figure 8 – Participation Audit Number of Residual Waste Items Set Out Histogram

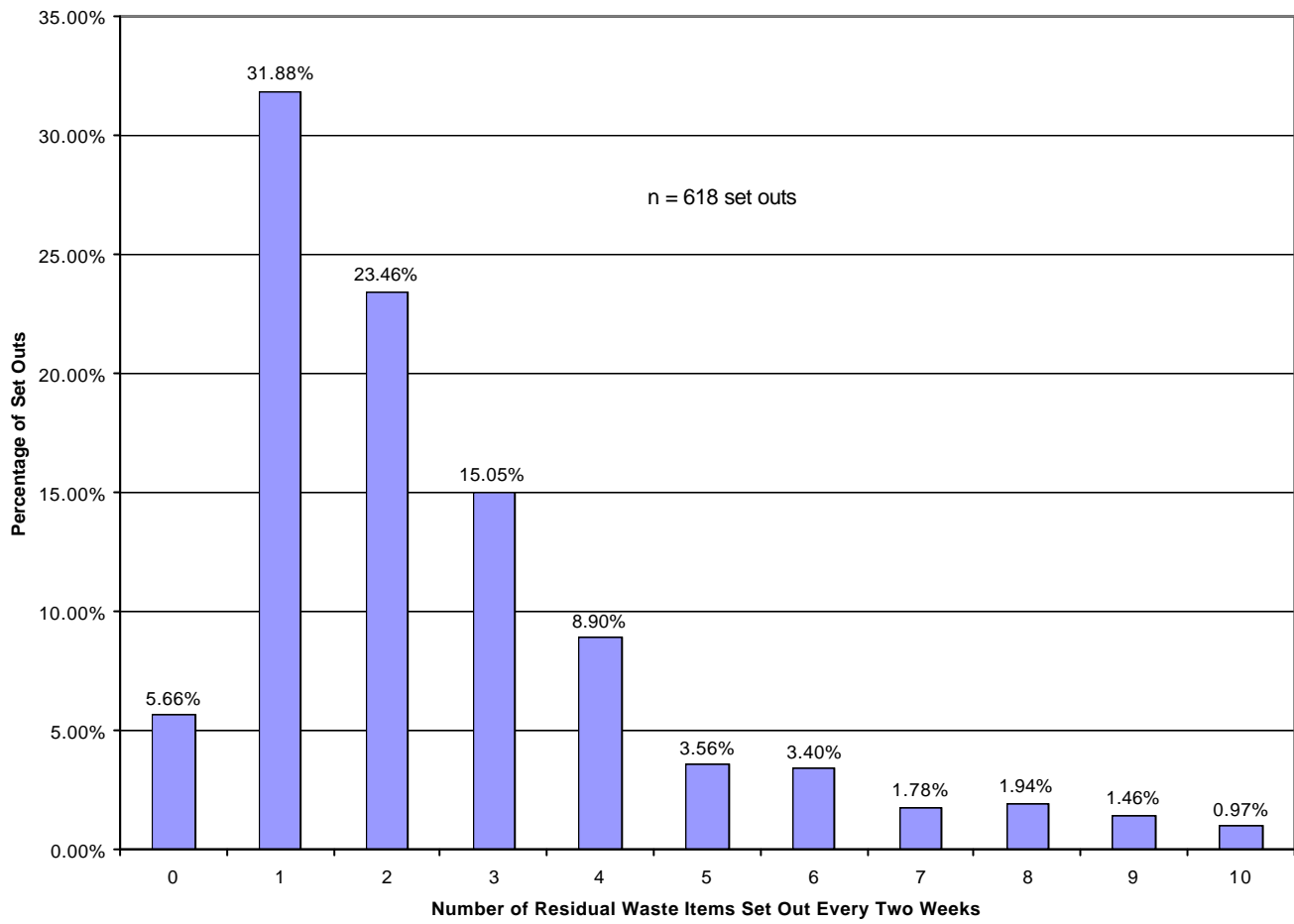
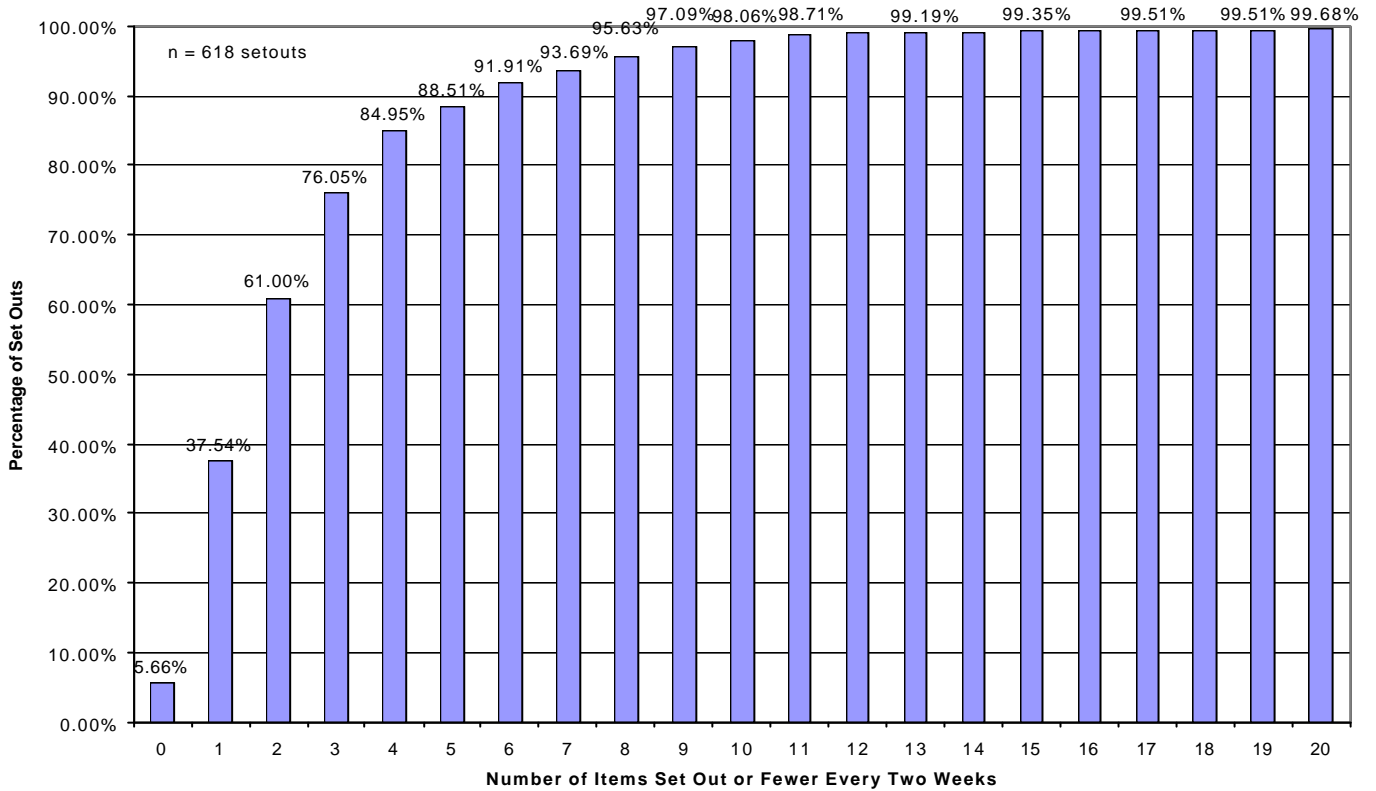


Figure 9 – Participation Audit Cumulative Frequency of Number of Residual Waste Items Set Out



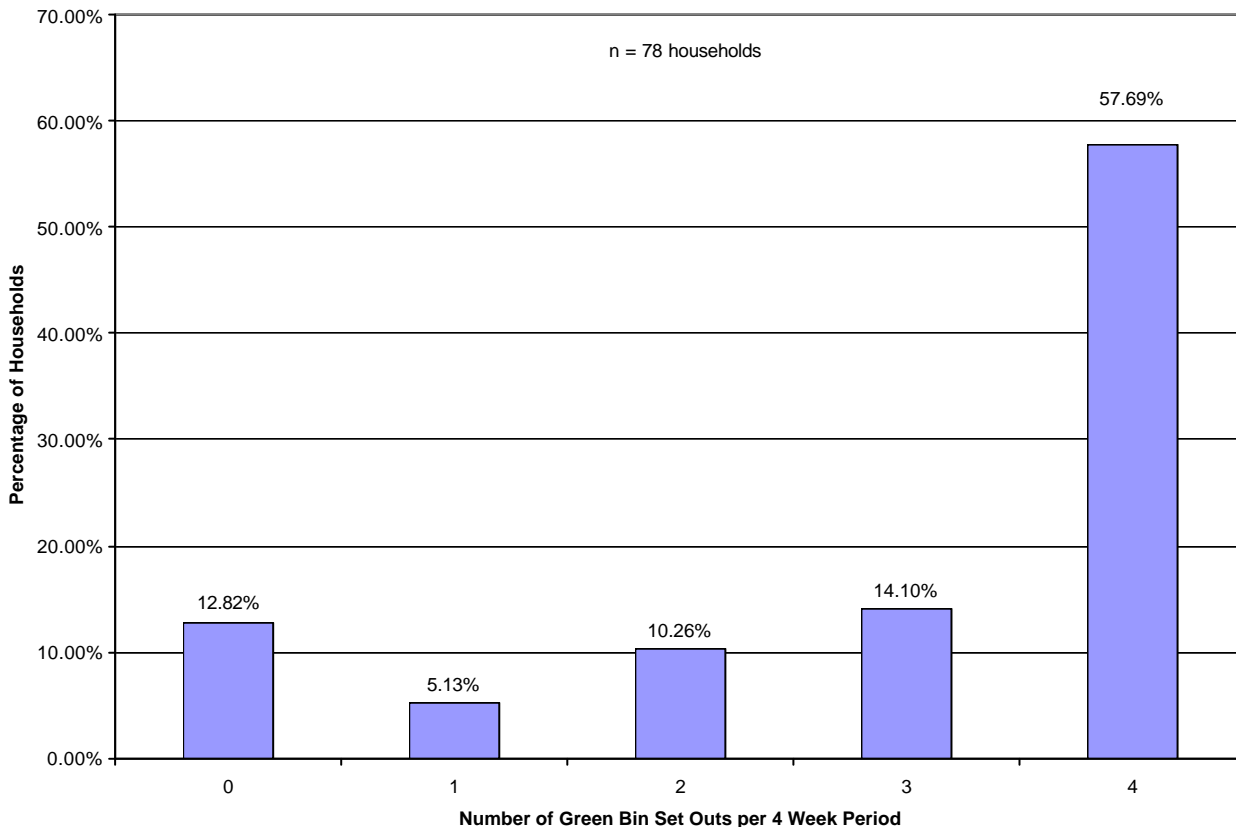
5. Waste Audit Results

Participation data was collected for the Waste Audit Sample and the results are presented in this section. The Waste Audit Participation results exclude houses that did not set out any materials during the four-week study period. A total of 2 out of 80 houses studied in the Waste Audit did not set out any materials. Waste Audit Participation data is summarized in Appendix C.

5.1 Green Bin Participation

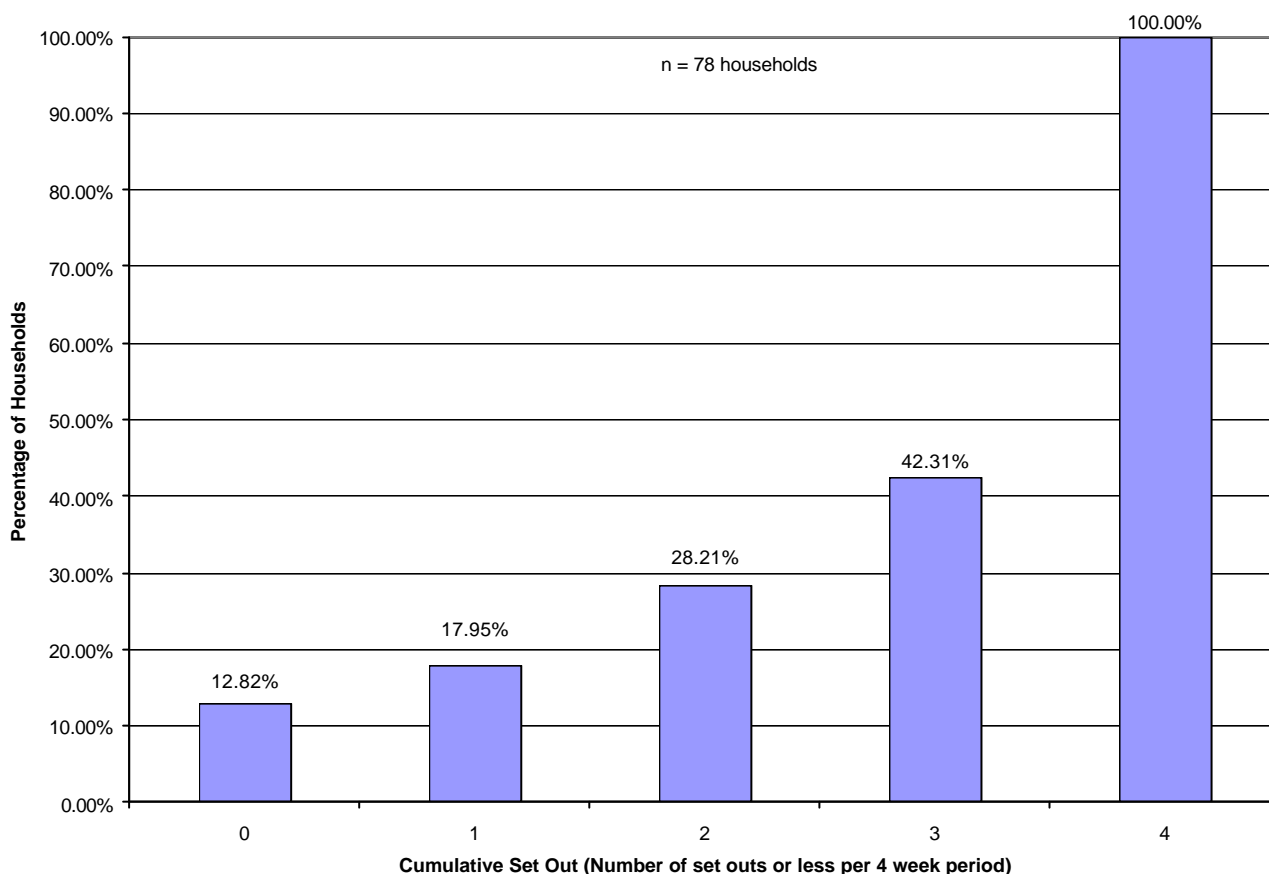
There were four Green Bin collections for each Waste Audit Group during the course of this study. A Green Bin set out rate histogram is shown in Figure 10. The Green Bin cumulative set out rates for the Waste Audit Sample is shown in Figure 11.

Figure 10 – Waste Audit Green Bin Set Out Rate Histogram



The set out rates above are presented in the same manner as the Participation Audit. The average Green Bin set out in the four-week study period for the Waste Audit was 2.99 setouts/household, with a standard deviation of 0.71 setouts/household. Therefore, we would estimate the population mean set out per 4 week period to be between 2.59 to 2.71 setouts/household, 9 times out of 10.

Figure 11 – Waste Audit Green Bin Cumulative Set Out Rate

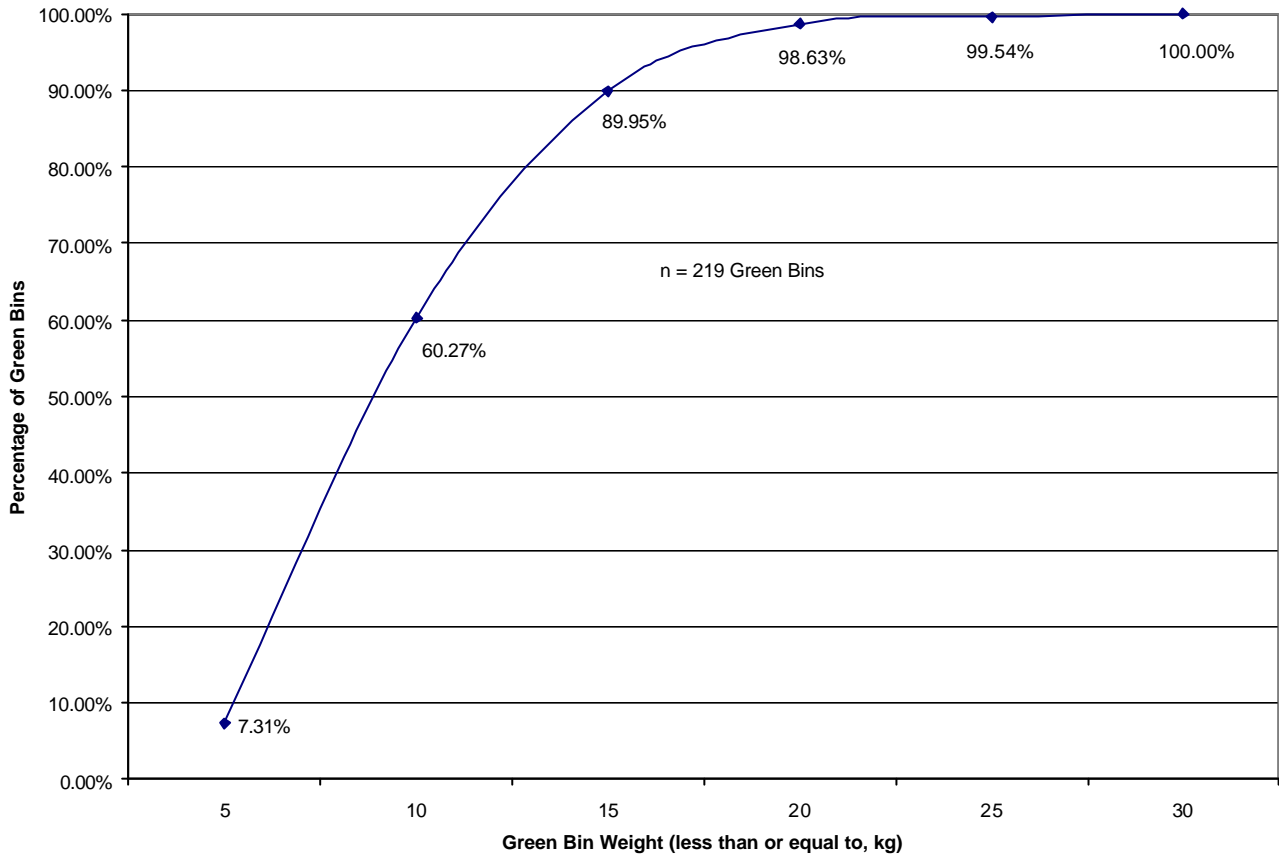


The percentage of houses setting out a Green Bin at least once during the study seems consistent with the Participation Audit findings. However the percentage of houses with 3 or more set outs in the Waste Audit Sample is greater than Participation Audit Sample, possibly due to presence of the Waste Audit team.

Green Bin weights were determined for participating households. Green Bin weights are summarized in Appendix D. The results presented in Figure 12 show the gross Green Bin weight (i.e. the combined weight of the Green Bin container and contents). The data excludes 13 weights, which had to be excluded because they represented material from more than one Green Bin or from a Green Bin and a supplementing container. This problem can be avoided in future audits by weighing all Green Bins at the curb before the material is removed for collection.

Current City of Toronto solid waste by-laws stipulate that no bag or bin set out for collection shall weigh more than 20 kg. Of the 219 Green Bins weighed over four weeks, only 3 or 1.37% were greater than 20 kg. As shown in the figure, the majority of Green Bins (98.63%) weighed 20 kg or less. Only one Green Bin weighed was over 25 kg. The average Green Bin weight was 9.71 kg, with a standard deviation of 3.94 kg. Based on the Green Bin weight distribution measured for this Sample, it is estimated that 90% of the Green Bins in Etobicoke weigh between 3.23 kg and 16.18 kg.

Figure 12 – Waste Audit Green Bin Weight Distribution



5.2 Blue/Grey Box Participation

Each Waste Audit Group received two collections of Blue/Grey Box Program Materials during the course of the study. A Blue/Grey Box set out rate histogram is shown in Figure 13. The Blue/Grey Box cumulative set out rates is shown in Figure 14. The average Blue/Grey Box set out rate was 1.67 setouts/household, with a standard deviation of 0.30 setouts/household. Based on these results, the population mean set out per 4-week period was estimated to be between 1.61 to 1.72 setouts/household, 9 times out of 10

The percentage of houses setting out a Blue/Grey Box at least once during the study is consistent with the Participation Audit findings. The number of houses setting out their Blue/Grey Box Program Materials twice during the audit is about 7% more than for the Participation Audit, which as for the Green Bin, could be the result of the visible presence of the audit team in the area.

Figure 13 - Waste Audit Blue/Grey Box Set Out Rate Histogram

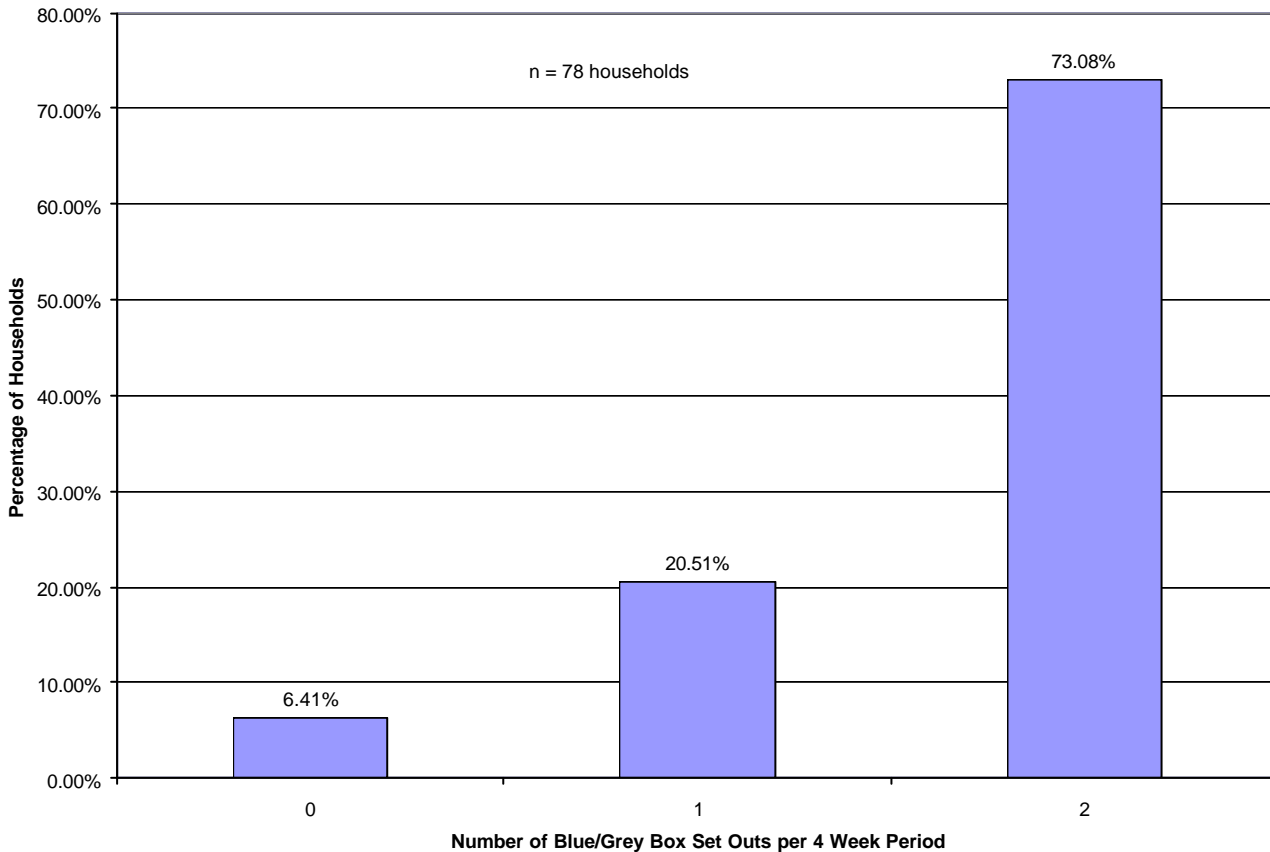
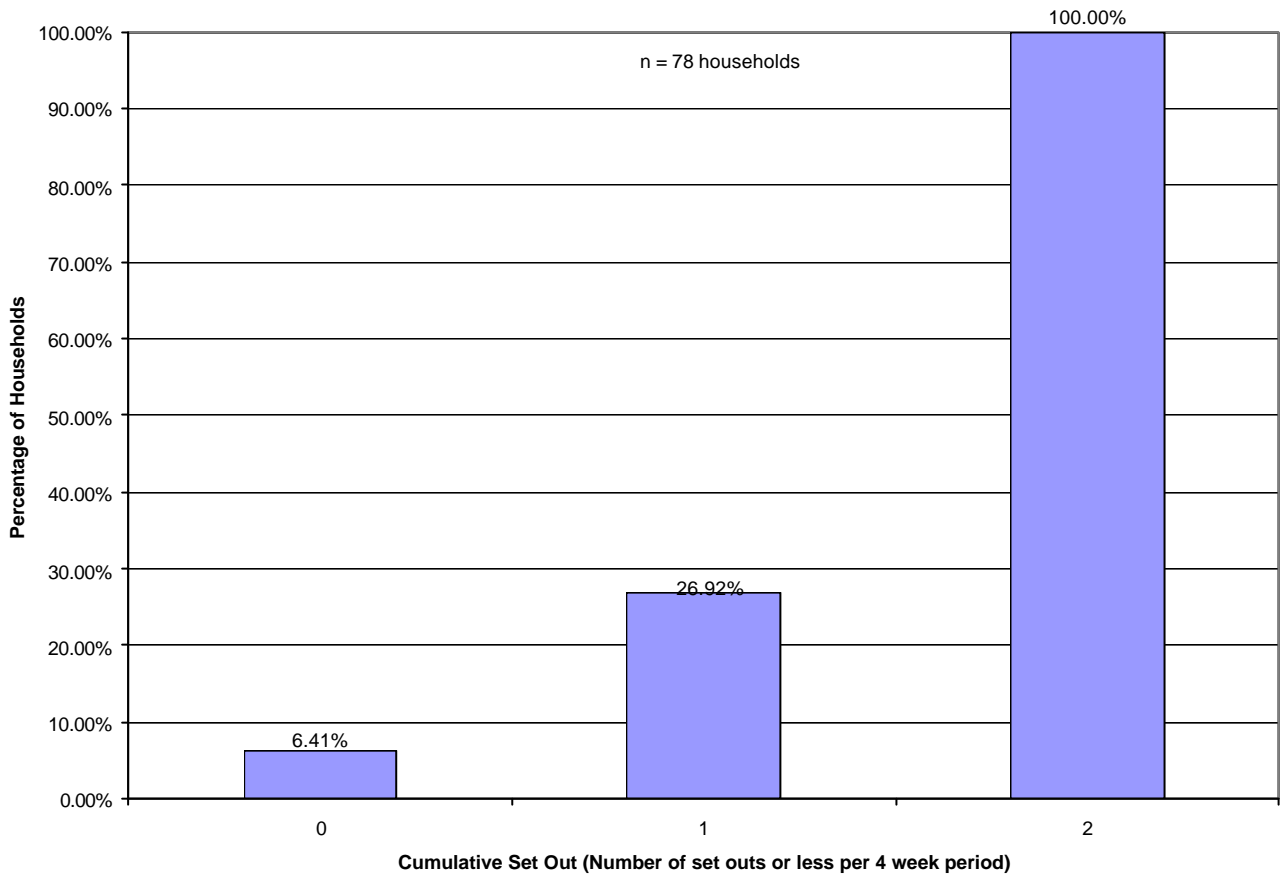


Figure 14 – Waste Audit Blue/Grey Box Cumulative Set Out Rate



5.3 Residual Waste Set Out Rate

Each Waste Audit Group received two collections of Residual Waste during the course of this study. A Residual Waste set out rate histogram is shown in Figure 15. Figure 16 shows an overall, cumulative set out rate for Residual Waste for the Waste Audit. The average Residual Waste set out in the four-week study period was 1.79 setouts/household, with a standard deviation of 0.22 setouts/household. Based on these results, the population mean set out per 4-week period was estimated to be between 1.75 to 1.84, setouts/household 9 times out of 10.

The percentage of households setting out Residual Waste once or never during the study is lower than that found in the Participation Audit. The percentage of households setting out twice is greater than that found in the Participation Audit.

Figure 15 – Waste Audit Residual Waste Set Out Rate Histogram

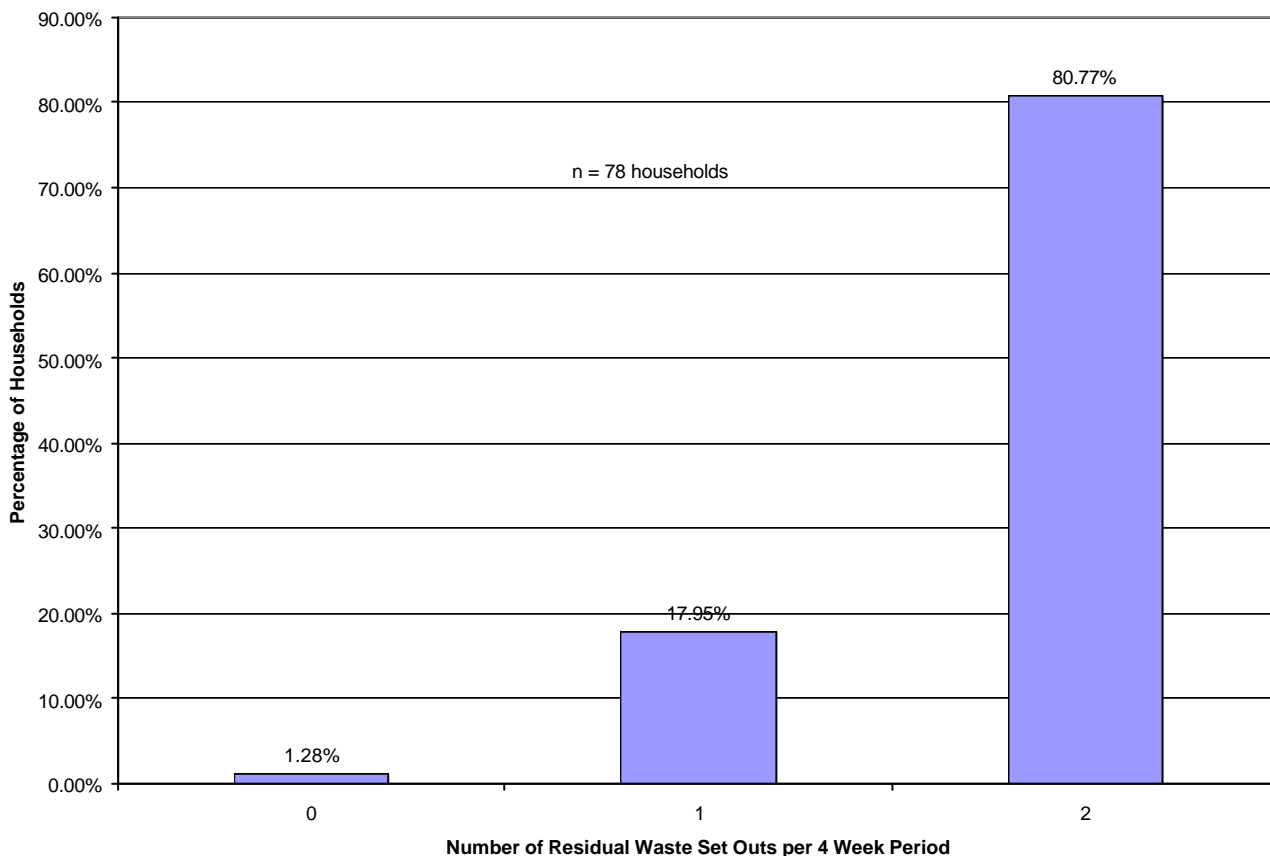
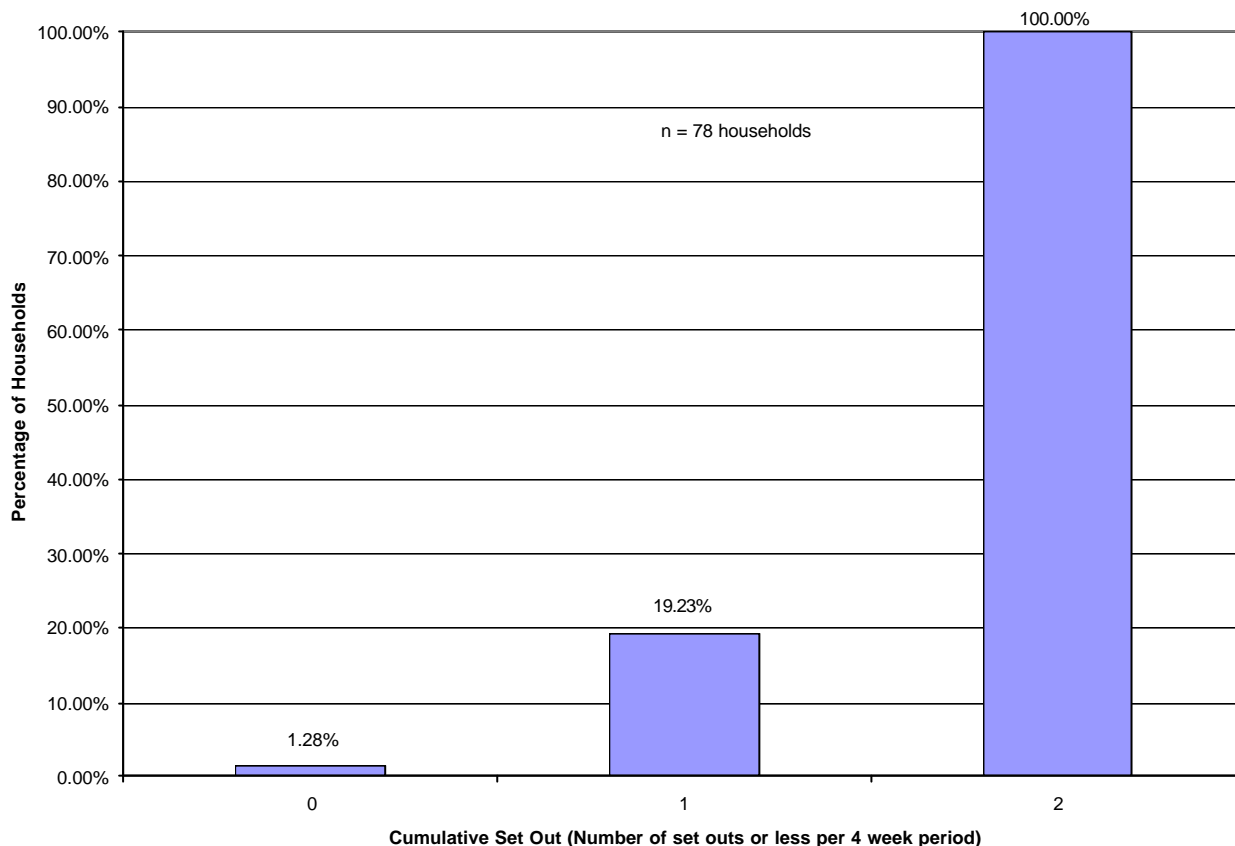


Figure 16 – Waste Audit Residual Waste Cumulative Set Out Rate



As with the Participation Audit, the number of Residual Waste items set out for collection each week was noted. Using the same definitions and assumptions used in the Participation Audit, a distribution was obtained for the number of Residual Waste items set out for each collection. As before, houses that did not set out any Residual Waste items during the study but did set out other materials are included in the analysis.

A Residual Waste histogram, showing the percentage of set outs with different numbers of Residual Waste items (up to 10 items) is shown in Figure 17. There were a total of 141 set outs of Residual Waste in weeks 2 and 4. A cumulative distribution of the number of items set out is shown in Figure 18.

Only 2.13% of households set out more than 10 items. Two houses set out 11 items and one house set out 20 items. The house that set out 20 items was likely conducting a final clean out prior to a move. The other two houses that set out 11 items were likely conducting large-scale spring cleaning. Of the households from Waste Audit Sample, 93% set out 6 or less items every two weeks. Of households studied, 75% set out 3 or less items every two weeks. These results are consistent with the Participation Audit findings.

Figure 17 – Waste Audit Number of Residual Waste Items Set Out Histogram

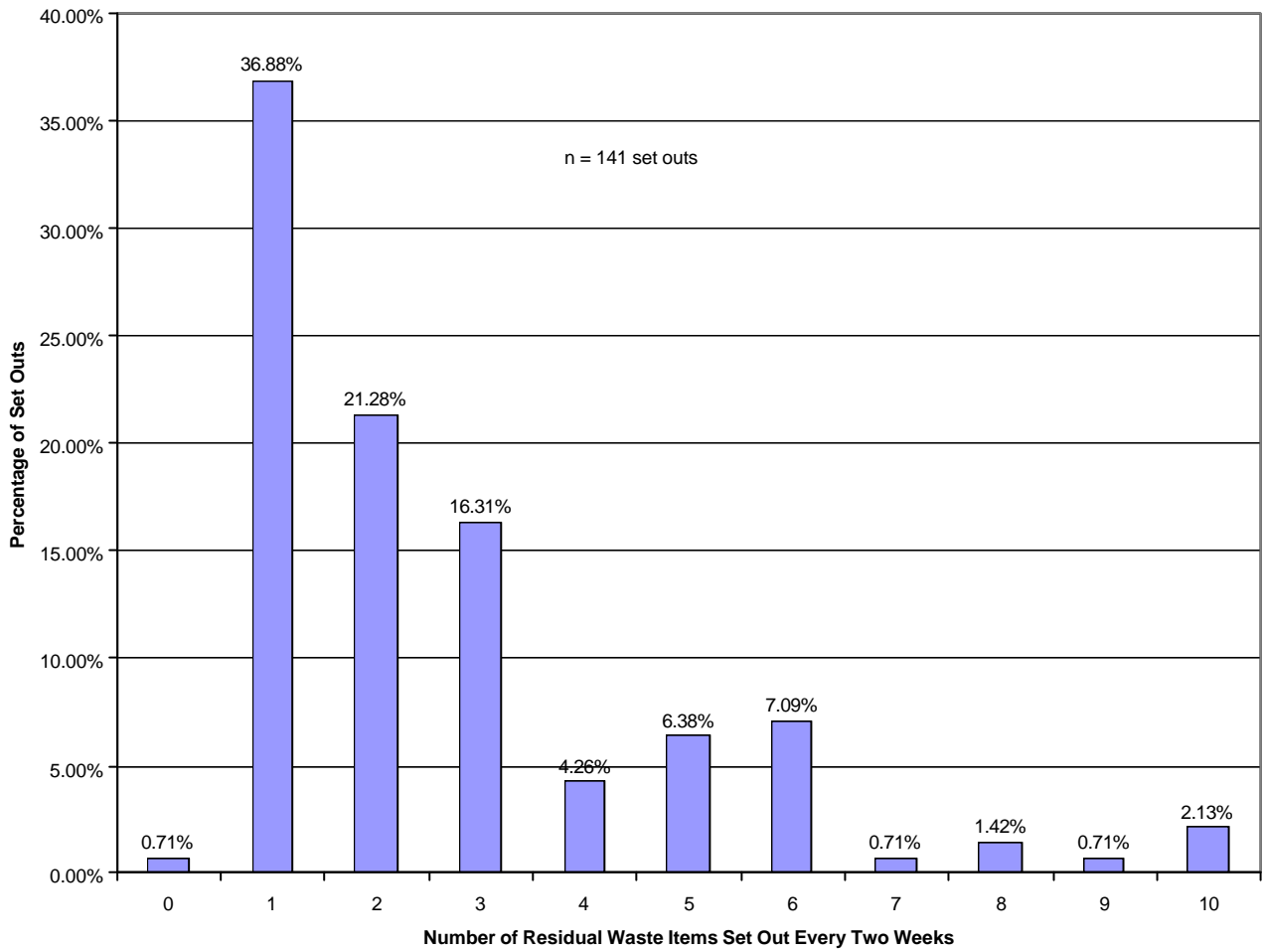
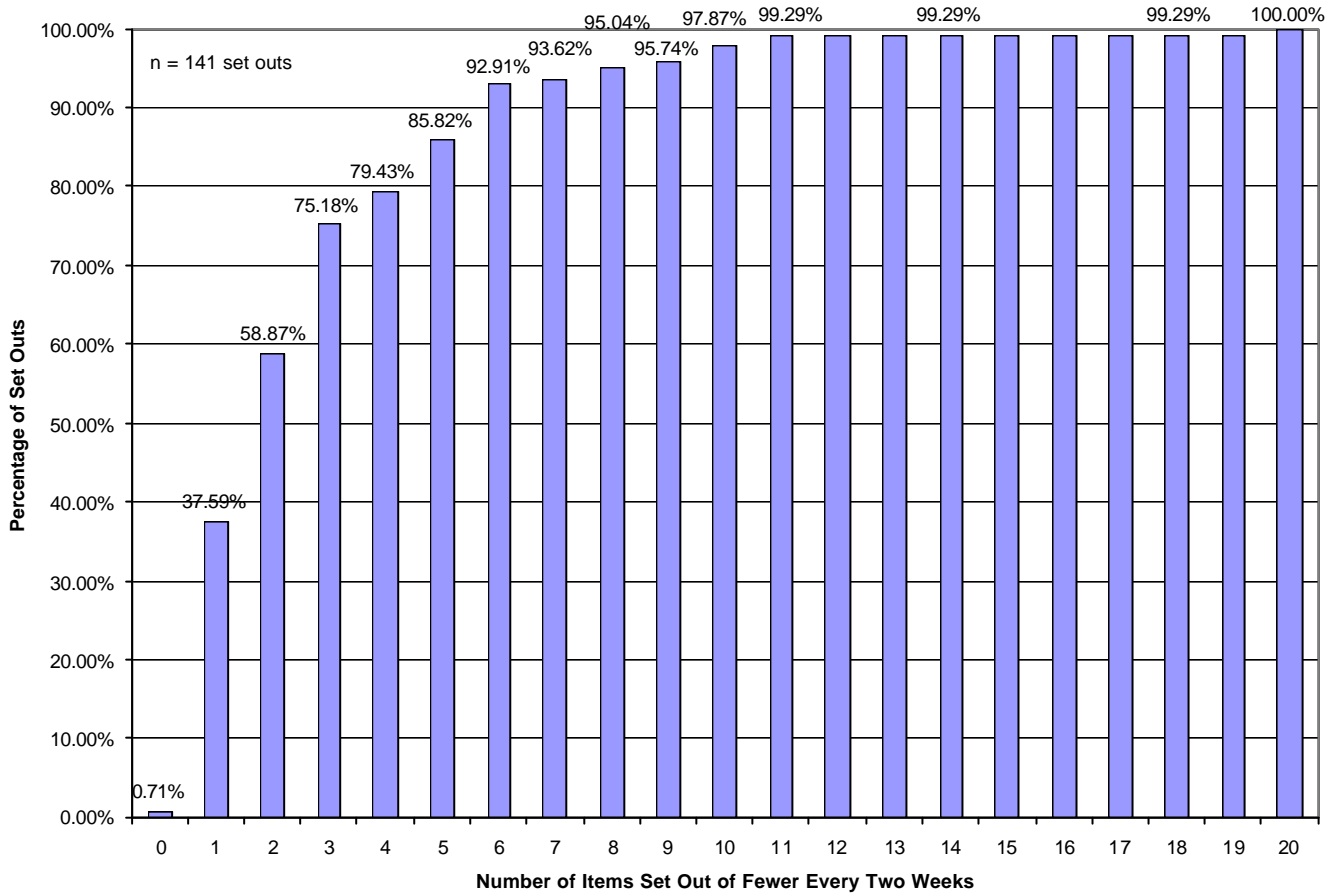


Figure 18 – Waste Audit Cumulative Frequency of Number of Residual Waste Items Set Out



5.4 Green Bin Program Materials Collection and Composition

Quantities of Green Bin Program Materials collected were compiled for each Group to obtain the average and the interval estimate. The Green Bin Program Materials collection and composition results for all households in the Waste Audit Sample are presented in Table 4. The estimated average quantity of Green Bin Program Materials collected for single-family households in Etobicoke (including bin liners and contaminants) is 251.23 ± 53.69 kg/hhld/yr at 90% confidence. The Green Bin Program Materials were partitioned into seven constituent material categories. Non-processible materials including bin liners comprised 3.70% of the Green Bin Program Materials stream or 9.29 kg/hhld/yr. The majority of the non-processible materials were plastic bags used to line the kitchen containers and other film plastic contaminants such as food packaging. A full list of materials found and their proportions can be found in Appendix E.

Table 4 – Green Bin Program Materials Collection – All Households

| Green Bin Program Materials Composition - General Categories | Collection (kg/hhld/yr) | | Percent of Average | 90% Confidence Interval (kg/hhld/yr) | | |
|--|----------------------------|-----------------------|-----------------------|---|-----------------------|-----------------------|
| | Average | Standard Deviation | | one-tailed (\leq) | two-tailed (lower) | two-tailed (upper) |
| Solicited Organic Materials | 241.94 | 43.30 | 96.30% | 277.39 | 190.99 | 292.88 |
| Film Plastic (including bin liners and other plastic film contaminants) | 6.05 | 1.49 | 2.41% | 7.27 | 4.30 | 7.80 |
| Other Plastic | 0.41 | 0.31 | 0.16% | 0.66 | 0.05 | 0.77 |
| Glass | 0.12 | 0.13 | 0.05% | 0.22 | - | - |
| Ferrous Metals | 0.17 | 0.14 | 0.07% | 0.28 | - | - |
| Non-Ferrous Metals | 0.34 | 0.38 | 0.14% | 0.65 | - | - |
| Other Non-Processible Materials | 2.20 | 0.89 | 0.88% | 2.93 | 1.15 | 3.25 |
| Total | 251.23 | 45.63 | 100.00% | 288.59 | 197.54 | 304.92 |

n = 4 Groups (80 households)

Participation in the Green Bin Program was defined to be one or more set outs during the four-week period of the study. The collection rate of Green Bin Program Materials was adjusted to represent participating households only by dividing the quantity collected from each Group by the ratio of the number of participating to total households in the Group. In Group 1, seventeen out of twenty households participated, and sixteen out of twenty households participated in Groups 2, 3 and 4. The average and interval estimates are presented in Table 5.

Table 5 – Green Bin Program Materials Collection – Participating Households Only

| Green Bin Program Materials Composition - General Categories | Collection (kg/hhld/yr) | | Percent of Average | 90% Confidence Interval (kg/hhld/yr) | | |
|---|----------------------------|-----------------------|-----------------------|---|-----------------------|-----------------------|
| | Average | Standard Deviation | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| Solicited Organic Materials | 298.79 | 59.33 | 96.30% | 347.38 | 228.98 | 368.60 |
| Film Plastic (including bin liners and contaminants) | 7.47 | 1.94 | 2.41% | 9.06 | 5.18 | 9.76 |
| Other Plastic | 0.51 | 0.38 | 0.16% | 0.83 | 0.06 | 0.96 |
| Glass | 0.15 | 0.16 | 0.05% | 0.27 | - | - |
| Ferrous Metals | 0.21 | 0.17 | 0.07% | 0.35 | - | - |
| Non-Ferrous Metals | 0.43 | 0.47 | 0.14% | 0.82 | - | - |
| Other Non-Processible Materials | 2.71 | 1.10 | 0.87% | 3.61 | 1.41 | 4.01 |
| Total | 310.27 | 62.35 | 100.00% | 361.32 | 236.90 | 383.63 |

n = 4 Groups (65 participating households)

5.5 Blue/Grey Box Program Materials Collection and Composition

Quantities of materials collected by the Blue/Grey Box Program during the study from all households in the Waste Audit Sample are listed in Table 6 a) – g). Note that in all collection tables the “Collection Program” column indicates the program, if any, for which each constituent material is solicited.

Table 6 – Blue/Grey Box Program Materials Collection – All Households

Table 6a – Blue/Grey Box Program Materials – Paper Fibres

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|------------------------|---------------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 1. Paper Fibres | | | | | | | | |
| Newspaper | ONP, inserts | Grey Box | 120.77 | 18.15 | 40.60% | 135.63 | 99.41 | 142.13 |
| Magazines / paperbacks | OMG, catalogues, soft covers | Grey Box | 12.90 | 0.17 | 4.34% | 13.04 | 12.70 | 13.10 |
| Phone Books | OTB | Grey Box | 5.31 | 4.15 | 1.79% | 8.71 | 0.44 | 10.19 |
| Cardboard | OCC | Grey Box | 40.68 | 18.62 | 13.67% | 55.93 | 18.77 | 62.59 |
| Boxboard/Rolls | OBB | Grey Box | 20.61 | 2.82 | 6.93% | 22.92 | 17.28 | 23.93 |
| Mixed Papers | junk mail, fine household papers | Grey Box | 17.99 | 5.14 | 6.05% | 22.19 | 11.94 | 24.03 |
| Molded Pulp | egg cartons, drink trays | Grey Box | 1.03 | 0.06 | 0.35% | 1.08 | 0.96 | 1.10 |
| Books | hard covered | Grey Box | 0.23 | 0.34 | 0.08% | 0.50 | - | - |
| Kraft Paper | paper bags | Grey Box | 0.98 | 0.93 | 0.33% | 1.74 | - | - |
| Spiral Wound | frozen juice, pringles type packaging | None | 0.36 | 0.19 | 0.12% | 0.52 | 0.14 | 0.59 |
| Tissue/Toweling | tissues, napkins, paper towels | Green Bin | 0.18 | 0.16 | 0.06% | 0.31 | - | - |
| Other Paper | multi-layered, waxed, wrapping | None | 1.62 | 1.63 | 0.54% | 2.95 | - | - |
| Gable Top Cartons | milk, juice | Blue Box | 1.70 | 0.76 | 0.57% | 2.32 | 0.81 | 2.59 |
| Aseptic Containers | tetra type packaging | Blue Box | 0.23 | 0.09 | 0.08% | 0.30 | 0.12 | 0.34 |
| Sub Total | | | 224.58 | 38.72 | 75.50% | 256.29 | 179.02 | 270.14 |

n = 4 Groups (80 households)

Table 6b – Blue/Grey Box Program Materials – Plastics

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|---------------------------|---|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 2. Plastics | | | | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | Blue Box | 1.64 | 1.57 | 0.55% | 2.92 | - | - |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | Blue Box | 5.19 | 0.80 | 1.75% | 5.85 | 4.25 | 6.13 |
| PETE Other Packaging | #1 bakery, strawberry trays, egg cartons | None | 0.60 | 0.21 | 0.20% | 0.77 | 0.36 | 0.85 |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | Blue Box | 3.78 | 1.00 | 1.27% | 4.60 | 2.60 | 4.96 |
| PVC Bottles | # 3 bottles | None | 0.26 | 0.14 | 0.09% | 0.37 | 0.10 | 0.41 |
| LDPE & PP Bottles | # 4 and # 5 bottles | None | 0.53 | 0.48 | 0.18% | 0.92 | - | - |
| #7 Bottles | #7 bottles and jugs | None | 0.11 | 0.15 | 0.04% | 0.23 | - | - |
| Polystyrene | # 6 trays, cups, lids, packaging | None | 0.64 | 0.38 | 0.21% | 0.95 | 0.19 | 1.08 |
| Wide Mouth Tubs & Lids | # 2, #4, #5 tubs and lids | None | 1.26 | 0.39 | 0.43% | 1.58 | 0.80 | 1.72 |
| Recyclable Film | shopping bags, milk bags | None | 1.14 | 1.09 | 0.38% | 2.03 | - | - |
| Non-Recyclable Film | garbage bags, chip bags, pasta bags, plastic wrap | None | 0.36 | 0.56 | 0.12% | 0.82 | - | - |
| Other Bottles | pesticides, oil, lubricants, solvents, anti-freeze | None | 0.23 | 0.20 | 0.08% | 0.39 | - | - |
| Other Plastic Packaging | blister packaging and other unmarked packaging | None | 1.31 | 0.40 | 0.44% | 1.64 | 0.84 | 1.79 |
| Durable Plastic Products | non-packaging such as VCR tapes, toys, garden hose | None | 1.54 | 0.47 | 0.52% | 1.92 | 0.99 | 2.09 |
| Sub Total | | | 18.59 | 3.40 | 6.25% | 21.37 | 14.59 | 22.59 |

n = 4 Groups (80 households)

Table 6c – Blue/Grey Box Program Materials – Metals

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|----------------------|-------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 3. Metals | | | | | | | | |
| Aluminum Cans | food & beverage cans | Blue Box | 4.62 | 1.57 | 1.55% | 5.90 | 2.76 | 6.47 |
| Aluminum Foil Trays | pie plates, etc | Blue Box | 0.17 | 0.19 | 0.06% | 0.33 | - | - |
| Steel Cans | food & beverage cans | Blue Box | 8.49 | 2.57 | 2.85% | 10.59 | 5.46 | 11.51 |
| Aerosol Cans | empty cans only | Blue Box | 0.52 | 0.50 | 0.17% | 0.93 | - | - |
| Paint Cans | empty cans only | Blue Box | 0.00 | 0.00 | 0.00% | 0.00 | 0.00 | 0.00 |
| Other Metal | scrap metal, other containers | None | 0.86 | 0.49 | 0.29% | 1.26 | 0.28 | 1.43 |
| Sub Total | | | 14.65 | 2.12 | 4.93% | 16.39 | 12.15 | 17.15 |

n = 4 Groups (80 households)

Table 6d – Blue/Grey Box Program Materials – Glass

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|----------------------|------------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 4. Glass | | | | | | | | |
| LCBO Clear | clear glass alcoholic beverages | Blue Box | 4.91 | 2.30 | 1.65% | 6.79 | 2.20 | 7.62 |
| LCBO Coloured | coloured glass alcoholic beverages | Blue Box | 13.65 | 5.66 | 4.59% | 18.29 | 6.99 | 20.31 |
| Clear | food & beverage containers | Blue Box | 13.54 | 1.92 | 4.55% | 15.11 | 11.28 | 15.80 |
| Coloured | food & beverage containers | Blue Box | 2.94 | 2.22 | 0.99% | 4.76 | 0.33 | 5.55 |
| Other Glass | lightbulbs, window glass, ceramics | None | 0.50 | 0.34 | 0.17% | 0.77 | 0.10 | 0.89 |
| Sub Total | | | 35.53 | 6.95 | 11.94% | 41.23 | 27.35 | 43.71 |

n = 4 Groups (80 households)

Table 6e – Blue/Grey Box Program Materials – Household Special Wastes

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|------------------------------------|----------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 5. Household Special Wastes | | | | | | | | |
| Batteries | all types | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Paint | unemptied containers | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Motor Oil | used oil, filters | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Flammables | starter fluid, solvents | None | 0.11 | 0.23 | 0.04% | 0.30 | - | - |
| Unemptied aerosol cans | all types | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Other HSW | sharps, drugs, acids, antifreeze | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Sub Total | | | 0.11 | 0.23 | 0.04% | 0.30 | - | - |

n = 4 Groups (80 households)

Table 6f – Blue/Grey Box Program Materials – Organics

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|----------------------|----------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 6. Organics | | | | | | | | |
| Vegetable Food Waste | vegetable and fruit peelings | Green Bin | 0.03 | 0.04 | 0.01% | 0.06 | - | - |
| Animal Food Waste | meats, fats, oils | Green Bin | 0.00 | 0.00 | 0.00% | - | - | - |
| Animal waste | feces, animal litter and bedding | Green Bin | 0.00 | 0.00 | 0.00% | - | - | - |
| Sanitary Products | diapers, napkins | Green Bin | 0.00 | 0.00 | 0.00% | - | - | - |
| Grass | grass clippings | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Woody Yard Waste | brush, branches, wood chips | Yard Waste | 0.00 | 0.00 | 0.00% | - | - | - |
| Other Yard Waste | leaves, soil, garden wastes | Yard Waste | 0.05 | 0.06 | 0.02% | 0.10 | - | - |
| Sub Total | | | 0.08 | 0.08 | 0.03% | 0.15 | - | - |

n = 4 Groups (80 households)

Table 6g – Blue/Grey Box Program Materials – Other Waste Materials

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|---------------------------------|-------------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 7. Other Waste Materials | | | | | | | | |
| Textiles | clothing, shoes, carpets, bedding | None | 0.02 | 0.03 | 0.01% | 0.05 | - | - |
| Building Renovations | drywall, lumber, flooring | None | 0.28 | 0.30 | 0.09% | 0.52 | - | - |
| Furniture | sofas, chairs, cabinets | None | 0.15 | 0.29 | 0.05% | 0.39 | - | - |
| Electronics/Appliances | small appliances, computers, radios | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Rubber | tires, mats, tubing | None | 0.02 | 0.03 | 0.01% | 0.04 | - | - |
| Wood ashes | fireplaces & wood stoves | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Non-Classifiable | materials not classified elsewhere | None | 3.46 | 3.11 | 1.16% | 6.00 | - | - |
| Sub Total | | | 3.92 | 3.23 | 1.32% | 6.56 | 0.12 | 7.71 |
| TOTAL | | | 297.47 | 41.73 | | 331.64 | 248.36 | 346.58 |

n = 4 Groups (80 households)

The average annual quantity of materials collected by the Blue/Grey Box Program from single-family households in Etobicoke as picked up at the curb was 297.47 ± 49.11 kg/hhld/yr at 90% confidence. Solicited Grey Box materials accounted for 74.11% or 220.45 kg/hhld/yr of the total. Solicited Blue Box Materials accounted for 20.65% (61.42 kg/hhld/yr). Contaminants were 5.25% (15.61 kg/hhld/yr). Paper Fibres made up the largest component of Blue/Grey Box Program Materials, with Newspaper being the greatest sub-component at 40.60%, followed by Cardboard at 13.67%. Glass was the next largest major component at 11.94%. LCBO Coloured was the largest sub-component, followed closely by Clear, then LCBO Clear and Coloured. Plastics were the third largest major material component of the recycling stream. PETE Other Bottles & Jars made up the largest proportion of Plastic, followed by HDPE Bottles & Jugs, then PETE Soft Drink Bottles. Metals were the fourth largest major material group at 4.94% of the total. The majority of the metals were Steel Cans, followed by Aluminum Cans, Other Metal, Aerosol Cans, Aluminum Foil Trays. In summary, solicited Grey Box Materials were 74.11%, solicited Blue Box Materials 20.65% and contaminants 5.25% of the Blue/Grey Box Program Materials collected during the audit.

Participation was defined as one or more set outs of Blue or Grey Box Program Materials or both during the study. As was done for the Green Bin Program Materials Collection and Composition, quantities of materials collected by the Blue/Grey Box Program for participating households only were determined. For Group 1, nineteen out of twenty participated and eighteen out of twenty households participated in Groups 2, 3 and 4. The results are presented in Table 7 a) – g).

Table 7 - Blue/Grey Box Program Materials Collection - Participating Households Only

Table 7a – Blue/Grey Box Program Materials – Paper Fibres

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|------------------------|---------------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 1. Paper Fibres | | | | | | | | |
| Newspaper | ONP, inserts | Grey Box | 132.38 | 20.06 | 40.64% | 148.80 | 108.77 | 155.98 |
| Magazines / paperbacks | OMG, catalogues, soft covers | Grey Box | 14.15 | 0.51 | 4.34% | 14.57 | 13.54 | 14.76 |
| Phone Books | OTB | Grey Box | 5.74 | 4.30 | 1.76% | 9.26 | 0.68 | 10.80 |
| Cardboard | OCC | Grey Box | 44.33 | 19.55 | 13.61% | 60.34 | 21.32 | 67.34 |
| Boxboard/Rolls | OBB | Grey Box | 22.57 | 2.96 | 6.93% | 24.99 | 19.09 | 26.05 |
| Mixed Papers | junk mail, fine household papers | Grey Box | 19.70 | 5.59 | 6.05% | 24.28 | 13.12 | 26.28 |
| Molded Pulp | egg cartons, drink trays | Grey Box | 1.13 | 0.08 | 0.35% | 1.19 | 1.03 | 1.22 |
| Books | hard covered | Grey Box | 0.25 | 0.38 | 0.08% | 0.56 | - | - |
| Kraft Paper | paper bags | Grey Box | 1.08 | 1.04 | 0.33% | 1.93 | - | - |
| Spiral Wound | frozen juice, pringles type packaging | None | 0.40 | 0.21 | 0.12% | 0.57 | 0.15 | 0.64 |
| Tissue/Toweling | tissues, napkins, paper towels | Green Bin | 0.20 | 0.18 | 0.06% | 0.35 | - | - |
| Other Paper | multi-layered, waxed, wrapping | None | 1.79 | 1.81 | 0.55% | 3.28 | - | - |
| Gable Top Cartons | milk, juice | Blue Box | 1.87 | 0.84 | 0.57% | 2.55 | 0.88 | 2.85 |
| Aseptic Containers | tetra type packaging | Blue Box | 0.25 | 0.11 | 0.08% | 0.34 | 0.13 | 0.38 |
| Sub Total | | | 245.82 | 39.76 | 75.47% | 278.38 | 199.04 | 292.61 |

n = 4 Groups (73 participating households)

Table 7b – Blue/Grey Box Program Materials – Plastics

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|---------------------------|---|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 2. Plastics | | | | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | Blue Box | 1.76 | 1.64 | 0.54% | 3.10 | - | - |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | Blue Box | 5.71 | 1.00 | 1.75% | 6.53 | 4.53 | 6.89 |
| PETE Other Packaging | #1 bakery, strawberry trays, egg cartons | None | 0.67 | 0.24 | 0.20% | 0.86 | 0.39 | 0.94 |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | Blue Box | 4.15 | 1.15 | 1.28% | 5.10 | 2.80 | 5.51 |
| PVC Bottles | # 3 bottles | None | 0.28 | 0.15 | 0.09% | 0.41 | 0.10 | 0.46 |
| LDPE & PP Bottles | # 4 and # 5 bottles | None | 0.57 | 0.50 | 0.17% | 0.98 | - | - |
| #7 Bottles | #7 bottles and jugs | None | 0.12 | 0.17 | 0.04% | 0.25 | - | - |
| Polystyrene | # 6 trays, cups, lids, packaging | None | 0.71 | 0.42 | 0.22% | 1.05 | 0.21 | 1.20 |
| Wide Mouth Tubs & Lids | # 2, #4, #5 tubs and lids | None | 1.39 | 0.45 | 0.43% | 1.76 | 0.86 | 1.93 |
| Recyclable Film | shopping bags, milk bags | None | 1.26 | 1.21 | 0.39% | 2.25 | - | - |
| Non-Recyclable Film | garbage bags, chip bags, pasta bags, plastic wrap | None | 0.40 | 0.62 | 0.12% | 0.91 | - | - |
| Other Bottles | pesticides, oil, lubricants, solvents, anti-freeze | None | 0.25 | 0.22 | 0.08% | 0.43 | - | - |
| Other Plastic Packaging | blister packaging and other unmarked packaging | None | 1.43 | 0.41 | 0.44% | 1.77 | 0.96 | 1.91 |
| Durable Plastic Products | non-packaging such as VCR tapes, toys, garden hose | None | 1.69 | 0.54 | 0.52% | 2.13 | 1.06 | 2.32 |
| Sub Total | | | 20.40 | 3.95 | 6.26% | 23.64 | 15.76 | 25.05 |

n = 4 Groups (73 participating households)

Table 7c – Blue/Grey Box Program Materials – Metals

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|----------------------|-------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 3. Metals | | | | | | | | |
| Aluminum Cans | food & beverage cans | Blue Box | 5.04 | 1.63 | 1.55% | 6.37 | 3.12 | 6.95 |
| Aluminum Foil Trays | pie plates, etc | Blue Box | 0.19 | 0.20 | 0.06% | 0.35 | - | - |
| Steel Cans | food & beverage cans | Blue Box | 9.36 | 2.99 | 2.87% | 11.81 | 5.84 | 12.87 |
| Aerosol Cans | empty cans only | Blue Box | 0.57 | 0.56 | 0.18% | 1.03 | - | - |
| Paint Cans | empty cans only | Blue Box | 0.00 | 0.00 | 0.00% | - | - | - |
| Other Metal | scrap metal, other containers | None | 0.94 | 0.53 | 0.29% | 1.37 | 0.31 | 1.57 |
| Sub Total | | | 16.09 | 2.58 | 4.94% | 18.20 | 13.06 | 19.12 |

n = 4 Groups (73 participating households)

Table 7d – Blue/Grey Box Program Materials – Glass

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|----------------------|------------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 4. Glass | | | | | | | | |
| LCBO Clear | clear glass alcoholic beverages | Blue Box | 5.35 | 2.43 | 1.64% | 7.34 | 2.49 | 8.21 |
| LCBO Coloured | coloured glass alcoholic beverages | Blue Box | 14.88 | 5.93 | 4.57% | 19.74 | 7.91 | 21.86 |
| Clear | food & beverage containers | Blue Box | 14.85 | 2.24 | 4.56% | 16.68 | 12.22 | 17.48 |
| Coloured | food & beverage containers | Blue Box | 3.23 | 2.48 | 0.99% | 5.26 | 0.32 | 6.15 |
| Other Glass | lightbulbs, window glass, ceramics | None | 0.54 | 0.37 | 0.17% | 0.85 | 0.11 | 0.98 |
| Sub Total | | | 38.86 | 6.96 | 11.93% | 44.56 | 30.67 | 47.05 |

n = 4 Groups (73 participating households)

Table 7e – Blue/Grey Box Program Materials – Household Special Wastes

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|------------------------------------|----------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 5. Household Special Wastes | | | | | | | | |
| Batteries | all types | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Paint | unemptied containers | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Motor Oil | used oil, filters | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Flammables | starter fluid, solvents | None | 0.13 | 0.25 | 0.04% | 0.33 | - | - |
| Unemptied aerosol cans | all types | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Other HSW | sharps, drugs, acids, antifreeze | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Sub Total | | | 0.13 | 0.25 | 0.04% | 0.33 | - | - |

n = 4 Groups (73 participating households)

Table 7f – Blue/Grey Box Program Materials – Organics

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|----------------------|----------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 6. Organics | | | | | | | | |
| Vegetable Food Waste | vegetable and fruit peelings | Green Bin | 0.04 | 0.04 | 0.01% | 0.07 | - | - |
| Animal Food Waste | meats, fats, oils | Green Bin | 0.00 | 0.00 | 0.00% | - | - | - |
| Animal waste | feces, animal litter and bedding | Green Bin | 0.00 | 0.00 | 0.00% | - | - | - |
| Sanitary Products | diapers, napkins | Green Bin | 0.00 | 0.00 | 0.00% | - | - | - |
| Grass | grass clippings | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Woody Yard Waste | brush, branches, wood chips | Yard Waste | 0.00 | 0.00 | 0.00% | - | - | - |
| Other Yard Waste | leaves, soil, garden wastes | Yard Waste | 0.05 | 0.07 | 0.02% | 0.11 | - | - |
| Sub Total | | | 0.09 | 0.09 | 0.03% | 0.16 | - | - |

n = 4 Groups (73 participating households)

Table 7g – Blue/Grey Box Program Materials – Other Waste Materials

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|---------------------------------|-------------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 7. Other Waste Materials | | | | | | | | |
| Textiles | clothing, shoes, carpets, bedding | None | 0.03 | 0.03 | 0.01% | 0.05 | - | - |
| Building Renovations | drywall, lumber, flooring | None | 0.31 | 0.34 | 0.09% | 0.58 | - | - |
| Furniture | sofas, chairs, cabinets | None | 0.15 | 0.31 | 0.05% | 0.41 | - | - |
| Electronics/Appliances | small appliances, computers, radios | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Rubber | tires, mats, tubing | None | 0.02 | 0.04 | 0.01% | 0.05 | - | - |
| Wood ashes | fireplaces & wood stoves | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Non-Classifiable | materials not classified elsewhere | None | 3.83 | 3.47 | 1.18% | 6.67 | - | - |
| Sub Total | | | 4.33 | 3.61 | 1.33% | 7.29 | 0.09 | 8.58 |
| TOTAL | | | 325.73 | 42.51 | | 360.54 | 275.70 | 375.75 |

n = 4 Groups (73 participating households)

The collection data of Blue/Grey Box Program Materials for each Group can be found in Appendix F.

5.6 Residual Waste Collection and Composition

The quantities of Residual Waste materials collected during the study from all households in the Waste Audit Sample are shown in Table 8 a) – g). Note that in all collection tables the “Collection Program” column indicates the program, if any, for which each constituent material is solicited.

Table 8 – Residual Waste Collection – All Households

Table 8a – Residual Waste – Paper Fibres

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|------------------------|---------------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 1. Paper Fibres | | | | | | | | |
| Newspaper | ONP, inserts | Grey Box | 9.89 | 4.61 | 3.01% | 13.67 | 4.47 | 15.32 |
| Magazines / paperbacks | OMG, catalogues, soft covers | Grey Box | 3.25 | 0.98 | 0.99% | 4.05 | 2.10 | 4.40 |
| Phone Books | OTB | Grey Box | 0.15 | 0.29 | 0.04% | 0.39 | - | - |
| Cardboard | OCC | Grey Box | 7.54 | 5.93 | 2.29% | 12.39 | 0.57 | 14.51 |
| Boxboard/Rolls | OBB | Grey Box | 10.69 | 3.05 | 3.25% | 13.19 | 7.10 | 14.28 |
| Mixed Papers | junk mail, fine household papers | Grey Box | 13.50 | 1.45 | 4.10% | 14.68 | 11.79 | 15.20 |
| Molded Pulp | egg cartons, drink trays | Grey Box | 0.37 | 0.16 | 0.11% | 0.50 | 0.18 | 0.55 |
| Books | hard covered | Grey Box | 2.65 | 4.05 | 0.81% | 5.96 | - | - |
| Kraft Paper | paper bags | Grey Box | 2.68 | 0.86 | 0.82% | 3.39 | 1.67 | 3.69 |
| Spiral Wound | frozen juice, pringles type packaging | None | 0.79 | 0.37 | 0.24% | 1.10 | 0.36 | 1.23 |
| Tissue/Toweling | tissues, napkins, paper towels | Green Bin | 13.81 | 2.86 | 4.20% | 16.16 | 10.45 | 17.18 |
| Other Paper | multi-layered, waxed, wrapping | None | 7.32 | 1.85 | 2.23% | 8.84 | 5.14 | 9.50 |
| Gable Top Cartons | milk, juice | Blue Box | 0.73 | 0.56 | 0.22% | 1.19 | 0.07 | 1.39 |
| Aseptic Containers | tetra type packaging | Blue Box | 0.91 | 0.70 | 0.28% | 1.48 | 0.08 | 1.73 |
| Sub Total | | | 74.28 | 19.09 | 22.58% | 89.92 | 51.81 | 96.75 |

n = 4 Groups (80 households)

Table 8b – Residual Waste – Plastics

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|---------------------------|---|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 2. Plastics | | | | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | Blue Box | 0.29 | 0.27 | 0.09% | 0.50 | - | - |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | Blue Box | 1.54 | 0.37 | 0.47% | 1.84 | 1.11 | 1.97 |
| PETE Other Packaging | #1 bakery, strawberry trays, egg cartons | None | 0.84 | 0.65 | 0.25% | 1.37 | 0.07 | 1.60 |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | Blue Box | 1.64 | 0.44 | 0.50% | 2.00 | 1.12 | 2.16 |
| PVC Bottles | # 3 bottles | None | 0.10 | 0.09 | 0.03% | 0.17 | - | - |
| LDPE & PP Bottles | # 4 and # 5 bottles | None | 0.04 | 0.03 | 0.01% | 0.07 | 0.01 | 0.08 |
| #7 Bottles | #7 bottles and jugs | None | 0.09 | 0.13 | 0.03% | 0.20 | - | - |
| Polystyrene | # 6 trays, cups, lids, packaging | None | 3.28 | 0.93 | 1.00% | 4.04 | 2.20 | 4.37 |
| Wide Mouth Tubs & Lids | # 2, #4, #5 tubs and lids | None | 3.79 | 2.01 | 1.15% | 5.44 | 1.42 | 6.16 |
| Recyclable Film | shopping bags, milk bags | None | 12.75 | 2.46 | 3.88% | 14.77 | 9.85 | 15.65 |
| Non-Recyclable Film | garbage bags, chip bags, pasta bags, plastic wrap | None | 10.68 | 3.06 | 3.25% | 13.19 | 7.07 | 14.28 |
| Other Bottles | pesticides, oil, lubricants, solvents, anti-freeze | None | 0.27 | 0.33 | 0.08% | 0.54 | - | - |
| Other Plastic Packaging | blister packaging and other unmarked packaging | None | 4.97 | 0.66 | 1.51% | 5.52 | 4.20 | 5.75 |
| Durable Plastic Products | non-packaging such as VCR tapes, toys, garden hose | None | 16.39 | 4.65 | 4.98% | 20.20 | 10.92 | 21.86 |
| Sub Total | | | 56.68 | 11.36 | 17.23% | 65.98 | 43.32 | 70.04 |

n = 4 Groups (80 households)

Table 8c – Residual Waste – Metals

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|----------------------|-------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 3. Metals | | | | | | | | |
| Aluminum Cans | food & beverage cans | Blue Box | 0.65 | 0.30 | 0.20% | 0.90 | 0.30 | 1.01 |
| Aluminum Foil Trays | pie plates, etc | Blue Box | 0.58 | 0.29 | 0.18% | 0.82 | 0.24 | 0.92 |
| Steel Cans | food & beverage cans | Blue Box | 2.46 | 0.78 | 0.75% | 3.11 | 1.54 | 3.39 |
| Aerosol Cans | empty cans only | Blue Box | 0.78 | 0.57 | 0.24% | 1.25 | 0.11 | 1.46 |
| Paint Cans | empty cans only | Blue Box | 0.70 | 1.15 | 0.21% | 1.64 | - | - |
| Other Metal | scrap metal, other containers | None | 9.24 | 3.98 | 2.81% | 12.51 | 4.56 | 13.93 |
| Sub Total | | | 14.43 | 5.04 | 4.38% | 18.55 | 8.50 | 20.35 |

n = 4 Groups (80 households)

Table 8d – Residual Waste – Glass

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|----------------------|------------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 4. Glass | | | | | | | | |
| LCBO Clear | clear glass alcoholic beverages | Blue Box | 0.32 | 0.36 | 0.10% | 0.61 | - | - |
| LCBO Coloured | coloured glass alcoholic beverages | Blue Box | 0.36 | 0.56 | 0.11% | 0.81 | - | - |
| Clear | food & beverage containers | Blue Box | 3.88 | 2.29 | 1.18% | 5.75 | 1.18 | 6.57 |
| Coloured | food & beverage containers | Blue Box | 0.16 | 0.15 | 0.05% | 0.29 | - | - |
| Other Glass | lightbulbs, window glass, ceramics | None | 4.86 | 2.11 | 1.48% | 6.59 | 2.39 | 7.34 |
| Sub Total | | | 9.58 | 4.48 | 2.91% | 13.25 | 4.31 | 14.85 |

n = 4 Groups (80 households)

Table 8e – Residual Waste – Household Special Wastes

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|------------------------------------|----------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 5. Household Special Wastes | | | | | | | | |
| Batteries | all types | None | 0.19 | 0.11 | 0.06% | 0.28 | 0.06 | 0.32 |
| Paint | unemptied containers | None | 0.07 | 0.13 | 0.02% | 0.17 | - | - |
| Motor Oil | used oil, filters | None | 0.21 | 0.42 | 0.06% | 0.56 | - | - |
| Flammables | starter fluid, solvents | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Unemptied aerosol cans | all types | None | 0.05 | 0.10 | 0.02% | 0.13 | - | - |
| Other HSW | sharps, drugs, acids, antifreeze | None | 0.15 | 0.17 | 0.04% | 0.29 | - | - |
| Sub Total | | | 0.67 | 0.39 | 0.20% | 0.99 | 0.21 | 1.12 |

n = 4 Groups (80 households)

Table 8f – Residual Waste– Organics

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|----------------------|----------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 6. Organics | | | | | | | | |
| Vegetable Food Waste | vegetable and fruit peelings | Green Bin | 55.67 | 15.63 | 16.92% | 68.47 | 37.28 | 74.06 |
| Animal Food Waste | meats, fats, oils | Green Bin | 2.42 | 3.09 | 0.74% | 4.96 | - | - |
| Animal waste | feces, animal litter and bedding | Green Bin | 9.41 | 2.47 | 2.86% | 11.43 | 6.51 | 12.31 |
| Sanitary Products | diapers, napkins | Green Bin | 10.10 | 6.56 | 3.07% | 15.47 | 2.38 | 17.82 |
| Grass | grass clippings | | 0.00 | 0.00 | 0.00% | - | - | - |
| Woody Yard Waste | brush, branches, wood chips | Yard Waste | 5.46 | 4.16 | 1.66% | 8.87 | 0.56 | 10.36 |
| Other Yard Waste | leaves, soil, garden wastes | Yard Waste | 16.80 | 6.08 | 5.11% | 21.78 | 9.65 | 23.95 |
| Sub Total | | | 99.87 | 24.29 | 30.36% | 119.76 | 71.28 | 128.45 |

n = 4 Groups (80 households)

Table 8g – Residual Waste – Other Waste Materials

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|---------------------------------|-------------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 7. Other Waste Materials | | | | | | | | |
| Textiles | clothing, shoes, carpets, bedding | None | 36.09 | 15.68 | 10.97% | 48.94 | 17.64 | 54.55 |
| Building Renovations | drywall, lumber, flooring | None | 13.98 | 7.08 | 4.25% | 19.78 | 5.64 | 22.32 |
| Furniture | sofas, chairs, cabinets | None | 2.28 | 1.96 | 0.69% | 3.88 | - | - |
| Electronics/Appliances | small appliances, computers, radios | None | 6.79 | 4.68 | 2.06% | 10.62 | 1.29 | 12.29 |
| Rubber | tires, mats, tubing | None | 1.03 | 0.83 | 0.31% | 1.71 | 0.06 | 2.01 |
| Wood ashes | fireplaces & wood stoves | None | 0.00 | 0.00 | 0.00% | 0.00 | 0.00 | 0.00 |
| Non-Classifiable | materials not classified elsewhere | None | 13.30 | 1.73 | 4.04% | 14.72 | 11.26 | 15.34 |
| Sub Total | | | 73.47 | 24.13 | 22.33% | 93.23 | 45.07 | 101.87 |
| TOTAL | | | 328.97 | 80.20 | | 394.64 | 234.60 | 423.33 |

n = 4 Groups (80 households)

The results presented in Table 8 have been adjusted to compensate for unusually large set outs of specific constituent materials. As an example, a house in Group 3 had a shop/business that generated large quantities of renovation debris. As a result, the proportion of Building Renovations for this Group was more than double the average of the other 3 Groups. For this Group, the Building Renovations collection rate was replaced with the average of the other three Groups. Details are provided in Appendix G. It was necessary to carry out these adjustments on four other occasions. One Group had the “Other Glass” category adjusted, one Group “Other Metal”, and two Groups had their “Other Yard Waste” values modified. Full details and original numbers are provided in Appendix G.

Infrequent, large quantity set outs of specific constituent materials present a challenge when analysing the data from a small-scale waste audit such as this. Including large quantity set outs would result in an overestimation of the proportion of the particular constituent material and a corresponding underestimation of the proportion of the remaining constituent material categories. It was decided that where the weight of a particular constituent material in any one Group was 50% or more of the total weight of that material collected from all Groups (i.e. the Waste Audit Sample), the constituent material weight was replaced by the average of the other 3 weights.

One house set out two garbage bags full of grass clippings, which were left at the curb. Over the course of the audit yard waste found in garbage bags was left behind on three occasions. Garbage bags found containing a mixture of residual and yard waste were collected and included in the audit.

The bulky items observed set out but not included in the audit were a sofa and a lawn bench made of wrought iron and wood. Some of the heavier items picked up and included in the audit were two rolls of carpet and an old toilet.

The estimated annual average total quantity of Residual Waste collected from single-family households in Etobicoke was 328.97 ± 94.37 kg/hhld/yr at 90% confidence. Organics were the largest portion of the Residual Waste at 30.36%. The majority of the organic waste was food

waste at 17.66% of the total, followed by Other Yard Waste (5.11%), Sanitary Products (3.07%) and Animal Waste (2.86%). It should be noted that Non-Classifiable fines contained organic materials and therefore Organics is underreported.

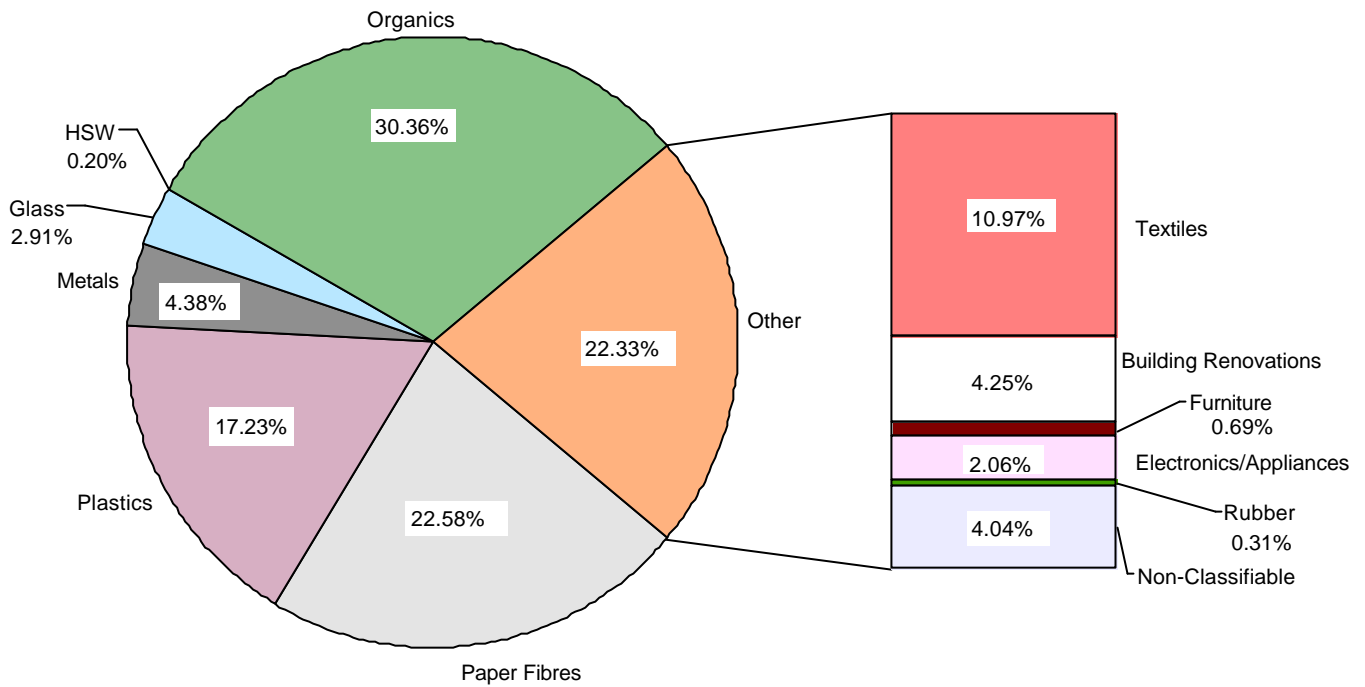
Paper Fibres comprised 22.58% of the Residual Waste Stream. The constituent materials contributing to the majority of the paper fibre were Tissue/Toweling (4.20%), Mixed Papers (4.10%), Boxboard/Rolls (3.25%), Newspaper (3.01%), and Cardboard (2.29%). Other Waste Materials comprised 22.33% of the Residual Waste Stream. Textiles were 10.97% and Building Renovations were 4.25%. Plastics contributed to 17.23% of the Residual Waste. Of this Film Plastics made up the largest sub-component at 7.13% (Recyclable 3.88%, Non-Recyclable 3.25%). Next were Durable Plastic Products (4.98%), Other Plastic Packaging (1.51%), Wide Mouth Tubs & Lids (1.15%), and Polystyrene (1%). Other plastics within this category made up less than 1%.

Table 9 presents the percent by weight of Residual Waste comprised of materials accepted in the City’s diversion programs.

Table 9 – Percentage of Recoverable Materials by Category in Residual Waste

| Program | Percent of Average in Residual Waste |
|----------------|---|
| Blue Box | 4.56% |
| Grey Box | 15.42% |
| Green Bin | 27.79% |
| Yard Waste | 6.77% |
| Total | 54.53% |

Figure 19 – Residual Waste Composition – Major Material Categories



Quantities of Residual Waste collected for participating households only were determined and the results are presented in Table 10. Nineteen out of twenty households participated in Groups 1, 2 and 4. All households participated in Group 3.

Table 10 – Residual Waste Collection – Participating Households Only

Table 10a – Residual Waste – Paper Fibres

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|------------------------|---------------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 1. Paper Fibres | | | | | | | | |
| Newspaper | ONP, inserts | Grey Box | 10.21 | 4.51 | 3.00% | 13.90 | 4.90 | 15.51 |
| Magazines / paperbacks | OMG, catalogues, soft covers | Grey Box | 3.38 | 1.02 | 0.99% | 4.21 | 2.18 | 4.58 |
| Phone Books | OTB | Grey Box | 0.15 | 0.31 | 0.05% | 0.41 | - | - |
| Cardboard | OCC | Grey Box | 7.81 | 6.18 | 2.29% | 12.87 | 0.54 | 15.08 |
| Boxboard/Rolls | OBB | Grey Box | 11.06 | 2.85 | 3.25% | 13.39 | 7.70 | 14.41 |
| Mixed Papers | junk mail, fine household papers | Grey Box | 14.02 | 1.52 | 4.12% | 15.27 | 12.24 | 15.81 |
| Molded Pulp | egg cartons, drink trays | Grey Box | 0.38 | 0.15 | 0.11% | 0.50 | 0.20 | 0.56 |
| Books | hard covered | Grey Box | 2.77 | 4.27 | 0.81% | 6.26 | - | - |
| Kraft Paper | paper bags | Grey Box | 2.78 | 0.87 | 0.82% | 3.49 | 1.76 | 3.81 |
| Spiral Wound | frozen juice, pringles type packaging | None | 0.82 | 0.36 | 0.24% | 1.11 | 0.40 | 1.24 |
| Tissue/Toweling | tissues, napkins, paper towels | Green Bin | 14.31 | 2.60 | 4.20% | 16.44 | 11.25 | 17.37 |
| Other Paper | multi-layered, waxed, wrapping | None | 7.60 | 1.88 | 2.23% | 9.14 | 5.38 | 9.81 |
| Gable Top Cartons | milk, juice | Blue Box | 0.76 | 0.59 | 0.22% | 1.25 | 0.06 | 1.46 |
| Aseptic Containers | tetra type packaging | Blue Box | 0.93 | 0.69 | 0.27% | 1.50 | 0.11 | 1.74 |
| Sub Total | | | 76.97 | 18.63 | 22.60% | 92.23 | 55.05 | 98.89 |

n = 4 Groups (77 participating households)

Table 10b – Residual Waste – Plastics

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|---------------------------|---|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 2. Plastics | | | | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | Blue Box | 0.29 | 0.27 | 0.09% | 0.51 | - | - |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | Blue Box | 1.60 | 0.40 | 0.47% | 1.93 | 1.13 | 2.08 |
| PETE Other Packaging | #1 bakery, strawberry trays, egg cartons | None | 0.88 | 0.69 | 0.26% | 1.44 | 0.07 | 1.69 |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | Blue Box | 1.70 | 0.45 | 0.50% | 2.07 | 1.17 | 2.23 |
| PVC Bottles | # 3 bottles | None | 0.10 | 0.08 | 0.03% | 0.17 | - | - |
| LDPE & PP Bottles | # 4 and # 5 bottles | None | 0.05 | 0.03 | 0.01% | 0.07 | 0.01 | 0.09 |
| #7 Bottles | #7 bottles and jugs | None | 0.09 | 0.13 | 0.03% | 0.20 | - | - |
| Polystyrene | # 6 trays, cups, lids, packaging | None | 3.41 | 0.93 | 1.00% | 4.17 | 2.31 | 4.50 |
| Wide Mouth Tubs & Lids | # 2, #4, #5 tubs and lids | None | 3.93 | 2.10 | 1.15% | 5.65 | 1.47 | 6.40 |
| Recyclable Film | shopping bags, milk bags | None | 13.21 | 2.28 | 3.88% | 15.08 | 10.53 | 15.90 |
| Non-Recyclable Film | garbage bags, chip bags, pasta bags, plastic wrap | None | 11.05 | 2.89 | 3.24% | 13.41 | 7.65 | 14.44 |
| Other Bottles | pesticides, oil, lubricants, solvents, anti-freeze | None | 0.28 | 0.35 | 0.08% | 0.57 | - | - |
| Other Plastic Packaging | blister packaging and other unmarked packaging | None | 5.16 | 0.55 | 1.51% | 5.61 | 4.51 | 5.81 |
| Durable Plastic Products | non-packaging such as VCR tapes, toys, garden hose | None | 16.96 | 4.35 | 4.98% | 20.52 | 11.83 | 22.08 |
| Sub Total | | | 58.72 | 10.31 | 17.24% | 67.16 | 46.59 | 70.84 |

n = 4 Groups (77 participating households)

Table 10c – Residual Waste – Metals

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|----------------------|-------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 3. Metals | | | | | | | | |
| Aluminum Cans | food & beverage cans | Blue Box | 0.68 | 0.33 | 0.20% | 0.95 | 0.30 | 1.07 |
| Aluminum Foil Trays | pie plates, etc | Blue Box | 0.60 | 0.30 | 0.18% | 0.85 | 0.25 | 0.95 |
| Steel Cans | food & beverage cans | Blue Box | 2.55 | 0.75 | 0.75% | 3.16 | 1.66 | 3.43 |
| Aerosol Cans | empty cans only | Blue Box | 0.80 | 0.56 | 0.24% | 1.26 | 0.15 | 1.46 |
| Paint Cans | empty cans only | Blue Box | 0.70 | 1.15 | 0.21% | 1.65 | - | - |
| Other Metal | scrap metal, other containers | None | 9.61 | 4.20 | 2.82% | 13.05 | 4.67 | 14.55 |
| Sub Total | | | 14.95 | 5.11 | 4.39% | 19.13 | 8.94 | 20.96 |

n = 4 Groups (77 participating households)

Table 10d – Residual Waste – Glass

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|----------------------|------------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 4. Glass | | | | | | | | |
| LCBO Clear | clear glass alcoholic beverages | Blue Box | 0.33 | 0.37 | 0.10% | 0.63 | - | - |
| LCBO Coloured | coloured glass alcoholic beverages | Blue Box | 0.36 | 0.55 | 0.11% | 0.82 | - | - |
| Clear | food & beverage containers | Blue Box | 4.00 | 2.32 | 1.18% | 5.90 | 1.27 | 6.73 |
| Coloured | food & beverage containers | Blue Box | 0.17 | 0.16 | 0.05% | 0.30 | - | - |
| Other Glass | lightbulbs, window glass, ceramics | None | 5.03 | 2.10 | 1.48% | 6.75 | 2.56 | 7.50 |
| Sub Total | | | 9.88 | 4.41 | 2.90% | 13.50 | 4.70 | 15.07 |

n = 4 Groups (77 participating households)

Table 10e – Residual Waste – Household Special Wastes

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|------------------------------------|----------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 5. Household Special Wastes | | | | | | | | |
| Batteries | all types | None | 0.20 | 0.12 | 0.06% | 0.29 | 0.06 | 0.34 |
| Paint | unemptied containers | None | 0.07 | 0.14 | 0.02% | 0.18 | - | - |
| Motor Oil | used oil, filters | None | 0.21 | 0.42 | 0.06% | 0.56 | - | - |
| Flammables | starter fluid, solvents | None | 0.00 | 0.00 | 0.00% | - | - | - |
| Unemptied aerosol cans | all types | None | 0.05 | 0.10 | 0.02% | 0.14 | - | - |
| Other HSW | sharps, drugs, acids, antifreeze | None | 0.15 | 0.18 | 0.05% | 0.30 | - | - |
| Sub Total | | | 0.69 | 0.39 | 0.20% | 1.01 | 0.23 | 1.15 |

n = 4 Groups (77 participating households)

Table 10f – Residual Waste – Organics

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|----------------------|----------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 6. Organics | | | | | | | | |
| Vegetable Food Waste | vegetable and fruit peelings | Green Bin | 57.59 | 14.63 | 16.91% | 69.57 | 40.37 | 74.80 |
| Animal Food Waste | meats, fats, oils | Green Bin | 2.46 | 3.10 | 0.72% | 5.00 | - | - |
| Animal waste | feces, animal litter and bedding | Green Bin | 9.81 | 2.72 | 2.88% | 12.04 | 6.61 | 13.01 |
| Sanitary Products | diapers, napkins | Green Bin | 10.40 | 6.54 | 3.05% | 15.75 | 2.70 | 18.09 |
| Grass | grass clippings | None | 0.00 | 0.00 | 0.00% | 0.00 | 0.00 | 0.00 |
| Woody Yard Waste | brush, branches, wood chips | Yard Waste | 5.63 | 4.27 | 1.65% | 9.13 | 0.61 | 10.66 |
| Other Yard Waste | leaves, soil, garden wastes | Yard Waste | 17.47 | 6.41 | 5.13% | 22.72 | 9.92 | 25.01 |
| Sub Total | | | 103.36 | 22.30 | 30.34% | 121.62 | 77.12 | 129.60 |

n = 4 Groups (77 participating households)

Table 10g – Residual Waste – Other Waste Materials

| Constituent Material | Description | Collection Program | Collection (kg/hhld/yr) | | | 90% Confidence Interval (kg/hhld/yr) | | |
|---------------------------------|-------------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | | | Average | Standard Deviation | Percent of Average | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| 7. Other Waste Materials | | | | | | | | |
| Textiles | clothing, shoes, carpets, bedding | None | 37.30 | 15.57 | 10.95% | 50.05 | 18.98 | 55.62 |
| Building Renovations | drywall, lumber, flooring | None | 14.53 | 7.47 | 4.27% | 20.64 | 5.75 | 23.32 |
| Furniture | sofas, chairs, cabinets | None | 2.38 | 2.08 | 0.70% | 4.08 | - | - |
| Electronics/Appliances | small appliances, computers, radios | None | 7.02 | 4.81 | 2.06% | 10.96 | 1.36 | 12.68 |
| Rubber | tires, mats, tubing | None | 1.07 | 0.86 | 0.31% | 1.77 | 0.06 | 2.08 |
| Wood ashes | fireplaces & wood stoves | None | 0.00 | 0.00 | 0.00% | 0.00 | 0.00 | 0.00 |
| Non-Classifiable | materials not classified elsewhere | None | 13.79 | 1.44 | 4.05% | 14.97 | 12.09 | 15.49 |
| Sub Total | | | 76.09 | 23.98 | 22.33% | 95.73 | 47.86 | 104.31 |
| TOTAL | | | 340.65 | 75.48 | | 402.46 | 251.84 | 429.47 |

n = 4 Groups (77 participating households)

The quantities of Residual Waste collected for each Group can be found in Appendix G.

5.7 Total Solid Waste Collection

The Total Solid Waste Collection represents the total collection of all constituent materials in all streams. It is the sum of the collected Green Bin Program Materials, Blue/Grey Box Program Materials and Residual Waste. It does not include Leaf and Yard Waste, White Goods and bulky items. The results, expressed in terms of major material categories are presented in Table 11.

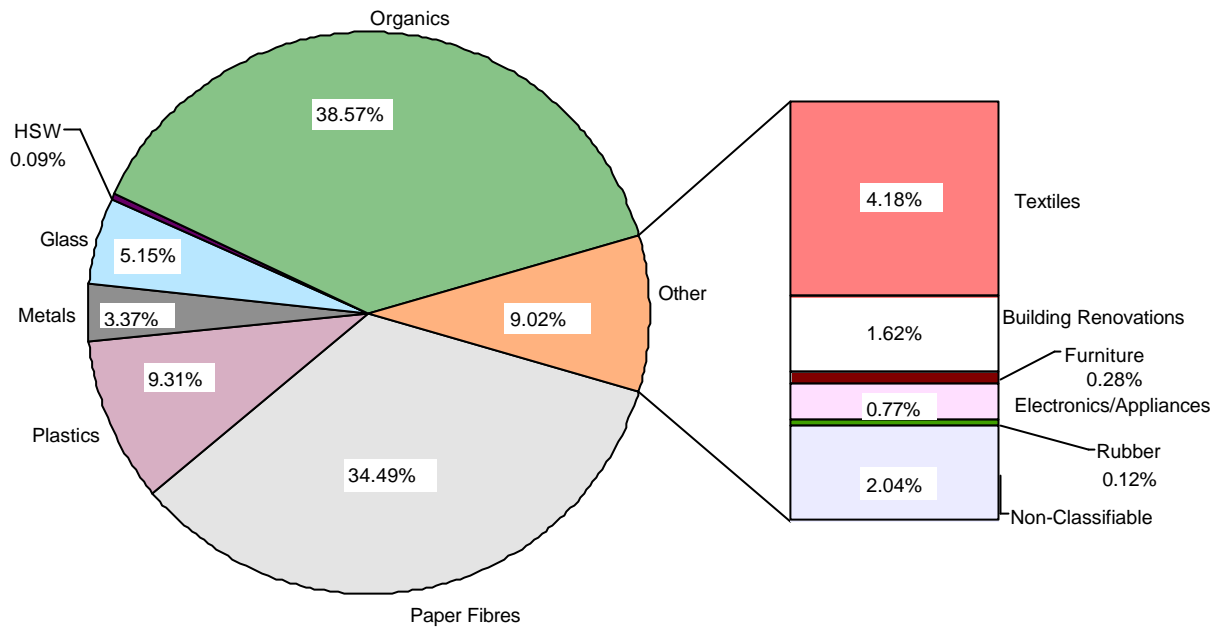
Table 11 – Total Solid Waste Collection

| Major Material Category | Collection (kg/hhld/yr) | | Percent of Average | 90% Confidence Interval (kg/hhld/yr) | | |
|-----------------------------------|-------------------------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | Average | Standard Deviation | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| Paper Fibres | 302.73 | 21.82 | 34.49% | 320.60 | 277.05 | 328.41 |
| Plastics | 81.73 | 16.02 | 9.31% | 94.84 | 62.88 | 100.57 |
| Metals | 29.59 | 5.64 | 3.37% | 34.21 | 22.95 | 36.23 |
| Glass | 45.23 | 4.31 | 5.15% | 48.76 | 40.16 | 50.30 |
| Household Special Wastes | 0.78 | 0.58 | 0.09% | 1.26 | 0.10 | 1.47 |
| Organics | 338.58 | 63.85 | 38.57% | 390.86 | 263.45 | 413.71 |
| Other Waste Materials, including: | 79.15 | 26.54 | 9.02% | 100.88 | 47.92 | 110.38 |
| Textiles | 36.73 | 15.70 | 4.18% | 49.59 | 18.26 | 55.21 |
| Building Renovations | 14.26 | 7.14 | 1.62% | 20.11 | 5.85 | 22.66 |
| Furniture | 2.42 | 1.75 | 0.28% | 3.85 | 0.36 | 4.48 |
| Electronics/Appliances | 6.79 | 4.68 | 0.77% | 10.62 | 1.29 | 12.29 |
| Rubber | 1.05 | 0.85 | 0.12% | 1.75 | 0.05 | 2.05 |
| Wood Ashes | 0.00 | 0.00 | 0.00% | 0.00 | 0.00 | 0.00 |
| Non-Classifiable | 17.90 | 5.74 | 2.04% | 22.60 | 11.14 | 24.65 |
| Total | 877.79 | 96.07 | 100.00% | 956.46 | 764.74 | 990.83 |

n = 4 Groups (80 households)

The estimated annual average total quantity of solid waste collected from single-family households in Etobicoke is 877.79 ± 113.05 kg/hhld/yr at 90% confidence. A graphical representation of the total waste composition by major material categories is shown in Figure 20.

Figure 20 – Total Waste Composition – Major Material Categories



The total waste collected for each Group can be found in Appendix H.

5.8 Green Bin Program Materials Recovery Rate

Green Bin Program Materials recovery rates were calculated for each Green Bin Program constituent material by taking the ratio of the specific material recovered in the Green Bin Program and the quantity of the material in the total solid waste stream (i.e. Green Bin + Blue/Grey Box + Residual Waste). The average recovery rates of Green Bin Program Materials are shown in Table 12.

Table 12 – Average Green Bin Program Materials Recovery

| Average Green Bin Program Materials Recovery | | Distribution of Green Bin Program Materials (kg/hhld/yr) | | | Recovery Rate |
|--|----------------------------------|--|----------------|---------------|---------------|
| Constituent Material | Description | Blue/Grey Box | Residual Waste | Green Bin | |
| Tissue/Toweling | tissues, napkins, paper towels | 0.18 | 13.81 | 224.40 | 73.35% |
| Vegetable Food Waste | vegetable and fruit peelings | 0.03 | 55.67 | | |
| Animal Food Waste | meats, fats, oils | 0.00 | 2.42 | | |
| Animal waste | feces, animal litter and bedding | 0.00 | 9.41 | | |
| Sanitary Products | diapers, napkins | 0.00 | 10.10 | 13.50 | 57.20% |
| Total | | 0.21 | 91.42 | 237.90 | 72.19% |

As mentioned in Section 3.2, it was impossible to segregate the Green Bin Program Materials into the more detailed Organic constituent categories as was done for the Blue/Grey Box Program Materials and Residual Waste streams. Minimal Green Bin Program Materials were found in the Blue/Grey Box. The average recovery rate of Green Bin Program Materials during the study was 72.19%. The individual Green Bin Program Materials and recovery rates for each Group are listed in Appendix I. Table 13 lists the total quantities and composition of Green Bin Program Materials not recovered. The average quantity of Green Bin Program Materials not recovered in the Green Bin Program was 91.63 kg/hhld/yr. The greatest proportion of this was food waste at 63.43%, followed by Tissue/Toweling at 15.27%.

Table 13 – Average Composition of Green Bin Program Materials Not Recovered

| Constituent Material | Description | Green Bin Program Materials Not Recovered (kg/hhld/yr) | Percent of Total Not Recovered |
|----------------------|----------------------------------|--|--------------------------------|
| Tissue/Toweling | tissues, napkins, paper towels | 13.99 | 15.27% |
| Vegetable Food Waste | vegetable and fruit peelings | 55.71 | 60.79% |
| Animal Food Waste | meats, fats, oils | 2.42 | 2.64% |
| Animal waste | feces, animal litter and bedding | 9.41 | 10.27% |
| Sanitary Products | diapers, napkins | 10.10 | 11.02% |
| Total | | 91.63 | 100.00% |

5.9 Blue/Grey Box Program Materials Recovery Rate

Blue/Grey Box Program Materials recovery rates were calculated taking the ratio of material accepted in the Blue/Grey Box Program found in the Blue/Grey Box to the total of these same materials found in the Blue/Grey Box, Green Bin and Residual Waste. The average recovery rates of Blue/Grey Box Program Materials are shown in Table 14.

Table 14 – Average Blue/Grey Box Program Materials Recovery

| Solicited Constituent Material | Description | Distribution of Blue/Grey Box Program Materials (kg/hhd/yr) | | | Recovery Rate |
|--------------------------------|---|---|----------------|---------------|---------------|
| | | Green Bin | Residual Waste | Blue/Grey Box | |
| 1. Paper Fibres | | | | | |
| Newspaper | ONP, inserts | 2.27 | 9.89 | 120.77 | 90.85% |
| Magazines / paperbacks | OMG, catalogues, soft covers | 0.31 | 3.25 | 12.90 | 78.37% |
| Phone Books | OTB | 0.00 | 0.15 | 5.31 | 97.32% |
| Cardboard | OCC | 0.00 | 7.54 | 40.68 | 84.36% |
| Boxboard/Rolls | OBB | 0.29 | 10.69 | 20.61 | 65.23% |
| Mixed Papers | junk mail, fine household papers | 0.15 | 13.50 | 17.99 | 56.86% |
| Molded Pulp | egg cartons, drink trays | 0.04 | 0.37 | 1.03 | 71.74% |
| Books | hard covered | 0.00 | 2.65 | 0.23 | 7.91% |
| Kraft Paper | paper bags | 0.12 | 2.68 | 0.98 | 25.85% |
| Gable Top Cartons | milk, juice | 0.02 | 0.73 | 1.70 | 69.50% |
| Aseptic Containers | tetra type packaging | 0.05 | 0.91 | 0.23 | 19.42% |
| | Sub-Total | 3.24 | 52.35 | 222.42 | 80.00% |
| 2. Plastics | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | 0.00 | 0.29 | 1.69 | 85.54% |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | 0.00 | 1.54 | 5.19 | 77.09% |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | 0.02 | 1.64 | 3.78 | 69.45% |
| | Sub-Total | 0.03 | 3.46 | 10.66 | 75.33% |
| 3. Metals | | | | | |
| Aluminum Cans | food & beverage cans | 0.04 | 0.65 | 4.62 | 86.88% |
| Aluminum Foil Trays | pie plates, etc | 0.02 | 0.58 | 0.17 | 22.27% |
| Steel Cans | food & beverage cans | 0.17 | 2.46 | 8.49 | 76.35% |
| Aerosol Cans | empty | 0.02 | 0.78 | 0.52 | 39.36% |
| Paint Cans | empty | 0.00 | 0.70 | 0.00 | 0.00% |
| | Sub-Total | 0.25 | 5.18 | 13.80 | 71.77% |
| 4. Glass | | | | | |
| LCBO Clear | clear glass alcoholic beverages | 0.00 | 0.32 | 4.91 | 93.96% |
| LCBO Coloured | coloured glass alcoholic beverages | 0.00 | 0.36 | 13.65 | 97.45% |
| Clear | food & beverage containers | 0.09 | 3.88 | 13.54 | 77.35% |
| Coloured | food & beverage containers | 0.00 | 0.16 | 2.94 | 94.76% |
| | Sub-Total | 0.09 | 4.71 | 35.04 | 87.95% |
| | Total | 3.60 | 65.71 | 281.92 | 80.27% |

Note: This table treats “clean” Paper Fibres in Green Bin as not recovered. Other recyclable containers found in the Green Bin are treated as not recovered, as they are typically treated as contaminants by organics processing systems.

The average recovery rate of Blue/Grey Box Program Materials during the study was 80.27%. Glass had the highest recovery rate at 87.95%. Metals had the lowest recovery at 71.77%. The distribution of Blue/Grey Box Program Materials and recovery rates for all Groups is listed in Appendix J. Table 15 lists the total quantities and composition of Blue/Grey Box Program Materials not recovered. The total quantity of Blue/Grey Box Program Materials not recovered in the Blue/Grey Box Program during the study was 69.31 kg/hhd/yr. Paper Fibres at 80.21% comprised the largest fraction of the materials not recovered. The remainder is comprised of Plastics, Metals, and Glass in approximately equal proportions.

Table 15 – Composition of Blue/Grey Box Program Materials Not Recovered

| Solicited Constituent Material | Description | Blue/Grey Box Program Materials Not Recovered (kg/hhd/yr) | Percent of Total Not Recovered |
|--------------------------------|---|---|--------------------------------|
| 1. Paper Fibres | | | |
| Newspaper | ONP, inserts | 12.16 | 17.54% |
| Magazines / paperbacks | OMG, catalogues, soft covers | 3.56 | 5.14% |
| Phone Books | OTB | 0.15 | 0.21% |
| Cardboard | OCC | 7.54 | 10.88% |
| Boxboard/Rolls | OBB | 10.99 | 15.85% |
| Mixed Papers | junk mail, fine household papers | 13.65 | 19.69% |
| Molded Pulp | egg cartons, drink trays | 0.40 | 0.58% |
| Books | hard covered | 2.65 | 3.82% |
| Kraft Paper | paper bags | 2.80 | 4.04% |
| Gable Top Cartons | milk, juice | 0.75 | 1.08% |
| Aseptic Containers | tetra type packaging | 0.95 | 1.37% |
| | Sub-Total | 55.59 | 80.21% |
| 2. Plastics | | | |
| PETE Soft Drink Bottles | # 1 soft drink | 0.29 | 0.41% |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | 1.54 | 2.23% |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | 1.66 | 2.40% |
| | Sub-Total | 3.49 | 5.04% |
| 3. Metals | | | |
| Aluminum Cans | food & beverage cans | 0.70 | 1.01% |
| Aluminum Foil Trays | pie plates, etc | 0.60 | 0.87% |
| Steel Cans | food & beverage cans | 2.63 | 3.79% |
| Aerosol Cans | empty | 0.80 | 1.16% |
| Paint Cans | empty | 0.70 | 1.01% |
| | Sub-Total | 5.43 | 7.83% |
| 4. Glass | | | |
| LCBO Clear | clear glass alcoholic beverages | 0.32 | 0.45% |
| LCBO Coloured | coloured glass alcoholic beverages | 0.36 | 0.52% |
| Clear | food & beverage containers | 3.96 | 5.72% |
| Coloured | food & beverage containers | 0.16 | 0.23% |
| | Sub-Total | 4.80 | 6.92% |
| | Total | 69.31 | |

5.10 Combined Recovery Rate

The combined recovery rate is defined as the ratio of the sum of solicited Green Bin Program Materials and Blue/Grey Box Program Materials collected by the Green Bin Program and Blue/Grey Box Program respectively to Total Waste Collection. The average combined recovery rate is shown in Table 16.

Table 16 – Average Combined Recovery

| Combined Recovery | Collection (kg/hhld/yr) | | 90% Confidence Interval (kg/hhld/yr) | | |
|--|-------------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | Average | Standard Deviation | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| Solicited Blue/Grey Box Materials | 281.92 | 43.82 | 317.80 | 230.36 | 333.48 |
| Solicited Green Bin Program Materials (excluding plastic bags) | 237.90 | 39.63 | 270.35 | 191.27 | 284.53 |
| Total Waste Collection | 877.79 | 96.07 | 956.46 | 764.74 | 990.83 |
| Combined Recovery Rate | 59.22% | | | | |

The average combined recovery rate during the study was 59.22%. Since material was not separated and weighed for each individual household in the Waste Audit Sample, it was impossible to determine capture rates for the Green Bin and Blue/Grey Box Programs. Typically, the capture rate is determined by examining for each household, the ratio of materials collected in a specific diversion program to the total of these materials included in all waste streams collected from the household.

The addition of other diverted materials not included in the scope of this audit such as Leaf and Yard Waste and white goods would increase the combined recovery rate. Similarly, the addition of bulky items and construction and demolition waste not included in the audit would reduce the combined recovery rate.

The individual combined recovery rates for all Groups can be found in Appendix K. A summary of all audit results showing the average collection of materials for each of the three waste streams, and applicable recovery rates can be found in Appendix L.

5.11 Qualitative Observations

The following qualitative observations were noted during the audit. They are organized by material stream.

Green Bin Program Materials (Green Bin)

- Non-typical Green Bin contaminants found: Q-tips, kitchen sponge, spiral wound with tin, deodorant stick; paper rolls, cigarette butts, frying pan; mixed paper, dryer sheets, make up removal pads; inhaler; condiment packages, aerosol can, silica gel.

Blue/Grey Box Program Materials (Blue/Grey Box)

- Containers found in Grey Box, Paper Fibres also found mixed with containers in Blue Box. Specifically, Gable Top cartons, aseptic (Tetra Pak), glass jar, HDPE found in Grey Box, when in fact they should be placed in the Blue Box. OCC and boxboard found in Blue Box when they should be placed in the Grey Box.
- Some houses set out recyclables in large clear plastic bags.
- Some houses set out recyclables (containers) in cardboard boxes and other re-usable, non-standard containers (large round plastic baskets with rope handles, small rectangular plastic storage baskets, etc).
- Many concentrated frozen juice containers (Spiral Wound), with one steel end attached, have been found in Blue Boxes
- Non-typical Blue/Grey Box contaminants found: Wiper Blades, wooden sticks; wood, yard waste, furnace filter, cigarette butts, kraft plastic lined bags, rock, bones, salt shaker, golf ball; textiles, battery, file holder, shredded plastic, unemptied aerosol can, tin jug, binders, cups, shingles, ceramics; barbecue lighter; metal gardening tool end; metal & plastic coat hangers, wooden basket; phone cord, silica gel; lamp shades.

Residual Waste

- Bulky Items set out that were not picked up: Sofa, Wrought Iron Lawn Bench.
- Bulky Items set out that were picked up during audit: two rolls of carpet, old toilet (wrapped in a black garbage bag).
- Houses in all areas are setting out wrong material, particularly setting out Residual Waste items on Blue/Grey Box collection weeks.
- One of the homes had a shop that generates large quantities of renovation debris
- One house set out 2 bags of Grass Clippings, which are banned in Residual and Yard Waste.
- Three incidents of Yard Waste found in green garbage bags set out for Residual Waste collection – left at curb.
- Full bags of grass clippings found in green garbage bags set out for Residual Waste collection – left at curb.
- Yard waste mixed with Residual Waste materials also discovered during and collection and sometimes only during sorting if well hidden.
- Residents setting out full bags of grass and yard waste in garbage bags seems to be a problem affecting all Groups.
- New residents had moved into a house in Group 2 (based on observation over course of the audit). They were not participating in Recycling and Green Bin Programs. No Blue/Grey

Box or Green Bin was set out in Week 3. In Week 4, 5 garbage bags were set. Residual Waste contained large quantities of Blue/Grey Box Program Materials and Green Bin Program Materials. However, they seem to be aware of yard waste program as 3 kraft paper yard waste bags were set out.

- Electronics/Appliances set out. Notable items: Old stereo speakers (~ 10 kg) (Group 3, Week 2), Microwave (~15 kg) (Group 4, Week 4).
- Hazardous Waste set out. Batteries (mostly AA), used car/truck oil filters.
- The nature and quantity of the Residual Waste sorted suggested sizeable contributions from two large waste generation events: Easter Holiday weekend and spring cleaning, including basement/house and yard cleanups.

6. Discussion

As discussed in section 5.6, Residual Waste Collection and Composition, it was necessary to exclude some of the data to eliminate the effect of unusual set out behaviour on the waste audit results. However, excluding this data causes certain constituent material to be underreported. Without further study it is difficult to quantify the frequency of unusual set out behaviour and the impact on overall waste generation. In this study, the constituent materials affected were Other Metal, Other Glass, Other Yard Waste and Building Renovations. Excluding data for these constituent materials did not affect the recovery rate for Green Bin or Blue/Grey Box materials. However, the total Residual Waste Collection decreased by 20 kg/hhld/yr after all changes and subsequent calculations, such as Total Waste Collection and Combined Recovery, were affected by these changes.

For the Total Waste Collection and Composition, using adjusted numbers had the effect of halving the Building Renovations contribution (3.14% to 1.62%) from the original numbers. Metals were reduced from 3.75% to 3.37%, Glass from 5.37% to 5.15%. All remaining major material categories composition increased as a result of the modifications. The combined recovery rate is a function of solicited Blue/Grey Box and Green Bin Program Materials collected by these programs and the Total Waste Collection. The adjustments decreased the amount of non-recoverable materials, which had the effect of increasing the combined recovery rate by 1.46%.

There needs to be a consistent set of detailed constituent material categories across all waste streams to handle special materials captured by the Green Bin Program. Specific items such as paper cups, ice cream containers and other soiled paper products accepted in the Green Bin were handled differently depending on which waste stream they were found. When sorting Green Bin Materials they were sorted into the Processible Organics category. In Residual Waste and Blue/Grey Box Materials they were placed in the Other Paper category, which contains other paper products not accepted in the Green Bin; so this material category was excluded in recovery calculations. These reporting issues could be resolved by creating a specific constituent material category to target food soiled paper products solicited by the Green Bin Program.

There needs to be a method of quantifying bulky items and construction and demolition (Building Renovations) waste. The method needs to consider that these wastes are being removed by separate collection services, often provided by the private sector, and that some of the material is subsequently delivered to the City's transfer stations.

7. Conclusions

Based on the data collected and analyzed in this report, the overall findings are as follows.

For the Green Bin Program, the Participation Audit demonstrated that 89% of households set out a Green Bin at least once during the four-week study period. The Blue/Grey Box Program experienced an equivalent level of participation, with 90% of households setting out these materials at least once during the audit.

For Residual Waste, 92% of households out 6 or less items every two weeks. Currently 76% of households studied set out 3 or less items every two weeks.

Green Bins were weighed over the study period and only 1.37% weighed more than 20 kg. The average Green Bin weight was 9.71 kg. It is estimated that 90% of the Green Bins in Etobicoke weigh between 3.23 and 16.18 kg.

The estimated average annual quantity of Green Bin Program Materials collected (including bin liners and contaminants), based on the audit results is 251.23 ± 53.69 kg/hhld/yr at 90% confidence. The Green Bin Program Materials are 96.30% (by weight) solicited organic materials, 2.41% film plastic (including bin liners and contaminants) and 1.29% other contaminants.

The estimated average annual quantity of materials collected by the Blue/Grey Box Program based on the audit results is 297.47 ± 49.11 kg/hhld/yr at 90% confidence. The Blue/Grey Box Program Materials are 74.11% (by weight) solicited Grey Box materials, 20.65% solicited Blue Box materials and 5.25% contaminants.

The estimated average annual quantity of Residual Waste collected based on audit results is 328.97 ± 94.37 kg/hhld/yr at 90% confidence. The Residual Waste is 30.36% (by weight) Organics, 22.58% Paper Fibres, 22.33% Other Waste Materials and 17.23% Plastics. Metals comprise 4.38%, Glass 2.91%, and Household Special Waste 0.20%. The Residual Waste estimates do not include bulky items, as they were not collected in the audit.

Residual Waste contained materials accepted in the City's diversion programs. Of the Residual Waste collected in the audit, 4.56% is accepted in the Blue Box, 15.42% in the Grey Box, 27.79% in the Green Bin and 6.77% in the Leaf and Yard Waste collection program.

The estimated average total quantity of solid waste collected based on these audit results is 877.79 ± 113.05 kg/hhld/yr at 90% confidence. The average major material composition by weight is 38.57% Organics, 34.49% Paper Fibres, 9.31% Plastics, 9.02% Other Waste Materials, 5.15% Glass, 3.37% Metals and 0.09% Household Special Wastes.

The average recovery rate of Green Bin Program Materials during the study was 72.19%. The estimated average quantity of Green Bin Program Materials not recovered was 91.63 kg/hhld/yr. The greatest proportion of this was food waste at 63.43%, followed by Tissue/Towelling at 15.27%.

The average recovery rate of Blue/Grey Box Program Materials during the study was 80.27%. The estimated average quantity of Blue/Grey Box Program Materials not recovered was 69.31 kg/hhld/yr. Paper Fibres at 80.21% comprised the largest fraction of the materials not recovered. Plastics, Metals, and Glass comprised the remainder in approximately equal proportions.

The average combined recovery rate, (i.e. the ratio of the sum of solicited Green Bin Program Materials and Blue/Grey Box Program Materials collected by the Green Bin Program and Blue/Grey Box Program respectively to Total Waste Collection) during the study was 59.22%. Other diverted materials, including white goods and Leaf and Yard Waste that were not included in the audit would increase the combined recovery rate. Bulky items and construction and demolition waste not included in the audit would decrease the combined recovery rate.

The audit results are limited, as they represent the state of a specific area within the City at a specific time. Seasonal variations are not considered. The results exclude certain material streams such as Leaf and Yard Waste, white goods, and bulky items and cannot accurately quantify specific materials such as Building Renovations.

The following observations were made on the Waste Audit and Participation Audit methodologies. The Waste Audit Sample size of four Groups of 20 households proved manageable from a sorting standpoint. The audit demonstrated that the waste from 20 households could be collected and sorted in a reasonable workday, taking between 8 to 12 hours from start to finish, depending on the nature of the materials being sorted. Each Group was further divided into 4 Sub-Groups of 5 households each. This made sorting of the waste more manageable. However, the quantity of waste collected from some Sub-Groups was too small to conduct an analysis at this level. The audit demonstrated that the total quantity of materials and waste collected from a Sub-Group could be very sensitive to irregular set outs. The minimum 90 kg of material and waste required each week to form a reasonably representative sample was not always obtained. Combining the data for each Group over the four-week study period helped minimize the effects of irregular set outs and over events and provided estimates of average values with reasonably narrow confidence intervals.

8. Recommendations

The constituent materials list should be reviewed prior to subsequent waste audit projects to compensate for changes in the relative quantities of items classified under the Other Waste category and the Non-Classifiable constituent material category.

A practical method of quantifying bulky items, white goods and construction and demolition waste needs to be developed.

Additional audits should be completed to study changes in set out behaviour, seasonal variations, and in other communities 3 to 6 months after the Green Bin Program has been implemented in these areas.

APPENDIX A:

ETOBICOKE WASTE AUDIT FORMS

| Street Name | House Address | Waste Collection Stream | | |
|-------------|---------------|-------------------------|-------------------|-------------------|
| | | Blue/Grey Box | Residual Waste | Green Bin |
| | | No. of containers | No. of containers | No. of containers |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
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| | | | | |
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| | | | | |
| | | | | |

| | | | | |
|--|--|--|--|--|
| Total no. of containers collected | | | | |
| Total no. of collections | | | | |
| Avg containers per hhld per collection | | | | |
| | | | | |

Comments:

Name of Observer: _____

Project Manager Sign-off: _____

Green Bin Program Materials (GB) Audit Worksheet

| | | |
|----------------|---------------------------------|---------------------------|
| Date: | No. of Households with Set-out: | Group #: |
| | No. of Households in Sub-group: | Sub-group #: |
| Week ____ of 4 | Participation Rate: | Unsorted Material Weight: |

| Constituent Material | Description | Collected | Waste Stream Weights (kg) | | |
|----------------------|-------------|-----------|---------------------------|-----------------|------------|
| | | | Tare Weight | Material Weight | Net Weight |

1. PAPER FIBRES

| | | | | | |
|-----------------------|---------------------------------------|------|--|--|--|
| Newspaper | ONP, inserts | B/GB | | | |
| Magazines / paperback | OMG, catalogues, soft covers | B/GB | | | |
| Phone Books | OTB | B/GB | | | |
| Cardboard | OCC | B/GB | | | |
| Boxboard/Rolls | OBB | B/GB | | | |
| Mixed Papers | junk mail, fine household papers | B/GB | | | |
| Molded Pulp | egg cartons, drink trays | B/GB | | | |
| Books | hard covered | B/GB | | | |
| Kraft Paper | paper bags | B/GB | | | |
| Spiral Wound | frozen juice, pringles type packaging | | | | |
| Tissue/Toweling | tissues, napkins, paper towels | | | | |
| Other Paper | multi-layered, waxed, wrapping | | | | |
| Gable Top Cartons | milk, juice | B/GB | | | |
| Aseptic Containers | tetra type packaging | B/GB | | | |
| Sub Total | | | | | |

2. PLASTICS

| | | | | | |
|--------------------------|---|------|--|--|--|
| PETE Soft Drink Bottle | # 1 soft drink | B/GB | | | |
| PETE Other Bottles & | #1 water, juice, food, dish soap, liquor, mouthwash | B/GB | | | |
| PETE Other Packaging | #1 bakery, strawberry trays, egg cartons | | | | |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | B/GB | | | |
| PVC Bottles | # 3 bottles | | | | |
| LDPE & PP Bottles | # 4 and # 5 bottles | | | | |
| #7 Bottles | #7 bottles and jugs | | | | |
| Polystyrene | # 6 trays, cups, lids, packaging | | | | |
| Wide Mouth Tubs & Lids | # 2, #4, #5 tubs and lids | | | | |
| Recyclable Film | shopping bags, milk bags | | | | |
| Non-Recyclable Film | garbage bags, chip bags, pasta bags, plastic wrap | | | | |
| Other Bottles | pesticides, oil, lubricants, solvents, anti-freeze | | | | |
| Other Plastic Packaging | blister packaging and other unmarked packaging | | | | |
| Durable Plastic Products | non-packaging such as VCR tapes, toys, garden hose | | | | |
| Sub Total | | | | | |

3. METALS

| | | | | | |
|---------------------|-------------------------------|------|--|--|--|
| Aluminum Cans | food & beverage cans | B/GB | | | |
| Aluminum Foil Trays | pie plates, etc | B/GB | | | |
| Steel Cans | food & beverage cans | B/GB | | | |
| Aerosol Cans | empty cans only | B/GB | | | |
| Paint Cans | empty cans only | B/GB | | | |
| Other Metal | scrap metal, other containers | | | | |
| Sub Total | | | | | |

Green Bin Program Materials (GB) Audit Worksheet

| | | |
|----------------|--|----------------------------------|
| Date: | No. of Households with Set-out: | Group #: |
| | No. of Households in Sub-group: | Sub-group #: |
| Week ____ of 4 | Participation Rate: | Unsorted Material Weight: |

| Constituent Material | Description | Collected | Waste Stream Weights (kg) | | |
|----------------------|-------------|-----------|---------------------------|-----------------|------------|
| | | | Tare Weight | Material Weight | Net Weight |

| 4. GLASS | | | | | |
|------------------|------------------------------------|------|--|--|--|
| LCBO Clear | clear glass alcoholic beverages | B/GB | | | |
| LCBO Coloured | coloured glass alcoholic beverages | B/GB | | | |
| Clear | food & beverage containers | B/GB | | | |
| Coloured | food & beverage containers | B/GB | | | |
| Other Glass | lightbulbs, window glass, ceramics | | | | |
| Sub Total | | | | | |

| 5. HOUSEHOLD SPECIAL WASTES | | | | | |
|-----------------------------|----------------------------------|--|--|--|--|
| Batteries | all types | | | | |
| Paint | unemptied containers | | | | |
| Motor Oil | used oil, filters | | | | |
| Flammables | starter fluid, solvents | | | | |
| Unemptied aerosol can | all types | | | | |
| Other HSW | sharps, drugs, acids, antifreeze | | | | |
| Sub Total | | | | | |

| 6. SOURCE SEPARATED ORGANICS | | | | | |
|------------------------------|--|----|--|--|--|
| Processible Organics | As specified in GB program (excluding diapers) | GB | | | |
| Diapers | | GB | | | |
| Grass | grass clippings (if can be easily separated) | | | | |
| Woody Yard Waste | brush, branches, wood chips | | | | |
| Other Yard Waste | leaves, soil, garden wastes (if can be easily separated) | | | | |
| Sub Total | | | | | |

| 7. OTHER WASTE MATERIALS | | | | | |
|--------------------------|-------------------------------------|--|--|--|--|
| Textiles | clothing, shoes, carpets, bedding | | | | |
| Building Renovations | drywall, lumber, flooring | | | | |
| Furniture | sofas, chairs, cabinets | | | | |
| Electronics/Appliances | small appliances, computers, radios | | | | |
| Rubber | tires, mats, tubing | | | | |
| Wood ashes | fireplaces & wood stoves | | | | |
| Non-Classifiable | materials not classified elsewhere | | | | |
| Sub Total | | | | | |

| | |
|------------------------|---|
| Notes, Comments | (Non-Classifiable Descriptors: organic, inorganic, combustible, non-combustible, fines, etc.) |
| | |

Green Bin Program Materials (GB) Audit Worksheet

| | | |
|-----------------------|--|----------------------------------|
| Date: | No. of Households with Set-out: | Group #: |
| | No. of Households in Sub-group: | Sub-group #: |
| Week ____ of 4 | Participation Rate: | Unsorted Material Weight: |

Total Constituent Material Weights = _____
 Total Unsorted Weight = _____
 (Total Constituent / Total Unsorted) * 100% = _____ (Minimum 95%)

Sub Total "Non-Classifiable" = _____
 (Total "Non-Classifiable" / Total Constituent Materials) * 100% = _____ (< 10%)

Designated Weigh Person/Recorder: _____
 Contractor's Supervisor: _____

Blue/Grey Box Program Materials (B/GB) Audit Worksheet

| | | |
|----------------|---------------------------------|---------------------------|
| Date: | No. of Households with Set-out: | Group #: |
| | No. of Households in Sub-group: | Sub-group #: |
| Week ____ of 4 | Participation Rate: | Unsorted Material Weight: |

| Constituent Material | Description | Collected | Waste Stream Weights (kg) | | |
|----------------------|-------------|-----------|---------------------------|-----------------|------------|
| | | | Tare Weight | Material Weight | Net Weight |

1. PAPER FIBRES

| | | | | | |
|-----------------------|---------------------------------------|------|--|--|--|
| Newspaper | ONP, inserts | B/GB | | | |
| Magazines / paperback | OMG, catalogues, soft covers | B/GB | | | |
| Phone Books | OTB | B/GB | | | |
| Cardboard | OCC | B/GB | | | |
| Boxboard/Rolls | OBB | B/GB | | | |
| Mixed Papers | junk mail, fine household papers | B/GB | | | |
| Molded Pulp | egg cartons, drink trays | B/GB | | | |
| Books | hard covered | B/GB | | | |
| Kraft Paper | paper bags | B/GB | | | |
| Spiral Wound | frozen juice, pringles type packaging | | | | |
| Tissue/Toweling | tissues, napkins, paper towels | | | | |
| Other Paper | multi-layered, waxed, wrapping | | | | |
| Gable Top Cartons | milk, juice | B/GB | | | |
| Aseptic Containers | tetra type packaging | B/GB | | | |
| Sub Total | | | | | |

2. PLASTICS

| | | | | | |
|--------------------------|---|------|--|--|--|
| PETE Soft Drink Bottle | # 1 soft drink | B/GB | | | |
| PETE Other Bottles & | #1 water, juice, food, dish soap, liquor, mouthwash | B/GB | | | |
| PETE Other Packaging | #1 bakery, strawberry trays, egg cartons | | | | |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | B/GB | | | |
| PVC Bottles | # 3 bottles | | | | |
| LDPE & PP Bottles | # 4 and # 5 bottles | | | | |
| #7 Bottles | #7 bottles and jugs | | | | |
| Polystyrene | # 6 trays, cups, lids, packaging | | | | |
| Wide Mouth Tubs & Lids | # 2, #4, #5 tubs and lids | | | | |
| Recyclable Film | shopping bags, milk bags | | | | |
| Non-Recyclable Film | garbage bags, chip bags, pasta bags, plastic wrap | | | | |
| Other Bottles | pesticides, oil, lubricants, solvents, anti-freeze | | | | |
| Other Plastic Packaging | blister packaging and other unmarked packaging | | | | |
| Durable Plastic Products | non-packaging such as VCR tapes, toys, garden hose | | | | |
| Sub Total | | | | | |

3. METALS

| | | | | | |
|---------------------|-------------------------------|------|--|--|--|
| Aluminum Cans | food & beverage cans | B/GB | | | |
| Aluminum Foil Trays | pie plates, etc | B/GB | | | |
| Steel Cans | food & beverage cans | B/GB | | | |
| Aerosol Cans | empty cans only | B/GB | | | |
| Paint Cans | empty cans only | B/GB | | | |
| Other Metal | scrap metal, other containers | | | | |
| Sub Total | | | | | |

Blue/Grey Box Program Materials (B/GB) Audit Worksheet

| | | |
|-----------------------|--|----------------------------------|
| Date: | No. of Households with Set-out: | Group #: |
| | No. of Households in Sub-group: | Sub-group #: |
| Week ____ of 4 | Participation Rate: | Unsorted Material Weight: |

| Constituent Material | Description | Collected | Waste Stream Weights (kg) | | |
|----------------------|-------------|-----------|---------------------------|-----------------|------------|
| | | | Tare Weight | Material Weight | Net Weight |

| 4. GLASS | | | | | |
|------------------|------------------------------------|------|--|--|--|
| LCBO Clear | clear glass alcoholic beverages | B/GB | | | |
| LCBO Coloured | coloured glass alcoholic beverages | B/GB | | | |
| Clear | food & beverage containers | B/GB | | | |
| Coloured | food & beverage containers | B/GB | | | |
| Other Glass | lightbulbs, window glass, ceramics | | | | |
| Sub Total | | | | | |

| 5. HOUSEHOLD SPECIAL WASTES | | | | | |
|-----------------------------|----------------------------------|--|--|--|--|
| Batteries | all types | | | | |
| Paint | unemptied containers | | | | |
| Motor Oil | used oil, filters | | | | |
| Flammables | starter fluid, solvents | | | | |
| Unemptied aerosol cans | all types | | | | |
| Other HSW | sharps, drugs, acids, antifreeze | | | | |
| Sub Total | | | | | |

| 6. ORGANICS | | | | | |
|----------------------|----------------------------------|----|--|--|--|
| Vegetable Food Waste | vegetable and fruit peelings | GB | | | |
| Animal Food Waste | meats, fats, oils | GB | | | |
| Animal waste | feces, animal litter and bedding | GB | | | |
| Sanitary Products | diapers, napkins | GB | | | |
| Grass | grass clippings | | | | |
| Woody Yard Waste | brush, branches, wood chips | | | | |
| Other Yard Waste | leaves, soil, garden wastes | | | | |
| Sub Total | | | | | |

| 7. OTHER WASTE MATERIALS | | | | | |
|--------------------------|-------------------------------------|--|--|--|--|
| Textiles | clothing, shoes, carpets, bedding | | | | |
| Building Renovations | drywall, lumber, flooring | | | | |
| Furniture | sofas, chairs, cabinets | | | | |
| Electronics/Appliances | small appliances, computers, radios | | | | |
| Rubber | tires, mats, tubing | | | | |
| Wood ashes | fireplaces & wood stoves | | | | |
| Non-Classifiable | materials not classified elsewhere | | | | |
| Sub Total | | | | | |

| | |
|------------------------|---|
| Notes, Comments | (Non-Classifiable Descriptors: organic, inorganic, combustible, non-combustible, fines, etc.) |
| | |

Blue/Grey Box Program Materials (B/GB) Audit Worksheet

| | | |
|-----------------------|--|----------------------------------|
| Date: | No. of Households with Set-out: | Group #: |
| | No. of Households in Sub-group: | Sub-group #: |
| Week ____ of 4 | Participation Rate: | Unsorted Material Weight: |

Total Constituent Material Weights = _____
 Total Unsorted Weight = _____
 (Total Constituent / Total Unsorted) * 100% = _____ (Minimum 95%)

Sub Total "Non-Classifiable" = _____
 (Total "Non-Classifiable" / Total Constituent Materials) * 100% = _____ (≤ 10%)

Designated Weigh Person/Recorder: _____
 Contractor's Supervisor: _____

Residual Waste Audit Worksheet

| | | |
|----------------|---------------------------------|---------------------------|
| Date: | No. of Households with Set-out: | Group #: |
| | No. of Households in Sub-group: | Sub-group #: |
| Week ____ of 4 | Participation Rate: | Unsorted Material Weight: |

| Constituent Material | Description | Collected | Waste Stream Weights (kg) | | |
|----------------------|-------------|-----------|---------------------------|-----------------|------------|
| | | | Tare Weight | Material Weight | Net Weight |

1. PAPER FIBRES

| | | | | | |
|-----------------------|---------------------------------------|------|--|--|--|
| Newspaper | ONP, inserts | B/GB | | | |
| Magazines / paperback | OMG, catalogues, soft covers | B/GB | | | |
| Phone Books | OTB | B/GB | | | |
| Cardboard | OCC | B/GB | | | |
| Boxboard/Rolls | OBB | B/GB | | | |
| Mixed Papers | junk mail, fine household papers | B/GB | | | |
| Molded Pulp | egg cartons, drink trays | B/GB | | | |
| Books | hard covered | B/GB | | | |
| Kraft Paper | paper bags | B/GB | | | |
| Spiral Wound | frozen juice, pringles type packaging | | | | |
| Tissue/Toweling | tissues, napkins, paper towels | | | | |
| Other Paper | multi-layered, waxed, wrapping | | | | |
| Gable Top Cartons | milk, juice | B/GB | | | |
| Aseptic Containers | tetra type packaging | B/GB | | | |
| Sub Total | | | | | |

2. PLASTICS

| | | | | | |
|--------------------------|---|------|--|--|--|
| PETE Soft Drink Bottle | # 1 soft drink | B/GB | | | |
| PETE Other Bottles & | #1 water, juice, food, dish soap, liquor, mouthwash | B/GB | | | |
| PETE Other Packaging | #1 bakery, strawberry trays, egg cartons | | | | |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | B/GB | | | |
| PVC Bottles | # 3 bottles | | | | |
| LDPE & PP Bottles | # 4 and # 5 bottles | | | | |
| #7 Bottles | #7 bottles and jugs | | | | |
| Polystyrene | # 6 trays, cups, lids, packaging | | | | |
| Wide Mouth Tubs & Lids | # 2, #4, #5 tubs and lids | | | | |
| Recyclable Film | shopping bags, milk bags | | | | |
| Non-Recyclable Film | garbage bags, chip bags, pasta bags, plastic wrap | | | | |
| Other Bottles | pesticides, oil, lubricants, solvents, anti-freeze | | | | |
| Other Plastic Packaging | blister packaging and other unmarked packaging | | | | |
| Durable Plastic Products | non-packaging such as VCR tapes, toys, garden hose | | | | |
| Sub Total | | | | | |

3. METALS

| | | | | | |
|---------------------|-------------------------------|------|--|--|--|
| Aluminum Cans | food & beverage cans | B/GB | | | |
| Aluminum Foil Trays | pie plates, etc | B/GB | | | |
| Steel Cans | food & beverage cans | B/GB | | | |
| Aerosol Cans | empty cans only | B/GB | | | |
| Paint Cans | empty cans only | B/GB | | | |
| Other Metal | scrap metal, other containers | | | | |
| Sub Total | | | | | |

Residual Waste Audit Worksheet

| | | |
|----------------|--|----------------------------------|
| Date: | No. of Households with Set-out: | Group #: |
| | No. of Households in Sub-group: | Sub-group #: |
| Week ____ of 4 | Participation Rate: | Unsorted Material Weight: |

| Constituent Material | Description | Collected | Waste Stream Weights (kg) | | |
|----------------------|-------------|-----------|---------------------------|-----------------|------------|
| | | | Tare Weight | Material Weight | Net Weight |

| 4. GLASS | | | | | |
|------------------|------------------------------------|------|--|--|--|
| LCBO Clear | clear glass alcoholic beverages | B/GB | | | |
| LCBO Coloured | coloured glass alcoholic beverages | B/GB | | | |
| Clear | food & beverage containers | B/GB | | | |
| Coloured | food & beverage containers | B/GB | | | |
| Other Glass | lightbulbs, window glass, ceramics | | | | |
| Sub Total | | | | | |

| 5. HOUSEHOLD SPECIAL WASTES | | | | | |
|-----------------------------|----------------------------------|--|--|--|--|
| Batteries | all types | | | | |
| Paint | unemptied containers | | | | |
| Motor Oil | used oil, filters | | | | |
| Flammables | starter fluid, solvents | | | | |
| Unemptied aerosol cans | all types | | | | |
| Other HSW | sharps, drugs, acids, antifreeze | | | | |
| Sub Total | | | | | |

| 6. ORGANICS | | | | | |
|----------------------|----------------------------------|----|--|--|--|
| Vegetable Food Waste | vegetable and fruit peelings | GB | | | |
| Animal Food Waste | meats, fats, oils | GB | | | |
| Animal waste | feces, animal litter and bedding | GB | | | |
| Sanitary Products | diapers, napkins | GB | | | |
| Grass | grass clippings | | | | |
| Woody Yard Waste | brush, branches, wood chips | | | | |
| Other Yard Waste | leaves, soil, garden wastes | | | | |
| Sub Total | | | | | |

| 7. OTHER WASTE MATERIALS | | | | | |
|--------------------------|-------------------------------------|--|--|--|--|
| Textiles | clothing, shoes, carpets, bedding | | | | |
| Building Renovations | drywall, lumber, flooring | | | | |
| Furniture | sofas, chairs, cabinets | | | | |
| Electronics/Appliances | small appliances, computers, radios | | | | |
| Rubber | tires, mats, tubing | | | | |
| Wood ashes | fireplaces & wood stoves | | | | |
| Non-Classifiable | materials not classified elsewhere | | | | |
| Sub Total | | | | | |

| | |
|------------------------|---|
| Notes, Comments | (Non-Classifiable Descriptors: organic, inorganic, combustible, non-combustible, fines, etc.) |
| | |

Residual Waste Audit Worksheet

| | | |
|-----------------------|--|----------------------------------|
| Date: | No. of Households with Set-out: | Group #: |
| | No. of Households in Sub-group: | Sub-group #: |
| Week ____ of 4 | Participation Rate: | Unsorted Material Weight: |

Total Constituent Material Weights = _____
 Total Unsorted Weight = _____
 (Total Constituent / Total Unsorted) * 100% = _____ (Minimum 95%)

Sub Total "Non-Classifiable" = _____
 (Total "Non-Classifiable" / Total Constituent Materials) * 100% = _____ (≤ 10%)

Designated Weigh Person/Recorder: _____
 Contractor's Supervisor: _____

APPENDIX B:

**PARTICIPATION AUDIT DATA
SUMMARY**

Appendix B: Participation Audit Data Summary

Participation Audit - Group 1 Area

| Street Name | House Number | Number of Containers/Bags/Items | | | | | | | |
|---------------|--------------|---------------------------------|-----------|----------------|-----------|---------------|-----------|----------------|-----------|
| | | Week 1 | | Week 2 | | Week 3 | | Week 4 | |
| | | Blue/Grey Box | Green Bin | Residual Waste | Green Bin | Blue/Grey Box | Green Bin | Residual Waste | Green Bin |
| Glenroy Ave. | 4 | 2 | | 1 | 1 | 2 | 1 | 1 | 1 |
| | 6 | 2 | 1 | 1 | | | | | |
| | 8 | 3 | 1 | 1 | 1 | | | | |
| | 10 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 |
| | 12 | 2 | 1 | 1 | | | | 1 | 1 |
| | 14 | 2 | | 1 | | 2 | 1 | 3 | 1 |
| | 16 | 2 | 1 | 1 | 1 | 2 | 1 | | |
| | 18 | | 1 | 2 | 1 | | | | |
| | 20 | 2 | 2 | 1 | 2 | 2 | | 2 | 2 |
| | 22 | 2 | 2 | 5 | 1 | | | | |
| | 24 | 2 | 1 | | | 2 | 1 | 11 | 1 |
| | 26 | 2 | 1 | | | | | | |
| | 3 | 2 | 1 | 3 | 1 | 2 | 1 | 2 | 1 |
| | 5 | | | 7 | 2 | 3 | 1 | 3 | 1 |
| | 9 | 2 | 1 | 2 | 1 | 1 | | 2 | 1 |
| | 11 | 2 | | 1 | 1 | | | 2 | 1 |
| | 15 | 2 | 1 | 4 | 1 | 2 | 1 | 3 | 1 |
| | 17 | 3 | 1 | 4 | 1 | 3 | 1 | 3 | 1 |
| | 19 | 1 | 1 | 6 | 1 | 3 | 1 | 2 | |
| | 21 | | 1 | 2 | 1 | 2 | 1 | 1 | 1 |
| 23 | 2 | 1 | | | 3 | 2 | 1 | 2 | |
| 25 | 3 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | |
| 27 | 2 | 1 | 1 | 1 | 3 | 2 | | 1 | |
| 29 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | |
| 31 | 2 | 1 | | | 2 | 1 | 3 | 1 | |
| Glenaden Ave. | 4 | | | 2 | 1 | | | | |
| | 6 | | 1 | 3 | 1 | 2 | 1 | 1 | 1 |
| | 8 | 1 | 1 | 2 | 1 | | | | |
| | 10 | 3 | 1 | 2 | 1 | | | 3 | 1 |
| | 12 | | | | | 1 | 1 | | |
| | 14 | 2 | 1 | 1 | 1 | 3 | 1 | 1 | 1 |
| | 16 | 3 | | | | | | | |
| | 18 | 2 | | 5 | 1 | 4 | 1 | 2 | 1 |
| | 20 | 1 | 1 | 3 | 1 | 2 | 1 | | 1 |
| | 22 | 2 | 2 | 1 | 1 | 4 | 1 | 2 | 1 |
| | 24 | 4 | | 3 | | | | 2 | |
| | 26 | | | | | | | | |
| | 28 | 2 | 1 | 2 | 1 | | | 1 | 1 |
| | 5 | | | 2 | 1 | | | | |
| | 7 | 3 | 1 | | 1 | 2 | 1 | 2 | 2 |
| | 9 | 2 | 1 | 2 | 1 | 2 | 1 | 9 | 1 |
| | 11 | 4 | 1 | | | | | | |
| | 15 | 1 | | | | | | | |
| | 17 | 2 | 1 | 3 | 1 | 3 | 1 | 4 | 1 |
| | 19 | 2 | | | | | | | |
| 21 | | | | | | | | | |
| 23 | | | 1 | 1 | | | 2 | 1 | |
| 25 | 2 | 1 | | | 2 | 1 | | | |
| 27 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | |
| 29 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | |
| 31 | 2 | 1 | 7 | 1 | 2 | 1 | 7 | 1 | |

| | | | | | | | | | |
|---------------|----|---|---|---|---|---|---|---|---|
| Winston Grove | 1 | 3 | 1 | | 1 | 3 | 1 | 2 | 1 |
| | 2 | 2 | 1 | 2 | 1 | 2 | 1 | 3 | 1 |
| | 3 | 2 | 1 | 1 | | 2 | 1 | 6 | 1 |
| | 4 | | | | | | | | |
| | 5 | 2 | 1 | 1 | 1 | 3 | 1 | 5 | 1 |
| | 6 | 1 | 1 | | | | | | |
| | 7 | 2 | | 8 | | | | | |
| | 8 | 1 | 1 | 1 | 1 | 2 | 1 | 6 | 1 |
| | 9 | 2 | 1 | 2 | 1 | 3 | 1 | | |
| | 10 | 3 | 1 | 1 | 1 | 3 | 1 | | |
| | 11 | 2 | | 1 | | | | | |
| | 12 | | | 3 | | 2 | 1 | 2 | 1 |
| | 13 | 2 | 1 | | | | | | |
| | 14 | 2 | 1 | | | 3 | 1 | | |
| | 15 | | | 4 | 1 | 2 | 1 | 5 | 1 |
| | 16 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 |
| | 17 | 2 | 1 | | 1 | 2 | 1 | 2 | 1 |
| | 18 | 2 | 1 | 3 | 1 | 3 | 1 | 3 | 1 |
| | 19 | | | 1 | 1 | 2 | | 1 | |
| | 20 | 1 | 1 | 1 | 1 | 2 | 1 | | |
| | 21 | 2 | 1 | 2 | 1 | 2 | 1 | | |
| | 22 | | | 1 | 1 | 3 | 1 | 1 | 1 |
| | 23 | | | | 1 | 1 | | 1 | 1 |
| | 24 | 1 | | | 1 | | 1 | | 1 |
| | 25 | 2 | 1 | 1 | 1 | 3 | 1 | 1 | 1 |
| | 26 | 1 | | 1 | 1 | 2 | 1 | 1 | 1 |
| | 27 | 2 | 1 | 2 | 1 | 2 | 1 | 4 | |
| | 28 | 4 | 1 | 7 | | 3 | | | |
| | 29 | | | 2 | 1 | | | | |
| | 30 | 3 | 2 | 2 | 1 | 3 | 1 | | |
| | 31 | 2 | 1 | | | | | | |
| | 32 | 2 | 1 | 2 | 1 | 4 | 1 | | |
| | 33 | 2 | 1 | 2 | 1 | 2 | 1 | 1 | 1 |
| | 34 | 2 | 1 | 3 | 1 | | | 3 | |
| | 35 | 2 | 1 | 4 | 1 | 3 | 1 | | |
| | 36 | 2 | 1 | 6 | 1 | | | | |
| | 37 | 3 | | 3 | | 5 | 1 | 2 | 1 |
| | 38 | 2 | 1 | 6 | 1 | 2 | 1 | 3 | 1 |
| | 39 | | 1 | 3 | | 7 | | | |
| | 40 | 3 | 1 | 3 | 1 | 4 | 1 | 3 | 1 |
| | 41 | | | | | | | | |
| | 42 | 2 | 1 | 1 | 1 | 2 | 1 | | |
| | 43 | 2 | 1 | 3 | 1 | | | | |
| | 44 | 2 | 1 | 1 | 1 | 2 | 1 | 4 | 1 |
| | 45 | 2 | 1 | 1 | 1 | 3 | 1 | 2 | 1 |
| | 46 | 2 | | 4 | | 4 | 1 | 3 | 1 |
| | 47 | | | | | | | | |
| | 48 | 2 | 1 | 1 | 1 | | | 1 | 1 |
| | 49 | 1 | | | | | | | |

Appendix B: Participation Audit Data Summary

Participation Audit - Group 2 Area

| Street Name | House Number | Number of Containers/Bags/Items | | | | | | | |
|-------------|--------------|---------------------------------|-----------|----------------|-----------|---------------|-----------|----------------|-----------|
| | | Week 1 | | Week 2 | | Week 3 | | Week 4 | |
| | | Blue/Grey Box | Green Bin | Residual Waste | Green Bin | Blue/Grey Box | Green Bin | Residual Waste | Green Bin |
| Laurel Ave. | 37 | 2 | | 4 | | 2 | 1 | 1 | 1 |
| | 39 | 3 | 1 | 3 | 1 | 3 | 1 | 2 | 1 |
| | 41 | 2 | 1 | 3 | 1 | 2 | 1 | 3 | 1 |
| | 42 | 2 | 1 | | | | | 3 | |
| | 43 | 2 | 1 | 4 | | 2 | | 1 | 1 |
| | 46 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 47 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | |
| | 49 | 3 | 1 | 2 | | 3 | | | |
| | 50 | | | 5 | 3 | | | 1 | 1 |
| | 51 | | 1 | 2 | 2 | | | 1 | 1 |
| | 52 | 2 | 1 | 1 | 1 | 3 | 1 | | |
| | 54 | | | | | | | 1 | 1 |
| | 56 | 1 | 1 | | 1 | | 1 | 3 | 1 |
| | 59 | 1 | 1 | 2 | 1 | 7 | 1 | 1 | 1 |
| | 61 | | 1 | | 1 | 1 | | 1 | 1 |
| | 62 | | | 2 | | | | | |
| | 63 | 2 | 1 | 1 | | 2 | 1 | 2 | 1 |
| | 64 | 3 | 1 | 2 | 1 | 3 | 1 | 1 | 1 |
| | 66 | 1 | | 1 | 1 | 2 | 1 | | 1 |
| | 67 | 1 | | | 1 | 2 | 1 | 3 | 1 |
| | 68 | 2 | | 1 | 1 | 1 | 1 | 1 | 1 |
| | 69 | 2 | | 2 | 1 | 1 | 1 | 21 | |
| | 71 | 1 | | 10 | | | | 1 | |
| | 72 | | | | | 2 | | 1 | |
| | 76 | 1 | | 1 | | 1 | | 2 | 1 |
| | 77 | 2 | 1 | 2 | 1 | 2 | 1 | 6 | 1 |
| | 78 | 1 | 1 | 2 | 1 | 5 | 1 | 4 | 1 |
| | 79 | 4 | 1 | 3 | | 3 | 1 | | 1 |
| | 80 | 2 | 1 | | 1 | 2 | 1 | | 1 |
| | 81 | | | | | | | | |
| | 83 | 1 | 1 | 2 | 1 | 2 | 1 | 3 | 1 |
| | 84 | 2 | 1 | 6 | 1 | 4 | 1 | 5 | 1 |
| | 85 | 2 | 1 | 1 | | 1 | | | |
| | 86 | | | 1 | | 2 | 1 | 1 | |
| | 87 | 2 | | 3 | | 2 | | | |
| | 88 | 1 | | | | 1 | | | |
| | 88a | 2 | 1 | 4 | 1 | 3 | 1 | 4 | 1 |
| | 90 | 3 | 1 | 3 | 1 | 2 | 1 | 4 | 1 |
| | 91 | 3 | 1 | | | 4 | 1 | 2 | 1 |
| | 92 | 2 | | 1 | 1 | 4 | 1 | 4 | 1 |
| | 93 | 1 | 1 | | 1 | 2 | 1 | | 1 |
| | 94 | | | | | | | | |
| | 95 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| | 96 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 97 | | | | | 1 | 1 | | |
| | 97a | 3 | | 1 | 1 | 2 | 1 | 1 | 1 |
| | 98 | 2 | | 2 | | 1 | | 3 | |
| | 99 | | | | | | | | |
| | 100 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| | 101 | 2 | 1 | 2 | 1 | | | 1 | 1 |
| | 102 | 2 | 1 | 1 | 1 | 1 | | 7 | 1 |
| | 103 | | | 4 | 1 | | | | |
| | 104 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 105 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 109 | 2 | 1 | 3 | | | | | |
| | 110 | 3 | 1 | 6 | 1 | 2 | 1 | 2 | 1 |
| | 111 | 1 | | 16 | | 2 | | 15 | |
| | 112 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 113 | 3 | 1 | | | | | 3 | 1 |

| | | | | | | | | | |
|-------------|-----|---|---|----|---|---|---|----|---|
| Laurel Ave. | 114 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 115 | 2 | 1 | 1 | 1 | 6 | 1 | 2 | 1 |
| | 116 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 117 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 1 |
| | 118 | 3 | 1 | 6 | 1 | 2 | 1 | 1 | 1 |
| | 119 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 120 | 2 | | 48 | 1 | 4 | 1 | 2 | 1 |
| | 121 | 2 | 1 | 3 | 1 | 1 | 1 | 2 | 1 |
| | 141 | 1 | 1 | 1 | 1 | 1 | | 1 | 1 |
| | 140 | 2 | 1 | 4 | 1 | 1 | 1 | 4 | 1 |
| | 139 | 1 | | 3 | 1 | 1 | | 5 | 1 |
| | 138 | | | | | | | | |
| | 137 | 1 | | 6 | 1 | 1 | 1 | 2 | 1 |
| | 136 | 3 | 1 | 4 | | 1 | 1 | 2 | 1 |
| | 134 | 6 | 2 | 4 | 1 | 2 | 1 | 9 | 1 |
| | 133 | 3 | | | | 1 | 1 | 10 | 1 |
| | 132 | 3 | 1 | 3 | 1 | 1 | 1 | 2 | |
| | 131 | 2 | 1 | 4 | 1 | 1 | 1 | 4 | 1 |
| | 130 | 5 | 1 | 9 | 1 | 2 | 1 | 4 | 1 |
| | 129 | 1 | 1 | | | 1 | | 1 | 1 |
| | 128 | 2 | 1 | 4 | 1 | 1 | 1 | 3 | 1 |
| | 127 | 1 | | 1 | 1 | | 1 | | |
| | 126 | 2 | 1 | 7 | 1 | 1 | 1 | 1 | 1 |
| | 125 | 2 | 1 | 3 | 1 | 1 | 1 | 6 | 1 |
| | 124 | 4 | 1 | 5 | 1 | 1 | 1 | 4 | 1 |
| | 123 | 2 | | 2 | 1 | 1 | 1 | 1 | 1 |
| | 40 | 2 | | | | | | 1 | |
| | 38 | 2 | | | | 1 | | | |
| | 36 | | | 2 | 1 | | | 2 | 1 |
| | 34 | 1 | | | | 2 | 1 | 6 | |
| | 32 | | | 1 | 1 | | | 3 | 1 |
| | 31 | | | 5 | | | | | |
| 30 | 4 | 1 | 3 | 1 | 4 | 2 | | | |
| 29 | 1 | | | | 1 | 1 | | | |
| 28 | | | | | | | | | |
| 27 | 2 | | | | 4 | 1 | 5 | 1 | |
| 25 | 2 | | 8 | | 2 | 1 | | | |
| 24 | | | 4 | | 2 | | | | |
| 23 | 2 | | | | 2 | | | | |
| 22 | | | | | 2 | | | | |
| 12 | 3 | 1 | 5 | 1 | | | | | |

Appendix B: Participation Audit Data Summary

Participation Audit - Group 3 Area

| Street Name | House Number | Number of Containers/Bags/Items | | | | | | | |
|--------------------|--------------|---------------------------------|-----------|----------------|-----------|---------------|-----------|----------------|-----------|
| | | Week 1 | | Week 2 | | Week 3 | | Week 4 | |
| | | Blue/Grey Box | Green Bin | Residual Waste | Green Bin | Blue/Grey Box | Green Bin | Residual Waste | Green Bin |
| Clearbrooke Circle | 100 | 2 | 1 | 3 | 1 | 2 | 1 | 3 | 1 |
| | 137 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 102 | 2 | 1 | | | 3 | 1 | 1 | 1 |
| | 139 | | | 1 | 1 | 1 | | 4 | 1 |
| | 141 | | | | | 1 | | | |
| | 104 | 2 | | 4 | 1 | 2 | 1 | 3 | 1 |
| | 143 | 2 | 1 | 9 | 1 | 2 | 1 | 10 | 1 |
| | 106 | 3 | 1 | 1 | 1 | 4 | 1 | 3 | 1 |
| | 145 | 2 | 1 | 1 | 1 | 1 | | 2 | 1 |
| | 108 | 5 | 1 | 3 | 1 | 4 | 1 | 4 | 1 |
| | 147 | 2 | 1 | | | 2 | | 3 | 1 |
| | 110 | 2 | 1 | 2 | 1 | 2 | 1 | 1 | 1 |
| | 149 | | | | | | | 4 | |
| | 112 | 7 | 1 | 1 | 1 | 3 | 1 | 4 | 1 |
| | 151 | 2 | 1 | 2 | 1 | 1 | | 2 | 1 |
| | 114 | 3 | 1 | 4 | 1 | 3 | 1 | 4 | 1 |
| | 153 | | 1 | 4 | | | | 8 | |
| | 155 | 4 | 1 | 6 | 1 | 2 | 1 | 8 | 1 |
| | 157 | 2 | 1 | 1 | | | | 2 | |
| | 159 | 2 | 1 | 9 | 1 | 3 | 2 | 4 | 1 |
| | 161 | 2 | 1 | 2 | | | | 1 | 1 |
| | 120 | 4 | 2 | | | 3 | 2 | 3 | 1 |
| | 163 | 3 | 1 | 2 | 1 | 2 | 1 | 6 | 1 |
| | 122 | 2 | 1 | 4 | | 2 | 1 | 7 | 1 |
| | 165 | 2 | 1 | 8 | | 2 | | 7 | |
| | 124 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 |
| | 167 | 5 | 2 | 6 | 2 | 5 | 2 | 8 | 2 |
| | 126 | 1 | | 1 | | | | 1 | |
| | 128 | 5 | 2 | | | 3 | 2 | | |
| | 171 | 2 | 1 | 12 | 1 | | | 20 | |
| | 130 | 3 | 1 | 3 | | 3 | 1 | 1 | 1 |
| | 173 | | | 3 | | 1 | 1 | 1 | |
| | 132 | 2 | | 6 | | 2 | | 6 | |
| | 175 | 3 | | | | | | 3 | |
| | 134 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 177 | 2 | 1 | 3 | | 2 | 1 | 1 | 1 |
| | 136 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 |
| | 179 | 2 | 1 | | 1 | 1 | 1 | 3 | 1 |
| | 138 | | 1 | | 1 | | 1 | | 1 |
| | 181 | 2 | 1 | 2 | | 2 | 1 | 3 | |
| 140 | 1 | 1 | 4 | | 1 | 1 | 1 | | |
| 183 | 2 | | 3 | 1 | 2 | | 1 | 1 | |
| 142 | 2 | 1 | 8 | 1 | 1 | 1 | 2 | | |
| 185 | 4 | 2 | 1 | 2 | 4 | 3 | 1 | 2 | |
| 144 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | |
| 146 | 2 | 1 | 1 | 1 | 2 | 1 | 3 | 1 | |
| 148 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | |
| 189 | 2 | 1 | 2 | | 2 | 1 | 2 | 1 | |
| 191 | 2 | 1 | 4 | | 2 | 1 | 3 | | |
| 150 | 2 | 1 | 4 | 1 | 4 | 1 | 1 | 1 | |
| 193 | 2 | 1 | 2 | 1 | 1 | 1 | 4 | 1 | |
| 152 | 5 | 1 | | | 2 | 1 | 2 | 1 | |
| 154 | 2 | 1 | 2 | 1 | 2 | 1 | 5 | 1 | |
| 156 | 2 | 1 | 1 | 1 | | 1 | 1 | 1 | |
| 195 | 3 | 1 | 3 | 1 | 5 | 1 | 3 | 1 | |
| 158 | 3 | 1 | 10 | 1 | 5 | 1 | 1 | | |
| 197 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | |
| 160 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | |
| 199 | | 1 | | | 1 | 1 | 2 | 1 | |

| | | | | | | | | | |
|--------------------|-----|---|---|---|---|---|----|----|---|
| Clearbrooke Circle | 162 | 3 | 1 | 1 | 1 | 2 | 1 | | 1 |
| | 201 | | | 5 | | 7 | | | |
| | 164 | 2 | 1 | 2 | 1 | 2 | 1 | 1 | 1 |
| | 203 | 2 | 1 | 3 | 1 | 1 | 1 | 2 | 1 |
| | 166 | 2 | 1 | 4 | 1 | 4 | 1 | 4 | 1 |
| | 205 | 3 | 1 | 6 | | | | 10 | |
| | 168 | | | | | 2 | 1 | 1 | 1 |
| | 211 | 5 | 1 | 1 | | 4 | 1 | 4 | 1 |
| | 174 | | 1 | 2 | | 3 | 1 | 2 | 2 |
| | 176 | 1 | | 4 | | 2 | | 2 | |
| | 213 | 3 | 1 | 1 | 1 | 3 | | 4 | |
| | 215 | 3 | 1 | | | 3 | 1 | 2 | 1 |
| | 178 | 3 | 1 | 1 | 1 | 3 | 1 | 2 | 1 |
| | 180 | | 1 | 5 | 1 | | 1 | 5 | 1 |
| | 217 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 182 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 219 | 2 | 1 | | | 2 | 1 | 1 | 1 |
| | 184 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 221 | 2 | 1 | 2 | 1 | | 1 | | |
| | 186 | 1 | | | | 1 | | | |
| | 223 | 2 | 1 | | 1 | 4 | 2 | 11 | 2 |
| | 188 | 1 | | 9 | | 1 | | 3 | |
| | 225 | 3 | 1 | | 1 | 2 | 1 | 1 | 1 |
| | 227 | 2 | 1 | | 1 | 2 | 1 | 2 | 1 |
| | 190 | | | 3 | | | | | |
| | 192 | 2 | 1 | 3 | 1 | 1 | 1 | 4 | 1 |
| | 229 | 3 | 1 | 6 | 1 | 3 | 1 | 2 | 1 |
| | 194 | 3 | 1 | | 3 | 3 | 1 | | |
| | 231 | | | | | | | | |
| | 233 | 3 | 1 | 9 | 1 | | | 6 | 1 |
| | 235 | 3 | 1 | 4 | 1 | 3 | 1 | 2 | 1 |
| | 198 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| 237 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | |
| 139 | 2 | 1 | | | 2 | 1 | 3 | 1 | |
| 4 | 2 | 1 | 2 | 1 | 2 | 1 | 5 | 1 | |
| 6 | 4 | | | 1 | 3 | 1 | 5 | 1 | |
| 8 | 2 | 1 | 1 | 1 | 2 | 1 | 3 | 1 | |
| 10 | 2 | 1 | | | 3 | 1 | 4 | 1 | |
| 12 | 3 | 1 | | | 2 | 1 | 10 | 1 | |
| 14 | 3 | 1 | | | 3 | 1 | 3 | 1 | |
| 16 | 2 | 1 | | | | 1 | 1 | 1 | |

Appendix B: Participation Audit Data Summary

Participation Audit - Group 4 Area

| Street Name | House Number | Number of Containers/Bags/Items | | | | | | | |
|--------------|--------------|---------------------------------|-----------|----------------|-----------|---------------|-----------|----------------|-----------|
| | | Week 1 | | Week 2 | | Week 3 | | Week 4 | |
| | | Blue/Grey Box | Green Bin | Residual Waste | Green Bin | Blue/Grey Box | Green Bin | Residual Waste | Green Bin |
| Sellmar Road | 1 | 2 | 1 | 1 | 1 | 2 | 1 | | |
| | 4 | 2 | 1 | | 2 | 1 | 1 | 2 | 1 |
| | 3 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 6 | 2 | 1 | | | | | | |
| | 5 | 2 | 1 | 2 | 1 | 2 | 1 | 3 | 1 |
| | 7 | 3 | 1 | 1 | | | | | |
| | 8 | 3 | 1 | 3 | 1 | 2 | 1 | 2 | 1 |
| | 9 | | | | | 3 | 1 | 1 | 1 |
| | 11 | | | | | 2 | | 2 | |
| | 15 | 2 | 1 | 9 | 1 | 3 | 1 | 8 | 1 |
| | 17 | | | 2 | | | | 1 | |
| | 19 | 2 | 1 | 2 | 1 | 2 | 1 | 3 | 1 |
| | 12 | | | 2 | | | | 1 | |
| | 21 | 3 | 1 | 3 | 1 | 4 | 1 | 2 | 1 |
| | 14 | 2 | 1 | 3 | 1 | 4 | 1 | 2 | 1 |
| | 16 | | | 1 | | | | 1 | |
| | 23 | 2 | | | | | | 1 | |
| | 18 | | | 2 | | | | 2 | 1 |
| | 25 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 |
| | 20 | 5 | 1 | 2 | 1 | 4 | 1 | 8 | |
| | 22 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 27 | 3 | 1 | 7 | 1 | 3 | 1 | | 1 |
| | 24 | 2 | 1 | 4 | 1 | 2 | 1 | 3 | 1 |
| | 29 | 1 | 1 | | 1 | 1 | 1 | 3 | 1 |
| | 26 | 2 | 1 | 2 | 1 | 2 | 1 | 3 | 1 |
| | 28 | 4 | 1 | 2 | 1 | 4 | 1 | 4 | 1 |
| | 30 | | | 8 | 1 | 8 | 1 | 1 | 1 |
| | 37 | 2 | | 1 | 1 | 2 | 1 | 2 | 1 |
| | 32 | | | | | 3 | | 5 | 1 |
| | 39 | | | 2 | | 2 | 1 | 3 | |
| | 34 | 1 | 1 | 5 | 1 | 5 | 1 | 2 | 1 |
| | 41 | | | | | 2 | | 2 | 1 |
| 36 | | | | | 3 | 1 | | | |
| 43 | 2 | 2 | 2 | 1 | 2 | 1 | | | |
| 38 | 2 | 1 | 2 | 1 | 1 | 1 | | | |
| 45 | 2 | 1 | 2 | 1 | 2 | 1 | | | |
| 40 | | | | | | | 1 | 1 | |
| 47 | | | | | | | | | |
| 49 | 4 | | | | 9 | 1 | 4 | 1 | |
| 42 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | |
| 44 | | | 2 | 1 | 2 | | 3 | 1 | |
| 51 | 3 | 1 | 5 | 1 | 6 | 1 | 1 | 1 | |
| 46 | 3 | 1 | 3 | 1 | 2 | 1 | 3 | 1 | |
| 53 | 3 | 1 | 1 | 1 | 3 | | | 1 | |
| 55 | 3 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | |
| 48 | 2 | 1 | 2 | | 2 | 1 | | | |
| 50 | | | | | | 1 | | 1 | |
| 57 | 2 | 1 | 1 | 1 | 3 | 1 | 1 | 1 | |
| 52 | 3 | 1 | 2 | 1 | 3 | 1 | 2 | 1 | |
| 59 | 2 | 1 | 4 | 1 | 2 | 1 | 1 | 1 | |
| 54 | | | | | 2 | 1 | | 1 | |
| 61 | | | 2 | | | | 2 | 1 | |

| | | | | | | | | | |
|---------------|-----|---|---|---|---|---|----|----|---|
| Sun Row Drive | 126 | 3 | 1 | 6 | 1 | | | 2 | 1 |
| | 137 | 5 | | 5 | | 4 | 2 | 5 | 1 |
| | 124 | | | | | | | | |
| | 122 | 4 | 1 | 7 | 1 | 5 | 1 | 7 | 1 |
| | 135 | 2 | 1 | 3 | 1 | | | | |
| | 133 | 2 | 1 | 1 | | | | 1 | 1 |
| | 120 | | | | | | 1 | | |
| | 131 | 2 | 1 | | | 2 | 1 | | |
| | 129 | 2 | 1 | 3 | 1 | 2 | 1 | 4 | 1 |
| | 127 | 2 | 1 | | | | | 1 | |
| | 125 | 1 | 1 | 2 | 1 | | 1 | 1 | |
| | 114 | 4 | 1 | 2 | 1 | 6 | 1 | 3 | 1 |
| | 112 | 2 | 1 | 2 | 1 | 4 | 1 | | 1 |
| | 110 | | | 3 | 1 | 5 | 1 | 8 | 1 |
| | 108 | | | 2 | | | | 2 | |
| | 106 | | | 2 | | | 1 | 2 | |
| | 104 | | | 1 | 1 | 2 | 1 | 3 | |
| | 102 | | | | | | | 2 | 1 |
| | 100 | 2 | 1 | 3 | 1 | 2 | 1 | 1 | |
| | 98 | 3 | 1 | 2 | 1 | 2 | 1 | 1 | 1 |
| | 101 | | | | | | | 1 | 1 |
| | 92 | | | 1 | 1 | | | 1 | 1 |
| | 99 | | | | | | | 1 | 1 |
| | 90 | | | 1 | 1 | | | | |
| | 97 | | | 4 | | | | | |
| | 95 | 2 | 1 | | | 2 | 1 | 11 | |
| | 93 | | | 2 | 1 | | | 2 | 1 |
| | 91 | | | 1 | 1 | 3 | 1 | | 1 |
| | 89 | 4 | 1 | 3 | 1 | 3 | 1 | 12 | 1 |
| | 87 | 3 | 1 | 1 | | 3 | 1 | 3 | 1 |
| 84 | 2 | 1 | 4 | 1 | | 1 | | | |
| 85 | | | 1 | | | | 11 | 1 | |
| 82 | | | | | 2 | 1 | | | |
| 80 | 2 | 1 | 2 | 1 | | | | | |
| 78 | | | | | | | 13 | 1 | |
| 79 | 2 | | 9 | | 2 | | 3 | | |
| 77 | | | 2 | | 2 | | | | |
| 70 | 2 | | | | 5 | 2 | | | |
| 75 | 2 | 1 | 2 | 1 | 2 | | 8 | 1 | |
| 73 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | |
| 68 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | |
| 71 | 2 | 1 | 1 | 1 | 2 | 1 | | | |
| 69 | | | | | 2 | 1 | | | |
| 67 | 1 | | | | 2 | | 3 | | |
| 65 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | |
| 62 | 1 | | | | | | 3 | | |
| 63 | | | | | | | | | |
| 60 | 3 | 1 | | | | | 3 | 1 | |

Appendix B: Participation Audit Data Summary

Average Number of Set Outs - All Participation Audit Groups - Participating Households Only

Total No. Vacant houses: 14

Green Bin

| | | | | | |
|--------------------|----------|----------|----------|----------|----------|
| No. Setouts | 0 | 1 | 2 | 3 | 4 |
| No. Hhlds | 55 | 51 | 57 | 91 | 146 |
| % Total Hhlds | 10.62% | 13.21% | 14.77% | 23.58% | 37.82% |
| Squared Error | 0.744601 | 0.358693 | 0.061943 | 0.029266 | 0.691723 |
| Count Hhlds | 386 | | | | |
| Average | 2.65 | | | | |
| Variance | 1.8862 | | | | |
| Standard Deviation | 0.69 | | | | |

Blue/Grey Box

| | | | |
|--------------------|----------|----------|----------|
| No. Setouts | 0 | 1 | 2 |
| No. Hhlds | 51 | 94 | 255 |
| % Total Hhlds | 9.59% | 20.73% | 62.44% |
| Squared Error | 0.203195 | 0.043088 | 0.184796 |
| Count Hhlds | 386 | | |
| Average | 1.46 | | |
| Variance | 0.4311 | | |
| Standard Deviation | 0.33 | | |

Residual Waste

| | | | |
|--------------------|----------|----------|----------|
| No. Setouts | 0 | 1 | 2 |
| No. Hhlds | 49 | 119 | 232 |
| % Total Hhlds | 9.07% | 27.20% | 56.48% |
| Squared Error | 0.178115 | 0.043862 | 0.202264 |
| Count Hhlds | 386 | | |
| Average | 1.40 | | |
| Variance | 0.4242 | | |
| Standard Deviation | 0.33 | | |

APPENDIX C:

**WASTE AUDIT PARTICIPATION
DATA SUMMARY**

Appendix C: Waste Audit Participation Data Summary

Waste Audit Participation - Group 1

| | | Number of Containers/Bags/Items | | | | | | | |
|-------------------------------------|--------------|---------------------------------|-----------|----------------|-----------|---------------|-----------|----------------|-----------|
| | | Week 1 | | Week 2 | | Week 3 | | Week 4 | |
| Street Name | House Number | Blue/Grey Box | Green Bin | Residual Waste | Green Bin | Blue/Grey Box | Green Bin | Residual Waste | Green Bin |
| Sunnylea Ave. W. (Sub-group "a") | 1 | | 1 | 2 | 1 | 2 | 1 | 1 | 1 |
| | 3 | | | | | | | | |
| | 5 | 1 | 1 | | | | | 1 | 1 |
| | 7 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 |
| | 9 | 2 | 1 | 1 | 1 | | 1 | 1 | 1 |
| Sunnylea Ave. W. (Sub-group "b") | 11 | 2 | 1 | 3 | 1 | 2 | 1 | 6 | 1 |
| | 15 | 2 | 2 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 17 | | | | | 2 | 1 | 1 | 1 |
| | 19 | 2 | | 2 | | 7 | 1 | 1 | 1 |
| | 21 | 4 | 1 | 2 | 1 | 3 | 1 | 1 | 1 |
| Sunnylea Ave. W (Sub-group "c") | 23 | | | 1 | 1 | 2 | 1 | | 1 |
| | 25 | 2 | 1 | 3 | | 2 | 1 | 6 | 1 |
| | 27 | 4 | 1 | 5 | 1 | 4 | 1 | 7 | 1 |
| | 33 | 2 | 3 | 5 | 2 | 3 | 3 | 2 | 1 |
| | 35 | 2 | 1 | | | 2 | | 1 | |
| Sunnylea Ave W. (Sub-group "d") | 37 | 2 | | 2 | | | | 2 | |
| | 39 | | | 2 | | 2 | | 3 | |
| | 41 | 2 | 1 | 2 | | 2 | 1 | 1 | 1 |
| | 43 | 2 | 1 | | | 2 | 1 | 3 | 1 |
| | 45 | 2 | 1 | 2 | 1 | 2 | 1 | 1 | 1 |

Waste Audit Participation - Group 2

| | | Number of Containers/Bags/Items | | | | | | | |
|-----------------------------------|--------------|---------------------------------|-----------|----------------|-----------|---------------|-----------|----------------|-----------|
| | | Week 1 | | Week 2 | | Week 3 | | Week 4 | |
| Street Name | House Number | Blue/Grey Box | Green Bin | Residual Waste | Green Bin | Blue/Grey Box | Green Bin | Residual Waste | Green Bin |
| Belgrove Dr. (Sub-group "a") | 7 | 3 | 1 | 2 | 1 | 4 | 1 | 3 | 1 |
| | 9 | 3 | 1 | 6 | 1 | 3 | 1 | 6 | 1 |
| | 11 | 2 | | 2 | | 2 | | 1 | |
| Shaver Ave. N. | 83 | 3 | 1 | | 1 | 4 | 1 | | 1 |
| | 85 | 2 | 1 | 1 | 1 | 2 | 1 | | 1 |
| Belgrove Drive (Sub-group "b") | 15 | 3 | 2 | 1 | 2 | 3 | 1 | 2 | 2 |
| | 17 | 3 | 1 | 1 | 1 | 2 | 1 | 2 | 1 |
| | 19 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 21 | 1 | 1 | 1 | | 1 | | | 1 |
| | 23 | 3 | 1 | 3 | 1 | 4 | 1 | 2 | 1 |
| Belgrove Drive (Sub-group "c") | 25 | 2 | | 20 | | | | 5 | |
| | 22 | 4 | 1 | 5 | 1 | 5 | 1 | 5 | 1 |
| | 20 | 3 | 1 | 4 | 1 | 4 | 1 | 4 | |
| | 18 | | | | | | | 4 | |
| | 16 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| Belgrove Drive (Sub-group "d") | 14 | 2 | 1 | | | 2 | 1 | 2 | 1 |
| | 12 | 2 | | 1 | 1 | 1 | 1 | 3 | 1 |
| | 10 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 |
| | 8 | 1 | | 1 | | 2 | 1 | 2 | 1 |
| | 1 | | | 4 | | | | | |

Waste Audit Participation - Group 3

| | | Number of Containers/Bags/Items | | | | | | | |
|---------------------------------------|--------------|---------------------------------|-----------|----------------|-----------|---------------|-----------|----------------|-----------|
| | | Week 1 | | Week 2 | | Week 3 | | Week 4 | |
| Street Name | House Number | Blue/Grey Box | Green Bin | Residual Waste | Green Bin | Blue/Grey Box | Green Bin | Residual Waste | Green Bin |
| Clearbrooke Circle (Sub-group "a") | 43 | 5 | 1 | 2 | 1 | 3 | 1 | 3 | 1 |
| | 41 | 4 | 1 | 2 | 1 | 2 | 1 | 3 | 1 |
| | 39 | 1 | 1 | 1 | | | | 1 | |
| | 37 | 2 | 1 | 3 | 1 | 2 | 1 | 2 | 1 |
| | 35 | 2 | 1 | 1 | 1 | | | 3 | 1 |
| Clearbrooke Circle (Sub-group "b") | 33 | 2 | 1 | 2 | | 2 | | 1 | 1 |
| | 31 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 29 | 3 | 1 | 6 | 1 | 2 | 1 | 11 | 1 |
| | 27 | 3 | 1 | 4 | 1 | 2 | 1 | 8 | 1 |
| | 25 | 6 | 1 | 3 | 1 | 3 | 1 | 3 | 1 |
| Clearbrooke Circle (Sub-group "c") | 23 | 3 | | 11 | | | | 9 | |
| | 21 | 3 | 1 | 2 | 1 | 2 | 1 | 3 | 1 |
| | 19 | 4 | 2 | 3 | 1 | 3 | 1 | 1 | 1 |
| | 17 | | 1 | 1 | | | | 1 | |
| | 15 | 6 | 2 | 6 | 1 | 3 | 1 | 2 | 1 |
| Clerabrooke Circle (Sub-group "d") | 11 | 5 | 2 | 2 | 2 | 3 | 1 | 1 | 1 |
| | 9 | | | 10 | | | | 5 | |
| | 7 | 4 | 1 | 1 | 1 | 5 | 1 | 1 | 2 |
| | 5 | 3 | 1 | 3 | 2 | 2 | 1 | 1 | 1 |
| | 3 | 1 | 1 | 1 | | 1 | | | 1 |

Waste Audit Participation - Group 4

| | | Number of Containers/Bags/Items | | | | | | | |
|---------------------------------|--------------|---------------------------------|-----------|----------------|-----------|---------------|-----------|----------------|-----------|
| | | Week 1 | | Week 2 | | Week 3 | | Week 4 | |
| Street Name | House Number | Blue/Grey Box | Green Bin | Residual Waste | Green Bin | Blue/Grey Box | Green Bin | Residual Waste | Green Bin |
| Newstead Rd. | 48 | 3 | 1 | 5 | 1 | 4 | 1 | | |
| Woodpark Rd. (Sub-group "a") | 38 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 36 | 3 | 1 | 2 | 1 | 2 | 1 | 3 | 1 |
| | 34 | 2 | 1 | 1 | 1 | 3 | 1 | 1 | 1 |
| | 32 | | | 6 | | 1 | | 3 | |
| Woodpark Rd. (Sub-group "b") | 30 | | | 6 | 2 | 10 | 1 | 10 | 1 |
| | 28 | 2 | 1 | 1 | 1 | 3 | 1 | 5 | 1 |
| | 26 | | | | | | | 3 | |
| | 24 | 2 | | 8 | | 2 | 1 | 10 | |
| | 22 | 2 | 1 | 1 | 1 | | 1 | 1 | 1 |
| Woodpark Rd. (Sub-group "c") | 20 | 2 | 1 | 2 | 1 | 2 | 1 | | 1 |
| | 18 | 2 | 1 | 5 | 1 | 5 | 1 | 6 | 1 |
| | 16 | 4 | 1 | 3 | 1 | 3 | 1 | 4 | 1 |
| | 14 | 2 | 1 | 2 | 1 | | | 6 | |
| | 12 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| Woodpark Rd. (Sub-group "d") | 10 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 8 | 2 | 1 | 3 | 1 | | | 3 | 1 |
| | 6 | 2 | 1 | 3 | 1 | 2 | 1 | 2 | 1 |
| | 4 | | | | | | | | |
| | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |

Appendix C: Waste Audit Participation Data Summary
Average Number of Set Outs - All Waste Audit Groups - Participating Households Only

Total No. Vacant houses: 2

Green Bin

| | | | | | |
|--------------------|----------|----------|----------|----------|----------|
| No. Setouts | 0 | 1 | 2 | 3 | 4 |
| No. Hhlds | 12 | 4 | 8 | 11 | 45 |
| % Total Hhlds | 12.82% | 5.13% | 10.26% | 14.10% | 57.69% |
| Squared Error | 1.144005 | 0.202507 | 0.099951 | 2.32E-05 | 0.591811 |
| Count Hhlds | 78 | | | | |
| Average | 2.99 | | | | |
| Variance | 2.0383 | | | | |
| Standard Deviation | 0.71 | | | | |

Blue/Grey Box

| | | | |
|--------------------|----------|----------|----------|
| No. Setouts | 0 | 1 | 2 |
| No. Hhlds | 7 | 16 | 57 |
| % Total Hhlds | 6.41% | 20.51% | 73.08% |
| Squared Error | 0.178063 | 0.091168 | 0.081197 |
| Count Hhlds | 78 | | |
| Average | 1.67 | | |
| Variance | 0.3504 | | |
| Standard Deviation | 0.30 | | |

Residual Waste

| | | | |
|--------------------|----------|----------|----------|
| No. Setouts | 0 | 1 | 2 |
| No. Hhlds | 3 | 14 | 63 |
| % Total Hhlds | 1.28% | 17.95% | 80.77% |
| Squared Error | 0.041302 | 0.113404 | 0.033986 |
| Count Hhlds | 78 | | |
| Average | 1.79 | | |
| Variance | 0.1887 | | |
| Standard Deviation | 0.22 | | |

APPENDIX D:
GREEN BIN WEIGHTS

Appendix D: Green Bin Weights

| Green Bin Material Net Weight of Households (net kg/hhld/week) | | | | | Green Bin Total Weight of Households (kg/hhld/week) | | | |
|--|-------------|--------------|---------|--------|---|-----------------|-----------------|---------|
| Group 1 | Group 2 | Group 3 | Group 4 | | Group 1 | Group 2 | Group 3 | Group 4 |
| 1.70 | 10.3 | 13.9 | 4.9 | Week 1 | 5.3 | 13.9 | 17.5 | 8.5 |
| no bin | 7.1 | 12.2 | 7.6 | | no bin | 10.7 | 15.8 | 11.2 |
| 10.5 | no bin | 2.8 | 12.5 | | 14.1 | no bin | 6.4 | 16.1 |
| 4 | 8.3 | 4.8 | 4.3 | | 7.6 | 11.9 | 8.4 | 7.9 |
| 1.8 | 4.1 | 2.3 | no bin | | 5.4 | 7.7 | 5.9 | no bin |
| 0.7 | 8.5 | 11 | no bin | | 4.3 | Excluded | 14.6 | no bin |
| 6.05 | 0.6 | 4.2 | 6.4 | | Excluded | 4.2 | 7.8 | 10 |
| no bin | 7.9 | 7.7 | no bin | | no bin | 11.5 | 11.3 | no bin |
| no bin | 7 | 11.4 | no bin | | no bin | 10.6 | 15 | no bin |
| 10.9 | 7.7 | 2 | 1.9 | | 14.5 | 11.3 | 5.6 | 5.5 |
| no bin | no bin | no bin | 3.1 | | no bin | no bin | no bin | 6.7 |
| 3 | 3 | 5.7 | 4.1 | | 6.6 | 6.6 | 9.3 | 7.7 |
| 1.5 | 7 | 11.25 | 23.9 | | 5.1 | 10.6 | Excluded | 27.5 |
| 5.77 | no bin | 2.1 | 3.5 | | Excluded | no bin | 5.7 | 7.1 |
| no bin | 5 | 11.3 | 5.9 | | no bin | 8.6 | Excluded | 9.5 |
| no bin | 12 | 8.45 | 2.7 | | no bin | 15.6 | Excluded | 6.3 |
| no bin | no bin | no bin | 5.8 | | no bin | no bin | no bin | 9.4 |
| 6.2 | 2.5 | 6.2 | 6.6 | | 9.8 | 6.1 | 9.8 | 10.2 |
| 2.7 | no bin | 5.6 | no bin | | 6.3 | no bin | 9.2 | no bin |
| 1.9 | no bin | 2.4 | 2.5 | | 5.5 | no bin | 6 | 6.1 |
| 1.3 | 12.8 | 6.2 | 4 | Week 2 | 4.9 | 16.4 | 9.8 | 7.6 |
| no bin | 11.9 | 6.1 | 2.1 | | no bin | 15.5 | 9.7 | 5.7 |
| no bin | no bin | no bin | 13.3 | | no bin | no bin | no bin | 16.9 |
| 2.3 | 8.4 | 4 | 6.1 | | 5.9 | 12 | 7.6 | 9.7 |
| 3.6 | 3.5 | 7.8 | no bin | | 7.2 | 7.1 | 11.4 | no bin |
| 4.6 | 2.65 | no bin | 13.4 | | 8.2 | Excluded | no bin | 17 |
| 7.3 | 14.7 | 4.1 | 13.3 | | 10.9 | 18.3 | 7.7 | 16.9 |
| no bin | 8.7 | 9.5 | no bin | | no bin | 12.3 | 13.1 | no bin |
| no bin | no bin | 15.9 | no bin | | no bin | no bin | 19.5 | no bin |
| 1.1 | 9.4 | 7.1 | 0.8 | | 4.7 | 13 | 10.7 | 4.4 |
| 0.5 | no bin | no bin | 5.7 | | 4.1 | no bin | no bin | 9.3 |
| no bin | 5.9 | 7.1 | 4.3 | | no bin | 9.5 | 10.7 | 7.9 |
| 5.4 | 5.1 | 10.5 | 8.5 | | 9 | 8.7 | 14.1 | 12.1 |
| 15.45 | no bin | no bin | 2.2 | | Excluded | no bin | no bin | 5.8 |
| no bin | 4.7 | 11.6 | 2.1 | | no bin | 8.3 | 15.2 | 5.7 |
| no bin | no bin | 7.7 | 7.1 | | no bin | no bin | Excluded | 10.7 |
| no bin | 8.9 | no bin | 7.4 | | no bin | 12.5 | no bin | 11 |
| no bin | 3.5 | 7.9 | 5.8 | | no bin | 7.1 | 11.5 | 9.4 |
| no bin | no bin | 2.5 | no bin | | no bin | no bin | Excluded | no bin |
| 3.9 | no bin | no bin | 0.5 | | 7.5 | no bin | no bin | 4.1 |
| 3 | 10.2 | 5.1 | 2.8 | Week 3 | 6.6 | 13.8 | 8.7 | 6.4 |
| no bin | 9.4 | 10.1 | 3.6 | | no bin | 13 | 13.7 | 7.2 |
| no bin | no bin | no bin | 15.8 | | no bin | no bin | no bin | 19.4 |
| 8.4 | 5.4 | 5.6 | 5.1 | | 12 | 9 | 9.2 | 8.7 |
| 3.1 | 5.8 | no bin | no bin | | 6.7 | 9.4 | no bin | no bin |
| 4.3 | 17 | no bin | 6.7 | | 7.9 | 20.6 | no bin | 10.3 |
| 4 | 1.1 | 3.9 | 15.8 | | 7.6 | 4.7 | 7.5 | 19.4 |

Appendix D: Green Bin Weights

| Green Bin Material Net Weight of Households (net kg/hhld/week) | | | | | Green Bin Total Weight of Households (kg/hhld/week) | | | |
|--|-------------|-------------|---------|--------|---|-----------------|-----------------|---------|
| Group 1 | Group 2 | Group 3 | Group 4 | | Group 1 | Group 2 | Group 3 | Group 4 |
| 4.8 | 10.6 | 6.6 | no bin | | 8.4 | 14.2 | 10.2 | no bin |
| 6.2 | no bin | 7.9 | 10.4 | | 9.8 | no bin | 11.5 | 14 |
| 2 | 7.7 | 3.2 | 0.7 | | 5.6 | 11.3 | 6.8 | 4.3 |
| 0.4 | no bin | no bin | 3.2 | | 4 | no bin | no bin | 6.8 |
| 6 | 1.4 | 6.7 | 17.9 | | 9.6 | 5 | 10.3 | 21.5 |
| 8.4 | 11.3 | 10.9 | 9.6 | | 12 | 14.9 | 14.5 | 13.2 |
| 12.43 | no bin | no bin | no bin | | Excluded | no bin | no bin | no bin |
| no bin | 5 | 7.5 | 1.5 | | no bin | 8.6 | 11.1 | 5.1 |
| no bin | 8.9 | 12.5 | 1.2 | | no bin | 12.5 | 16.1 | 4.8 |
| no bin | 3.2 | no bin | no bin | | no bin | 6.8 | no bin | no bin |
| 4.2 | 3 | 3.9 | 7.6 | | 7.8 | 6.6 | 7.5 | 11.2 |
| 4.3 | 5.9 | 4.7 | no bin | | 7.9 | 9.5 | 8.3 | no bin |
| 1.9 | no bin | no bin | 2.6 | | 5.5 | no bin | no bin | 6.2 |
| 1.7 | 14 | 5 | no bin | Week 4 | 5.3 | 17.6 | 8.6 | no bin |
| no bin | 10.4 | 5.6 | 2.3 | | no bin | 14 | 9.2 | 5.9 |
| 6.6 | no bin | no bin | 11 | | 10.2 | no bin | no bin | 14.6 |
| 9.1 | 7.3 | 4.1 | 3.9 | | 12.7 | 10.9 | 7.7 | 7.5 |
| 4.4 | 9.1 | 11.9 | no bin | | 8 | 12.7 | 15.5 | no bin |
| 10.9 | 7.55 | 2.6 | 7.9 | | 14.5 | Excluded | 6.2 | 11.5 |
| 1 | 4.7 | 3.6 | 6.4 | | 4.6 | 8.3 | 7.2 | 10 |
| 6.8 | 8.5 | 6.9 | no bin | | 10.4 | 12.1 | 10.5 | no bin |
| 4.9 | 0.3 | 8.3 | no bin | | 8.5 | 3.9 | 11.9 | no bin |
| 0.9 | 13.1 | 2.5 | 0.8 | | 4.5 | 16.7 | 6.1 | 4.4 |
| 2.2 | no bin | no bin | 3.4 | | 5.8 | no bin | no bin | 7 |
| 2.1 | 4.3 | 6.6 | 1.9 | | 5.7 | 7.9 | 10.2 | 5.5 |
| 7.4 | no bin | 9.7 | 9.3 | | 11 | no bin | 13.3 | 12.9 |
| 11.3 | no bin | no bin | no bin | | 14.9 | no bin | no bin | no bin |
| no bin | 4.5 | 13.4 | 2.3 | | no bin | 8.1 | 17 | 5.9 |
| no bin | 2.4 | 5.5 | 3.3 | | no bin | 6 | 9.1 | 6.9 |
| no bin | 5 | no bin | 7.7 | | no bin | 8.6 | no bin | 11.3 |
| 4.4 | 4.7 | 3.25 | 7.7 | | 8 | 8.3 | Excluded | 11.3 |
| 5.6 | 3.2 | 3.9 | no bin | | 9.2 | 6.8 | 7.5 | no bin |
| 4.3 | no bin | 3.6 | 1.7 | | 7.9 | no bin | 7.2 | 5.3 |

Count 219

Notes:

- 1) Mass Empty Green Bin = 3.6 kg
- 2) Max gross weight = 20 kg
- 3) Bold value = more than one Green Bin set-out - average taken - equal distribution of weight assumed for net Green Bin weight.
- 4) Houses with more than one Green Bin setout, where it was assumed SSO was split evenly across the number of bins set out have been excluded in this distribution.
of Green Bin Weights Excluded = 13

APPENDIX E:

GREEN BIN PROGRAM MATERIALS COLLECTION AND COMPOSITION

| Green Bin Program Materials Collection & Composition | |
|--|--|
| Group 1, 2, 3, 4 | Etobicoke Waste Audit Spring 2003 April 22 - May 16, 2003 |

"t" critical (90%, df=3)
one-tailed two-tailed
1.638 2.353

| Constituent Material | Description | Collection Program | Collection (kg/hhd/yr) | | | | | Standard Deviation | 90% Confidence Interval (kg/hhd/yr) | | | Percent of Average |
|-------------------------------|---------------------------------------|--------------------|------------------------|---------|---------|---------|---------|--------------------|-------------------------------------|--------------------|--------------------|--------------------|
| | | | Group 1 | Group 2 | Group 3 | Group 4 | Average | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 1. Paper Fibres | | | | | | | | | | | | |
| Newspaper | ONP, inserts | Grey Box | 0.39 | 0.13 | 7.80 | 0.74 | 2.27 | 3.70 | 5.29 | - | - | 0.90% |
| Magazines / paperbacks | OMG, catalogues, soft covers | Grey Box | 1.17 | 0.07 | 0.00 | 0.00 | 0.31 | 0.57 | 0.78 | - | - | 0.12% |
| Phone Books | OTB | Grey Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Cardboard | OCC | Grey Box | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 | - | - | 0.00% |
| Boxboard/Rolls | OBB | Grey Box | 0.01 | 0.46 | 0.51 | 0.20 | 0.29 | 0.24 | 0.49 | 0.02 | 0.57 | 0.12% |
| Mixed Papers | junk mail, fine household papers | Grey Box | 0.00 | 0.06 | 0.27 | 0.29 | 0.15 | 0.14 | 0.27 | - | - | 0.06% |
| Molded Pulp | egg cartons, drink trays | Grey Box | 0.00 | 0.13 | 0.01 | 0.01 | 0.04 | 0.06 | 0.09 | - | - | 0.01% |
| Books | hard covered | Grey Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00% |
| Kraft Paper | paper bags | Grey Box | 0.00 | 0.00 | 0.14 | 0.34 | 0.12 | 0.16 | 0.25 | - | - | 0.05% |
| Spiral Wound | frozen juice, pringles type packaging | None | 0.01 | 0.00 | 0.00 | 0.04 | 0.01 | 0.02 | 0.03 | - | - | 0.00% |
| Tissue/Toweling | tissues, napkins, paper towels | Green Bin | 0.65 | 0.39 | 0.01 | 0.01 | 0.26 | 0.31 | 0.52 | - | - | 0.11% |
| Other Paper | multi-layered, waxed, wrapping | None | 0.03 | 0.41 | 0.21 | 0.73 | 0.35 | 0.30 | 0.59 | - | - | 0.14% |
| Gable Top Cartons | milk, juice | Blue Box | 0.03 | 0.01 | 0.01 | 0.03 | 0.02 | 0.01 | 0.03 | 0.00 | 0.03 | 0.01% |
| Aseptic Containers | tetra type packaging | Blue Box | 0.14 | 0.03 | 0.01 | 0.00 | 0.05 | 0.07 | 0.10 | - | - | 0.02% |
| Sub Total | | | 2.42 | 1.68 | 8.95 | 2.41 | 3.86 | 3.41 | 6.66 | - | - | 1.54% |
| Sub Total Percentage of Total | | | 1.18% | 0.63% | 2.92% | 1.07% | 1.54% | | | | | |

| Constituent Material | Description | Collection Program | Group 1 | Group 2 | Group 3 | Group 4 | Average | Standard Deviation | 90% Confidence Interval (kg/hhd/yr) | | | Percent of Average |
|-------------------------------|---|--------------------|---------|---------|---------|---------|---------|--------------------|-------------------------------------|--------------------|--------------------|--------------------|
| | | | | | | | | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 2. Plastics | | | | | | | | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | Blue Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | Blue Box | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | - | - | 0.00% |
| PETE Other Packaging | #1 bakery, strawberry trays, egg cartons | None | 0.01 | 0.01 | 0.07 | 0.00 | 0.02 | 0.03 | 0.05 | - | - | 0.01% |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | Blue Box | 0.00 | 0.07 | 0.03 | 0.00 | 0.02 | 0.03 | 0.05 | - | - | 0.01% |
| PVC Bottles | # 3 bottles | None | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | - | - | 0.00% |
| LDPE & PP Bottles | # 4 and # 5 bottles | None | 0.02 | 0.07 | 0.00 | 0.00 | 0.02 | 0.03 | 0.05 | - | - | 0.01% |
| #7 Bottles | #7 bottles and jugs | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Polystyrene | # 6 trays, cups, lids, packaging | None | 0.04 | 0.17 | 0.46 | 0.08 | 0.19 | 0.19 | 0.34 | - | - | 0.07% |
| Wide Mouth Tubs & Lids | # 2, #4, #5 tubs and lids | None | 0.02 | 0.03 | 0.01 | 0.03 | 0.02 | 0.01 | 0.03 | 0.01 | 0.04 | 0.01% |
| Recyclable Film | shopping bags, milk bags | None | 3.12 | 4.23 | 6.63 | 3.78 | 4.44 | 1.53 | 5.69 | 2.64 | 6.24 | 1.77% |
| Non-Recyclable Film | garbage bags, chip bags, pasta bags, plastic wrap | None | 2.00 | 2.65 | 1.07 | 0.73 | 1.61 | 0.87 | 2.33 | 0.58 | 2.64 | 0.64% |
| Other Bottles | pesticides, oil, lubricants, solvents, anti-freeze | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00% |
| Other Plastic Packaging | blister packaging and other unmarked packaging | None | 0.01 | 0.03 | 0.22 | 0.23 | 0.12 | 0.12 | 0.22 | - | - | 0.05% |
| Durable Plastic Products | non-packaging such as VCR tapes, toys, garden hose | None | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Sub Total | | | 5.21 | 7.25 | 8.52 | 4.86 | 6.46 | 1.73 | 7.88 | 4.42 | 8.50 | 2.57% |
| Sub Total Percentage of Total | | | 2.54% | 2.70% | 2.78% | 2.16% | 2.57% | | | | | |

| Constituent Material | Description | Collection Program | Group 1 | Group 2 | Group 3 | Group 4 | Average | Standard Deviation | 90% Confidence Interval (kg/hhd/yr) | | | Percent of Average |
|-------------------------------|-------------------------------|--------------------|---------|---------|---------|---------|---------|--------------------|-------------------------------------|--------------------|--------------------|--------------------|
| | | | | | | | | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 3. Metals | | | | | | | | | | | | |
| Aluminum Cans | food & beverage cans | Blue Box | 0.00 | 0.11 | 0.00 | 0.07 | 0.04 | 0.05 | 0.09 | - | - | 0.02% |
| Aluminum Foil Trays | pie plates, etc | Blue Box | 0.01 | 0.01 | 0.04 | 0.03 | 0.02 | 0.02 | 0.03 | 0.00 | 0.04 | 0.01% |
| Steel Cans | food & beverage cans | Blue Box | 0.01 | 0.34 | 0.20 | 0.11 | 0.17 | 0.14 | 0.28 | 0.00 | 0.33 | 0.07% |
| Aerosol Cans | empty cans only | Blue Box | 0.00 | 0.00 | 0.07 | 0.00 | 0.02 | 0.03 | 0.04 | - | - | 0.01% |
| Paint Cans | empty cans only | Blue Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Other Metal | scrap metal, other containers | None | 0.01 | 0.16 | 0.78 | 0.12 | 0.26 | 0.35 | 0.55 | - | - | 0.11% |
| Sub Total | | | 0.03 | 0.61 | 1.09 | 0.32 | 0.51 | 0.45 | 0.88 | - | - | 0.20% |
| Sub Total Percentage of Total | | | 0.01% | 0.23% | 0.35% | 0.14% | 0.20% | | | | | |

| Green Bin Program Materials Collection & Composition | | | | | | | | | | | | | | |
|--|--|--------------------|--|---------------|---------------|---------------|---------------|--|-----------------|--------------------|--------------------|--------------------|-------|-------|
| Group 1, 2, 3, 4 | | | Etobicoke Waste Audit Spring 2003 April 22 - May 16, 2003 | | | | | *t* critical (90%, df=3) one-tailed two-tailed 1.638 2.353 | | | | | | |
| Constituent Material | Description | Collection Program | Collection (kg/hhd/yr) | | | | | 90% Confidence Interval (kg/hhd/yr) | | | | | | |
| | | | Group 1 | Group 2 | Group 3 | Group 4 | Average | Standard Deviation | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | Percent of Average | | |
| 4. Glass | | | | | | | | | | | | | | |
| LCBO Clear | clear glass alcoholic beverages | Blue Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% | |
| LCBO Coloured | coloured glass alcoholic beverages | Blue Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% | |
| Clear | food & beverage containers | Blue Box | 0.20 | 0.00 | 0.02 | 0.13 | 0.09 | 0.09 | 0.09 | 0.16 | - | - | 0.03% | |
| Coloured | food & beverage containers | Blue Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% | |
| Other Glass | lightbulbs, window glass, ceramics | None | 0.00 | 0.00 | 0.01 | 0.13 | 0.03 | 0.06 | 0.09 | 0.09 | - | - | 0.01% | |
| Sub Total | | | 0.20 | 0.00 | 0.03 | 0.26 | 0.12 | 0.13 | 0.22 | - | - | - | 0.05% | |
| Sub Total Percentage of Total | | | 0.09% | 0.00% | 0.01% | 0.12% | 0.05% | | | | | | | |
| 5. Household Special Wastes | | | | | | | | | | | | | | |
| Batteries | all types | None | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | - | - | 0.00% | |
| Paint | unemptied containers | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% | |
| Motor Oil | used oil, filters | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% | |
| Flammables | starter fluid, solvents | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% | |
| Unemptied aerosol cans | all types | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% | |
| Other HSW | sharps, drugs, acids, antifreeze | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% | |
| Sub Total | | | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | - | - | - | 0.00% |
| Sub Total Percentage of Total | | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | |
| 6. Source Separated Organics | | | | | | | | | | | | | | |
| Processible Organics | As specified in Green Bin Program (excluding diapers) | Green Bin | 193.05 | 224.82 | 275.93 | 202.74 | 224.13 | 37.00 | 254.43 | 180.60 | 267.67 | 89.17% | | |
| Diapers | | Green Bin | 3.32 | 29.43 | 9.17 | 12.09 | 13.50 | 11.23 | 22.70 | 0.29 | 26.72 | 5.37% | | |
| Grass | grass clippings (if can be easily separated) | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% | | |
| Woody Yard Waste | brush, branches, wood chips | Yard Waste | 0.00 | 0.00 | 0.14 | 0.07 | 0.05 | 0.07 | 0.10 | - | - | 0.02% | | |
| Other Yard Waste | leaves, soil, garden wastes (if can be easily separated) | Yard Waste | 0.00 | 3.77 | 0.00 | 0.00 | 0.94 | 1.89 | 2.49 | - | - | 0.37% | | |
| Sub Total | | | 196.37 | 258.02 | 285.23 | 214.89 | 238.63 | 40.41 | 271.72 | 191.08 | 286.17 | 94.94% | | |
| Sub Total Percentage of Total | | | 95.63% | 96.02% | 92.91% | 95.78% | 94.94% | | | | | | | |
| 7. Other Waste Materials | | | | | | | | | | | | | | |
| Textiles | clothing, shoes, carpets, bedding | None | 0.52 | 0.60 | 0.47 | 0.88 | 0.62 | 0.18 | 0.77 | 0.41 | 0.83 | 0.25% | | |
| Building Renovations | drywall, lumber, flooring | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% | | |
| Furniture | sofas, chairs, cabinets | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% | | |
| Electronics/Appliances | small appliances, computers, radios | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% | | |
| Rubber | tires, mats, tubing | None | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% | | |
| Wood ashes | fireplaces & wood stoves | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% | | |
| Non-Classifiable | materials not classified elsewhere | None | 0.60 | 0.55 | 2.68 | 0.75 | 1.14 | 1.03 | 1.98 | - | - | 0.45% | | |
| Sub Total | | | 1.12 | 1.15 | 3.15 | 1.63 | 1.76 | 0.95 | 2.54 | 0.64 | 2.89 | 0.70% | | |
| Sub Total Percentage of Total | | | 0.55% | 0.43% | 1.03% | 0.72% | 0.70% | | | | | | | |
| TOTAL | | | 205.34 | 268.72 | 306.98 | 224.35 | 251.35 | 45.62 | 288.70 | 197.67 | 305.03 | | | |

Green Bin Program Materials Collection & Composition

Group 1, 2, 3, 4

Etobicoke Waste Audit Spring 2003
April 22 - May 16, 2003*t* critical (90%, df=3)
one-tailed two-tailed
1.638 2.353

| No. of Participating Households | Group 1 | Group 2 | Group 3 | Group 4 | Total |
|---------------------------------|---------|---------|---------|---------|-------|
| | 17 | 16 | 16 | 16 | 65 |

| Constituent Material | Description | Collection Program | Participating Households Only Collection (kg/hhld/yr) | | | | | | 90% Confidence Interval (kg/hhld/yr) | | | Percent of Average |
|-------------------------------|---------------------------------------|--------------------|---|---------|---------|---------|---------|--------------------|--------------------------------------|--------------------|--------------------|--------------------|
| | | | Group 1 | Group 2 | Group 3 | Group 4 | Average | Standard Deviation | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 1. Paper Fibres | | | | | | | | | | | | |
| Newspaper | ONP, inserts | Grey Box | 0.46 | 0.16 | 9.75 | 0.93 | 2.82 | 4.63 | 6.61 | - | - | 0.91% |
| Magazines / paperbacks | OMG, catalogues, soft covers | Grey Box | 1.38 | 0.08 | 0.00 | 0.00 | 0.36 | 0.68 | 0.92 | - | - | 0.12% |
| Phone Books | OTB | Grey Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Cardboard | OCC | Grey Box | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.01 | 0.01 | - | - | 0.00% |
| Boxboard/Rolls | OBB | Grey Box | 0.01 | 0.58 | 0.63 | 0.24 | 0.37 | 0.29 | 0.61 | 0.02 | 0.71 | 0.12% |
| Mixed Papers | junk mail, fine household papers | Grey Box | 0.00 | 0.07 | 0.33 | 0.36 | 0.19 | 0.18 | 0.34 | - | - | 0.06% |
| Molded Pulp | egg cartons, drink trays | Grey Box | 0.00 | 0.16 | 0.01 | 0.02 | 0.05 | 0.08 | 0.11 | - | - | 0.02% |
| Books | hard covered | Grey Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Kraft Paper | paper bags | Grey Box | 0.00 | 0.00 | 0.17 | 0.42 | 0.15 | 0.20 | 0.31 | - | - | 0.05% |
| Spiral Wound | frozen juice, pringles type packaging | None | 0.01 | 0.00 | 0.00 | 0.05 | 0.01 | 0.02 | 0.03 | - | - | 0.00% |
| Tissue/Toweling | tissues, napkins, paper towels | Green Bin | 0.76 | 0.49 | 0.01 | 0.02 | 0.32 | 0.37 | 0.62 | - | - | 0.10% |
| Other Paper | multi-layered, waxed, wrapping | None | 0.03 | 0.51 | 0.27 | 0.92 | 0.43 | 0.38 | 0.74 | - | - | 0.14% |
| Gable Top Cartons | milk, juice | Blue Box | 0.03 | 0.01 | 0.01 | 0.04 | 0.02 | 0.02 | 0.04 | 0.00 | 0.04 | 0.01% |
| Aseptic Containers | tetra type packaging | Blue Box | 0.17 | 0.04 | 0.01 | 0.00 | 0.05 | 0.08 | 0.12 | - | - | 0.02% |
| Sub Total | | | 2.84 | 2.10 | 11.19 | 3.01 | 4.79 | 4.29 | 8.30 | - | - | 1.54% |
| Sub Total Percentage of Total | | | 1.18% | 0.63% | 2.92% | 1.07% | 1.54% | | | | | |

| Constituent Material | Description | Collection Program | Group 1 | Group 2 | Group 3 | Group 4 | Average | Standard Deviation | 90% Confidence Interval (kg/hhld/yr) | | | Percent of Average |
|-------------------------------|---|--------------------|---------|---------|---------|---------|---------|--------------------|--------------------------------------|--------------------|--------------------|--------------------|
| | | | | | | | | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 2. Plastics | | | | | | | | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | Blue Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | Blue Box | 0.00 | 0.01 | 0.02 | 0.00 | 0.01 | 0.01 | 0.01 | - | - | 0.00% |
| PETE Other Packaging | #1 bakery, strawberry trays, egg cartons | None | 0.01 | 0.02 | 0.08 | 0.00 | 0.03 | 0.04 | 0.06 | - | - | 0.01% |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | Blue Box | 0.00 | 0.08 | 0.03 | 0.00 | 0.03 | 0.04 | 0.06 | - | - | 0.01% |
| PVC Bottles | # 3 bottles | None | 0.00 | 0.00 | 0.02 | 0.00 | 0.01 | 0.01 | 0.02 | - | - | 0.00% |
| LDPE & PP Bottles | # 4 and # 5 bottles | None | 0.02 | 0.08 | 0.00 | 0.00 | 0.03 | 0.04 | 0.06 | - | - | 0.01% |
| #7 Bottles | #7 bottles and jugs | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Polystyrene | # 6 trays, cups, lids, packaging | None | 0.05 | 0.21 | 0.58 | 0.11 | 0.23 | 0.24 | 0.43 | - | - | 0.08% |
| Wide Mouth Tubs & Lids | # 2, #4, #5 tubs and lids | None | 0.02 | 0.04 | 0.02 | 0.04 | 0.03 | 0.01 | 0.04 | 0.02 | 0.04 | 0.01% |
| Recyclable Film | shopping bags, milk bags | None | 3.67 | 5.29 | 8.29 | 4.72 | 5.49 | 1.98 | 7.11 | 3.16 | 7.82 | 1.77% |
| Non-Recyclable Film | garbage bags, chip bags, pasta bags, plastic wrap | None | 2.36 | 3.31 | 1.33 | 0.92 | 1.98 | 1.07 | 2.86 | 0.72 | 3.24 | 0.64% |
| Other Bottles | pesticides, oil, lubricants, solvents, anti-freeze | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Other Plastic Packaging | blister packaging and other unmarked packaging | None | 0.01 | 0.03 | 0.28 | 0.28 | 0.15 | 0.15 | 0.27 | - | - | 0.05% |
| Durable Plastic Products | non-packaging such as VCR tapes, toys, garden hose | None | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | - | - | 0.00% |
| Sub Total | | | 6.13 | 9.07 | 10.65 | 6.07 | 7.98 | 2.26 | 9.84 | 5.32 | 10.65 | 2.57% |
| Sub Total Percentage of Total | | | 2.54% | 2.70% | 2.78% | 2.16% | 2.57% | | | | | |

| Constituent Material | Description | Collection Program | Group 1 | Group 2 | Group 3 | Group 4 | Average | Standard Deviation | 90% Confidence Interval (kg/hhld/yr) | | | Percent of Average |
|-------------------------------|-------------------------------|--------------------|---------|---------|---------|---------|---------|--------------------|--------------------------------------|--------------------|--------------------|--------------------|
| | | | | | | | | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 3. Metals | | | | | | | | | | | | |
| Aluminum Cans | food & beverage cans | Blue Box | 0.00 | 0.14 | 0.00 | 0.08 | 0.05 | 0.07 | 0.11 | - | - | 0.02% |
| Aluminum Foil Trays | pie plates, etc | Blue Box | 0.01 | 0.01 | 0.05 | 0.03 | 0.02 | 0.02 | 0.04 | 0.00 | 0.05 | 0.01% |
| Steel Cans | food & beverage cans | Blue Box | 0.02 | 0.42 | 0.25 | 0.14 | 0.21 | 0.17 | 0.35 | 0.00 | 0.41 | 0.07% |
| Aerosol Cans | empty cans only | Blue Box | 0.00 | 0.00 | 0.08 | 0.00 | 0.02 | 0.04 | 0.05 | - | - | 0.01% |
| Paint Cans | empty cans only | Blue Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Other Metal | scrap metal, other containers | None | 0.01 | 0.20 | 0.98 | 0.15 | 0.33 | 0.44 | 0.69 | - | - | 0.11% |
| Sub Total | | | 0.03 | 0.76 | 1.36 | 0.40 | 0.64 | 0.57 | 1.10 | - | - | 0.21% |
| Sub Total Percentage of Total | | | 0.01% | 0.23% | 0.35% | 0.14% | 0.21% | | | | | |

| Green Bin Program Materials Collection & Composition | | | | | | | | | | | | |
|--|--|--------------------|--|---------------|---------------|---------------|---------------|--|-------------------------------------|--------------------|--------------------|--------------------|
| Group 1, 2, 3, 4 | | | Etobicoke Waste Audit Spring 2003 April 22 - May 16, 2003 | | | | | "t" critical (90%, df=3) one-tailed two-tailed 1.638 2.353 | | | | |
| Constituent Material | Description | Collection Program | Collection (kg/hhd/yr) | | | | | Standard Deviation | 90% Confidence Interval (kg/hhd/yr) | | | Percent of Average |
| | | | Group 1 | Group 2 | Group 3 | Group 4 | Average | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 4. Glass | | | | | | | | | | | | |
| LCBO Clear | clear glass alcoholic beverages | Blue Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| LCBO Coloured | coloured glass alcoholic beverages | Blue Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Clear | food & beverage containers | Blue Box | 0.23 | 0.00 | 0.02 | 0.16 | 0.10 | 0.11 | 0.19 | - | - | 0.03% |
| Coloured | food & beverage containers | Blue Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Other Glass | lightbulbs, window glass, ceramics | None | 0.00 | 0.00 | 0.01 | 0.16 | 0.04 | 0.08 | 0.11 | - | - | 0.01% |
| Sub Total | | | 0.23 | 0.00 | 0.03 | 0.33 | 0.15 | 0.16 | 0.27 | - | - | 0.05% |
| Sub Total Percentage of Total | | | 0.09% | 0.00% | 0.01% | 0.12% | 0.05% | | | | | |
| 5. Household Special Wastes | | | | | | | | | | | | |
| Batteries | all types | None | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | - | - | 0.00% |
| Paint | unemptied containers | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Motor Oil | used oil, filters | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Flammables | starter fluid, solvents | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Unemptied aerosol cans | all types | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Other HSW | sharps, drugs, acids, antifreeze | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Sub Total | | | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | - | - | 0.00% |
| Sub Total Percentage of Total | | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | |
| 6. Source Separated Organics | | | | | | | | | | | | |
| Processible Organics | As specified in Green Bin Program (excluding diapers) | Green Bin | 227.12 | 281.03 | 344.91 | 253.42 | 276.62 | 50.57 | 318.03 | 217.12 | 336.12 | 89.11% |
| Diapers | | Green Bin | 3.90 | 36.79 | 11.46 | 15.11 | 16.82 | 14.11 | 28.37 | 0.21 | 33.42 | 5.42% |
| Grass | grass clippings (if can be easily separated) | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Woody Yard Waste | brush, branches, wood chips | Yard Waste | 0.00 | 0.00 | 0.17 | 0.08 | 0.06 | 0.08 | 0.13 | - | - | 0.02% |
| Other Yard Waste | leaves, soil, garden wastes (if can be easily separated) | Yard Waste | 0.00 | 4.71 | 0.00 | 0.00 | 1.18 | 2.36 | 3.11 | - | - | 0.38% |
| Sub Total | | | 231.02 | 322.53 | 356.54 | 268.61 | 294.68 | 55.78 | 340.35 | 229.04 | 360.31 | 94.93% |
| Sub Total Percentage of Total | | | 95.63% | 96.02% | 92.91% | 95.78% | 94.93% | | | | | |
| 7. Other Waste Materials | | | | | | | | | | | | |
| Textiles | clothing, shoes, carpets, bedding | None | 0.61 | 0.76 | 0.59 | 1.10 | 0.76 | 0.23 | 0.96 | 0.49 | 1.04 | 0.25% |
| Building Renovations | drywall, lumber, flooring | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Furniture | sofas, chairs, cabinets | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Electronics/Appliances | small appliances, computers, radios | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Rubber | tires, mats, tubing | None | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00% |
| Wood ashes | fireplaces & wood stoves | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Non-Classifiable | materials not classified elsewhere | None | 0.70 | 0.68 | 3.35 | 0.93 | 1.42 | 1.29 | 2.48 | - | - | 0.46% |
| Sub Total | | | 1.32 | 1.44 | 3.94 | 2.03 | 2.18 | 1.21 | 3.18 | 0.76 | 3.61 | 0.70% |
| Sub Total Percentage of Total | | | 0.55% | 0.43% | 1.03% | 0.72% | 0.70% | | | | | |
| TOTAL | | | 241.58 | 335.90 | 383.73 | 280.44 | 310.41 | 62.35 | 361.47 | 237.05 | 383.78 | |

Notes:
The "Collection Program" column indicates the program, if any, for which each constituent material is solicited.

APPENDIX F:

BLUE/GREY BOX PROGRAM MATERIALS COLLECTION AND COMPOSITION

Blue/Grey Box Program Materials Collection & Composition

Group 1, 2, 3, 4
Etobicoke Waste Audit Spring 2003
April 22 - 25, May 6 - 8, 2003

"t" critical (90%, df=3)
one-tailed two-tailed
1.638 2.353

| Constituent Material | Description | Collection Program | Collection (kg/hhd/yr) | | | | | Standard Deviation | 90% Confidence Interval (kg/hhd/yr) | | | Percent of Average |
|-------------------------------|---------------------------------------|--------------------|------------------------|---------|---------|---------|---------|--------------------|-------------------------------------|--------------------|--------------------|--------------------|
| | | | Group 1 | Group 2 | Group 3 | Group 4 | Average | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 1. Paper Fibres | | | | | | | | | | | | |
| Newspaper | ONP, inserts | Grey Box | 124.02 | 145.15 | 105.89 | 108.03 | 120.77 | 18.15 | 135.63 | 99.41 | 142.13 | 40.60% |
| Magazines / paperbacks | OMG, catalogues, soft covers | Grey Box | 12.74 | 12.94 | 12.81 | 13.13 | 12.90 | 0.17 | 13.04 | 12.70 | 13.10 | 4.34% |
| Phone Books | OTB | Grey Box | 11.18 | 4.55 | 4.10 | 1.43 | 5.31 | 4.15 | 8.71 | 0.44 | 10.19 | 1.79% |
| Cardboard | OCC | Grey Box | 59.54 | 53.37 | 28.49 | 21.32 | 40.68 | 18.62 | 55.93 | 18.77 | 62.59 | 13.67% |
| Boxboard/Rolls | OBB | Grey Box | 22.17 | 17.29 | 23.60 | 19.37 | 20.61 | 2.82 | 22.92 | 17.28 | 23.93 | 6.93% |
| Mixed Papers | junk mail, fine household papers | Grey Box | 19.89 | 19.89 | 10.40 | 21.78 | 17.99 | 5.14 | 22.19 | 11.94 | 24.03 | 6.05% |
| Molded Pulp | egg cartons, drink trays | Grey Box | 0.99 | 1.00 | 0.99 | 1.12 | 1.03 | 0.06 | 1.08 | 0.96 | 1.10 | 0.35% |
| Books | hard covered | Grey Box | 0.00 | 0.00 | 0.20 | 0.72 | 0.23 | 0.34 | 0.50 | - | - | 0.08% |
| Kraft Paper | paper bags | Grey Box | 0.52 | 0.54 | 0.47 | 2.37 | 0.98 | 0.93 | 1.74 | - | - | 0.33% |
| Spiral Wound | frozen juice, pringles type packaging | None | 0.41 | 0.21 | 0.61 | 0.21 | 0.36 | 0.19 | 0.52 | 0.14 | 0.59 | 0.12% |
| Tissue/Toweling | tissues, napkins, paper towels | Green Bin | 0.13 | 0.00 | 0.39 | 0.20 | 0.18 | 0.16 | 0.31 | - | - | 0.06% |
| Other Paper | multi-layered, waxed, wrapping | None | 0.59 | 4.02 | 1.20 | 0.66 | 1.62 | 1.63 | 2.95 | - | - | 0.54% |
| Gable Top Cartons | milk, juice | Blue Box | 1.83 | 2.62 | 1.59 | 0.78 | 1.70 | 0.76 | 2.32 | 0.81 | 2.59 | 0.57% |
| Aseptic Containers | tetra type packaging | Blue Box | 0.10 | 0.32 | 0.22 | 0.27 | 0.23 | 0.09 | 0.30 | 0.12 | 0.34 | 0.08% |
| Sub Total | | | 254.11 | 261.89 | 190.94 | 191.39 | 224.58 | 38.72 | 256.29 | 179.02 | 270.14 | 75.50% |
| Sub Total Percentage of Total | | | 77.45% | 77.31% | 72.89% | 73.30% | 75.50% | | | | | |

| Constituent Material | Description | Collection Program | Collection (kg/hhd/yr) | | | | | Standard Deviation | 90% Confidence Interval (kg/hhd/yr) | | | Percent of Average |
|-------------------------------|---|--------------------|------------------------|---------|---------|---------|---------|--------------------|-------------------------------------|--------------------|--------------------|--------------------|
| | | | Group 1 | Group 2 | Group 3 | Group 4 | Average | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 2. Plastics | | | | | | | | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | Blue Box | 3.85 | 0.80 | 1.58 | 0.31 | 1.64 | 1.57 | 2.92 | - | - | 0.55% |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | Blue Box | 4.03 | 5.85 | 5.46 | 5.43 | 5.19 | 0.80 | 5.85 | 4.25 | 6.13 | 1.75% |
| PETE Other Packaging | #1 bakery, strawberry trays, egg cartons | None | 0.42 | 0.48 | 0.88 | 0.63 | 0.60 | 0.21 | 0.77 | 0.36 | 0.85 | 0.20% |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | Blue Box | 3.12 | 5.14 | 3.93 | 2.94 | 3.78 | 1.00 | 4.60 | 2.60 | 4.96 | 1.27% |
| PVC Bottles | # 3 bottles | None | 0.07 | 0.32 | 0.26 | 0.38 | 0.26 | 0.14 | 0.37 | 0.10 | 0.41 | 0.09% |
| LDPE & PP Bottles | # 4 and # 5 bottles | None | 1.17 | 0.41 | 0.51 | 0.03 | 0.53 | 0.48 | 0.92 | - | - | 0.18% |
| #7 Bottles | #7 bottles and jugs | None | 0.00 | 0.08 | 0.33 | 0.03 | 0.11 | 0.15 | 0.23 | - | - | 0.04% |
| Polystyrene | # 6 trays, cups, lids, packaging | None | 0.13 | 0.89 | 0.96 | 0.57 | 0.64 | 0.38 | 0.95 | 0.19 | 1.08 | 0.21% |
| Wide Mouth Tubs & Lids | # 2, #4, #5 tubs and lids | None | 0.78 | 1.18 | 1.72 | 1.38 | 1.26 | 0.39 | 1.58 | 0.80 | 1.72 | 0.43% |
| Recyclable Film | shopping bags, milk bags | None | 0.65 | 0.85 | 2.74 | 0.33 | 1.14 | 1.09 | 2.03 | - | - | 0.38% |
| Non-Recyclable Film | garbage bags, chip bags, pasta bags, plastic wrap | None | 0.01 | 0.18 | 1.19 | 0.08 | 0.36 | 0.56 | 0.82 | - | - | 0.12% |
| Other Bottles | pesticides, oil, lubricants, solvents, anti-freeze | None | 0.00 | 0.13 | 0.38 | 0.40 | 0.23 | 0.20 | 0.39 | - | - | 0.08% |
| Other Plastic Packaging | blister packaging and other unmarked packaging | None | 1.77 | 0.86 | 1.14 | 1.49 | 1.31 | 0.40 | 1.64 | 0.84 | 1.79 | 0.44% |
| Durable Plastic Products | non-packaging such as VCR tapes, toys, garden hose | None | 1.17 | 1.82 | 2.05 | 1.12 | 1.54 | 0.47 | 1.92 | 0.99 | 2.09 | 0.52% |
| Sub Total | | | 17.17 | 18.97 | 23.11 | 15.11 | 18.59 | 3.40 | 21.37 | 14.59 | 22.59 | 6.25% |
| Sub Total Percentage of Total | | | 5.23% | 5.60% | 8.82% | 5.79% | 6.25% | | | | | |

| Constituent Material | Description | Collection Program | Collection (kg/hhd/yr) | | | | | Standard Deviation | 90% Confidence Interval (kg/hhd/yr) | | | Percent of Average |
|-------------------------------|-------------------------------|--------------------|------------------------|---------|---------|---------|---------|--------------------|-------------------------------------|--------------------|--------------------|--------------------|
| | | | Group 1 | Group 2 | Group 3 | Group 4 | Average | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 3. Metals | | | | | | | | | | | | |
| Aluminum Cans | food & beverage cans | Blue Box | 6.24 | 4.49 | 2.52 | 5.22 | 4.62 | 1.57 | 5.90 | 2.76 | 6.47 | 1.55% |
| Aluminum Foil Trays | pie plates, etc | Blue Box | 0.42 | 0.22 | 0.01 | 0.05 | 0.17 | 0.19 | 0.33 | - | - | 0.06% |
| Steel Cans | food & beverage cans | Blue Box | 5.09 | 10.73 | 10.21 | 7.93 | 8.49 | 2.57 | 10.59 | 5.46 | 11.51 | 2.85% |
| Aerosol Cans | empty cans only | Blue Box | 0.20 | 0.65 | 0.07 | 1.17 | 0.52 | 0.50 | 0.93 | - | - | 0.17% |
| Paint Cans | empty cans only | Blue Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00% |
| Other Metal | scrap metal, other containers | None | 1.04 | 1.43 | 0.30 | 0.66 | 0.86 | 0.49 | 1.26 | 0.28 | 1.43 | 0.29% |
| Sub Total | | | 12.98 | 17.51 | 13.10 | 15.02 | 14.65 | 2.12 | 16.39 | 12.15 | 17.15 | 4.93% |
| Sub Total Percentage of Total | | | 3.96% | 5.17% | 5.00% | 5.75% | 4.93% | | | | | |

| Blue/Grey Box Program Materials Collection & Composition | | | | | | | | | | | | |
|--|-------------------------------------|---|------------------------|---------------|---------------|---------------|---------------|--|-----------------|--------------------|--------------------|--------------------|
| Group 1, 2, 3, 4 | | Etobicoke Waste Audit Spring 2003 April 22 - 25, May 6 - 8, 2003 | | | | | | "t" critical (90%, df=3) one-tailed two-tailed 1.638 2.353 | | | | |
| Constituent Material | Description | Collection Program | Collection (kg/hhd/yr) | | | | | 90% Confidence Interval (kg/hhd/yr) | | | Percent of Average | |
| | | | Group 1 | Group 2 | Group 3 | Group 4 | Average | Standard Deviation | one-tailed (<=) | two-tailed (lower) | | two-tailed (upper) |
| 4. Glass | | | | | | | | | | | | |
| LCBO Clear | clear glass alcoholic beverages | Blue Box | 7.09 | 6.24 | 1.89 | 4.42 | 4.91 | 2.30 | 6.79 | 2.20 | 7.62 | 1.65% |
| LCBO Coloured | coloured glass alcoholic beverages | Blue Box | 19.37 | 13.20 | 6.05 | 15.99 | 13.65 | 5.66 | 18.29 | 6.99 | 20.31 | 4.59% |
| Clear | food & beverage containers | Blue Box | 13.00 | 15.54 | 11.12 | 14.50 | 13.54 | 1.92 | 15.11 | 11.28 | 15.80 | 4.55% |
| Coloured | food & beverage containers | Blue Box | 2.41 | 0.78 | 6.05 | 2.54 | 2.94 | 2.22 | 4.76 | 0.33 | 5.55 | 0.99% |
| Other Glass | lightbulbs, window glass, ceramics | None | 0.59 | 0.07 | 0.88 | 0.46 | 0.50 | 0.34 | 0.77 | 0.10 | 0.89 | 0.17% |
| Sub Total | | | 42.45 | 35.82 | 25.97 | 37.90 | 35.53 | 6.95 | 41.23 | 27.35 | 43.71 | 11.94% |
| Sub Total Percentage of Total | | | 12.94% | 10.57% | 9.91% | 14.51% | 11.94% | | | | | |
| 5. Household Special Wastes | | | | | | | | | | | | |
| Batteries | all types | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Paint | unemptied containers | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Motor Oil | used oil, filters | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Flammables | starter fluid, solvents | None | 0.00 | 0.00 | 0.46 | 0.00 | 0.11 | 0.23 | 0.30 | - | - | 0.04% |
| Unemptied aerosol cans | all types | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Other HSW | sharps, drugs, acids, antifreeze | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Sub Total | | | 0.00 | 0.00 | 0.46 | 0.00 | 0.11 | 0.23 | 0.30 | - | - | 0.04% |
| Sub Total Percentage of Total | | | 0.00% | 0.00% | 0.17% | 0.00% | 0.04% | | | | | |
| 6. Organics | | | | | | | | | | | | |
| Vegetable Food Waste | vegetable and fruit peelings | Green Bin | 0.00 | 0.07 | 0.07 | 0.00 | 0.03 | 0.04 | 0.06 | - | - | 0.01% |
| Animal Food Waste | meats, fats, oils | Green Bin | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Animal waste | feces, animal litter and bedding | Green Bin | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Sanitary Products | diapers, napkins | Green Bin | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Grass | grass clippings | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Woody Yard Waste | brush, branches, wood chips | Yard Waste | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Other Yard Waste | leaves, soil, garden wastes | Yard Waste | 0.07 | 0.13 | 0.00 | 0.00 | 0.05 | 0.06 | 0.10 | - | - | 0.02% |
| Sub Total | | | 0.07 | 0.20 | 0.07 | 0.00 | 0.08 | 0.08 | 0.15 | - | - | 0.03% |
| Sub Total Percentage of Total | | | 0.02% | 0.06% | 0.02% | 0.00% | 0.03% | | | | | |
| 7. Other Waste Materials | | | | | | | | | | | | |
| Textiles | clothing, shoes, carpets, bedding | None | 0.00 | 0.00 | 0.03 | 0.07 | 0.02 | 0.03 | 0.05 | - | - | 0.01% |
| Building Renovations | drywall, lumber, flooring | None | 0.00 | 0.39 | 0.65 | 0.07 | 0.28 | 0.30 | 0.52 | - | - | 0.09% |
| Furniture | sofas, chairs, cabinets | None | 0.59 | 0.00 | 0.00 | 0.00 | 0.15 | 0.29 | 0.39 | - | - | 0.05% |
| Electronics/Appliances | small appliances, computers, radios | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Rubber | tires, mats, tubing | None | 0.00 | 0.00 | 0.00 | 0.07 | 0.02 | 0.03 | 0.04 | - | - | 0.01% |
| Wood ashes | fireplaces & wood stoves | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Non-Classifiable | materials not classified elsewhere | None | 0.72 | 3.97 | 7.63 | 1.51 | 3.46 | 3.11 | 6.00 | - | - | 1.16% |
| Sub Total | | | 1.30 | 4.36 | 8.31 | 1.70 | 3.92 | 3.23 | 6.56 | 0.12 | 7.71 | 1.32% |
| Sub Total Percentage of Total | | | 0.40% | 1.29% | 3.17% | 0.65% | 1.32% | | | | | |
| TOTAL | | | 328.08 | 338.75 | 261.94 | 261.12 | 297.47 | 41.73 | 331.64 | 248.36 | 346.58 | |

Blue/Grey Box Program Materials Collection & Composition

Group 1, 2, 3, 4
 Etobicoke Waste Audit Spring 2003
 April 22 - 25, May 6 - 8, 2003

"t" critical (90%, df=3)
 one-tailed two-tailed
 1.638 2.353

| No. of Participating Households | Group 1 | Group 2 | Group 3 | Group 4 | Total |
|---------------------------------|---------|---------|---------|---------|-------|
| | 19 | 18 | 18 | 18 | 73 |

| Constituent Material | Description | Collection Program | Participating Households Only Collection (kg/hhld/yr) | | | | | Standard Deviation | 90% Confidence Interval (kg/hhld/yr) | | | Percent of Average |
|-------------------------------|---------------------------------------|--------------------|---|---------|---------|---------|---------|--------------------|--------------------------------------|--------------------|--------------------|--------------------|
| | | | Group 1 | Group 2 | Group 3 | Group 4 | Average | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 1. Paper Fibres | | | | | | | | | | | | |
| Newspaper | ONP, inserts | Grey Box | 130.55 | 161.27 | 117.65 | 120.03 | 132.38 | 20.06 | 148.80 | 108.77 | 155.98 | 40.64% |
| Magazines / paperbacks | OMG, catalogues, soft covers | Grey Box | 13.41 | 14.37 | 14.23 | 14.59 | 14.15 | 0.51 | 14.57 | 13.54 | 14.76 | 4.34% |
| Phone Books | OTB | Grey Box | 11.77 | 5.06 | 4.55 | 1.59 | 5.74 | 4.30 | 9.26 | 0.68 | 10.80 | 1.76% |
| Cardboard | OCC | Grey Box | 62.67 | 59.29 | 31.66 | 23.69 | 44.33 | 19.55 | 60.34 | 21.32 | 67.34 | 13.61% |
| Boxboard/Rolls | OB | Grey Box | 23.33 | 19.21 | 26.22 | 21.52 | 22.57 | 2.96 | 24.99 | 19.09 | 26.05 | 6.93% |
| Mixed Papers | junk mail, fine household papers | Grey Box | 20.94 | 22.10 | 11.56 | 24.19 | 19.70 | 5.59 | 24.28 | 13.12 | 26.28 | 6.05% |
| Molded Pulp | egg cartons, drink trays | Grey Box | 1.05 | 1.11 | 1.11 | 1.24 | 1.13 | 0.08 | 1.19 | 1.03 | 1.22 | 0.35% |
| Books | hard covered | Grey Box | 0.00 | 0.00 | 0.22 | 0.79 | 0.25 | 0.38 | 0.56 | - | - | 0.08% |
| Kraft Paper | paper bags | Grey Box | 0.55 | 0.60 | 0.53 | 2.64 | 1.08 | 1.04 | 1.93 | - | - | 0.33% |
| Spiral Wound | frozen juice, pringles type packaging | None | 0.43 | 0.24 | 0.68 | 0.24 | 0.40 | 0.21 | 0.57 | 0.15 | 0.64 | 0.12% |
| Tissue/Toweling | tissues, napkins, paper towels | Green Bin | 0.14 | 0.00 | 0.43 | 0.22 | 0.20 | 0.18 | 0.35 | - | - | 0.06% |
| Other Paper | multi-layered, waxed, wrapping | None | 0.62 | 4.47 | 1.33 | 0.74 | 1.79 | 1.81 | 3.28 | - | - | 0.55% |
| Gable Top Cartons | milk, juice | Blue Box | 1.92 | 2.91 | 1.76 | 0.87 | 1.87 | 0.84 | 2.55 | 0.88 | 2.85 | 0.57% |
| Aseptic Containers | tetra type packaging | Blue Box | 0.11 | 0.35 | 0.25 | 0.30 | 0.25 | 0.11 | 0.34 | 0.13 | 0.38 | 0.08% |
| Sub Total | | | 267.49 | 290.99 | 212.15 | 212.66 | 245.82 | 39.76 | 278.38 | 199.04 | 292.61 | 75.47% |
| Sub Total Percentage of Total | | | 77.45% | 77.31% | 72.89% | 73.30% | 75.47% | | | | | |

| Constituent Material | Description | Collection Program | Group 1 | Group 2 | Group 3 | Group 4 | Average | Standard Deviation | 90% Confidence Interval (kg/hhld/yr) | | | Percent of Average |
|-------------------------------|---|--------------------|---------|---------|---------|---------|---------|--------------------|--------------------------------------|--------------------|--------------------|--------------------|
| | | | | | | | | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 2. Plastics | | | | | | | | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | Blue Box | 4.06 | 0.89 | 1.75 | 0.35 | 1.76 | 1.64 | 3.10 | - | - | 0.54% |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | Blue Box | 4.24 | 6.50 | 6.07 | 6.04 | 5.71 | 1.00 | 6.53 | 4.53 | 6.89 | 1.75% |
| PETE Other Packaging | #1 bakery, strawberry trays, egg cartons | None | 0.44 | 0.53 | 0.98 | 0.70 | 0.67 | 0.24 | 0.86 | 0.39 | 0.94 | 0.20% |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | Blue Box | 3.28 | 5.71 | 4.36 | 3.26 | 4.15 | 1.15 | 5.10 | 2.80 | 5.51 | 1.28% |
| PVC Bottles | # 3 bottles | None | 0.07 | 0.35 | 0.29 | 0.42 | 0.28 | 0.15 | 0.41 | 0.10 | 0.46 | 0.09% |
| LDPE & PP Bottles | # 4 and # 5 bottles | None | 1.23 | 0.46 | 0.56 | 0.03 | 0.57 | 0.50 | 0.98 | - | - | 0.17% |
| #7 Bottles | #7 bottles and jugs | None | 0.00 | 0.09 | 0.36 | 0.03 | 0.12 | 0.17 | 0.25 | - | - | 0.04% |
| Polystyrene | # 6 trays, cups, lids, packaging | None | 0.14 | 0.99 | 1.06 | 0.64 | 0.71 | 0.42 | 1.05 | 0.21 | 1.20 | 0.22% |
| Wide Mouth Tubs & Lids | # 2, #4, #5 tubs and lids | None | 0.82 | 1.31 | 1.91 | 1.53 | 1.39 | 0.45 | 1.76 | 0.86 | 1.93 | 0.43% |
| Recyclable Film | shopping bags, milk bags | None | 0.68 | 0.94 | 3.04 | 0.36 | 1.26 | 1.21 | 2.25 | - | - | 0.39% |
| Non-Recyclable Film | garbage bags, chip bags, pasta bags, plastic wrap | None | 0.01 | 0.20 | 1.32 | 0.09 | 0.40 | 0.62 | 0.91 | - | - | 0.12% |
| Other Bottles | pesticides, oil, lubricants, solvents, anti-freeze | None | 0.00 | 0.14 | 0.43 | 0.45 | 0.25 | 0.22 | 0.43 | - | - | 0.08% |
| Other Plastic Packaging | blister packaging and other unmarked packaging | None | 1.87 | 0.95 | 1.26 | 1.65 | 1.43 | 0.41 | 1.77 | 0.96 | 1.91 | 0.44% |
| Durable Plastic Products | non-packaging such as VCR tapes, toys, garden hose | None | 1.23 | 2.02 | 2.28 | 1.24 | 1.69 | 0.54 | 2.13 | 1.06 | 2.32 | 0.52% |
| Sub Total | | | 18.08 | 21.08 | 25.67 | 16.78 | 20.40 | 3.95 | 23.64 | 15.76 | 25.05 | 6.26% |
| Sub Total Percentage of Total | | | 5.23% | 5.60% | 8.82% | 5.79% | 6.26% | | | | | |

| Constituent Material | Description | Collection Program | Group 1 | Group 2 | Group 3 | Group 4 | Average | Standard Deviation | 90% Confidence Interval (kg/hhld/yr) | | | Percent of Average |
|-------------------------------|-------------------------------|--------------------|---------|---------|---------|---------|---------|--------------------|--------------------------------------|--------------------|--------------------|--------------------|
| | | | | | | | | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 3. Metals | | | | | | | | | | | | |
| Aluminum Cans | food & beverage cans | Blue Box | 6.57 | 4.98 | 2.80 | 5.80 | 5.04 | 1.63 | 6.37 | 3.12 | 6.95 | 1.55% |
| Aluminum Foil Trays | pie plates, etc | Blue Box | 0.44 | 0.25 | 0.01 | 0.05 | 0.19 | 0.20 | 0.35 | - | - | 0.06% |
| Steel Cans | food & beverage cans | Blue Box | 5.36 | 11.92 | 11.35 | 8.81 | 9.36 | 2.99 | 11.81 | 5.84 | 12.87 | 2.87% |
| Aerosol Cans | empty cans only | Blue Box | 0.21 | 0.72 | 0.07 | 1.30 | 0.57 | 0.56 | 1.03 | - | - | 0.18% |
| Paint Cans | empty cans only | Blue Box | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Other Metal | scrap metal, other containers | None | 1.09 | 1.59 | 0.33 | 0.73 | 0.94 | 0.53 | 1.37 | 0.31 | 1.57 | 0.29% |
| Sub Total | | | 13.66 | 19.46 | 14.55 | 16.69 | 16.09 | 2.58 | 18.20 | 13.06 | 19.12 | 4.94% |
| Sub Total Percentage of Total | | | 3.96% | 5.17% | 5.00% | 5.75% | 4.94% | | | | | |

| Blue/Grey Box Program Materials Collection & Composition | | | | | | | | | | | | |
|--|-------------------------------------|--------------------|---|---------------|---------------|---------------|---------------|--|-------------------------------------|--------------------|--------------------|--------------------|
| Group 1, 2, 3, 4 | | | Etobicoke Waste Audit Spring 2003 April 22 - 25, May 6 - 8, 2003 | | | | | "t" critical (90%, df=3) one-tailed two-tailed 1.638 2.353 | | | | |
| Constituent Material | Description | Collection Program | Collection (kg/hhd/yr) | | | | | Standard Deviation | 90% Confidence Interval (kg/hhd/yr) | | | Percent of Average |
| | | | Group 1 | Group 2 | Group 3 | Group 4 | Average | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 4. Glass | | | | | | | | | | | | |
| LCBO Clear | clear glass alcoholic beverages | Blue Box | 7.46 | 6.93 | 2.09 | 4.91 | 5.35 | 2.43 | 7.34 | 2.49 | 8.21 | 1.64% |
| LCBO Coloured | coloured glass alcoholic beverages | Blue Box | 20.39 | 14.66 | 6.72 | 17.77 | 14.88 | 5.93 | 19.74 | 7.91 | 21.86 | 4.57% |
| Clear | food & beverage containers | Blue Box | 13.68 | 17.26 | 12.35 | 16.11 | 14.85 | 2.24 | 16.68 | 12.22 | 17.48 | 4.56% |
| Coloured | food & beverage containers | Blue Box | 2.53 | 0.87 | 6.72 | 2.82 | 3.23 | 2.48 | 5.26 | 0.32 | 6.15 | 0.99% |
| Other Glass | lightbulbs, window glass, ceramics | None | 0.62 | 0.07 | 0.98 | 0.51 | 0.54 | 0.37 | 0.85 | 0.11 | 0.98 | 0.17% |
| Sub Total | | | 44.69 | 39.79 | 28.85 | 42.11 | 38.86 | 6.96 | 44.56 | 30.67 | 47.05 | 11.93% |
| Sub Total Percentage of Total | | | 12.94% | 10.57% | 9.91% | 14.51% | 11.93% | | | | | |
| 5. Household Special Wastes | | | | | | | | | | | | |
| Batteries | all types | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Paint | unemptied containers | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Motor Oil | used oil, filters | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Flammables | starter fluid, solvents | None | 0.00 | 0.00 | 0.51 | 0.00 | 0.13 | 0.25 | 0.33 | - | - | 0.04% |
| Unemptied aerosol cans | all types | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Other HSW | sharps, drugs, acids, antifreeze | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Sub Total | | | 0.00 | 0.00 | 0.51 | 0.00 | 0.13 | 0.25 | 0.33 | - | - | 0.04% |
| Sub Total Percentage of Total | | | 0.00% | 0.00% | 0.17% | 0.00% | 0.04% | | | | | |
| 6. Organics | | | | | | | | | | | | |
| Vegetable Food Waste | vegetable and fruit peelings | Green Bin | 0.00 | 0.07 | 0.07 | 0.00 | 0.04 | 0.04 | 0.07 | - | - | 0.01% |
| Animal Food Waste | meats, fats, oils | Green Bin | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Animal waste | feces, animal litter and bedding | Green Bin | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Sanitary Products | diapers, napkins | Green Bin | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Grass | grass clippings | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Woody Yard Waste | brush, branches, wood chips | Yard Waste | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Other Yard Waste | leaves, soil, garden wastes | Yard Waste | 0.07 | 0.14 | 0.00 | 0.00 | 0.05 | 0.07 | 0.11 | - | - | 0.02% |
| Sub Total | | | 0.07 | 0.22 | 0.07 | 0.00 | 0.09 | 0.09 | 0.16 | - | - | 0.03% |
| Sub Total Percentage of Total | | | 0.02% | 0.06% | 0.02% | 0.00% | 0.03% | | | | | |
| 7. Other Waste Materials | | | | | | | | | | | | |
| Textiles | clothing, shoes, carpets, bedding | None | 0.00 | 0.00 | 0.03 | 0.07 | 0.03 | 0.03 | 0.05 | - | - | 0.01% |
| Building Renovations | drywall, lumber, flooring | None | 0.00 | 0.43 | 0.72 | 0.07 | 0.31 | 0.34 | 0.58 | - | - | 0.09% |
| Furniture | sofas, chairs, cabinets | None | 0.62 | 0.00 | 0.00 | 0.00 | 0.15 | 0.31 | 0.41 | - | - | 0.05% |
| Electronics/Appliances | small appliances, computers, radios | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Rubber | tires, mats, tubing | None | 0.00 | 0.00 | 0.00 | 0.07 | 0.02 | 0.04 | 0.05 | - | - | 0.01% |
| Wood ashes | fireplaces & wood stoves | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Non-Classifiable | materials not classified elsewhere | None | 0.75 | 4.41 | 8.48 | 1.68 | 3.83 | 3.47 | 6.67 | - | - | 1.18% |
| Sub Total | | | 1.37 | 4.85 | 9.23 | 1.89 | 4.33 | 3.61 | 7.29 | 0.09 | 8.58 | 1.33% |
| Sub Total Percentage of Total | | | 0.40% | 1.29% | 3.17% | 0.65% | 1.33% | | | | | |
| TOTAL | | | 345.35 | 376.38 | 291.04 | 290.13 | 325.73 | 42.51 | 360.54 | 275.70 | 375.75 | |

Notes:

The "Collection Program" column indicates the program, if any, for which each constituent material is solicited.

APPENDIX G:

**RESIDUAL WASTE COLLECTION AND
COMPOSITION**

Residual Waste Collection & Composition

Group 1, 2, 3, 4

Etobicoke Waste Audit Spring 2003
April 29 - May 2, May 13 - 16, 2003"t" critical (90%, df=3)
one-tailed two-tailed
1.638 2.353

| Constituent Material | Description | Collection Program | Collection (kg/hhd/yr) | | | | | Standard Deviation | 90% Confidence Interval (kg/hhd/yr) | | | Percent of Average |
|-------------------------------|---------------------------------------|--------------------|------------------------|---------|---------|---------|---------|--------------------|-------------------------------------|--------------------|--------------------|--------------------|
| | | | Group 1 | Group 2 | Group 3 | Group 4 | Average | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 1. Paper Fibres | | | | | | | | | | | | |
| Newspaper | ONP, inserts | Grey Box | 6.12 | 11.52 | 15.68 | 6.24 | 9.89 | 4.61 | 13.67 | 4.47 | 15.32 | 3.01% |
| Magazines / paperbacks | OMG, catalogues, soft covers | Grey Box | 2.81 | 2.21 | 3.51 | 4.49 | 3.25 | 0.98 | 4.05 | 2.10 | 4.40 | 0.99% |
| Phone Books | OTB | Grey Box | 0.00 | 0.59 | 0.00 | 0.00 | 0.15 | 0.29 | 0.39 | - | - | 0.04% |
| Cardboard | OCC | Grey Box | 0.78 | 5.14 | 9.69 | 14.56 | 7.54 | 5.93 | 12.39 | 0.57 | 14.51 | 2.29% |
| Boxboard/Rolls | OB | Grey Box | 8.58 | 8.39 | 14.95 | 10.86 | 10.69 | 3.05 | 13.19 | 7.10 | 14.28 | 3.25% |
| Mixed Papers | junk mail, fine household papers | Grey Box | 11.38 | 14.63 | 13.80 | 14.17 | 13.50 | 1.45 | 14.68 | 11.79 | 15.20 | 4.10% |
| Molded Pulp | egg cartons, drink trays | Grey Box | 0.22 | 0.43 | 0.56 | 0.26 | 0.37 | 0.16 | 0.50 | 0.18 | 0.55 | 0.11% |
| Books | hard covered | Grey Box | 0.46 | 0.00 | 1.50 | 8.65 | 2.65 | 4.05 | 5.96 | - | - | 0.81% |
| Kraft Paper | paper bags | Grey Box | 1.83 | 2.08 | 3.25 | 3.58 | 2.68 | 0.86 | 3.39 | 1.67 | 3.69 | 0.82% |
| Spiral Wound | frozen juice, pringles type packaging | None | 0.56 | 0.49 | 1.31 | 0.83 | 0.79 | 0.37 | 1.10 | 0.36 | 1.23 | 0.24% |
| Tissue/Toweling | tissues, napkins, paper towels | Green Bin | 12.03 | 11.31 | 17.68 | 14.24 | 13.81 | 2.86 | 16.16 | 10.45 | 17.18 | 4.20% |
| Other Paper | multi-layered, waxed, wrapping | None | 4.55 | 8.35 | 8.32 | 8.06 | 7.32 | 1.85 | 8.84 | 5.14 | 9.50 | 2.23% |
| Gable Top Cartons | milk, juice | Blue Box | 0.46 | 1.56 | 0.56 | 0.34 | 0.73 | 0.56 | 1.19 | 0.07 | 1.39 | 0.22% |
| Aseptic Containers | tetra type packaging | Blue Box | 0.82 | 0.75 | 1.87 | 0.18 | 0.91 | 0.70 | 1.48 | 0.08 | 1.73 | 0.28% |
| Sub Total | | | 50.59 | 67.44 | 92.66 | 86.44 | 74.28 | 19.09 | 89.92 | 51.81 | 96.75 | 22.58% |
| Sub Total Percentage of Total | | | 21.19% | 22.61% | 21.67% | 24.60% | 22.58% | | | | | |

| Constituent Material | Description | Collection Program | Group 1 | Group 2 | Group 3 | Group 4 | Average | Standard Deviation | 90% Confidence Interval (kg/hhd/yr) | | | Percent of Average |
|-------------------------------|---|--------------------|---------|---------|---------|---------|---------|--------------------|-------------------------------------|--------------------|--------------------|--------------------|
| | | | | | | | | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 2. Plastics | | | | | | | | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | Blue Box | 0.02 | 0.24 | 0.66 | 0.23 | 0.29 | 0.27 | 0.50 | - | - | 0.09% |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | Blue Box | 1.28 | 2.05 | 1.26 | 1.57 | 1.54 | 0.37 | 1.84 | 1.11 | 1.97 | 0.47% |
| PETE Other Packaging | #1 bakery, strawberry trays, egg cartons | None | 0.49 | 1.44 | 0.09 | 1.32 | 0.84 | 0.65 | 1.37 | 0.07 | 1.60 | 0.25% |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | Blue Box | 1.78 | 0.99 | 1.86 | 1.93 | 1.64 | 0.44 | 2.00 | 1.12 | 2.16 | 0.50% |
| PVC Bottles | # 3 bottles | None | 0.04 | 0.04 | 0.22 | 0.09 | 0.10 | 0.09 | 0.17 | - | - | 0.03% |
| LDPE & PP Bottles | # 4 and # 5 bottles | None | 0.08 | 0.02 | 0.01 | 0.07 | 0.04 | 0.03 | 0.07 | 0.01 | 0.08 | 0.01% |
| #7 Bottles | #7 bottles and jugs | None | 0.07 | 0.02 | 0.28 | 0.00 | 0.09 | 0.13 | 0.20 | - | - | 0.03% |
| Polystyrene | # 6 trays, cups, lids, packaging | None | 3.02 | 4.12 | 3.90 | 2.09 | 3.28 | 0.93 | 4.04 | 2.20 | 4.37 | 1.00% |
| Wide Mouth Tubs & Lids | # 2, #4, #5 tubs and lids | None | 1.82 | 6.33 | 4.42 | 2.60 | 3.79 | 2.01 | 5.44 | 1.42 | 6.16 | 1.15% |
| Recyclable Film | shopping bags, milk bags | None | 10.11 | 13.78 | 15.67 | 11.44 | 12.75 | 2.46 | 14.77 | 9.85 | 15.65 | 3.88% |
| Non-Recyclable Film | garbage bags, chip bags, pasta bags, plastic wrap | None | 7.88 | 11.25 | 14.76 | 8.84 | 10.68 | 3.06 | 13.19 | 7.07 | 14.28 | 3.25% |
| Other Bottles | pesticides, oil, lubricants, solvents, anti-freeze | None | 0.27 | 0.03 | 0.04 | 0.74 | 0.27 | 0.33 | 0.54 | - | - | 0.08% |
| Other Plastic Packaging | blister packaging and other unmarked packaging | None | 4.83 | 4.36 | 5.92 | 4.79 | 4.97 | 0.66 | 5.52 | 4.20 | 5.75 | 1.51% |
| Durable Plastic Products | non-packaging such as VCR tapes, tovs, garden hose | None | 13.12 | 12.74 | 22.75 | 16.97 | 16.39 | 4.65 | 20.20 | 10.92 | 21.86 | 4.98% |
| Sub Total | | | 44.81 | 57.40 | 71.83 | 52.67 | 56.68 | 11.36 | 65.98 | 43.32 | 70.04 | 17.23% |
| Sub Total Percentage of Total | | | 18.77% | 19.25% | 16.80% | 14.99% | 17.23% | | | | | |

| Constituent Material | Description | Collection Program | Group 1 | Group 2 | Group 3 | Group 4 | Average | Standard Deviation | 90% Confidence Interval (kg/hhd/yr) | | | Percent of Average |
|-------------------------------|-------------------------------|--------------------|---------|---------|---------|---------|---------|--------------------|-------------------------------------|--------------------|--------------------|--------------------|
| | | | | | | | | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 3. Metals | | | | | | | | | | | | |
| Aluminum Cans | food & beverage cans | Blue Box | 0.68 | 0.51 | 0.36 | 1.07 | 0.65 | 0.30 | 0.90 | 0.30 | 1.01 | 0.20% |
| Aluminum Foil Trays | pie plates, etc | Blue Box | 0.33 | 0.91 | 0.73 | 0.36 | 0.58 | 0.29 | 0.82 | 0.24 | 0.92 | 0.18% |
| Steel Cans | food & beverage cans | Blue Box | 1.78 | 1.89 | 3.45 | 2.74 | 2.46 | 0.78 | 3.11 | 1.54 | 3.39 | 0.75% |
| Aerosol Cans | empty cans only | Blue Box | 0.51 | 0.49 | 1.64 | 0.49 | 0.78 | 0.57 | 1.25 | 0.11 | 1.46 | 0.24% |
| Paint Cans | empty cans only | Blue Box | 0.00 | 0.39 | 2.41 | 0.00 | 0.70 | 1.15 | 1.64 | - | - | 0.21% |
| Other Metal | scrap metal, other containers | None | 5.33 | 7.69 | 9.24 | 14.71 | 9.24 | 3.98 | 12.51 | 4.56 | 13.93 | 2.81% |
| Sub Total | | | 8.63 | 11.88 | 17.84 | 19.36 | 14.43 | 5.04 | 18.55 | 8.50 | 20.35 | 4.38% |
| Sub Total Percentage of Total | | | 3.61% | 3.98% | 4.17% | 5.51% | 4.38% | | | | | |

| Residual Waste Collection & Composition | | | | | | | | | | | | |
|---|-------------------------------------|--|------------------------|---------------|---------------|---------------|---------------|--|-------------------------------------|--------------------|--------------------|--------------------|
| Group 1, 2, 3, 4 | | Etobicoke Waste Audit Spring 2003 April 29 - May 2, May 13 - 16, 2003 | | | | | | "t" critical (90%, df=3) one-tailed two-tailed 1.638 2.353 | | | | |
| Constituent Material | Description | Collection Program | Collection (kg/hhd/yr) | | | | | Standard Deviation | 90% Confidence Interval (kg/hhd/yr) | | | Percent of Average |
| | | | Group 1 | Group 2 | Group 3 | Group 4 | Average | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 4. Glass | | | | | | | | | | | | |
| LCBO Clear | clear glass alcoholic beverages | Blue Box | 0.72 | 0.00 | 0.52 | 0.03 | 0.32 | 0.36 | 0.61 | - | - | 0.10% |
| LCBO Coloured | coloured glass alcoholic beverages | Blue Box | 0.00 | 0.00 | 1.17 | 0.26 | 0.36 | 0.56 | 0.81 | - | - | 0.11% |
| Clear | food & beverage containers | Blue Box | 2.60 | 1.30 | 5.92 | 5.69 | 3.88 | 2.29 | 5.75 | 1.18 | 6.57 | 1.18% |
| Coloured | food & beverage containers | Blue Box | 0.07 | 0.26 | 0.33 | 0.00 | 0.16 | 0.15 | 0.29 | - | - | 0.05% |
| Other Glass | lightbulbs, window glass, ceramics | None | 2.00 | 4.86 | 6.99 | 5.60 | 4.86 | 2.11 | 6.59 | 2.39 | 7.34 | 1.48% |
| Sub Total | | | 5.38 | 6.42 | 14.92 | 11.58 | 9.58 | 4.48 | 13.25 | 4.31 | 14.85 | 2.91% |
| Sub Total Percentage of Total | | | 2.25% | 2.15% | 3.49% | 3.30% | 2.91% | | | | | |
| 5. Household Special Wastes | | | | | | | | | | | | |
| Batteries | all types | None | 0.21 | 0.03 | 0.24 | 0.29 | 0.19 | 0.11 | 0.28 | 0.06 | 0.32 | 0.06% |
| Paint | unemptied containers | None | 0.00 | 0.00 | 0.00 | 0.26 | 0.07 | 0.13 | 0.17 | - | - | 0.02% |
| Motor Oil | used oil, filters | None | 0.00 | 0.00 | 0.85 | 0.00 | 0.21 | 0.42 | 0.56 | - | - | 0.06% |
| Flammables | starter fluid, solvents | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Unemptied aerosol cans | all types | None | 0.00 | 0.20 | 0.00 | 0.01 | 0.05 | 0.10 | 0.13 | - | - | 0.02% |
| Other HSW | sharps, drugs, acids, antifreeze | None | 0.26 | 0.00 | 0.00 | 0.33 | 0.15 | 0.17 | 0.29 | - | - | 0.04% |
| Sub Total | | | 0.47 | 0.23 | 1.09 | 0.88 | 0.67 | 0.39 | 0.99 | 0.21 | 1.12 | 0.20% |
| Sub Total Percentage of Total | | | 0.20% | 0.08% | 0.25% | 0.25% | 0.20% | | | | | |
| 6. Organics | | | | | | | | | | | | |
| Vegetable Food Waste | vegetable and fruit peelings | Green Bin | 39.78 | 50.77 | 77.03 | 55.12 | 55.67 | 15.63 | 68.47 | 37.28 | 74.06 | 16.92% |
| Animal Food Waste | meats, fats, oils | Green Bin | 0.00 | 0.20 | 6.63 | 2.86 | 2.42 | 3.09 | 4.96 | - | - | 0.74% |
| Animal waste | feces, animal litter and bedding | Green Bin | 11.05 | 11.96 | 6.96 | 7.67 | 9.41 | 2.47 | 11.43 | 6.51 | 12.31 | 2.86% |
| Sanitary Products | diapers, napkins | Green Bin | 2.54 | 12.38 | 17.88 | 7.61 | 10.10 | 6.56 | 15.47 | 2.38 | 17.82 | 3.07% |
| Grass | grass clippings | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00% |
| Woody Yard Waste | brush, branches, wood chips | Yard Waste | 8.71 | 0.00 | 8.71 | 4.42 | 5.46 | 4.16 | 8.87 | 0.56 | 10.36 | 1.66% |
| Other Yard Waste | leaves, soil, garden wastes | Yard Waste | 16.80 | 24.25 | 16.80 | 9.36 | 16.80 | 6.08 | 21.78 | 9.65 | 23.95 | 5.11% |
| Sub Total | | | 78.88 | 99.54 | 134.00 | 87.04 | 99.87 | 24.29 | 119.76 | 71.28 | 128.45 | 30.36% |
| Sub Total Percentage of Total | | | 33.04% | 33.38% | 31.34% | 24.77% | 30.36% | | | | | |
| 7. Other Waste Materials | | | | | | | | | | | | |
| Textiles | clothing, shoes, carpets, bedding | None | 33.61 | 15.67 | 52.65 | 42.45 | 36.09 | 15.68 | 48.94 | 17.64 | 54.55 | 10.97% |
| Building Renovations | drywall, lumber, flooring | None | 4.60 | 15.63 | 13.98 | 21.71 | 13.98 | 7.08 | 19.78 | 5.64 | 22.32 | 4.25% |
| Furniture | sofas, chairs, cabinets | None | 0.00 | 3.06 | 1.50 | 4.55 | 2.28 | 1.96 | 3.88 | - | - | 0.69% |
| Electronics/Appliances | small appliances, computers, radios | None | 0.00 | 7.41 | 9.88 | 9.88 | 6.79 | 4.68 | 10.62 | 1.29 | 12.29 | 2.06% |
| Rubber | tires, mats, tubing | None | 0.16 | 0.55 | 1.45 | 1.98 | 1.03 | 0.83 | 1.71 | 0.06 | 2.01 | 0.31% |
| Wood ashes | fireplaces & wood stoves | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00% |
| Non-Classifiable | materials not classified elsewhere | None | 11.64 | 13.02 | 15.73 | 12.81 | 13.30 | 1.73 | 14.72 | 11.26 | 15.34 | 4.04% |
| Sub Total | | | 50.00 | 55.33 | 95.18 | 93.37 | 73.47 | 24.13 | 93.23 | 45.07 | 101.87 | 22.33% |
| Sub Total Percentage of Total | | | 20.94% | 18.55% | 22.26% | 26.57% | 22.33% | | | | | |
| TOTAL | | | 238.76 | 298.24 | 427.52 | 351.34 | 328.97 | 80.20 | 394.64 | 234.60 | 423.33 | |

Residual Waste Collection & Composition

Group 1, 2, 3, 4
 Etobicoke Waste Audit Spring 2003
 April 29 - May 2, May 13 - 16, 2003

"t" critical (90%, df=3)
 one-tailed two-tailed
 1.638 2.353

| No. of Participating Households | Group 1 | Group 2 | Group 3 | Group 4 | Total |
|---------------------------------|---------|---------|---------|---------|-------|
| | 19 | 19 | 20 | 19 | 77 |

| Constituent Material | Description | Collection Program | Participating Households Collection (kg/hhld/yr) | | | | | Standard Deviation | 90% Confidence Interval (kg/hhld/yr) | | | Percent of Average |
|-------------------------------|---------------------------------------|--------------------|--|---------|---------|---------|---------|--------------------|--------------------------------------|--------------------|--------------------|--------------------|
| | | | Group 1 | Group 2 | Group 3 | Group 4 | Average | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 1. Paper Fibres | | | | | | | | | | | | |
| Newspaper | ONP, inserts | Grey Box | 6.45 | 12.12 | 15.68 | 6.57 | 10.21 | 4.51 | 13.90 | 4.90 | 15.51 | 3.00% |
| Magazines / paperbacks | OMG, catalogues, soft covers | Grey Box | 2.96 | 2.33 | 3.51 | 4.72 | 3.38 | 1.02 | 4.21 | 2.18 | 4.58 | 0.99% |
| Phone Books | OTB | Grey Box | 0.00 | 0.62 | 0.00 | 0.00 | 0.15 | 0.31 | 0.41 | - | - | 0.05% |
| Cardboard | OCC | Grey Box | 0.82 | 5.41 | 9.69 | 15.33 | 7.81 | 6.18 | 12.87 | 0.54 | 15.08 | 2.29% |
| Boxboard/Rolls | OBB | Grey Box | 9.03 | 8.83 | 14.95 | 11.43 | 11.06 | 2.85 | 13.39 | 7.70 | 14.41 | 3.25% |
| Mixed Papers | junk mail, fine household papers | Grey Box | 11.98 | 15.40 | 13.80 | 14.92 | 14.02 | 1.52 | 15.27 | 12.24 | 15.81 | 4.12% |
| Molded Pulp | egg cartons, drink trays | Grey Box | 0.23 | 0.45 | 0.56 | 0.27 | 0.38 | 0.15 | 0.50 | 0.20 | 0.56 | 0.11% |
| Books | hard covered | Grey Box | 0.48 | 0.00 | 1.50 | 9.10 | 2.77 | 4.27 | 6.26 | - | - | 0.81% |
| Kraft Paper | paper bags | Grey Box | 1.92 | 2.19 | 3.25 | 3.76 | 2.78 | 0.87 | 3.49 | 1.76 | 3.81 | 0.82% |
| Spiral Wound | frozen juice, pringles type packaging | None | 0.59 | 0.51 | 1.31 | 0.87 | 0.82 | 0.36 | 1.11 | 0.40 | 1.24 | 0.24% |
| Tissue/Toweling | tissues, napkins, paper towels | Green Bin | 12.66 | 11.91 | 17.68 | 14.98 | 14.31 | 2.60 | 16.44 | 11.25 | 17.37 | 4.20% |
| Other Paper | multi-layered, waxed, wrapping | None | 4.79 | 8.79 | 8.32 | 8.48 | 7.60 | 1.88 | 9.14 | 5.38 | 9.81 | 2.23% |
| Gable Top Cartons | milk, juice | Blue Box | 0.48 | 1.64 | 0.56 | 0.36 | 0.76 | 0.59 | 1.25 | 0.06 | 1.46 | 0.22% |
| Aseptic Containers | tetra type packaging | Blue Box | 0.86 | 0.79 | 1.87 | 0.19 | 0.93 | 0.69 | 1.50 | 0.11 | 1.74 | 0.27% |
| Sub Total | | | 53.25 | 70.99 | 92.66 | 90.99 | 76.97 | 18.63 | 92.23 | 55.05 | 98.89 | 22.60% |
| Sub Total Percentage of Total | | | 21.19% | 22.61% | 21.67% | 24.60% | 22.60% | | | | | |

| Constituent Material | Description | Collection Program | Group 1 | Group 2 | Group 3 | Group 4 | Average | Standard Deviation | 90% Confidence Interval (kg/hhld/yr) | | | Percent of Average |
|-------------------------------|--|--------------------|---------|---------|---------|---------|---------|--------------------|--------------------------------------|--------------------|--------------------|--------------------|
| | | | | | | | | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 2. Plastics | | | | | | | | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | Blue Box | 0.02 | 0.25 | 0.66 | 0.24 | 0.29 | 0.27 | 0.51 | - | - | 0.09% |
| PETE Other Bottles & Jars | # 1 water, juice, food, dish soap, liquor, mouthwash | Blue Box | 1.35 | 2.16 | 1.26 | 1.65 | 1.60 | 0.40 | 1.93 | 1.13 | 2.08 | 0.47% |
| PETE Other Packaging | # 1 bakery, strawberry trays, egg cartons | None | 0.52 | 1.52 | 0.09 | 1.39 | 0.88 | 0.69 | 1.44 | 0.07 | 1.69 | 0.26% |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | Blue Box | 1.87 | 1.04 | 1.86 | 2.03 | 1.70 | 0.45 | 2.07 | 1.17 | 2.23 | 0.50% |
| PVC Bottles | # 3 bottles | None | 0.04 | 0.04 | 0.22 | 0.10 | 0.10 | 0.08 | 0.17 | - | - | 0.03% |
| LDPE & PP Bottles | # 4 and # 5 bottles | None | 0.08 | 0.02 | 0.01 | 0.07 | 0.05 | 0.03 | 0.07 | 0.01 | 0.09 | 0.01% |
| #7 Bottles | # 7 bottles and jugs | None | 0.07 | 0.02 | 0.28 | 0.00 | 0.09 | 0.13 | 0.20 | - | - | 0.03% |
| Polystyrene | # 6 trays, cups, lids, packaging | None | 3.18 | 4.34 | 3.90 | 2.20 | 3.41 | 0.93 | 4.17 | 2.31 | 4.50 | 1.00% |
| Wide Mouth Tubs & Lids | # 2, #4, #5 tubs and lids | None | 1.92 | 6.66 | 4.42 | 2.74 | 3.93 | 2.10 | 5.65 | 1.47 | 6.40 | 1.15% |
| Recyclable Film | shopping bags, milk bags | None | 10.65 | 14.51 | 15.67 | 12.04 | 13.21 | 2.28 | 15.08 | 10.53 | 15.90 | 3.88% |
| Non-Recyclable Film | garbage bags, chip bags, pasta bags, plastic wrap | None | 8.29 | 11.84 | 14.76 | 9.31 | 11.05 | 2.89 | 13.41 | 7.65 | 14.44 | 3.24% |
| Other Bottles | pesticides, oil, lubricants, solvents, anti-freeze | None | 0.29 | 0.03 | 0.04 | 0.78 | 0.28 | 0.35 | 0.57 | - | - | 0.08% |
| Other Plastic Packaging | blister packaging and other unmarked packaging | None | 5.08 | 4.59 | 5.92 | 5.04 | 5.16 | 0.55 | 5.61 | 4.51 | 5.81 | 1.51% |
| Durable Plastic Products | non-packaging such as VCR tapes, toys, garden hose | None | 13.81 | 13.41 | 22.75 | 17.86 | 16.96 | 4.35 | 20.52 | 11.83 | 22.08 | 4.98% |
| Sub Total | | | 47.17 | 60.42 | 71.83 | 55.44 | 58.72 | 10.31 | 67.16 | 46.59 | 70.84 | 17.24% |
| Sub Total Percentage of Total | | | 18.77% | 19.25% | 16.80% | 14.99% | 17.24% | | | | | |

| Constituent Material | Description | Collection Program | Group 1 | Group 2 | Group 3 | Group 4 | Average | Standard Deviation | 90% Confidence Interval (kg/hhld/yr) | | | Percent of Average |
|-------------------------------|-------------------------------|--------------------|---------|---------|---------|---------|---------|--------------------|--------------------------------------|--------------------|--------------------|--------------------|
| | | | | | | | | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 3. Metals | | | | | | | | | | | | |
| Aluminum Cans | food & beverage cans | Blue Box | 0.71 | 0.53 | 0.36 | 1.12 | 0.68 | 0.33 | 0.95 | 0.30 | 1.07 | 0.20% |
| Aluminum Foil Trays | pie plates, etc | Blue Box | 0.34 | 0.96 | 0.73 | 0.38 | 0.60 | 0.30 | 0.85 | 0.25 | 0.95 | 0.18% |
| Steel Cans | food & beverage cans | Blue Box | 1.87 | 1.98 | 3.45 | 2.89 | 2.55 | 0.75 | 3.16 | 1.66 | 3.43 | 0.75% |
| Aerosol Cans | empty cans only | Blue Box | 0.54 | 0.52 | 1.64 | 0.51 | 0.80 | 0.56 | 1.26 | 0.15 | 1.46 | 0.24% |
| Paint Cans | empty cans only | Blue Box | 0.00 | 0.41 | 2.41 | 0.00 | 0.70 | 1.15 | 1.65 | - | - | 0.21% |
| Other Metal | scrap metal, other containers | None | 5.61 | 8.09 | 9.24 | 15.48 | 9.61 | 4.20 | 13.05 | 4.67 | 14.55 | 2.82% |
| Sub Total | | | 9.08 | 12.50 | 17.84 | 20.38 | 14.95 | 5.11 | 19.13 | 8.94 | 20.96 | 4.39% |
| Sub Total Percentage of Total | | | 3.61% | 3.98% | 4.17% | 5.51% | 4.39% | | | | | |

| Residual Waste Collection & Composition | | | | | | | | | | | | |
|---|-------------------------------------|--|--|---------------|---------------|---------------|---------------|--|--------------------------------------|--------------------|--------------------|--------------------|
| Group 1, 2, 3, 4 | | Etobicoke Waste Audit Spring 2003 April 29 - May 2, May 13 - 16, 2003 | | | | | | "t" critical (90%, df=3) one-tailed two-tailed 1.638 2.353 | | | | |
| Constituent Material | Description | Collection Program | Participating Households Collection (kg/hhld/yr) | | | | | Standard Deviation | 90% Confidence Interval (kg/hhld/yr) | | | Percent of Average |
| | | | Group 1 | Group 2 | Group 3 | Group 4 | Average | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) | |
| 4. Glass | | | | | | | | | | | | |
| LCBO Clear | clear glass alcoholic beverages | Blue Box | 0.75 | 0.00 | 0.52 | 0.03 | 0.33 | 0.37 | 0.63 | - | - | 0.10% |
| LCBO Coloured | coloured glass alcoholic beverages | Blue Box | 0.00 | 0.00 | 1.17 | 0.27 | 0.36 | 0.55 | 0.82 | - | - | 0.11% |
| Clear | food & beverage containers | Blue Box | 2.74 | 1.37 | 5.92 | 5.99 | 4.00 | 2.32 | 5.90 | 1.27 | 6.73 | 1.18% |
| Coloured | food & beverage containers | Blue Box | 0.07 | 0.27 | 0.33 | 0.00 | 0.17 | 0.16 | 0.30 | - | - | 0.05% |
| Other Glass | lightbulbs, window glass, ceramics | None | 2.10 | 5.12 | 6.99 | 5.90 | 5.03 | 2.10 | 6.75 | 2.56 | 7.50 | 1.48% |
| Sub Total | | | 5.66 | 6.76 | 14.92 | 12.19 | 9.88 | 4.41 | 13.50 | 4.70 | 15.07 | 2.90% |
| Sub Total Percentage of Total | | | 2.25% | 2.15% | 3.49% | 3.30% | 2.90% | | | | | |
| 5. Household Special Wastes | | | | | | | | | | | | |
| Batteries | all types | None | 0.23 | 0.03 | 0.24 | 0.30 | 0.20 | 0.12 | 0.29 | 0.06 | 0.34 | 0.06% |
| Paint | unemptied containers | None | 0.00 | 0.00 | 0.00 | 0.27 | 0.07 | 0.14 | 0.18 | - | - | 0.02% |
| Motor Oil | used oil, filters | None | 0.00 | 0.00 | 0.85 | 0.00 | 0.21 | 0.42 | 0.56 | - | - | 0.06% |
| Flammables | starter fluid, solvents | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | 0.00% |
| Unemptied aerosol cans | all types | None | 0.00 | 0.21 | 0.00 | 0.01 | 0.05 | 0.10 | 0.14 | - | - | 0.02% |
| Other HSW | sharps, drugs, acids, antifreeze | None | 0.27 | 0.00 | 0.00 | 0.34 | 0.15 | 0.18 | 0.30 | - | - | 0.05% |
| Sub Total | | | 0.50 | 0.24 | 1.09 | 0.93 | 0.69 | 0.39 | 1.01 | 0.23 | 1.15 | 0.20% |
| Sub Total Percentage of Total | | | 0.20% | 0.08% | 0.25% | 0.25% | 0.20% | | | | | |
| 6. Organics | | | | | | | | | | | | |
| Vegetable Food Waste | vegetable and fruit peelings | Green Bin | 41.87 | 53.44 | 77.03 | 58.02 | 57.59 | 14.63 | 69.57 | 40.37 | 74.80 | 16.91% |
| Animal Food Waste | meats, fats, oils | Green Bin | 0.00 | 0.21 | 6.63 | 3.01 | 2.46 | 3.10 | 5.00 | - | - | 0.72% |
| Animal waste | feces, animal litter and bedding | Green Bin | 11.63 | 12.59 | 6.96 | 8.07 | 9.81 | 2.72 | 12.04 | 6.61 | 13.01 | 2.88% |
| Sanitary Products | diapers, napkins | Green Bin | 2.68 | 13.03 | 17.88 | 8.01 | 10.40 | 6.54 | 15.75 | 2.70 | 18.09 | 3.05% |
| Grass | grass clippings | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00% |
| Woody Yard Waste | brush, branches, wood chips | Yard Waste | 9.17 | 0.00 | 8.71 | 4.65 | 5.63 | 4.27 | 9.13 | 0.61 | 10.66 | 1.65% |
| Other Yard Waste | leaves, soil, garden wastes | Yard Waste | 17.69 | 25.52 | 16.80 | 9.85 | 17.47 | 6.41 | 22.72 | 9.92 | 25.01 | 5.13% |
| Sub Total | | | 83.04 | 104.78 | 134.00 | 91.62 | 103.36 | 22.30 | 121.62 | 77.12 | 129.60 | 30.34% |
| Sub Total Percentage of Total | | | 33.04% | 33.38% | 31.34% | 24.77% | 30.34% | | | | | |
| 7. Other Waste Materials | | | | | | | | | | | | |
| Textiles | clothing, shoes, carpets, bedding | None | 35.38 | 16.49 | 52.65 | 44.68 | 37.30 | 15.57 | 50.05 | 18.98 | 55.62 | 10.95% |
| Building Renovations | drywall, lumber, flooring | None | 4.84 | 16.46 | 13.98 | 22.85 | 14.53 | 7.47 | 20.64 | 5.75 | 23.32 | 4.27% |
| Furniture | sofas, chairs, cabinets | None | 0.00 | 3.22 | 1.50 | 4.79 | 2.38 | 2.08 | 4.08 | - | - | 0.70% |
| Electronics/Appliances | small appliances, computers, radios | None | 0.00 | 7.80 | 9.88 | 10.40 | 7.02 | 4.81 | 10.96 | 1.36 | 12.68 | 2.06% |
| Rubber | tires, mats, tubing | None | 0.16 | 0.58 | 1.45 | 2.08 | 1.07 | 0.86 | 1.77 | 0.06 | 2.08 | 0.31% |
| Wood ashes | fireplaces & wood stoves | None | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00% |
| Non-Classifiable | materials not classified elsewhere | None | 12.25 | 13.70 | 15.73 | 13.48 | 13.79 | 1.44 | 14.97 | 12.09 | 15.49 | 4.05% |
| Sub Total | | | 52.63 | 58.25 | 95.18 | 98.28 | 76.09 | 23.98 | 95.73 | 47.86 | 104.31 | 22.33% |
| Sub Total Percentage of Total | | | 20.94% | 18.55% | 22.26% | 26.57% | 22.33% | | | | | |
| TOTAL | | | 251.33 | 313.94 | 427.52 | 369.83 | 340.65 | 75.48 | 402.46 | 251.84 | 429.47 | |

Notes:

Bold Numbers indicate **modified values** as a result of extraordinarily large differences from the average in the original numbers. They are noted below.

1) Group 3: Metals - Other Metal. Original value was 26.02 kg/hhld/yr. Two houses found in this Group set out steel bindings from large wooden wine barrels.

Also, one of the homes in this Group has a shop which generates large quantities of renovation debris, including scrap metal.

2) Group 2: Glass - Other Glass. Original value was 17.10 kg/hhld/yr. One of the houses from this Group set out 20 bags, mostly containing items being disposed of in preparation for a move to a new house, including large quantities of ceramics (dishes).

3) Group 1, Group 3: Organics - Other Yard Waste. Original value for Group 1 was 3.13 kg/hhld/yr. Original for Group 3 was 33.99 kg/hhld/yr. There are large amounts and variations of the amount of yard waste (likely from spring yard cleanups) found hidden and mixed with other residual waste. Large variation is likely due to the practice in the audit of leaving full garbage bags obviously only consisting of yard waste (and grass) behind.

4) Group 3: Other Waste Materials - Building Renovations. Original value was 69.81 kg/hhld/yr. One of the homes in this Group has a shop which generates large quantities of renovation debris. As well, one house in this Group set out an old toilet.

The "Collection Program" column indicates the program, if any, for which each constituent material is solicited.

APPENDIX H:
TOTAL WASTE COLLECTION

Appendix H: Total Waste Collection - All Groups (Blue/Grey Box + Green Bin + Residual)

"t" critical (90%, df=3)
 one-tailed two-tailed
 1.638 2.353

| Total Waste Collection | Collection (kg/hhld/yr) | | | | | | Percent of Average | 90% Confidence Interval (kg/hhld/yr) | | |
|-----------------------------------|-------------------------|---------|---------|---------|---------|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | Group 1 | Group 2 | Group 3 | Group 4 | Average | Standard Deviation | | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| Paper Fibres | 307.12 | 331.01 | 292.55 | 280.23 | 302.73 | 21.82 | 34.49% | 320.60 | 277.05 | 328.41 |
| Plastics | 67.20 | 83.63 | 103.45 | 72.63 | 81.73 | 16.02 | 9.31% | 94.84 | 62.88 | 100.57 |
| Metals | 21.63 | 30.00 | 32.02 | 34.70 | 29.59 | 5.64 | 3.37% | 34.21 | 22.95 | 36.23 |
| Glass | 48.02 | 42.24 | 40.92 | 49.74 | 45.23 | 4.31 | 5.15% | 48.76 | 40.16 | 50.30 |
| Household Special Wastes | 0.47 | 0.23 | 1.55 | 0.88 | 0.78 | 0.58 | 0.09% | 1.26 | 0.10 | 1.47 |
| Organics | 275.31 | 357.76 | 419.30 | 301.93 | 338.58 | 63.85 | 38.57% | 390.86 | 263.45 | 413.71 |
| Other Waste Materials, including: | 52.42 | 60.85 | 106.64 | 96.69 | 79.15 | 26.54 | 9.02% | 100.88 | 47.92 | 110.38 |
| Textiles | 34.13 | 16.27 | 53.15 | 43.39 | 36.73 | 15.70 | 4.18% | 49.59 | 18.26 | 55.21 |
| Building Renovations | 4.60 | 16.02 | 14.63 | 21.78 | 14.26 | 7.14 | 1.62% | 20.11 | 5.85 | 22.66 |
| Furniture | 0.59 | 3.06 | 1.50 | 4.55 | 2.42 | 1.75 | 0.28% | 3.85 | 0.36 | 4.48 |
| Electronics/Appliances | 0.00 | 7.41 | 9.88 | 9.88 | 6.79 | 4.68 | 0.77% | 10.62 | 1.29 | 12.29 |
| Rubber | 0.16 | 0.55 | 1.45 | 2.04 | 1.05 | 0.85 | 0.12% | 1.75 | 0.05 | 2.05 |
| Wood Ashes | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00% | 0.00 | 0.00 | 0.00 |
| Non-Classifiable | 12.95 | 17.54 | 26.04 | 15.06 | 17.90 | 5.74 | 2.04% | 22.60 | 11.14 | 24.65 |
| Total | 772.18 | 905.71 | 996.44 | 836.81 | 877.79 | 96.07 | 100.00% | 956.46 | 764.74 | 990.83 |

APPENDIX I:

GREEN BIN PROGRAM MATERIALS RECOVERY RATE

Appendix I: Green Bin Program Materials Recovery Rate - All Groups

| | | Distribution of Green Bin Program Materials (kg/hhld/yr) | | | Recovery Rate |
|----------------------|----------------------------------|---|----------------|-----------|---------------|
| | | Blue/Grey Box | Residual Waste | Green Bin | |
| Group 1 | | | | | |
| Constituent Material | Description | | | | |
| Tissue/Toweling | tissues, napkins, paper towels | 0.13 | 12.03 | 193.70 | 75.46% |
| Vegetable Food Waste | vegetable and fruit peelings | 0.00 | 39.78 | | |
| Animal Food Waste | meats, fats, oils | 0.00 | 0.00 | | |
| Animal waste | feces, animal litter and bedding | 0.00 | 11.05 | | |
| Sanitary Products | diapers, napkins | 0.00 | 2.54 | 3.32 | 56.60% |
| Total | | 0.13 | 65.40 | 197.02 | 75.04% |

| | | Distribution of Green Bin Program Materials (kg/hhld/yr) | | | Recovery Rate |
|----------------------|----------------------------------|---|----------------|-----------|---------------|
| | | Blue/Grey Box | Residual Waste | Green Bin | |
| Group 2 | | | | | |
| Constituent Material | Description | | | | |
| Tissue/Toweling | tissues, napkins, paper towels | 0.00 | 11.31 | 225.21 | 75.19% |
| Vegetable Food Waste | vegetable and fruit peelings | 0.07 | 50.77 | | |
| Animal Food Waste | meats, fats, oils | 0.00 | 0.20 | | |
| Animal waste | feces, animal litter and bedding | 0.00 | 11.96 | | |
| Sanitary Products | diapers, napkins | 0.00 | 12.38 | 29.43 | 70.40% |
| Total | | 0.07 | 86.61 | 254.64 | 74.61% |

| | | Distribution of Green Bin Program Materials (kg/hhld/yr) | | | Recovery Rate |
|----------------------|----------------------------------|---|----------------|-----------|---------------|
| | | Blue/Grey Box | Residual Waste | Green Bin | |
| Group 3 | | | | | |
| Constituent Material | Description | | | | |
| Tissue/Toweling | tissues, napkins, paper towels | 0.39 | 17.68 | 275.93 | 71.73% |
| Vegetable Food Waste | vegetable and fruit peelings | 0.07 | 77.03 | | |
| Animal Food Waste | meats, fats, oils | 0.00 | 6.63 | | |
| Animal waste | feces, animal litter and bedding | 0.00 | 6.96 | | |
| Sanitary Products | diapers, napkins | 0.00 | 17.88 | 9.17 | 33.90% |
| Total | | 0.46 | 126.17 | 285.10 | 69.25% |

| | | Distribution of Green Bin Program Materials (kg/hhld/yr) | | | Recovery Rate |
|----------------------|----------------------------------|---|----------------|-----------|---------------|
| | | Blue/Grey Box | Residual Waste | Green Bin | |
| Group 4 | | | | | |
| Constituent Material | Description | | | | |
| Tissue/Toweling | tissues, napkins, paper towels | 0.20 | 14.24 | 202.75 | 71.68% |
| Vegetable Food Waste | vegetable and fruit peelings | 0.00 | 55.12 | | |
| Animal Food Waste | meats, fats, oils | 0.00 | 2.86 | | |
| Animal waste | feces, animal litter and bedding | 0.00 | 7.67 | | |
| Sanitary Products | diapers, napkins | 0.00 | 7.61 | 12.09 | 61.39% |
| Total | | 0.20 | 87.49 | 214.84 | 71.01% |

| | | Distribution of Green Bin Program Materials (kg/hhld/yr) | | | Recovery Rate |
|----------------------|----------------------------------|---|----------------|-----------|---------------|
| | | Blue/Grey Box | Residual Waste | Green Bin | |
| Average | | | | | |
| Constituent Material | Description | | | | |
| Tissue/Toweling | tissues, napkins, paper towels | 0.18 | 13.81 | 224.40 | 73.35% |
| Vegetable Food Waste | vegetable and fruit peelings | 0.03 | 55.67 | | |
| Animal Food Waste | meats, fats, oils | 0.00 | 2.42 | | |
| Animal waste | feces, animal litter and bedding | 0.00 | 9.41 | | |
| Sanitary Products | diapers, napkins | 0.00 | 10.10 | 13.50 | 57.20% |
| Total | | 0.21 | 91.42 | 237.90 | 72.19% |

Average Composition of Green Bin Program Materials Not Recovered

| Constituent Material | Description | Green Bin Program Materials Not Recovered (kg/hhld/yr) | Percent of Total Not Recovered |
|-----------------------------|----------------------------------|---|---------------------------------------|
| Tissue/Toweling | tissues, napkins, paper towels | 13.99 | 15.27% |
| Vegetable Food Waste | vegetable and fruit peelings | 55.71 | 60.79% |
| Animal Food Waste | meats, fats, oils | 2.42 | 2.64% |
| Animal waste | feces, animal litter and bedding | 9.41 | 10.27% |
| Sanitary Products | diapers, napkins | 10.10 | 11.02% |
| Total | | 91.63 | 100.00% |

Notes:

- 1) All weights on "as is" basis.
- 2) Recovery Rate is = (Weight of Material Stream/Total weight of suitable materials collected)*100%
- 3) Green Bin Program Material quantities listed are free of contaminants. Contamination < 5% (w/w) total Green Bin Program Materials as picked up at curbside.
- 4) Sanitary Products found in Residual Waste can contain items other than diapers and napkins. Sanitary products in Green Bin Program Materials are only comprised of diapers and napkins.
- 5) Residual Waste does not include Green Bin Program Materials found in "Non-Classifiable" (fines) constituent material category.
- 6) It is difficult to accurately calculate recovery, as materials are sorted into different categories depending on where they are found. For example, paper coffee cups, accepted in the Green Bin Program, would be weighed together other solicited organic material (food waste, animal waste, soiled paper etc.). If the same cup was found in the Residual Waste or Blue/Grey Box, it would be listed under the "Other Paper" category, which is comprised of multi-layered, waxed, and wrapping paper. The "Other Paper" category was not included as part of the calculation as not all items found in Residual Waste from this category are accepted in the Green Bin Program.

APPENDIX J:

BLUE/GREY BOX PROGRAM MATERIALS RECOVERY RATE

Appendix J: Blue/Grey Box Program Materials Recovery Rate - All Groups

Group 1

| Solicited Constituent Material | Description | Distribution of Blue/Grey Box Program Materials (kg/hhd/yr) | | | Recovery Rate |
|--------------------------------|---|---|----------------|---------------|---------------|
| | | Green Bin | Residual Waste | Blue/Grey Box | |
| 1. Paper Fibres | | | | | |
| Newspaper | ONP, inserts | 0.39 | 6.12 | 124.02 | 95.01% |
| Magazines / paperbacks | OMG, catalogues, soft covers | 1.17 | 2.81 | 12.74 | 76.21% |
| Phone Books | OTB | 0.00 | 0.00 | 11.18 | 100.00% |
| Cardboard | OCC | 0.00 | 0.78 | 59.54 | 98.71% |
| Boxboard/Rolls | OBB | 0.01 | 8.58 | 22.17 | 72.08% |
| Mixed Papers | junk mail, fine household papers | 0.00 | 11.38 | 19.89 | 63.60% |
| Molded Pulp | egg cartons, drink trays | 0.00 | 0.22 | 0.99 | 81.82% |
| Books | hard covered | 0.00 | 0.46 | 0.00 | 0.00% |
| Kraft Paper | paper bags | 0.00 | 1.83 | 0.52 | 22.16% |
| Gable Top Cartons | milk, juice | 0.03 | 0.46 | 1.83 | 79.15% |
| Aseptic Containers | tetra type packaging | 0.14 | 0.82 | 0.10 | 9.76% |
| | Sub-Total | 1.74 | 33.45 | 252.98 | 87.79% |
| 2. Plastics | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | 0.00 | 0.02 | 3.85 | 99.50% |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | 0.00 | 1.28 | 4.03 | 75.89% |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | 0.00 | 1.78 | 3.12 | 63.66% |
| | Sub-Total | 0.00 | 3.08 | 11.00 | 78.13% |
| 3. Metals | | | | | |
| Aluminum Cans | food & beverage cans | 0.00 | 0.68 | 6.24 | 90.23% |
| Aluminum Foil Trays | pie plates, etc | 0.01 | 0.33 | 0.42 | 55.65% |
| Steel Cans | food & beverage cans | 0.01 | 1.78 | 5.09 | 73.94% |
| Aerosol Cans | empty | 0.00 | 0.51 | 0.20 | 27.52% |
| Paint Cans | empty | 0.00 | 0.00 | 0.00 | N/A |
| | Sub-Total | 0.02 | 3.30 | 11.94 | 78.27% |
| 4. Glass | | | | | |
| LCBO Clear | clear glass alcoholic beverages | 0.00 | 0.72 | 7.09 | 90.83% |
| LCBO Coloured | coloured glass alcoholic beverages | 0.00 | 0.00 | 19.37 | 100.00% |
| Clear | food & beverage containers | 0.20 | 2.60 | 13.00 | 82.30% |
| Coloured | food & beverage containers | 0.00 | 0.07 | 2.41 | 97.37% |
| | Sub-Total | 0.20 | 3.38 | 41.86 | 92.13% |
| | Total | 1.95 | 43.21 | 317.79 | 87.56% |

Group 2

| Solicited Constituent Material | Description | Distribution of Blue/Grey Box Program Materials (kg/hhd/yr) | | | Recovery Rate |
|--------------------------------|---|---|----------------|---------------|---------------|
| | | Green Bin | Residual Waste | Blue/Grey Box | |
| 1. Paper Fibres | | | | | |
| Newspaper | ONP, inserts | 0.13 | 11.52 | 145.15 | 92.57% |
| Magazines / paperbacks | OMG, catalogues, soft covers | 0.07 | 2.21 | 12.94 | 85.04% |
| Phone Books | OTB | 0.00 | 0.59 | 4.55 | 88.61% |
| Cardboard | OCC | 0.00 | 5.14 | 53.37 | 91.22% |
| Boxboard/Rolls | OBB | 0.46 | 8.39 | 17.29 | 66.15% |
| Mixed Papers | junk mail, fine household papers | 0.06 | 14.63 | 19.89 | 57.52% |
| Molded Pulp | egg cartons, drink trays | 0.13 | 0.43 | 1.00 | 64.17% |
| Books | hard covered | 0.00 | 0.00 | 0.00 | N/A |
| Kraft Paper | paper bags | 0.00 | 2.08 | 0.54 | 20.60% |
| Gable Top Cartons | milk, juice | 0.01 | 1.56 | 2.62 | 62.58% |
| Aseptic Containers | tetra type packaging | 0.03 | 0.75 | 0.32 | 28.82% |
| | Sub-Total | 0.88 | 47.29 | 257.65 | 84.25% |
| 2. Plastics | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | 0.00 | 0.24 | 0.86 | 78.24% |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | 0.01 | 2.05 | 5.85 | 74.01% |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | 0.07 | 0.99 | 5.14 | 82.98% |
| | Sub-Total | 0.07 | 3.28 | 11.85 | 77.97% |
| 3. Metals | | | | | |
| Aluminum Cans | food & beverage cans | 0.11 | 0.51 | 4.49 | 87.90% |
| Aluminum Foil Trays | pie plates, etc | 0.01 | 0.91 | 0.22 | 19.43% |
| Steel Cans | food & beverage cans | 0.34 | 1.89 | 10.73 | 82.83% |
| Aerosol Cans | empty | 0.00 | 0.49 | 0.65 | 56.82% |
| Paint Cans | empty | 0.00 | 0.39 | 0.00 | 0.00% |
| | Sub-Total | 0.46 | 4.19 | 16.08 | 77.60% |
| 4. Glass | | | | | |
| LCBO Clear | clear glass alcoholic beverages | 0.00 | 0.00 | 6.24 | 100.00% |
| LCBO Coloured | coloured glass alcoholic beverages | 0.00 | 0.00 | 13.20 | 100.00% |
| Clear | food & beverage containers | 0.00 | 1.30 | 15.54 | 92.28% |
| Coloured | food & beverage containers | 0.00 | 0.26 | 0.78 | 75.00% |
| | Sub-Total | 0.00 | 1.56 | 35.75 | 95.82% |
| | Total | 1.41 | 56.31 | 321.33 | 84.8% |

Group 3

| Solicited Constituent Material | Description | Distribution of Blue/Grey Box Program Materials (kg/hhd/yr) | | | Recovery Rate |
|--------------------------------|---|---|----------------|---------------|---------------|
| | | Green Bin | Residual Waste | Blue/Grey Box | |
| 1. Paper Fibres | | | | | |
| Newspaper | ONP, inserts | 7.80 | 15.68 | 105.89 | 81.85% |
| Magazines / paperbacks | OMG, catalogues, soft covers | 0.00 | 3.51 | 12.81 | 78.49% |
| Phone Books | OTB | 0.00 | 0.00 | 4.10 | 100.00% |
| Cardboard | OCC | 0.00 | 9.69 | 28.49 | 74.63% |
| Boxboard/Rolls | OBB | 0.51 | 14.95 | 23.60 | 60.42% |
| Mixed Papers | junk mail, fine household papers | 0.27 | 13.80 | 10.40 | 42.51% |
| Molded Pulp | egg cartons, drink trays | 0.01 | 0.56 | 0.99 | 63.75% |
| Books | hard covered | 0.00 | 1.50 | 0.20 | 11.54% |
| Kraft Paper | paper bags | 0.14 | 3.25 | 0.47 | 12.29% |
| Gable Top Cartons | milk, juice | 0.01 | 0.56 | 1.59 | 73.72% |
| Aseptic Containers | tetra type packaging | 0.01 | 1.87 | 0.22 | 10.56% |
| | Sub-Total | 8.73 | 65.36 | 188.74 | 71.81% |
| 2. Plastics | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | 0.00 | 0.66 | 1.71 | 72.25% |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | 0.01 | 1.26 | 5.46 | 81.08% |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | 0.03 | 1.86 | 3.93 | 67.56% |
| | Sub-Total | 0.04 | 3.78 | 11.10 | 74.41% |
| 3. Metals | | | | | |
| Aluminum Cans | food & beverage cans | 0.00 | 0.36 | 2.52 | 87.36% |
| Aluminum Foil Trays | pie plates, etc | 0.04 | 0.73 | 0.01 | 0.83% |
| Steel Cans | food & beverage cans | 0.20 | 3.45 | 10.21 | 73.69% |
| Aerosol Cans | empty | 0.07 | 1.64 | 0.07 | 3.66% |
| Paint Cans | empty | 0.00 | 2.41 | 0.00 | 0.00% |
| | Sub-Total | 0.31 | 8.59 | 12.80 | 58.99% |
| 4. Glass | | | | | |
| LCBO Clear | clear glass alcoholic beverages | 0.00 | 0.52 | 1.89 | 78.38% |
| LCBO Coloured | coloured glass alcoholic beverages | 0.00 | 1.17 | 6.05 | 83.78% |
| Clear | food & beverage containers | 0.02 | 5.92 | 11.12 | 65.19% |
| Coloured | food & beverage containers | 0.00 | 0.33 | 6.05 | 94.90% |
| | Sub-Total | 0.02 | 7.93 | 25.09 | 75.94% |
| | Total | 9.09 | 85.66 | 237.72 | 71.50% |

Group 4

| Solicited Constituent Material | Description | Distribution of Blue/Grey Box Program Materials (kg/hhd/yr) | | | Recovery Rate |
|--------------------------------|---|---|----------------|---------------|---------------|
| | | Green Bin | Residual Waste | Blue/Grey Box | |
| 1. Paper Fibres | | | | | |
| Newspaper | ONP, inserts | 0.74 | 6.24 | 108.03 | 93.93% |
| Magazines / paperbacks | OMG, catalogues, soft covers | 0.00 | 4.49 | 13.13 | 74.54% |
| Phone Books | OTB | 0.00 | 0.00 | 1.43 | 100.00% |
| Cardboard | OCC | 0.01 | 14.56 | 21.32 | 59.40% |
| Boxboard/Rolls | OBB | 0.20 | 10.86 | 19.37 | 63.68% |
| Mixed Papers | junk mail, fine household papers | 0.29 | 14.17 | 21.78 | 60.10% |
| Molded Pulp | egg cartons, drink trays | 0.01 | 0.26 | 1.12 | 80.37% |
| Books | hard covered | 0.00 | 8.65 | 0.72 | 7.64% |
| Kraft Paper | paper bags | 0.34 | 3.58 | 2.37 | 37.75% |
| Gable Top Cartons | milk, juice | 0.03 | 0.34 | 0.78 | 67.42% |
| Aseptic Containers | tetra type packaging | 0.00 | 0.18 | 0.27 | 60.00% |
| | Sub-Total | 1.62 | 63.32 | 190.31 | 74.56% |
| 2. Plastics | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | 0.00 | 0.23 | 0.34 | 59.77% |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | 0.00 | 1.57 | 5.43 | 77.62% |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | 0.00 | 1.93 | 2.94 | 60.35% |
| | Sub-Total | 0.00 | 3.72 | 8.71 | 70.05% |
| 3. Metals | | | | | |
| Aluminum Cans | food & beverage cans | 0.07 | 1.07 | 5.22 | 82.19% |
| Aluminum Foil Trays | pie plates, etc | 0.03 | 0.36 | 0.05 | 10.61% |
| Steel Cans | food & beverage cans | 0.11 | 2.74 | 7.93 | 73.54% |
| Aerosol Cans | empty | 0.00 | 0.49 | 1.17 | 70.59% |
| Paint Cans | empty | 0.00 | 0.00 | 0.00 | N/A |
| | Sub-Total | 0.20 | 4.65 | 14.37 | 74.74% |
| 4. Glass | | | | | |
| LCBO Clear | clear glass alcoholic beverages | 0.00 | 0.03 | 4.42 | 99.42% |
| LCBO Coloured | coloured glass alcoholic beverages | 0.00 | 0.26 | 15.99 | 98.40% |
| Clear | food & beverage containers | 0.13 | 5.69 | 14.50 | 71.34% |
| Coloured | food & beverage containers | 0.00 | 0.00 | 2.54 | 100.00% |
| | Sub-Total | 0.13 | 5.98 | 37.44 | 85.97% |
| | Total | 1.95 | 77.68 | 250.83 | 75.90% |

Average

| Solicited Constituent Material | Description | Distribution of Blue/Grey Box Program Materials (kg/hhld/yr) | | | Recovery Rate |
|--------------------------------|---|--|----------------|---------------|---------------|
| | | Green Bin | Residual Waste | Blue/Grey Box | |
| 1. Paper Fibres | | | | | |
| Newspaper | ONP, inserts | 2.27 | 9.89 | 120.77 | 90.85% |
| Magazines / paperbacks | OMG, catalogues, soft covers | 0.31 | 3.25 | 12.90 | 78.37% |
| Phone Books | OTB | 0.00 | 0.15 | 5.31 | 97.32% |
| Cardboard | OCC | 0.00 | 7.54 | 40.68 | 84.36% |
| Boxboard/Rolls | OBB | 0.29 | 10.69 | 20.61 | 65.23% |
| Mixed Papers | junk mail, fine household papers | 0.15 | 13.50 | 17.99 | 56.86% |
| Molded Pulp | egg cartons, drink trays | 0.04 | 0.37 | 1.03 | 71.74% |
| Books | hard covered | 0.00 | 2.65 | 0.23 | 7.91% |
| Kraft Paper | paper bags | 0.12 | 2.68 | 0.98 | 25.85% |
| Gable Top Cartons | milk, juice | 0.02 | 0.73 | 1.70 | 69.50% |
| Aseptic Containers | tetra type packaging | 0.05 | 0.91 | 0.23 | 19.42% |
| | Sub-Total | 3.24 | 52.35 | 222.42 | 80.00% |
| 2. Plastics | | | | | |
| PETE Soft Drink Bottles | # 1 soft drink | 0.00 | 0.29 | 1.69 | 85.54% |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | 0.00 | 1.54 | 5.19 | 77.09% |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | 0.02 | 1.64 | 3.78 | 69.45% |
| | Sub-Total | 0.03 | 3.46 | 10.66 | 75.33% |
| 3. Metals | | | | | |
| Aluminum Cans | food & beverage cans | 0.04 | 0.65 | 4.62 | 86.88% |
| Aluminum Foil Trays | pie plates, etc | 0.02 | 0.58 | 0.17 | 22.27% |
| Steel Cans | food & beverage cans | 0.17 | 2.46 | 8.49 | 76.35% |
| Aerosol Cans | empty | 0.02 | 0.78 | 0.52 | 39.36% |
| Paint Cans | empty | 0.00 | 0.70 | 0.00 | 0.00% |
| | Sub-Total | 0.25 | 5.18 | 13.80 | 71.77% |
| 4. Glass | | | | | |
| LCBO Clear | clear glass alcoholic beverages | 0.00 | 0.32 | 4.91 | 93.96% |
| LCBO Coloured | coloured glass alcoholic beverages | 0.00 | 0.36 | 13.65 | 97.45% |
| Clear | food & beverage containers | 0.09 | 3.88 | 13.54 | 77.35% |
| Coloured | food & beverage containers | 0.00 | 0.16 | 2.94 | 94.76% |
| | Sub-Total | 0.09 | 4.71 | 35.04 | 87.95% |
| | Total | 3.60 | 65.71 | 281.92 | 80.27% |

Average Composition of Recyclable Materials Not Recovered

| Solicited Constituent Material | Description | Blue/Grey Box Program Materials Not Recovered (kg/hhld/yr) | Percent of Total Not Recovered |
|--------------------------------|---|--|--------------------------------|
| 1. Paper Fibres | | | |
| Newspaper | ONP, inserts | 12.16 | 17.54% |
| Magazines / paperbacks | OMG, catalogues, soft covers | 3.56 | 5.14% |
| Phone Books | OTB | 0.15 | 0.21% |
| Cardboard | OCC | 7.54 | 10.88% |
| Boxboard/Rolls | OBB | 10.99 | 15.85% |
| Mixed Papers | junk mail, fine household papers | 13.65 | 19.69% |
| Molded Pulp | egg cartons, drink trays | 0.40 | 0.58% |
| Books | hard covered | 2.65 | 3.82% |
| Kraft Paper | paper bags | 2.80 | 4.04% |
| Gable Top Cartons | milk, juice | 0.75 | 1.08% |
| Aseptic Containers | tetra type packaging | 0.95 | 1.37% |
| | Sub-Total | 55.59 | 80.21% |
| 2. Plastics | | | |
| PETE Soft Drink Bottles | # 1 soft drink | 0.29 | 0.41% |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | 1.54 | 2.23% |
| HDPE Bottles & Jugs | # 2 laundry detergent, shampoo, washer fluid | 1.66 | 2.40% |
| | Sub-Total | 3.49 | 5.04% |
| 3. Metals | | | |
| Aluminum Cans | food & beverage cans | 0.70 | 1.01% |
| Aluminum Foil Trays | pie plates, etc | 0.60 | 0.87% |
| Steel Cans | food & beverage cans | 2.63 | 3.79% |
| Aerosol Cans | empty | 0.80 | 1.16% |
| Paint Cans | empty | 0.70 | 1.01% |
| | Sub-Total | 5.43 | 7.83% |
| 4. Glass | | | |
| LCBO Clear | clear glass alcoholic beverages | 0.32 | 0.45% |
| LCBO Coloured | coloured glass alcoholic beverages | 0.36 | 0.52% |
| Clear | food & beverage containers | 3.96 | 5.72% |
| Coloured | food & beverage containers | 0.16 | 0.23% |
| | Sub-Total | 4.80 | 6.92% |
| | Total | 69.31 | 100.00% |

Notes:

- 1) All weights on "as is" basis.
- 2) Group = 4 sub-groups * 5 households = 20 households.
- 3) Recovery Rate is = (Weight of Material Stream/Total weight of suitable materials collected)*100%

APPENDIX K:

**COMBINED MATERIAL RECOVERY
RATE**

Appendix K: Combined Recovery Rate

"t" critical (90%, df=3)
 one-tailed two-tailed
 1.638 2.353

| Combined Recovery Material | Collection (kg/hhd/yr) | | | | | | 90% Confidence Interval (kg/hhd/yr) | | |
|--|------------------------|---------|---------|---------|---------|--------------------|--|--------------------|--------------------|
| | Group 1 | Group 2 | Group 3 | Group 4 | Average | Standard Deviation | one-tailed (<=) | two-tailed (lower) | two-tailed (upper) |
| Solicited Blue/Grey Box Program Materials | 317.79 | 321.33 | 237.72 | 250.83 | 281.92 | 43.82 | 317.80 | 230.36 | 333.48 |
| Solicited Green Bin Program Materials (excluding plastic bags) | 197.02 | 254.64 | 285.10 | 214.84 | 237.90 | 39.63 | 270.35 | 191.27 | 284.53 |
| Total Waste Collection | 772.18 | 905.71 | 996.44 | 836.81 | 877.79 | 96.07 | 956.46 | 764.74 | 990.83 |
| Combined Recovery Rate | 66.67% | 63.59% | 52.47% | 55.65% | 59.22% | | | | |

Notes:

1) Solicited Blue/Grey Box and Green Bin Program Materials are free of contaminants.

APPENDIX L:

WASTE AUDIT RESULTS SUMMARY

Etobicoke Waste Audit Spring 2003 - Results Summary

| | |
|--|--|
| Number of weeks surveyed: 4 | Municipality: City of Toronto: District 2 - Etobicoke |
| No. of Households surveyed per week: 80 | Survey Date: pri 22 - May 16, 2003 |

| Constituent Materials | Waste Collection Streams | Collected "B/GB" or "GB" or blank (see Notes below)* | Blue/Grey Box Collection (kg/hhld/yr) | Green Bin Collection (kg/hhld/yr) | Residual Waste Collection (kg/hhld/yr) | Final Results | | Recovery Rate (%) |
|-----------------------|--------------------------|--|---|---|--|-------------------------------------|----------------------------|-------------------------|
| | | | | | | Total Collection (kg/hhld/yr) | Percent of Total (%) | |

1. PAPER FIBRES

| | | | | | | | | |
|-------------------------------|---|------|---------------|-------------|--------------|---------------|---------------|------------|
| Newspaper | ONP, inserts | B/GB | 120.77 | 2.27 | 9.89 | 132.93 | 15.14% | 91% |
| Magazines & paperbacks | OMG, catalogues, soft covers | B/GB | 12.90 | 0.31 | 3.25 | 16.46 | 1.88% | 78% |
| Phone Books | OTB | B/GB | 5.31 | 0.00 | 0.15 | 5.46 | 0.62% | 97% |
| Cardboard | OCC | B/GB | 40.68 | 0.00 | 7.54 | 48.22 | 5.49% | 84% |
| Boxboard/Rolls | OBB | B/GB | 20.61 | 0.29 | 10.69 | 31.59 | 3.60% | 65% |
| Mixed Papers | junk mail, fine household papers | B/GB | 17.99 | 0.15 | 13.50 | 31.64 | 3.60% | 57% |
| Molded Pulp | egg cartons, drink trays | B/GB | 1.03 | 0.04 | 0.37 | 1.43 | 0.16% | 72% |
| Books | hard covered | B/GB | 0.23 | 0.00 | 2.65 | 2.88 | 0.33% | 8% |
| Kraft Paper | paper bags | B/GB | 0.98 | 0.12 | 2.68 | 3.78 | 0.43% | 26% |
| Spiral Wound | frozen juice, pringles type packaging | | 0.36 | 0.01 | 0.79 | 1.17 | 0.13% | N/A |
| Tissue/Toweling | tissues, napkins, paper towels | GB | 0.18 | 0.26 | 13.81 | 14.26 | 1.62% | N/A |
| Other Paper | multi-layered, waxed, wrapping, fast food | | 1.62 | 0.35 | 7.32 | 9.29 | 1.06% | N/A |
| Gable Top Cartons | milk, juice | B/GB | 1.70 | 0.02 | 0.73 | 2.45 | 0.28% | 69% |
| Aseptic Containers | tetra type packaging | B/GB | 0.23 | 0.05 | 0.91 | 1.18 | 0.13% | 19% |
| Sub-total Paper Fibres | | | 224.58 | 3.86 | 74.28 | 302.73 | 34.49% | 80% |

2. PLASTICS

| | | | | | | | | |
|---------------------------|---|------|--------------|-------------|--------------|--------------|--------------|------------|
| PETE Soft Drink Bottles | #1 soft drink | B/GB | 1.64 | 0.00 | 0.29 | 1.92 | 0.22% | 85% |
| PETE Other Bottles & Jars | #1 water, juice, food, dish soap, liquor, mouthwash | B/GB | 5.19 | 0.00 | 1.54 | 6.74 | 0.77% | 77% |
| PETE Other Packaging | #1 bakery, strawberry trays, egg cartons | | 0.60 | 0.02 | 0.84 | 1.46 | 0.17% | N/A |
| HDPE Bottles & Jugs | #2 laundry detergent, shampoo, washer fluid | B/GB | 3.78 | 0.02 | 1.64 | 5.44 | 0.62% | 69% |
| PVC Bottles | #3 bottles | | 0.26 | 0.00 | 0.10 | 0.36 | 0.04% | N/A |
| LDPE & PP Bottles | #4 and #5 bottles | | 0.53 | 0.02 | 0.04 | 0.59 | 0.07% | N/A |
| #7 Bottles | #7 bottles and jugs | | 0.11 | 0.00 | 0.09 | 0.20 | 0.02% | N/A |
| Polystyrene | #6 trays, cups, lids, packaging | | 0.64 | 0.19 | 3.28 | 4.11 | 0.47% | N/A |
| Wide Mouth Tubs & Lids | #2, #4, #5 tubs and lids | | 1.26 | 0.02 | 3.79 | 5.08 | 0.58% | N/A |
| Recyclable Film | shopping bags, milk bags | | 1.14 | 4.44 | 12.75 | 18.33 | 2.09% | N/A |
| Non-Recyclable Film | garbage bags, chip bags, pasta bags, plastic wrap | | 0.36 | 1.61 | 10.68 | 12.65 | 1.44% | N/A |
| Other Bottles | pesticides, oil, lubricants, solvents, anti-freeze | | 0.23 | 0.00 | 0.27 | 0.50 | 0.06% | N/A |
| Other Plastic Packaging | blister packaging and other unmarked packaging | | 1.31 | 0.12 | 4.97 | 6.41 | 0.73% | N/A |
| Durable Plastic Products | non-packaging such as VCR tapes, toys, garden hose | | 1.54 | 0.00 | 16.39 | 17.93 | 2.04% | N/A |
| Sub-total Plastics | | | 18.59 | 6.46 | 56.68 | 81.73 | 9.31% | 75% |

3. METALS

| | | | | | | | | |
|-------------------------|-------------------------------|------|--------------|-------------|--------------|--------------|--------------|------------|
| Aluminum Cans | food & beverage cans | B/GB | 4.62 | 0.04 | 0.65 | 5.31 | 0.61% | 87% |
| Aluminum Foil Trays | pie plates, etc | B/GB | 0.17 | 0.02 | 0.58 | 0.77 | 0.09% | 22% |
| Steel Cans | food & beverage cans | B/GB | 8.49 | 0.17 | 2.46 | 11.12 | 1.27% | 76% |
| Aerosol Cans | empty cans only | B/GB | 0.52 | 0.02 | 0.78 | 1.32 | 0.15% | 39% |
| Paint Cans | empty cans only | B/GB | 0.00 | 0.00 | 0.70 | 0.70 | 0.08% | 0% |
| Other Metal | scrap metal, other containers | | 0.86 | 0.26 | 9.24 | 10.36 | 1.18% | N/A |
| Sub-total Metals | | | 14.65 | 0.51 | 14.43 | 29.59 | 3.37% | 72% |

4. GLASS

| | | | | | | | | |
|------------------------|--|------|--------------|-------------|-------------|--------------|--------------|------------|
| LCBO Clear | clear glass alcoholic beverages | B/GB | 4.91 | 0.00 | 0.32 | 5.22 | 0.59% | 94% |
| LCBO Coloured | coloured glass alcoholic beverages | B/GB | 13.65 | 0.00 | 0.36 | 14.01 | 1.60% | 97% |
| Clear | food & beverage containers | B/GB | 13.54 | 0.09 | 3.88 | 17.50 | 1.99% | 77% |
| Coloured | food & beverage containers | B/GB | 2.94 | 0.00 | 0.16 | 3.10 | 0.35% | 95% |
| Other Glass | lightbulbs, window glass, cups, ceramics | | 0.50 | 0.03 | 4.86 | 5.40 | 0.61% | N/A |
| Sub-total Glass | | | 35.53 | 0.12 | 9.58 | 45.23 | 5.15% | 88% |

5. HOUSEHOLD SPECIAL WASTES

| | | | | | | | | |
|------------------------|----------------------------------|--|-------------|-------------|-------------|-------------|--------------|-----|
| Batteries | all types | | 0.00 | 0.00 | 0.19 | 0.20 | 0.02% | N/A |
| Paint | unemptied containers | | 0.00 | 0.00 | 0.07 | 0.07 | 0.01% | N/A |
| Motor Oil | used oil, filters | | 0.00 | 0.00 | 0.21 | 0.21 | 0.02% | N/A |
| Flammables | starter fluid, solvents | | 0.11 | 0.00 | 0.00 | 0.11 | 0.01% | N/A |
| Unemptied aerosol cans | all types | | 0.00 | 0.00 | 0.05 | 0.05 | 0.01% | N/A |
| Other HSW | sharps, drugs, acids, antifreeze | | 0.00 | 0.00 | 0.15 | 0.15 | 0.02% | N/A |
| Sub-total HSW | | | 0.11 | 0.00 | 0.67 | 0.78 | 0.09% | |

6. ORGANICS

| | | | | | | | | |
|---------------------------|----------------------------------|----|-------------|---------------|--------------|---------------|---------------|------------|
| Vegetable Food Waste | vegetable and fruit peelings | GB | 0.03 | | 55.67 | | | |
| Animal Food Waste | meats, fats, oils | GB | 0.00 | 224.13 | 2.42 | 291.67 | 33.23% | 77% |
| Animal waste | feces, animal litter and bedding | GB | 0.00 | | 9.41 | | | |
| Sanitary Products | diapers, napkins | GB | 0.00 | 13.50 | 10.10 | 23.60 | 2.69% | 57% |
| Grass | grass clippings | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00% | N/A |
| Woody Yard Waste | brush, branches, wood chips | YW | 0.00 | 0.05 | 5.46 | 5.51 | 0.63% | N/A |
| Other Yard Waste | leaves, soil, garden wastes | YW | 0.05 | 0.94 | 16.80 | 17.79 | 2.03% | N/A |
| Sub-total Organics | | | 0.08 | 238.63 | 99.87 | 338.58 | 38.57% | 70% |

7. OTHER WASTE MATERIALS

| | | | | | | | | |
|--|-------------------------------------|--|-------------|-------------|--------------|--------------|--------------|-----|
| Textiles | clothing, shoes, carpets, bedding | | 0.02 | 0.62 | 36.09 | 36.73 | 4.18% | N/A |
| Building Renovations | drywall, lumber, flooring | | 0.28 | 0.00 | 13.98 | 14.26 | 1.62% | N/A |
| Furniture | sofas, chairs, cabinets | | 0.15 | 0.00 | 2.28 | 2.42 | 0.28% | N/A |
| Electronics/Appliances | small appliances, computers, radios | | 0.00 | 0.00 | 6.79 | 6.79 | 0.77% | N/A |
| Rubber | tires, mats, tubing | | 0.02 | 0.00 | 1.03 | 1.05 | 0.12% | N/A |
| Wood ashes | fireplaces & wood stoves | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00% | N/A |
| Non-Classifiable | materials not classified elsewhere | | 3.46 | 1.14 | 13.30 | 17.90 | 2.04% | N/A |
| Sub-total Other Waste Materials | | | 3.92 | 1.76 | 73.47 | 79.15 | 9.02% | |

| | | | | | |
|--|------------|------------|------------|-------------|------------|
| Total Collection (kilograms/household/year) | 297 | 251 | 329 | 878 | 59% |
| Total percentages by waste type | 34% | 29% | 37% | 100% | |

Notes:

*B/GB = Blue/Grey Box Program Materials; GB = Green Bin Program Materials noted in "Collected" column if accepted in the respective program. YW = Yard Waste, not included in the scope of this audit. Yard Waste materials in Green Bin assumed to be recovered, although in wrong stream.
 *Normalized results used Residual Waste Collection numbers.
 Collection numbers are the averages of Group results, each Group was comprised of 20 households and studied for four weeks.