RESULTS HIGHLIGHTS

Preliminary Waste Characterization Study

The Preliminary Waste Characterization Study provides a first look at the generation and composition curbside refuse and recycling for New York City as a whole. It is an initial step in what will be a larger examination of DSNY-managed waste in New York City. The full New York City Waste Characterization Study will not only assess the City's curbside waste stream in its entirety, but will also look at how waste generation and composition varies by housing density, median income, borough, and season.

The Department of Sanitation conducted the Preliminary Study for several reasons. First, we wanted to be able to provide some data on the material characteristics of the curbside waste stream (the largest fraction of DSNY-managed waste) to inform the Solid Waste Management Plan. Second, conducting the Preliminary Study was an important test of study methodology and operational logistics in advance of the anticipated full study.

The sampling procedures used, which are detailed in this Report, ensure that its results are statistically accurate – in other words, we have taken enough samples of waste from enough trucks to be confident that the results presented here reflect what was in the waste in May and June of 2004. The methods used to analyze the data conform to rigorous statistical standards, and the results have been calculated so as to objectively convey what was observed.

The analysis yielded some surprising and interesting results, which are summarized and highlighted below.

MGP Composition

As shown in Figure 1 and Table 1, the composition of the MGP stream is lower in non-designated materials and mixed cullet than previously thought, and correspondingly higher in ferrous metals, aluminum, and plastics, painting a quite different picture than suggested in reports from our prior MGP processors under past contracts, which were in place 1994 through 2002.

Figure 1

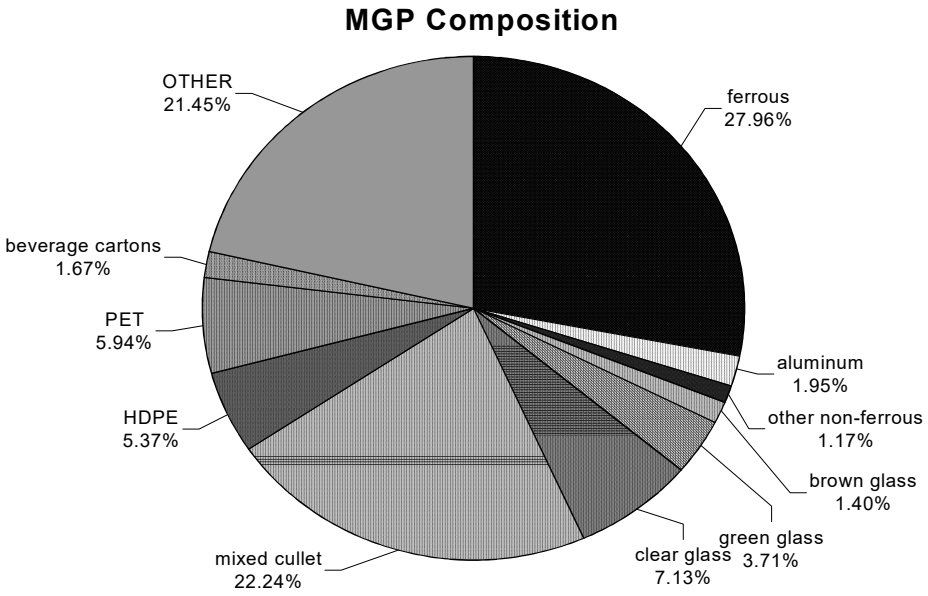


Table 1

Data Source	PWCS, June 2004	PRIOR CONTRACTS FOR MGP ACCEPTANCE, PROCESSING, MARKETING			
		Processor 1	Processor 2	Processor 3	Processor 4
MGP Composition					
ferrous	27.96%	20.43%	30.42%	28.18%	22.87%
aluminum	1.95%	0.60%	0.41%	1.07%	0.96%
other nonferrous	1.17%	0.00%	0.00%	0.00%	0.00%
METAL	**31.08%**	**21.03%**	**30.84%**	**29.25%**	**23.83%**
brown glass	1.40%	0.00%	0.75%	0.00%	0.00%
green glass	3.71%	0.00%	2.04%	0.00%	0.00%
clear glass	7.13%	0.00%	3.26%	0.00%	4.42%
mixed cullet	22.24%	48.99%	13.24%	30.33%	49.03%
GLASS	**34.49%**	**48.99%**	**19.29%**	**30.33%**	**53.46%**
HDPE	5.37%	3.06%	4.94%	3.56%	3.91%
PET	5.94%	1.45%	2.41%	2.23%	1.93%
HDPE/PET BOTTLES	**11.31%**	**4.50%**	**7.35%**	**5.80%**	**5.84%**
beverage cartons	**1.67%**				
Total MGP	**78.55%**	**74.52%**	**57.47%**	**65.38%**	**83.12%**
Non-Designated Materials					
non-designated plastics	6.49%	0.28%	0.67%	0.44%	0.18%
other	14.96%	25.19%	41.86%	34.18%	16.69%
TOTAL	**21.45%**	**25.48%**	**42.53%**	**34.62%**	**16.88%**

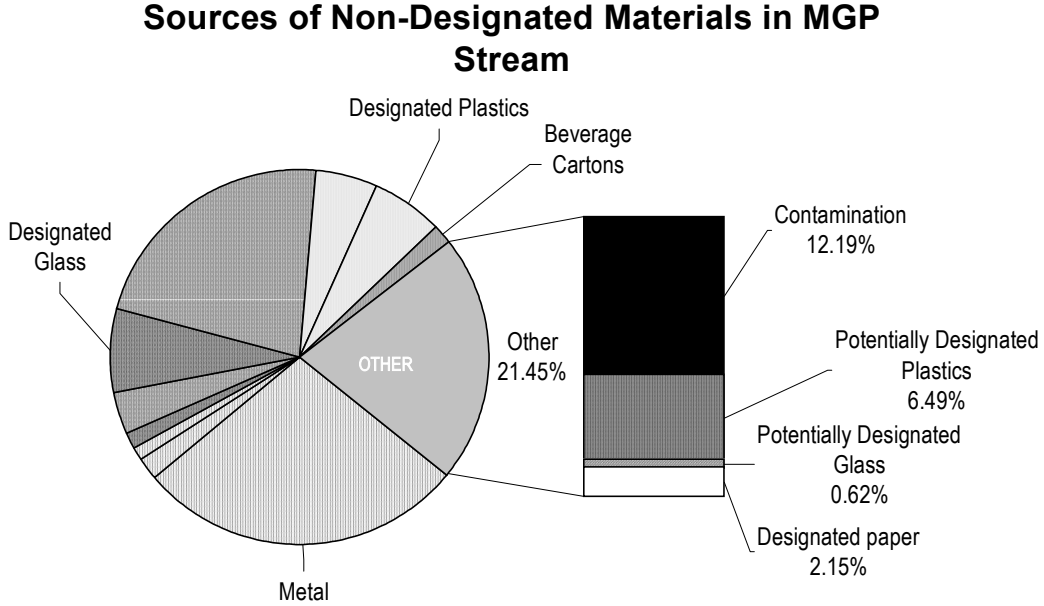
These results hold even when we recognize that glass was recently reintroduced to the recycling program. The total fraction of recyclable glass in the overall waste (refuse + recycling) streams was found to be 4.35%. Roughly 35% of the collected MGP consisted of glass (either intact, which we defined as glass pieces greater than 3 x 3 inches, or as mixed cullet).

We know that on average, nearly 72,000 tons of waste (refuse + recycling) were collected each week during May and June, and that an average of almost 4,900 tons of MGP were collected during this same period. Applying the glass percentages listed above to these numbers enables us to calculate a capture rate of 54% – a good rate under any circumstances but especially so in light of the recent program changes.

What this means is that if more glass is recycled as residents acclimate to the reinstated program, the fraction of glass in MGP may increase somewhat, and other materials fractions will correspondingly decrease. But such changes will not affect the fact that our MGP stream is richer in metals and plastics, and also contains fewer non-designated materials, than the conventional wisdom has held.

In addition, as shown in Figure 2, out of the fraction of the roughly 21% of the MGP stream labeled consisting of non-designated materials, only 12.2% consists of refuse or garbage materials thrown into the recycling bin. The rest includes plastic containers (#1 and #2 tubs, #3 through 7 containers) which could be potentially designated for recycling under future program expansion, together accounting for around 6.5% of nondesignated materials, plus a very small amount of nondesignated glass and a little over 2% designated paper.

Figure 2



Capture Rate

As shown in Table 2, the capture rate, when calculated as it has traditionally been calculated (tons of recycling actually collected as a percentage of the estimated total amount of materials designated for recycling in the waste stream) is over ten points **higher** than the rates estimated for May and June using data from the 1989/90 Study. It is also interesting to note that the capture rate for MGP is *higher* than that for Paper. This is a notable result given the recent reintroduction of glass to the curbside recycling program.

Table 2

Average Weekly Tonnage Collected, May and June 2004 [1]

Refuse	59,618.81
Paper	7,301.44
MGP	4,882.01
Total Waste	71,802.25

Estimated Weekly Tonnage of Materials Designated for Recycling in Total Waste Stream [2]

Designated Paper	21.47%	of waste	15,415.94
Designated MGP	11.93%	of waste	8,566.01
Total	33.40%		23,981.95

Capture Rates

Paper	47.36%
MGP	56.99%
Total	50.80%

Capture Rate Calculated Based on 1989/1990 Study Estimates of Designated Recyclables in the Waste *for reference*

May	June
39.80%	39.50%

NOTES
1. Refuse Collection Productivity Reports and Curbside Recycling Collection Reports, May and June 2004
2. Based on PWCS Results
3. Preliminary Recycling Diversion Report, May 2004; Mid-Month Recycling Diversion Report, June 2004. Capture rates are for total recycling; separate Paper and MGP capture rates were not reported

Presence of Materials Designated for Recycling in the Total Waste Stream

A related observation is a lower than expected fraction of recyclable materials in the overall waste (refuse + recycling) streams than previously estimated. According to this analysis, only **34%** of the waste stream consists of materials designated as recyclable under our current recycling program. This contrasts with an estimate of 45%, based on the 1989/90 Study, as reported in the 1992 SWMP [Copy of Results Page is Attached].

Yard Waste

In choosing May and June to sample and sort, we knew we would be getting more yard waste than at other times of the year. What we did not expect was that the fraction of yard waste would be substantially higher than that measured in Spring Seasonal Sort of the 1989-1990 Study. That study measured yard waste at only 4.11% of the total waste stream. The PWCS, in contrast, found that 7.7% of combined refuse and recycling sorted was yard waste, including leaves, grass and prunings.

Textiles

Another notable finding was that 6.5% of the total waste stream consisted of clothing and nonclothing textiles. This figure is up roughly a percentage point from the 1990 Spring Sort results.

Growth of Plastics

Another notable finding was the relative increase in the plastic fraction of the overall waste stream, which went from 9.16% in the Spring 1990 sort to 13.41%. There were smaller decreases in glass (5.67% in 1990 to 4.56% in 2004), metal (5.73% in 1990 to 5.07% in 2004), and paper (31.49% in 1990 to 29.4% in 2004), while organics and other categories remained steady. Appliances and electronics (including e-waste and audiovisual equipment), a category not assessed in 1990, comprised a very small fraction of the overall waste stream in 2004 - 0.92%.[1]

1. Note: the Comparisons cited here contrast summary data for the Spring from Exhibit 8-1 of the New York City Waste Composition Study [1989-90] published by the Operations Planning, Evaluation and Control Unit of DSNY (attached) with results reported in the main body of the Preliminary Waste Characterization Study Report (PWCS Report). Several caveats should be applied to the comparison. First, the 1989-90 Study characterized the waste stream without bulk, while the PWCS Report results incorporate bulk items. Further detail on bulk vs. nonbulk composition can be found in Appendix U of PWCS Final Report for those who are interested in further comparison of 1989-90 Study Results. Second, the 1989-90 Study Characterized Residential Waste separately from Institutional Waste, while the PWCS examined waste from both categories of generators ("curbside waste.") The full Waste Characterization Study will differentiate these two streams.

EXHIBIT 8-1

SUMMARY OF RESIDENTIAL COMPOSITION BY SEASON *

WASTE COMPONENT	SUMMER	FALL	WINTER	SPRING	ANNUAL
Corrugated/Kraft	5.02%	5.22%	5.27%	4.81%	5.08%
Newsprint	9.48%	11.08%	8.28%	8.39%	9.31%
Office/Computer	1.51%	0.91%	0.46%	0.23%	0.78%
Magazines and Glossy	3.00%	3.22%	2.62%	2.61%	2.86%
Book/Phone Book	1.18%	1.15%	0.42%	0.54%	0.83%
Non-Corrugated OCC	4.14%	2.44%	2.76%	2.03%	2.85%
Mixed	8.03%	12.88%	12.45%	12.88%	11.52%
TOTAL PAPER FRACTION	32.35%	36.91%	32.25%	31.49%	33.24%
Clear HDPE containers	0.57%	0.49%	0.54%	0.47%	0.52%
Colored HDPE containers	0.69%	0.62%	0.62%	0.57%	0.63%
LDPE	0.23%	0.15%	0.05%	0.08%	0.13%
Films and Bags	5.05%	4.93%	5.05%	5.03%	5.01%
Green PET containers	0.13%	0.08%	0.11%	0.12%	0.11%
Clear PET containers	0.47%	0.37%	0.52%	0.44%	0.45%
PVC	0.15%	0.16%	0.11%	0.12%	0.13%
Polypropylene	0.16%	0.21%	0.08%	0.13%	0.14%
Polystyrene (Est. in Summer)	0.86%	0.68%	0.98%	0.93%	0.86%
Miscellaneous Plastic	1.59%	1.09%	1.09%	1.27%	1.26%
TOTAL PLASTIC FRACTION	9.89%	8.78%	9.15%	9.16%	9.25%
Grass/Leaves	2.50%	5.96%	7.59%	2.79%	4.72%
Brush/Prunings/Stumps	1.56%	0.28%	0.77%	1.32%	1.07%
TOTAL YARD WASTE FRACTION	4.56%	6.25%	8.36%	4.11%	5.80%
Lumber	2.37%	2.28%	2.09%	3.63%	2.73%
Textiles	6.71%	4.72%	5.08%	5.31%	5.47%
Rubber	0.22%	0.32%	0.06%	0.21%	0.21%
Fines	2.49%	2.26%	2.33%	2.98%	2.52%
Diapers	3.54%	3.49%	4.34%	3.60%	3.86%
Foodwaste	14.18%	14.34%	13.82%	14.87%	14.31%
Miscellaneous Organic	9.35%	8.26%	8.72%	9.12%	8.87%
TOTAL ORGANIC FRACTION	39.86%	35.66%	36.45%	39.93%	37.97%
Clear Glass containers	3.20%	2.95%	3.51%	3.52%	3.29%
Green Glass containers	1.18%	0.97%	1.17%	1.05%	1.09%
Brown Glass containers	0.97%	0.83%	0.96%	0.94%	0.92%
Miscellaneous Glass	0.47%	0.16%	0.06%	0.17%	0.22%
TOTAL GLASS FRACTION	5.82%	4.91%	5.69%	5.67%	5.52%
Aluminium Food Containers/Foil	0.46%	0.48%	0.56%	0.50%	0.50%
Aluminium Beverage Cans	0.35%	0.33%	0.37%	0.31%	0.34%
Miscellaneous Aluminium	0.21%	0.21%	0.04%	0.04%	0.12%
TOTAL ALUMINIUM FRACTION	1.02%	1.02%	0.97%	0.85%	0.96%
Ferrous Metal Food containers	1.96%	2.00%	2.30%	2.09%	2.08%
Other Ferrous Metal	1.94%	2.45%	2.22%	2.78%	2.35%
TOTAL FERROUS METAL FRACTION	3.89%	4.45%	4.52%	4.88%	4.43%
Bimetal Cans	0.01%	0.03%	0.02%	0.00%	0.01%
TOTAL METAL FRACTION	4.92%	5.50%	5.51%	5.73%	5.41%
Non-bulk Ceramics	0.05%	0.22%	0.27%	0.22%	0.19%
Miscellaneous Inorganic	2.24%	1.65%	2.06%	3.16%	2.29%
TOTAL INORGANIC FRACTION	2.29%	1.88%	2.33%	3.38%	2.48%
Pesticides	0.02%	0.00%	0.00%	0.01%	0.01%
Non-pesticide Poisons	0.02%		0.01%	0.01%	0.01%
Paint/Solvent/Fuel	0.04%	0.06%	0.14%	0.13%	0.09%
Dry Cell Batteries	0.05%	0.02%	0.02%	0.02%	0.03%
Car Batteries	0.09%	0.02%	0.01%	0.20%	0.08%
Medical Waste	0.01%	0.00%	0.02%	0.03%	0.02%
Miscellaneous HHW	0.17%	0.04%	0.07%	0.14%	0.11%
TOTAL HHW FRACTION	0.41%	0.15%	0.28%	0.54%	0.35%

* Does not include bulk items

Final Report

Preliminary Waste Characterization Study

New York City Department of Sanitation

September 2004

R·W·BECK

R. W. BECK
Preliminary Waste Characterization Study

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EXECUTIVE SUMMARY

Between April 2, 2004 and June 30, 2004, the New York City Department of Sanitation ("DSNY") conducted a Preliminary Waste Characterization Study ("PWCS") to obtain a snapshot of the City's waste stream. The PWCS was carried out by R. W. Beck under Section 4.6.5 (Supplementary Task 4 – Additional Work) of the contract for a Waste Characterization Study (PIN # 82702BR00015) (the "Contract") between R. W. Beck and DSNY.

The purpose of the PWCS was to characterize the City's curbside residential waste. This included a detailed composition analysis of the City's refuse setouts, paper and metals/glass/plastic ("MGP") recycling setouts, and a combined aggregate (refuse plus recycling) of the City's waste stream.

This report describes the planning, implementation, and results of the PWCS and is presented in eight parts and includes 24 supporting appendices.

Overall Planning and Approach

The PWCS was conducted in two phases. The Refuse Sort was designed to characterize the City's curbside refuse and took place from May 15 through May 28, 2004. The Recycling Sort characterized the paper and MGP set out for recycling and took place from June 7 to June 12, 2004. The planning for the Refuse Sort began on April 2, when the contract between DSNY and R.W. Beck was approved, and included meetings, site visits, and the development of planning documents. The resulting PWCS Operations Plan, which describes the project, is presented in Appendix A.

To develop a snapshot of the City's waste, the PWCS included the selection of representative refuse and recycling samples, the sorting these samples into various material categories, the weighing and/or counting of the resulting subcomponents, conduct moisture analysis on selected samples, and analyzing the resulting data. The first step in this process was the development of a sampling plan.

Sampling Plan

The PWCS Sampling Plan was a guide for selecting representative samples of waste. Separate sampling plans were developed for refuse and recycling.

Each sampling plan addressed four issues: (1) the number of samples to be selected, (2) the average weight of each sample, (3) the method for selecting which parts of the waste stream to sample, and (4) the acquisition of samples.

The Refuse Sampling Plan called for 200 samples of refuse with an average weight of 200 to 250 pounds. It was estimated that 200 refuse samples would provide an

estimate with a reasonable level of statistical precision for most of the major material categories. The 200 to 250 pound weight range is the current industry standard for refuse characterization studies.

Two criteria were used to select the refuse samples. First, samples were selected from each of the City's five boroughs, based the contribution of each borough to the amount of refuse collected by DSNY during the period of July 2003 to February 2004. Second, in the belief that curbside refuse collected during the early part of the week differs qualitatively from the waste collected late in the week, early week ("EW") and late week ("LW") samples were selected. Using these criteria and routing data provided by DSNY, R.W. Beck randomly selected trucks from which the samples were taken. DSNY arranged for the selected trucks to deliver their loads to one of two private transfer stations.

The Recycling Sampling Plan called for gathering 100 samples of paper set out for recycling and 100 samples of MGP. Because recycling materials are more homogeneous than refuse, the weight of each recycling sample was targeted to fall between 100 and 150 pounds. It was estimated that 100 samples for each of the two recycling streams would provide an estimate with a reasonable level of statistical precision. Recycling samples were selected from each of the City's five boroughs, based the contribution of each borough to the City's overall recycling collection during the period of April 5, 2004 to April 19, 2004. Because recycling collection occurs once a week, no EW – LW criteria was used. Using recycling routing data provided by DSNY, R.W. Beck randomly selected trucks from which the paper and MGP samples were taken. DSNY arranged for the selected recycling trucks to deliver their loads to two private processing centers, one for paper and one for MGP.

Both the refuse and recycling samples were acquired by R.W. Beck's Sampling Managers at the transfer stations or processing centers. Each sample was collected in 96-gallon toters, weighed, and transported from the transfer station or processing center to DSNY's Greenpoint Marine Transfer Station ("MTS") where the samples were sorted. The acquisition of each sample was recorded on a Sample Management Form which included the date the sample was acquired, the truck route code, the truck identification number, transfer station's on processing centers name the weight of the sample and any bulky items that were part of the sample.

Sort Logistics

The logistics for sorting the samples were driven by the material categories into which the samples were to be sorted. The list of material categories used in both the Refuse Sort and the Recycling Sort included 87 materials or products under nine material groups (e.g., paper, plastic, glass, etc.). In addition, a number of subsorts and counts were also conducted. The rationale for the extensive selection of material categories was to provide a comprehensive and detailed picture of both the refuse and recycling stream.

All sorting took place at the MTS. To sort 200 samples of refuse into 87 material categories in 11 days required three sorting crews, consisting of four or five temporary

workers and an R.W. Beck Crew Chief. The three sorting crews were overseen by a Field Supervisor and the Project Manager. DSNY staff monitored both the acquisition and the sorting of samples. Because the recycling samples were smaller and more homogeneous, the 100 samples of paper and the 100 samples of MGP were sorted by the three sorting crews in six days.

After a sample was sorted, each bin of material was weighed and the weight recorded by the Crew Chief on a Sort Data Form. The results of subsorts and counts were also recorded on this form. These forms, along with the Sample Management Form, were copied and sent to R.W. Beck's Data Manager for analysis.

The PWCS also included a set of moisture and particulate tests conducted on selected materials from randomly selected refuse and recycling samples. The tests were designed to determine how much moisture and foreign matter was present in each material. When refuse is placed in a collection vehicle, it is compacted and moisture from food waste or other sources can migrate into other materials. The result is that the weight of a given material may include some of this moisture. Similarly, particles of glass or organic matter may be pressed into other materials, adding the weight of this foreign matter to the weight of the material. The purpose of the moisture and particulate testing was to determine the weight of each material less moisture and foreign matter. From 20 refuse samples, 385 tests were conducted; from 11 paper samples, 116 tests were conducted; and from 10 MGP samples, 140 tests were conducted. The moisture and particulate tests were conducted by an outside laboratory and the results of these tests were also sent to the Data Manger.

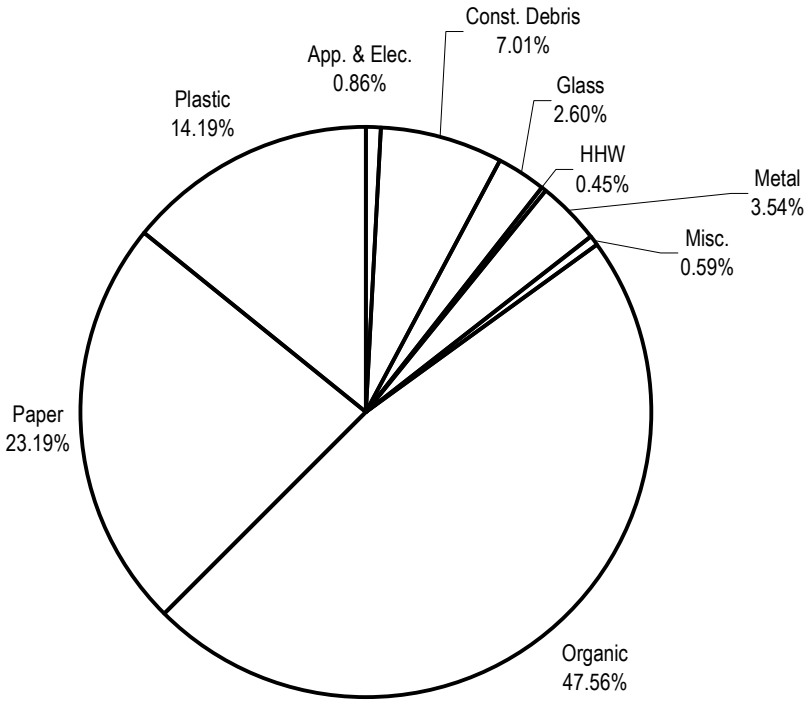
Data Recording and Analysis

The information on the data forms, as well as the data on moisture and particulate testing, were checked by the Data Manager and entered into the PWCS database. Various Quality Control and Quality Assurance ("QA/QC") steps were taken to assure the accuracy of the data. A summary of the results are presented below.

Refuse Sort Results

Figure ES-1 is a pie chart showing the fraction of each of the nine major material groups in the PWCS Refuse Sort.

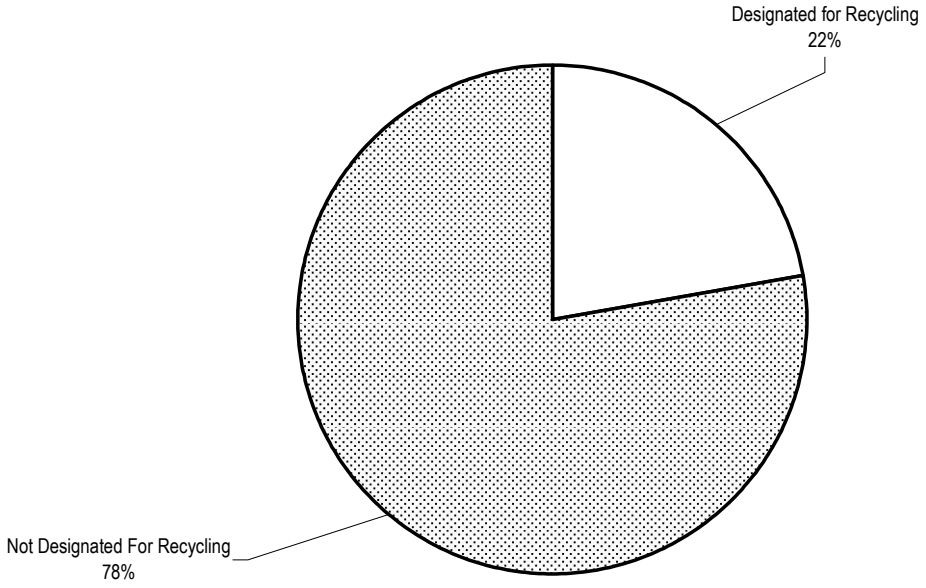
Figure ES-1
PWCS Refuse Composition by Material Group



As Figure ES-1 shows, organics (47.56 percent) make up the largest percentage of the refuse stream, followed by paper (23.19 percent) and plastic (14.19 percent). Although not shown in the figure above, a closer look at the results of the Refuse Sort reveals that the largest material categories are food waste (15.92 percent), compostable/soiled/waxed corrugated Paper (7.49 percent), and mixed low grade paper (7.34 percent).

The PWCS also separated out the materials that are designated for recycling in the refuse stream and found that 22 percent of the refuse was made up of these designated recycling materials. This is shown in Figure ES-2. Although not shown, the highest percentages of designated materials were mixed low grade paper (7.34 percent) and newspaper (3.71 percent).

Figure ES-2
Designated Recycling in Refuse Stream



The variability within the Refuse Samples differed depending on material. The absolute measure of variability of material in a sample is the Standard Deviation which measures the difference between each samples result and the estimated Mean. In the Refuse samples the Standard Deviation for each of the nine major material groups are shown in Table ES-1.

Table ES-1
Standard Deviation of Major Material Groups in the Refuse Sort

Material	Standard Deviation
Paper	9.46%
Plastic	4.81%
Glass	2.24%
Metal	2.54%
Organics	13.04%
Appliances and Electronics	2.04%
Construction Debris	8.41%
Miscellaneous Inorganics	1.60%
Household Hazardous Waste	1.62%

In terms of individual material categories, the materials with the largest standard deviations were Leaves and Grass (10.54 percent) and Food Waste (8.13 percent). The variability of the materials in the PWCS refuse samples is typical of variability found in other large waste characterization studies.

Recycling Sort Results

The results of the Recycling Sort included separate results for Paper, MGP, and the combination of Paper and MGP ("Aggregated Recycling"). Figures ES-3, ES-4 and ES-5 show the composition of Paper, MGP and Aggregate Recycling, respectively, by major material group.

Figure ES-3 Paper Material Composition by Material Group

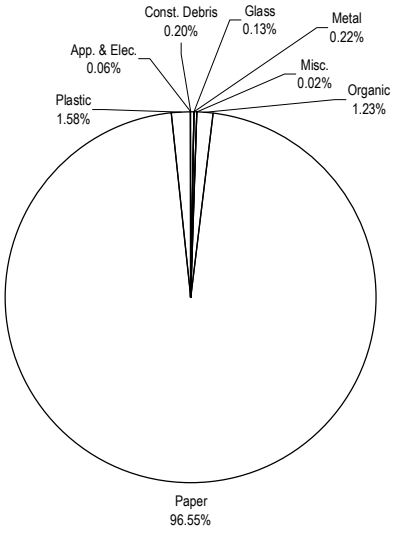


Figure ES-4 MGP Material Composition by Material Group

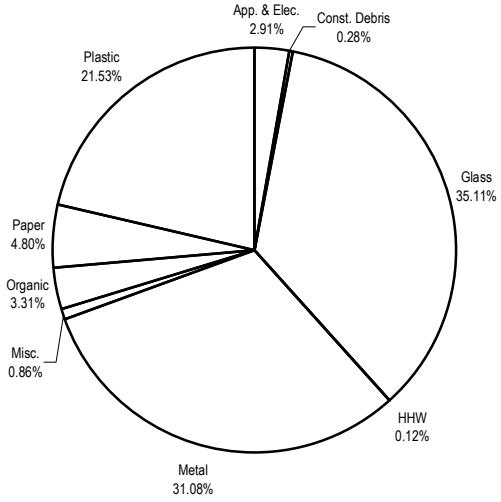
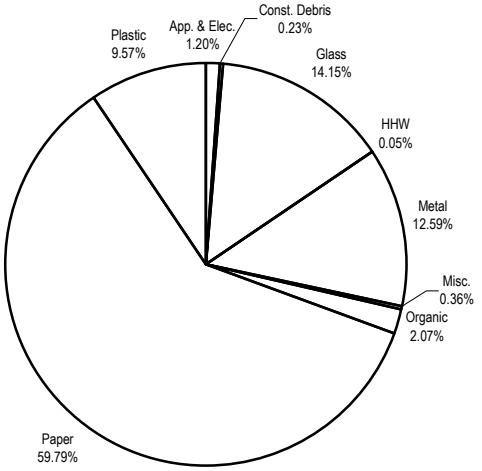


Figure ES-5 Material Composition for Aggregated Recycling by Material Group



During the Recycling Sorts, three other classes of materials were defined:

- *Recyclable materials not currently designated under DSNY's recycling program* includes nondesignated plastic or glass in the MGP recycling stream.
- *Contamination* includes nondesignated materials other than nondesignated glass or plastic in the MGP recycling stream or nondesignated materials other than nondesignated paper in the Paper recycling stream. For example, food waste in the MGP recycling stream would be an example of Contamination.
- *Cross-Stream Recycling* includes designated MGP materials in the Paper recycling stream or designated Paper materials in the MGP recycling stream.

Table ES-2 summarizes the prevalence of the various types of contamination that were found in the Paper and MGP. The Aggregated Recycling stream was found to consist of 88.27 percent designated material and 11.72 percent contamination.

Table ES-2
Classes of Materials in the Recycling Sorts

Material	Paper Sort	MGP Sort	Weighted Average
Designated Material	94.78%	78.55%	88.27%
Contamination	4.49%	19.30%	10.42%
Cross-Stream Recycling	0.74%	2.15%	1.30%
Total	**100.00%**	**100.00%**	**100.00%**

Unlike most major metropolitan areas, the City designates all metal items for recycling in the MGP stream. As a result, the MGP stream includes not only ferrous and aluminum cans, but stoves, refrigerators, bed frames, and other large metal appliances. Initially, the MGP samples were selected at the processing center by a Bobcat front-end loader with a ½ cubic yard bucket. However, this bucket was too small to pick up

some of the large metal items. Three days after the beginning of the Recycling Sort, a front-end loader with a larger bucket was used, but it is likely that some large metal items in the MGP stream were not included in samples and, therefore, the amount of ferrous metal in the MGP stream was undercounted. This issue is discussed in greater detail in Appendix W.

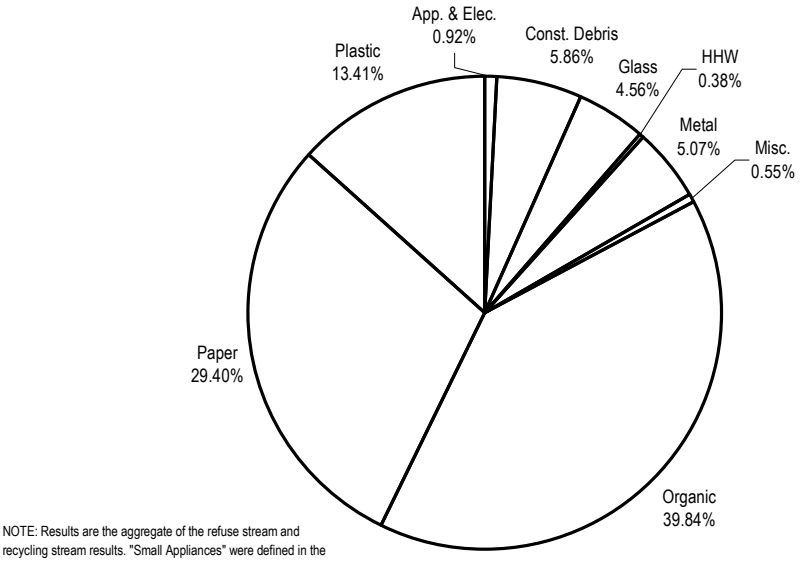
A subsort conducted as part of the Recycling Sort involved sorting containers found in the MGP stream into three categories: (1) Deposit containers, (2) Non-Deposit Containers, and (3) Potential Deposit Containers, as defined by pending New York State Legislation that would expand the number of products that qualify for deposit. Twelve types of containers were subsorted. The subsort results showed that 21.56 percent of the total number of containers were deposit, 47.33 percent were Non-Deposit, and 31.12 containers were potential deposit. More than 57 percent of the PET bottles, 20.40 percent of the HDPE bottles, and 17.62 percent of the clear glass bottles were in the potential deposit category. A product count showed that from the 24,500 pounds of materials that were sorted, 3,084 deposit containers were found with a total value of $154.20.

The variability within the Paper and MGP samples differed depending on the material. The absolute measure of variability of material in a sample is the Standard Deviation which measures the difference between each sample result and the estimated Mean. In the Paper samples the Standard Deviation was 3.34 percent. In the MGP samples, the Standard Deviations for Metal, Glass, and Plastic were 13.95 percent, 17.49 percent, and 7.04 percent respectively. This indicates that there was higher variability in the MGP samples compared to the Paper samples, with Metal and Glass exhibiting the highest variability.

Combined Waste Composition Results

Figure ES-6 shows the fraction of each of the nine major material groups in the combined PWCS Refuse and Recycling Sorts.

Figure ES-6
PWCS Waste Composition by Material Group

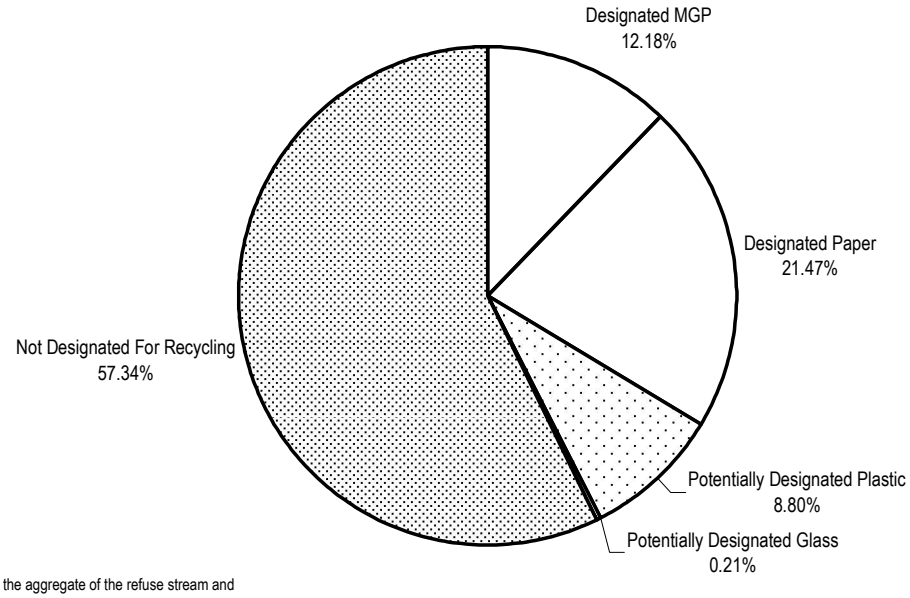


NOTE: Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50% metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

Figure ES-6 shows that organics, paper and plastics make up more than 82 percent of the City's waste stream. Food waste (13.35 percent), Mixed Low Grade Paper (8.71 percent), Newspaper (7.17 percent), and Leaves and Grass (5.17 percent) are the four largest material categories. .

Figure ES-7 summarizes the percentages of designated Paper and MGP in the City's overall waste stream. As shown, 33 percent of the City waste stream are materials designated by DSNY for recycling, made up of 12 percent MGP and 21 percent paper. Using the average weekly tonnage of refuse and recyclables collected during May and June of 2004 and applying the estimates from the PWCS, the total amount of designated materials generated per week in the City would be 23,695 tons.

Figure ES-7
Details of the PWCS Waste Stream by Designated Materials



NOTE: Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50% metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

Recommendations

The PWCS provided an excellent field test for the Phase I Study. The following recommendations should be addressed prior to the commencement of the Phase I Study:

1. The protocol used to account for bulk items, particularly the bulk items in the refuse and MGP streams, should be re-examined and refined. Because DSNY collects large items, such as stoves and refrigerators, as a part of the MGP stream and so many of these items are a part of this stream, it is recommended that a protocol which develops more complete and detailed information on these items be developed.
2. Because the Waste Characterization Study, including the PWCS, is to be used for DSNY's planning over the next decade, it is recommended that in developing materials categories for the Phase I Study, any deletions or collapsing of the sort categories used in the PWCS be carefully evaluated before they are made.
3. Total appliances and electronics represented 1.17 percent and total textiles represented 6.45 percent (includes clothing and non-clothing textiles, carpet and upholstery and shoes) of the combined refuse and recycling stream. It is recommended that a subsort and/or count of these items in the refuse stream be

included in the Phase I Study to provide more complete and detailed information on these materials.

4. Given the significant percentage of moisture and particulates found in the refuse and recycling steams, particularly for materials such as paper and textiles, it is recommended that moisture and particulate testing be included in the Phase I Study.
5. Because the subsort of "potential deposit" and single-use containers in the MGP stream provided useful information, it is recommended that a similar subsort be included for the refuse stream in the Phase I Study.

Section 1
OVERVIEW

1.1 Introduction

Between April 2, 2004 and June 30, 2004, the New York City Department of Sanitation ("DSNY") conducted a Preliminary Waste Characterization Study ("PWCS") to obtain a snapshot of New York City's waste stream. The PWCS was carried out by R. W. Beck under Section 4.6.5 (Supplementary Task 4 – Additional Work) of the contract for a Waste Characterization Study (PIN # 82702BR00015) (the "Contract") between R. W. Beck and DSNY.

The purpose of the PWCS was to characterize New York City's curbside residential waste, including the refuse and materials set out for recycling.

This report describes the planning, implementation, and results of the PWCS and is presented in eight parts.

- Overall Planning and Approach
- Sampling Plan
- Sort Logistics
- Data Recording and Analysis
- Refuse Sort Results
- Recycling Sort Results
- Combined Waste Composition Results
- Conclusion and Recommendations

This report also includes an Executive Summary and 24 Appendices with supporting documentation.

Section 2
OVERALL PLANNING AND APPROACH

The planning for the PWCS took place in two phases. The first phase of planning occurred between April 2, 2004, when the Contract was approved, and May 15, 2004, when the first refuse samples were collected. This planning phase focused on the refuse sampling and sorting component of the study.

The second planning phase, for fine-tuning the recycling sampling and sorting component of the study, occurred from May 31 through June 6 when the first recycling samples were collected.

Planning activities included numerous discussions, both by telephone and in person, between DSNY staff and members of R. W. Beck's professional staff, site visits to the City by R. W. Beck, which included testing procedures for obtaining samples of refuse and recycling material, and the development of two planning documents—the PWCS Work Plan and PWCS Operations Plan.

2.1 PWCS Work Plan

Work on the PWCS began with the development of a Price Proposal and Work Plan which outlined the proposed Scope of Services and schedule for the PWCS (the "PWCS Work Plan"). The Work Plan was approved by DSNY on April 30, 2004.

2.2 PWCS Operations Plan

The second planning document for the PWCS was the Operations Plan, a more detailed document than the PWCS Work Plan, which described the specific steps involved in gathering and sorting refuse and recycling samples. The PWCS Operations Plan also included the names of the professional staff that were to participate in the PWCS and presented the procedures for data handling and Quality Assurance and Quality Control ("QA/QC"). The PWCS Operations Plan is presented in Appendix A.

2.3 Calendar

The PWCS sorting took place during May and June of 2004. The key operational dates in the PWCS, which are referred to throughout the text of this report, are shown in Figure 2-1 below.

Figure 2-1 –Calendar

MAY 2004

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7 Refuse & Recyclable Sampling Procedure Tested	8
9	10	11	12	13	14	15 Refuse Sort
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

JUNE 2004

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7 Recyclables Sort	8	9	10	11	12
13	14	15	16	17	18	19
20	21 Preliminary Refuse Data Provided to DSNY	22	23	24	25	26
27	28 Preliminary Recyclable Data Provided to DSNY	29	30 Draft PWCS Report Submitted to DSNY			

Section 3
SAMPLING PLAN

The PWCS Operations Plan (in Appendix A) contained a sampling plan for both refuse and recycling material sampling and sorting ("Sampling Plan"). The Sampling Plan was designed to achieve statistical representation for both the Refuse and Recycling material streams, as well as the combined streams. The Sampling Plan was developed by the R. W. Beck Project Team and submitted to DSNY prior to beginning the field data collection.

The Sampling Plan considered four issues for both Refuse and Recycling materials: (1) how many samples should be collected; (2) how much each sample should weigh; (3) how the samples would be selected; and (4) what process should be used to collect the samples. Each of these issues is discussed below.

3.1 Sample Number

In any characterization study, the number of samples that are sorted affects the accuracy of the estimate. For example, if only one sample of a particular material stream were sorted, it is very unlikely that the estimate resulting from sorting that single sample would match the composition of the entire material stream. On the other hand, if hundreds of thousands of samples were sorted, enough samples so that every ounce of the City refuse and recycling materials were sorted, the resulting estimate would be very accurate indeed. In fact, it would be perfectly accurate.

Determining the number of samples to be sorted is closely related to the nature of the material that will be sorted. If the material being sorted were consistently and homogeneously discarded by households, it would be relatively easy to arrive at an estimate. It would take very few samples to develop an estimate if there were only two materials in the material stream and they were always found in the same proportion in every sample. Of course, this is not the case. Refuse, and to a lesser degree, recycling materials, are extremely variable. The percentage of each type of waste or recycling material can vary considerably among samples. Even from the same household, the type of refuse or recycling materials can vary depending on when the sample is collected. For example, during the autumn, one would expect to find large amounts of leaves in the refuse stream, but in the winter there will be few, if any, leaves in the refuse stream. On the other hand, food waste will be found throughout the year. In the recycling stream, it is likely that milk cartons will occur year around, while certain water, soda and refreshment containers may increase during the hot summer months when consumption of these items increases.

Because of the potential for variability among samples, a different number of samples may be required to obtain an accurate estimate for different types of waste. Continuing the example, since food waste is likely to be found more consistently in

the refuse stream than leaves, fewer samples would be required to obtain an accurate estimate of the food waste percentage in the refuse stream.

Typically, an estimate of the composition of waste is presented as three numbers: (1) the Sample Mean; (2) the Confidence Level; and (3) the Confidence Interval. The Sample Mean is the average percentage of a given material found in the samples sorted. For example, after sorting thirty samples of refuse, we will have a list of thirty percentages of paper waste—one for each refuse sample sorted. If the average of the thirty percentages of paper is 35 percent, then the Sample Mean for paper found in the samples is 35 percent.

The Confidence Level and the Confidence Interval are intertwined concepts. Together, they allow statements to be made about the entire population from the sample taken. The Sample Mean is simply the average value of the samples; it is unlikely that the percentage of a given type of waste for the entire population matches the Sample Mean exactly. The Confidence Level and the Confidence Interval provide a way to convey how much the Sample Mean tells us about the entire population.

The Confidence Level indicates the degree of certainty that the Confidence Interval contains the population's true mean value. The higher the Confidence Level, the greater our certainty that the mean of the entire population is contained within the Confidence Interval. For example, if the Confidence Interval around the Sample Mean – 33 percent to 37 percent for paper – is based on a Confidence Level of 90 percent, we can be 90 percent confident that the population's percentage of paper waste is contained in that interval. The purpose of the Confidence Level is to provide an indication of the accuracy of the sampling results. In waste characterization studies, a 90 percent Confidence Level is a widely accepted standard.

The third number used in describing the composition of the refuse is the Confidence Interval. This is an expression of the uncertainty regarding the population mean. For example, our Sample Mean of 35 percent for paper waste may have a Confidence Interval of ±7 percent, at a 90 percent Confidence Level. That is, based on our number of samples and results obtained, we would expect that 90 percent of the time, the amount of paper waste in the refuse of the entire population would be between 28 percent and 42 percent. Put another way, if we could actually go out and determine the exact percentage of paper waste in our population, we are 90 percent certain that the actual percentage of paper in the refuse stream would fall between 28 percent and 42 percent. If we wanted a more accurate estimate, we would have to sort more samples.

In recommending the number of samples to sort, R. W. Beck considered not only the level of accuracy of the estimate, but the cost of providing this estimate and the variability of materials being sorted. As noted above, the variability of some material in the refuse is greater than other materials. Yard waste is much more variable than food waste. Therefore, for a given number of samples, the estimate of some materials will be more accurate than the estimate for others. Sorting a few hundred samples of refuse may provide a Confidence Interval of ±8 percent for paper, but a ±30 percent for yard waste. To achieve a ±8 percent for yard waste would require significantly more samples and a higher cost to obtain such accuracy of the results.

In practical terms, "variability" simply means the variation we are likely to find among samples. If we sort through 10 samples and each sample has between 28 percent to 32 percent of a given waste type, we can be pretty certain that the percentage of this waste type for the population as a whole lies in this general range. But if we sort through these same 10 samples and find results of 1 percent, 80 percent, 20 percent, 65 percent, and so forth, you can see that we are much less certain about the percentage of this waste type in the entire population.

There is a point of diminishing returns for waste sampling. After that point, the cost of achieving small increases in accuracy by sampling more waste is high. Below that point, significant increases in accuracy can be achieved with relatively little cost.

The PWCS Operations Plan (see Appendix A) includes tables that show the Confidence Level and Confidence Intervals from seven recent waste characterization studies for seven categories of materials. It should be emphasized that the seven studies were not identical. There were differences among the seven waste streams and the goals of each of the clients. However, the general pattern is clear: the more samples that were sorted, the greater the accuracy of the estimate.

Based on these data, Table 3-1 summarizes the targeted number of samples for the PWCS Refuse and Recycling Sorts.

Table 3-1
Sampling Targets for PWCS Refuse and Recycling Sorts

Stream	Substream	Samples
Refuse	N/A	200
Recycling	Paper	100
	MGP	100
	Subtotal	200
Total		**400**

3.2 Sample Weight

For both refuse and recycling, the respective sampling plans identified the appropriate weight of each sample to assure that the sample would adequately represent the overall material stream.

3.2.1 Refuse Sampling

The procedures for analyzing the composition of municipal solid waste were initially developed over 30 years ago, and have been extensively revisited and refined in the past three decades. Studies by the USEPA and academic sources (e.g., Klee Design & Management for Resource Recovery: Quantitative Decision-Making, Ann Arbor

Science, 1980) pronounce that a 200 to 300 pound sample of refuse is sufficient to characterize the overall waste. These sample sizes were based on factors such as particle size, material components, and the level of mixing that occurs during collection.

Furthermore, these sources suggest that as the size of refuse samples increases beyond 200 to 300 pounds, the statistical benefits associated with the larger sample size is outweighed by the incremental increase in the cost of analysis. As a result, the minimum refuse sample weight of 200 pounds has been the industry standard for municipal solid waste ("MSW") composition studies in the United States for the past 15 years (including statutory requirements where such studies are mandated by State or local law).

The R. W. Beck Project Team proposed to gather refuse samples with a minimum target weight of 200 pounds.

The average weight of the refuse samples acquired and sorted during the Refuse Sort was 234.3 pounds. The heaviest sample weighed 377.8 pounds and the lightest sample weighed 188.2 pounds.

3.2.2 Recycling Sampling

There is less information available in the industry literature that specifies the appropriate sample size for curbside collected paper and containers. Paper and MGP collected for recycling differ from refuse in several ways:

- The Paper and MGP stream target a specific set of materials for inclusion in the program, and therefore have less diversity of constituents;
- Because of the smaller number of commonly-occurring constituents, there is typically less variability in the composition among Paper and MGP samples; and
- Especially with the Paper stream, material particle sizes are much more uniform compared to a refuse sample.

Because of these characteristics, on the R. W. Beck Project Team's past experience characterizing materials collected for recycling at the curb, and on the more limited relevant literature that exists, recycling samples were targeted to achieve a minimum target weight of 100 pounds, with a range between 100 and 125 pounds.

Analysis of the sample data shows that the average weight of the samples acquired and sorted during the Recycling Sort was within the targeted range, at 116.5 pounds for Paper and 118.7 pounds for MGP. Paper samples ranged from a low of 76.1 pounds to a high of 174.9 pounds, while MGP samples ranged from 82.1 pounds to 200.7 pounds.

3.3 Sample Distribution

In selecting samples for both refuse and recycling, R. W. Beck and DSNY agreed that the samples selected from each of the City's five boroughs would reflect the

contribution of that borough to the City's refuse or recycling stream as a whole. Additional considerations for refuse and recycling are described in more detail below

3.3.1 Refuse Sample Distribution

Every resident of the City receives refuse collection at least twice per week. DSNY and R. W. Beck agreed that refuse collected early in the week might be both quantitatively and qualitatively different from refuse collected late in the week. The first day of collection in the week will include refuse generated during the weekend, while the second (and third) collection day(s) would typically include only refuse generated on weekdays before the collection day. Because residential waste generation patterns are believed to differ on the weekend, the refuse sampling plan made a distinction between early week ("EW") samples and late week ("LW") samples. That is, for sections of the City that receive refuse collection three times a week (i.e., Monday-Wednesday-Friday or Tuesday-Thursday-Saturday), the EW samples would be taken from the Monday and Tuesday routes and the LW samples would be taken from the Wednesday, Thursday, Friday, and Saturday routes. For the sections of the City that receive refuse collection twice a week (i.e., Monday-Wednesday, Tuesday-Thursday, or Wednesday-Saturday), the EW samples would be taken from the Monday, Tuesday and Wednesday routes and the LW samples would be taken from the Thursday, Friday, and Saturday routes.

The distribution of samples across each borough was based on the average amount of refuse collected from each borough each week between July 2003 and February 2004. These averages, along with the number of refuse samples sorted by the R. W. Beck Project Team as part of the PWCS, are shown in Table 3-2.

Table 3-2
Sample Acquisition by Borough

	Avg. Tons Collected Per Week[1]	% of Avg. Refuse Collected	No. of Samples Sorted as Part of the PWCS[2]
Bronx	9,032	16	31
Brooklyn	18,100	31	64
Manhattan	10,431	18	36
Queens	16,021	28	53
Staten Island	4,328	7	16
Total	**57,912**	**100**	**200**

(1) Source: DSNY. Average weekly tonnage of refuse collected by DSNY collection crews during the months of July 2003 through February 2004.
(2) Actual samples sorted.

To determine the number of EW samples and LW samples to be sorted for the PWCS involved a three-step process. First, the average weekly tonnages collected for each day of the week in each borough was obtained from DSNY. Second, the percentage of

refuse collected on the first collection day of the week was determined. For example, Manhattan has three days a week refuse collection. The Manhattan routes are either Monday-Wednesday-Friday or Tuesday-Thursday-Saturday. Therefore, the first collection days in Manhattan are Monday and Tuesday. Based on data provided by DSNY, it was estimated that 42 percent of Manhattan's refuse is collected on Monday and Tuesday (EW) and 58 percent is collected on the remaining four days of the week (LW).

On the other hand, Staten Island has two-day a week refuse collection days on Staten Island are Monday, Tuesday, and Wednesday. DSNY tonnage data for the July 2003 through February 2004 time frame showed that EW collection represented 58 percent of the average collected per week and LW collection represented 42 percent. Because both the Bronx and Brooklyn have a combination of 2-day a week and 3-day a week collection, the estimates had to be adjusted accordingly. The EW and LW percentages were then applied to the total number of samples from each borough, as shown in Table 3-3, to determine the number of EW and LW samples to be acquired for the PWCS. Table 3-3 shows the EW and LW percentages for each borough and the resulting number of EW and LW samples taken as part of the PWCS.

Table 3-3
Percentage of Refuse Collected Early and Late in the Week by Borough and Number of Early and Late Week Samples Taken by Borough

	EW Percent (1)	LW Percent (1)	# of PWCS EW Samples (1)	# of PWCS LW Samples (1)
Bronx	44	56	13	18
Brooklyn	41	59	26	38
Manhattan	42	58	17	19
Queens	57	43	30	23
Staten Island	58	42	9	7
Total			**95**	**105**

(1) Based on the average weekly tonnages collected from March 15 to April 11, 2004. "EW" refers to refuse collected early in the week (Monday and Tuesday), "LW" refers to refuse collected late in the week (Wednesday through Saturday). Source: DSNY

To be sure that every pound of waste in the City had an equal opportunity to be sampled, only one sample was taken from each refuse collection vehicle selected for sampling as part of the PWCS.

To select the EW and LW samples from each borough, R. W. Beck obtained a list of the total number of routes on each day in each borough from DSNY. From the list of routes, the appropriate number of routes/samples was randomly selected. For example, to obtain the LW routes for Manhattan, 19 routes were randomly selected from the 110 refuse collection routes on Friday in Manhattan. An identical process was used to determine the selected routes/samples for each of the other boroughs. The list of refuse routes selected is shown in Appendix B.

3.3.2 Recycling Sample Distribution

The distribution of Paper and MGP samples across each borough was based on the average tons of Paper and MGP collected from each borough from April 5, 2004 to April 18, 2004. These averages, along with the number of recycling samples targeted in the study, are shown in Table 3-4.[1]

Table 3-4
Targeted Recycling Samples

Borough	Paper Tons Collected (1)	Percent	Paper Samples	MGP Tons Collected (1)	Percent	MGP Samples
Bronx	669.22	8.99	9	644.48	14.70	15
Brooklyn	1,960.79	26.33	26	1,224.10	27.93	28
Manhattan	1,780.64	23.91	24	793.15	18.10	18
Queens	2,307.85	30.99	31	1,356.88	30.96	31
Staten Island	728.09	9.78	10	364.15	8.31	8
Total	**7,446.59**	**100.00**	**100**	**4,382.76**	**100.00**	**100**

(1) Average weekly tonnage collected by DSNY crews over the period from April 5, 2004 to April 18, 2004.

The City collects paper and MGP in both single compartment trucks collecting either Paper or MGP; and also in dual compartment trucks that collect both materials in separate compartments on the vehicle. To be sure that every pound of material sent out for recycling in the City had an equal opportunity to be sampled, only one sample was taken from any truck compartment, whether a single or dual compartment truck. Stated another way, for single compartment trucks only a single sample was taken (of either Paper or MGP, whichever was contained in the truck). For dual compartment trucks, a single sample may have been taken from each compartment, although it was also possible to take only a single sample from one and not the other compartment.

To select the Paper and MGP samples from each borough, R. W. Beck obtained a list of the total number of recycling routes on each day in each borough from DSNY. From the list of routes, the appropriate number of routes/samples was randomly selected. For example, to obtain the MGP routes/samples for Manhattan, 18 recycling routes were randomly selected from DSNY's recycling collection routes in Manhattan. An identical process was used to determine the routes/samples for Paper and MGP samples for each of the other boroughs. The list of recycling routes selected is shown in Appendix C.

[1] It should be noted that glass was re-introduced into the City's recycling program on April 1, 2004. It was expected that the amount of glass in the MGP stream would not reflect peak participation during the first few months of the re-introduction as residents got back into the habit of recycling glass

3.4 Sample Acquisition

Material samples were acquired at several privately owned facilities currently receiving the City's waste.

3.4.1 Refuse Sample Acquisition

The PWCS refuse samples were acquired at one of two private transfers stations owned by Waste Management, Inc. ("WMI") and under contract with DSNY to receive residential curbside refuse. The two transfer stations were WMI's Varick Road transfer station in Brooklyn and WMI's Harlem River Yard transfer station in the Bronx. DSNY diverted the trucks that were selected for sampling to one of these two transfer stations. The schedule of truck deliveries are shown in Appendix B. Each morning, DSNY Collections Bureau faxed a list of the truck identification numbers for the trucks collecting refuse on the targeted routes to the DSNY Contract Manager and R. W. Beck's Project Manager. These lists were used to identify incoming trucks for sampling. WMI's staff, DSNY staff and supervisors, and R. W. Beck's Sample Managers all were involved in identifying the trucks as they arrived at the transfer stations.

When a truck selected for sampling arrived at the transfer station, the R. W. Beck Sample Manager was notified and prepared to take a refuse sample from that truck. Once the truck had tipped its load, a front-end loader ("FEL") from the transfer station took a randomly selected portion of the tipped load. The random selection of the portion of the tipped load to be sampled was be made by the Sample Manager before the FEL began to grab the sample. The FEL's bucket-load of refuse was then lowered so that the Sample Manager and helper could pull refuse from the bucket into the 96-gallon toters. In most cases, the density of the refuse required a 200 to 250 pound sample to be collected in two toters. The toters were then weighed on a scale in an effort to ensure the total weight of the sample was greater than 200 pounds.

After the refuse sample's weight had been confirmed, the transfer station's FEL managed the remainder of the tipped load as it normally would.

After each toter had been weighed, it was marked with the date, Sample number, a Sample Code, and the truck number. In addition, the Sample Manager completed a Sample Management Form for each sample. An example of a completed Sample Management Form is shown in Appendix D.

After the samples were weighed and labeled, they were loaded on an R. W. Beck truck and transported to the Greenpoint Marine Transfer Station where they were unloaded and positioned for sorting.

Some samples included bulky items that did not fit into 96-gallon toters. When this occurred, the bulky items were manually set aside at the collection site. The Sample Manager weighed the bulky item and recorded the weight and a description of the item on the Sample Management Form. Although these bulky items were not physically sorted at the Greenpoint Marine Transfer Station, their weight was incorporated into the sample results during data entry and analysis.

3.4.2 Recycling Sample Acquisition

The PWCS recycling samples were acquired at one of two private processing centers. The paper samples were collected at Metropolitan Paper's facility in Brooklyn and the MGP samples were collected at the Hugo Neu Schnitzer facility in Brooklyn. DSNY diverted the trucks that were selected for paper and MGP sampling to these two facilities. The schedule of truck deliveries is shown in Appendix C. Each morning, DSNY Collections Bureau faxed a list of the truck identification numbers for the trucks collecting paper and MGP on the targeted routes to the DSNY Contract Manager and R. W. Beck's Project Manager. These lists were used to identify incoming trucks for sampling. The staff at the processing centers, DSNY staff and supervisors, and R. W. Beck's Sample Managers all was involved in identifying the trucks as they arrived at the processing centers.

When a truck selected for sampling arrived at one of the processing centers, the R. W. Beck Sample Manager was notified and prepared to take a sample from that truck. Once the truck had tipped its load, a bobcat front-end loader equipped with ½ cubic yard bucket with a grab-arm took a grab-sample from a randomly selected portion of the tipped load. The random selection of the portion of the tipped load to be sampled was made by the Sample Manager before the bobcat began to grab the sample. The bobcat's bucket-load of material (either paper or MGP) was then lowered so that the Sample Manager and the helper could pull material from the bucket into the 96-gallon toters. Due to the large size of many of the metal bulky items that arrived in the loads of MGP, the bobcat FEL was replaced with a much larger FEL with a 5 cubic yard bucket capable of handling these larger items midway through the sample period. A more detailed discussion of how bulk metal items in the MGP stream were managed is presented in Appendix W.

The density of the paper collected for recycling allowed a 100-125 pound sample to be collected in one toter. The density of the MGP was less than the density of the paper and samples generally required two toters to collect a 100 pound to 125 pound sample. Once the sample had been placed in the toter(s), the toter(s) were then weighed on a scale in an effort to ensure the total weight of the sample was greater than 100 pounds.

After each toter had been weighed, it was marked with the date, Sample number, a Sample Code, and the truck number. In addition, the Sample Manager completed a Sample Management Form for each sample. An example of a completed Sample Management Form for MGP is shown in Appendix E.

After the samples were weighed and labeled, they were loaded on an R. W. Beck truck and transported to the Greenpoint Marine Transfer Station where they were unloaded and positioned for sorting.

Section 4
SORTING LOGISTICS

4.1 Introduction

The sorting and weighing of both refuse and recycling samples took place at DSNY's Greenpoint Marine Transfer Station ("MTS") at 456 North Henry Street in Brooklyn. As a sorting site, the MTS had several advantages. It was a large, covered space with a blacktop floor. It had bathroom facilities on site and was conveniently located close to the Varick Road transfer station and within a ½ mile of the Hugo Neu Schnitzer processing center. The MTS also has a security guard on duty 24-hours per day.

The vehicles used in the PWCS included two diesel-powered trucks for transporting samples of waste from transfer stations to the MTS and three gasoline-powered passenger cars to carry equipment and the professional staff to and from the MTS. Over the three weeks for refuse and recycling sorting, approximately 400 trips were made to and from the MTS.

The physical layout of the MTS for the Refuse Sort and Recycling Sort are shown in Appendices F and G, respectively.

Throughout the sorting process, all members of the R. W. Beck Project Team conformed with the firm's Health and Safety Procedures for conducting waste composition studies. A copy of the R. W. Beck Health and Safety Plan is included in Appendix H.

4.2 Material Categories

The material categories used in the PWCS were developed by DSNY with input by the R. W. Beck Project Team. The Request for Proposals ("RFP") for the Waste Characterization Study published by DSNY on July 2, 2001 included the list of material categories used in the City's 1990 Waste Composition Study. This list included fifty-nine separate materials or products under eleven major material groups. In preparing for the PWCS, R. W. Beck provided DSNY with several material category lists used in other waste characterization studies from around the United States. In developing the final list of categories, DSNY also solicited input from its staff and other interested groups in the City.

The ultimate list of material categories used in both the Refuse Sort and the Recycling Sort included 87 materials or products under 9 material groups. The material category list required not only the weights of the 87 materials, but also selected subsorting of certain materials, as well as unit counts of most of the containers and select other categories. The number of categories, subsorts, and counts were greater than the

R. W. Beck Project Team had anticipated and it was necessary to make adjustments in the sorting procedures during the sorting period.

The rationale for the extensive selection of material categories was to provide a comprehensive and detailed picture of both the refuse and recycling stream. However, to gain additional understanding of the composition of refuse and materials collected for recycling in the City, the underlying subsorts varied slightly between the Refuse Sort and Recycling Sort.

The material categories were developed to gather information in four areas in which knowledge is sought for waste management planning:

- Product type categories (paper bags, appliances, disposable razors) are useful in assessing the potential for waste prevention strategies aimed at reducing the generation of such items in the first place by promoting reusable alternative. Many of the construction and demolition categories fit into this category as well, since practices of deconstruction present opportunities for reuse of building materials.
- Grade categories of paper (corrugated cardboard, newspaper, high-grade office paper, etc.), plastic (HDPE, PET, etc.), metal (aluminum, ferrous, etc.), and glass (colored container glass, mixed cullet) correspond to existing or potential secondary materials markets for processed materials.
- Organic categories (wood, food, yard waste, etc.) inform planning for composting programs at a variety of levels, including backyard composting; on site in-vessel composting; and larger scale collection programs aimed at offsite yard and food composting or mixed waste composting.
- Hazardous categories are designed to provide information about risks to sanitation workers and others involved in handling DSNY-managed wastes.

In sorting the MGP, certain subsorts, such as those for single-use containers and bottles "potentially" eligible for deposit, were performed. These subsorts were not performed for the refuse stream for three reasons. First, as a natural part of the learning curve, the sorting methodology used for refuse became more refined during the subsequent recycling sort. Second, there were many more plastic and glass containers in the MGP stream than in the refuse stream, making this additional subsorting of the MGP stream a better investment of resources. Third, it was realized before the onset of the MGP Sort that small metal appliances are recyclable and should be sorted separately from small plastic appliances.

This list of material categories, counts, and subsorts used in the PWCS Refuse and Recycling Sorts are shown in Appendices I and J.

4.3 Refuse Sorting Procedures

The sorting of PWCS refuse samples was conducted by a crew of four or five temporary workers and a Crew Chief. A sorting table with a ½-inch screen was used for the initial sorting. Bins labeled with individual materials were arranged around the table to allow sorters to place the sorted materials in the appropriate bins.

Rather than arrange 87 separate bins around each sorting table, a procedure for combining certain material categories in a bin and then sub-sorting these materials was used to streamline sorting. In addition, the sorting procedure was developed to incorporate the "unit counts" of certain items.

The procedure for sorting refuse began by separating the refuse into 51 bins. Forty-two of these bins were labeled with categories included in the materials categories list and nine bins combined two more categories which were subsequently subsorted. The nine bins in which two or more material categories were combined were:

- **Paper**: Phone books (#5) and paperback books (#6) were combined and then subsorted.
- **Plastics**: No. 1 and No. 2 Tubs and Trays (#15) and No. 3 – No. 7 Containers (#16) were combined and then subsorted.
- **Plastics**: Other PVC (#17), Plastics Crates and Soda Bottle Carriers (#23), Single Use Cameras (#25) and Single Use Razors (#26) were combined and then subsorted.
- **Glass**: Clear (#28), green (#29), and brown (#30) container glass were combined and then subsorted by color. The bottles were also sorted into deposit and non-deposit bottles.
- **Metal**: Other Aluminum (#35) Other Ferrous (#39) and Other Nonferrous (#36) were combined and then subsorted.
- **Organic and Construction Debris**: Non-C&D Untreated Wood (#45), Untreated Dimension Lumber, Pallets, and Crates (#61) and Treated Contaminated Wood (#62) were combined and then subsorted.
- **Appliances and Electronics**: Small Appliances (#56), Audio-Visual Equipment (#57), Computer Monitors (#58), Televisions (#59), and Other Computer Equipment (#60) were combined and then subsorted.
- **Construction Debris**: Gypsum Scrap (#63), Fiberglass Insulation (#64), Rocks/Concrete/Brick (#65), Asphalt Roofing (#66), and Other Construction Debris (#67) were combined and then subsorted.
- **Household Hazardous Wastes**: Oil Filters (#70), Antifreeze (#71), Wet-Cell Batteries (#72), Gasoline/Kerosene (#73), Motor Oil/Diesel Oil (#74), Latex Paints (#75), Water and Solvent-Based Adhesives/Glues (#76), Oil-Based Paint/Solvent (#77), Pesticides/Herbicides/Rodenticides (#78), Dry-Cell Batteries (#79), Fluorescent Tubes (#80), Mercury-Laden Wastes (#81), Compressed Gas Cylinders, Fire Extinguishers (#82), Asbestos (#83), Explosives (#84), Smoke Detectors (#85), Home Medical Products (#86), and Other Potentially Harmful Wastes (#87) were combined and then subsorted

In addition, the sorting includes the following subsorts and counts:

- **Plastics**: PET bottles were subsorted into deposit and non-deposit bottles
- **Aluminum**: Aluminum cans were sorted into deposit and non-deposit cans.

- **Organics**: Shoes (#52) were subsorted, weighed and counted by material – rubber, leather, and other.

As noted above, the development of this procedure took several days. This procedure is illustrated in Appendix K.

4.4 Recycling Sorting Procedures

The sorting procedures for paper and MGP collected for recycling were highly comparable to the procedures developed during the Refuse Sort. The sorting of the paper and MGP samples was conducted by a crew of four or five temporary workers and a Crew Chief. A sorting table with a half-inch screen was used for the initial sorting. Bins labeled with individual materials were arranged around the table to allow sorters to place the sorted materials in the appropriate bins.

In the Refuse Sort, most of the sorting was performed around a primary sorting table, although some subsorting was performed at one of several auxiliary tables in the work area. In the Recycling Sort, the primary sort table and the required subsorting were necessarily more specialized, and additional sub-sorting capabilities were integrated into the sort procedure. There were ultimately different sorting area configurations for the Paper and MGP streams. These are described separately below.

4.4.1 Paper Sort Procedure

The system of sorting paper eligible for recycling began with the separation of the sample into 26 bins. Fifteen of these bins were labeled for materials in the Materials Category list. The contents of remaining eleven bins were then subsorted as shown in Appendix L.

4.4.2 MGP Sorting Procedures

While the MGP categories were identical to those used in the Paper Sort, it was necessary to have an additional subsort station for MGP samples. The system of subsorting and counting MGP began with the separation of the sample into 29 bins. Eleven of these bins were labeled for materials in the Materials Category list. The contents of the remaining eighteen bins were then subsorted as shown in Appendix M. Note that the nondesignated materials were subsorted entirely on one of the two auxiliary tables, while the designated containers were subsorted and counted on the second auxiliary table.

Section 5
DATA RECORDING AND ANALYSIS

In both the Refuse and Recycling Sorts it was critical to have consistent and well-defined procedures for collecting, recording, and analyzing data. In general, the following four identifiers were used to track each sample for both the Refuse and Recycling Sort.

- **Date**: The date on which the sample was collected was recorded on the Sample Management Form and the date on which the sample was sorted and weighed was recorded on the Sort Data Form.
- **Sample Number**: The Sample Number was recorded when the sample was collected from the Transfer Station. The sample number was based on the samples listed on the Truck delivery forms (see Appendices B and C). Samples from the Varick Road transfer station were given a "100" series number and the samples from Harlem River Yards were given a "200" series number. For example, the first sample listed on the Truck Delivery Form for the Varick Road transfer station would be given sample number 101, regardless of when that sample arrived at the transfer station.
- **Sample Code**: The Sample Code was a series of numbers and letters to designate the route from which the sample was taken. For example, if the sample were taken from Manhattan District 1, Section 12, Route 1, the Sample Code would be M-1-12-1.
- **Truck Number**: On the morning of each day samples were to be taken, the Collections Bureau assigned specific trucks to each route selected for sampling. Each truck had an identifying numbers. These truck numbers were faxed to the R. W. Beck Project Team each morning during the sorting period. When a sample was collected at the transfer station, the Sampling Manager recorded the number of the truck on both the Sample Management Form and the toter holding the sample.

Both the Sample Management Form and the toter labels indicated how many toters comprised the sample. When the sample required two toters, the weight of each of the toters was recorded on the Sample Management Form and the toters were marked "1 of 2" and "2 of 2."

In addition, any bulky items which were part of the sample, but were too large to fit into the toters, were weighed separately and described on the Sample Management Forms.

Copies of all data from both the Refuse and Recycling Sorts were sent to R. W. Beck's Data Manager to be checked for accuracy, input into a database, and analyzed.

5.1.1 Sampling Data

The data on the refuse samples collected at the two WMI transfer stations and the recycling samples collected at the two processor sites were prepared by the Sample Manager assigned to each site. For each sample, a Sampling Management Form was completed. An example of a completed Refuse Sampling Management Form is shown in Appendix D; the Recycling Sample Management Form is shown in Appendix E. In addition, each toter containing all, or part of a sample, was labeled with the date the sample was taken, sample number, the route of the truck from which the sample was taken, and the truck number. When the samples were delivered to the MTS, the Sample Manager handed the Sample Management Forms to the Field Supervisor.

5.1.2 Sorting Data

As each sample was sorted and weighed, using the procedures described above, the weights and counts of the materials were recorded on a Sort Data Form by the crew chief. An example of a completed Refuse Sort Data Form is shown in Appendix N; the Recycling Sort Data Form is shown in Appendix O.

At the end of each day, the completed Sort Data Form and the Sample Management Form for each sample were stapled together and copied. The original forms were kept on file by the Project Manager and the copies were sent to R. W. Beck's Data Manager for QA/QC, input into a database and analysis.

5.1.3 Moisture and Particulate Analysis

In addition to sorting and weighing the materials in each sample, 25 material categories were identified as having a high potential to be impacted by moisture or material cross-contamination. To test for the level of moisture and cross-contamination present in these 25 material categories, moisture and particulate testing was conducted by the Woods End Laboratory (the "Woods End") in Mt. Vernon, Maine.

For both the Refuse and Recycling Sorts, moisture and particulate samples were taken from 20 randomly-selected samples. More precisely, 20 refuse samples were selected for additional moisture and particulate testing, and 20 paper and MGP samples were also selected, for a total of 40 waste samples requiring testing. Given that each one of the 40 randomly selected waste samples could require up to 25 separate material-specific moisture and particulate tests, the potential existed to test up to 1,000 individual materials (500 per sort). However, not all materials that were targeted for moisture and particulate testing were present in each of the randomly selected samples.

The materials selected by DSNY for testing were chosen due to their potentially high levels of moisture and/or cross-contamination. These materials were double-bagged in plastic at the MTS and then placed in cardboard cartons marked with the Sample Number, Sample Code, and Truck Number and shipped overnight to the Woods End.

Upon receiving the samples, Woods End assigned each material a distinct ID number. For example, R. W. Beck Sample #212 arrived in three boxes. There were a total of twenty two individually bagged materials in the three boxes. Each material was given an individual ID number and treated as a distinct sample for processing by the Woods End staff.

Each material sample was weighed and the weight recorded. The material sample was then placed in a drying oven and dried at an average temperature of 62ºC for a minimum of 24 hours. More time was allotted for samples that appeared to need additional drying time.

After drying, the material sample was weighed again, the weight recorded.

Next, particles of any foreign substances were removed from the material sample. For example, a material sample of paper might have food waste, glass fragments, and aluminum foil in it. These three materials were considered foreign particles. The foreign particles were then weighed and the weight recorded. Notes on the nature of the foreign particles were recorded on the bench lab sheets.

The data sent by Woods End to the R. W. Beck Sample Manager for each material tested included:

- The material sample ID number;
- Material sample weight before drying;
- Material sample weight after drying;
- Weight of foreign particles;
- Percent moisture; and
- Percent of foreign particles.

Table 5-1 summarizes the materials that were tested for each of the refuse samples submitted for testing. As Table 5-1 shows, out of a possible 500 moisture and particulate tests that might have been conducted in the Refuse Sort, 385 were actually performed. Stated another way, the randomly selected Refuse Samples contained, on average, 77 percent of the material categories targeted for moisture and particulate testing.

Tables 5-2 and 5-3 present similar data for the Paper and MGP samples, respectively. Table 5-2 shows that 116 moisture and particulate tests were conducted out of a possible 275 total samples from the Paper stream, with 140 out of a possible 250 for the MGP stream. Paper samples contained an average of 42 percent of the material categories targeted for moisture and particulate testing, while MGP contained 56 percent of the categories. The fact that there were fewer material categories targeted for testing in the Paper and MGP streams compared to the Refuse stream is not surprising, given the limited number of material categories that are supposed to be included as paper designated for recycling.

Table 5-1
Summary of Moisture and Particulate Testing for the Refuse Sort

Sample ID	Borough	Category																										Total Categories Tested From Each Composition Sample
		Aluminum Cans	Aluminum foil/tins	Clothing Textiles	Compostable/Soiled/ Waxed OCC	Expanded Polystyrene	HDPE Colored Bottles	HDPE Natural Bottles	High Grade Paper	Mixed Low Grade Paper	Newspaper	Non-Clothing Textiles	Other Film	Other nonrecyclable paper	Other rigid containers/packaging	Paper Bags	Paperbacks	PET bottles	Phone books	Plain OCC/Kraft Paper	Plastic Bags	Polycoated Containers	Rigid polystyrene	Single Use Plates	Single-Use Food Svc	Tin Food Cans	
20040515-M62-1-25CN-566	Manhattan	•		•	•	•	•	•	•	•	•	•	•	•		•				•	•	•		•	•	•	19
20040517-BK31-4-25CW-017	Brooklyn			•	•	•		•			•	•	•	•	•			•		•		•		•	•		14
20040517-BK72-2-25CN-686	Brooklyn	•	•	•	•	•		•	•	•	•	•		•	•	•		•		•	•	•		•	•	•	20
20040518-BX123-2-25CN-746	Bronx	•		•	•	•	•		•	•	•	•		•		•		•	•	•	•	•	•	•	•	•	20
20040518-BX21-1-25CN-636	Bronx	•	•	•	•	•	•	•	•	•		•		•	•	•		•	•	•	•	•	•	•		•	21
20040518-BX92-2-25CU-186	Bronx	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•		•	•		•	21
20040519-BK102-1-25CU-010	Brooklyn		•	•	•	•	•	•		•	•	•		•	•	•		s			•	•		•	•	•	17
20040519-BK175-2-25CU-127	Brooklyn	•	•	•	•	•	•	•	•	•				•	•	•		•		•	•	•	•	•	•	•	20
20040519-M101-1-25CW-098	Manhattan	•	•	•	•	•		•	•	•	•	•	×	•	•	•		•				•	•	•	•	•	19
20040519-M34-1-25CW-160	Manhattan	•	•	•	•	•				•	•	•		•		•		•		•	•	•	•	•	•	•	18
20040520-BK185-1-25CW-096	Brooklyn	•			•	•	•	•			•		•	•	•			•					•	•	•	•	14
20040520-BX61-6-25CW-006	Bronx	•	•	•	•	•	•	•	•	•	•	•		•	•	•		•		•	•	•	•	•	•	•	22
20040521-BK113-1-25CN-763	Brooklyn	•		•	•	•	•	•	•	•	•	•	•	•		•		•		•		•	•	•	•	•	20
20040521-BX11-3-25CN-725	Bronx	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•		•		•	•	•	•	•	22
20040522-Q136-2-25CW-517	Queens	•	•	•	•	•	•	•	•	•	•	•		•	•	•		•		•	•	•	•	•	•	•	22
20040522-Q72-1-25CW-527	Queens		•	×	•	•	•		•	•	•	•	×	•	•	•		•		•		•		•	•	•	17
20040522-SI38-2-25CW-142	Staten Island	•	•	•	•		•	•	•	•	•			•	•	•	•	•		•	•	•	•	•	•	•	21
20040525-Q13-25CW-547	Queens		•	•		•	•	•	•	•	•		•	•	•	•		•		•		•	•	•		•	18
20040525-Q13-25CW-552	Queens	•	•	•	•	•	•	•		•		•		•	•	•		•			•		•	•	•	•	18
20040525-Q84-4-25CN-104	Queens	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•		•		•	•	•	•	•	22
Total Tested from Each Category		16	14	18	19	19	16	17	15	18	17	16	8	20	16	18	2	18	2	16	12	17	15	20	17	19	**385**

• Composition sample categories tested by the lab.
× Composition sample categories not tested by the lab due to human waste contamination. Not counted in "Total" values.
s Composition samples categories not tested by the lab due to spillage of sample. Not counted in "Total" values.

Table 5-2
Summary of Moisture and Particulate Testing for the Paper Sort

Sample ID	Borough	Category																											Total Categories Tested From Each Composition Sample
		Aluminum Cans	Aluminum Foil/Tins	HDPE Natural Bottles	HDPE Pigment Bottles	High Grade paper	Inject'n Molded Containers: #5 Tub	Mixed Low Grade Paper	Newspaper	Nonrecyclable Paper: Compostable/Soiled	Nonrecyclable Paper: Other Non-Recyc	Nonrecyclable Paper: Plates/Cups	Other Film	Other Plastic: Exp PS	Other Plastic: Food Svc	Other Plastic: Other Plastic	Other Plastic: Other Rigid Containers	Other Plastic: Rigid PS	Paper Bags	Paperbacks	PET Bottles	Phone Books	Plain OCC/Kraft paper	Plastic Bags	Polycoated Containers	Textile/Rubber/Leather: Clothing Textiles	Textile/Rubber/Leather: Non-Clothing Textile	Tin Food Cans	
20040515-BK-11-3-1-25CM-167-P	Brooklyn	•				•		•	•				•	•					•	•		•	•	•					11
20040515-BK-15-2-2-25CM-269-P	Brooklyn			•		•		•	•	•	•		•	•					•	•		•	•	•		•	•		15
20040515-BK-16-1-2-25CW-059-P	Brooklyn					•		•	•	•	•		•						•	•			•	•	•		•		12
20040515-BK-18-5-2-25CM-012-P	Brooklyn					•		•	•		•		•						•				•	•	•				9
20040515-BK-6-5-2-25CN-616-P	Brooklyn					•		•	•	•	•		•						•	•			•	•	•				11
20040515-BK-7-3-1-25CN-487-P	Brooklyn					•		•	•		•		•						•	•		•	•	•	•		•		12
20040515-BK-8-1-2-25CN-557-P	Brooklyn					•		•	•	•	•		•							•			•	•	•	•			11
20040515-M-6-1-4-25CN-808-P	Manhattan					•		•	•		•		•										•	•					7
20040515-M-6-2-4-25CU-145-P	Manhattan					•		•	•				•						•				•	•	•		•		9
20040515-Q-10-1-1-25CM-071-P	Queens					•		•	•				•	•					•	•		•	•	•	•				11
20040515-Q-9-4-1-25CM-059-P	Queens					•		•	•				•						•	•			•	•					8
Total Tested from Each Category		1	0	1	0	11	0	11	11	4	7	0	11	3	0	0	0	0	9	8	0	4	11	11	7	2	4	0	**116**

Table 5-3
Summary of Moisture and Particulate Testing for the MGP Sort

SampleID	Borough	Category																											Total Categories Tested From Each Composition Sample
		Aluminum Cans	Aluminum Foil/Tins	HDPE Natural Bottles	HDPE Pigment Bottles	High Grade paper	Injectn Molded Containers: #5 Tub	Mixed Low Grade Paper	Newspaper	Nonrecyclable Paper: Compostable/Soiled	Nonrecyclable Paper: Other Non-Recyc	Nonrecyclable Paper: Plates/Cups	Other Film	Other Plastic: Exp PS	Other Plastic: Food Svc	Other Plastic: Other Plastic	Other Plastic: Other Rigid Containers	Other Plastic: Rigid PS	Paper Bags	Paperbacks	PET Bottles	Phone Books	Plain OCC/Kraft paper	Plastic Bags	Polycoated Containers	Textile/Rubber/Leather: Clothing Textiles	Textile/Rubber/Leather: Non-Clothing Textile	Tin Food Cans	
20040515-BK-12-2-1-25CM-055-M	Brooklyn	•	•	•	•				•	•	•		•								•		•	•	•			•	13
20040515-BK-18-5-2-25CM-012-M	Brooklyn	•	•	•	•		•		•	•	•		•	•	•			•			•		•	•	•			•	17
20040515-BK-18-7-1-25CM-184-M	Brooklyn	•	•	•	•			•	•		•	•	•					•			•			•	•			•	14
20040515-BK-9-3-2-25CU-268-M	Brooklyn			•	•			•			•		•	•							•			•	•		•	•	11
20040515-BX-11-1-2-25CN-454-M	Bronx	•	•	•	•			•		•	•	•	•	•				•			•			•	•			•	15
20040515-BX-4-3-1-25CU-018-M	Bronx	•		•	•			•	•								•				•		•			•		•	10
20040515-BX-7-3-2-25CF-203-M	Bronx	•	•	•	•			•			•		•		•			•			•			•	•			•	13
20040515-BX-8-1-1-25CU-017-M	Bronx	•	•	•	•					•	•	•	•			•	•				•			•	•			•	14
20040515-Q-12-1-1-25CM-157-M	Queens	•	•	•	•			•	•	•	•		•	•	•			•			•		•	•	•		•	•	18
20040515-Q-5-5-2-25CM-008-M	Queens	•	•	•	•			•			•		•	•	•			•		•	•			•	•			•	15
Total Tested from Each Category		9	8	10	10	0	1	7	5	5	9	3	9	5	4	1	2	6	0	1	10	0	4	9	9	1	2	10	140

5.1.4 Chain of Custody

The chain of custody for each document developed in the PWCS began with a field professional. The chain of custody is shown in Appendix P.

Section 6
REFUSE RESULTS

The results of the PWCS Refuse Sort present an estimate of the composition of the City's refuse in several different ways to provide multiple perspectives on the refuse stream. The results are shown for nine material groups (such as paper, plastic, metal, glass, etc.) and the 87 material categories. The list of material groups and categories is presented in Appendix I.

Table 6-1 shows the results for each material category in statistical terms. The information is presented in four columns. The Percentage of the Waste Stream shown in the Column 1 is an estimate of the Mean, our best, single point estimate of the true percentage of each material in the refuse stream. The Mean for newspaper, for example, is estimated to be 3.71 percent.

The Standard Deviation in Column 2 is a measure of the dispersion of each sample around the sample Mean. In the 200 samples sorted, newspaper was 3.71 percent in few, if any of the samples taken. In some samples, newspaper was more than 3.71 percent; in other samples it was less than 3.71 percent. The Standard Deviation quantifies the "spread" of the percentage of newspaper in all the samples. A relatively high percentage, such as newspaper's 3.43 percent, indicates that the percentages of newspaper in the samples were relatively highly dispersed.

The Upper and Lower Boundaries in Columns 3 and 4 present a range within which we are 90 percent certain that the true Mean of the materials lies. To return to newspaper, Columns 3 and 4 show that we are 90 percent certain that the true average percentage of newspaper in the refuse stream is between 3.33 percent and 4.10 percent. Our best single estimate for newspaper is 3.71 percent and we are 90 percent certain the true Mean lies within the range shown.

The columns in Table 6-1 present the data as it was recorded at the MTS during the Refuse Sort. The percentages are based on the weights of the materials that appeared on the scales when the materials were placed there.

It has already been explained in Section 3 that twenty five material categories were subjected to moisture and particulate testing. The purpose of these tests was to determine how much of the "pure" material was present in each bin and how much moisture or particulates were present. For example, when a newspaper which may weigh one pound is put into a refuse collection vehicle and compacted, liquid from food waste and pieces of glass may be pressed into the newspaper. When it is taken from the truck and put on a scale, it may weigh 1.2 pounds because of the additional moisture absorbed and the embedded glass fragments. The additional 0.2 pounds is not newspaper, but the only way to know is to dry the newspaper and separate out the glass.

It should be noted, that in some instances, the materials tested have a certain amount of moisture intrinsic to the structure. Newspaper typically is manufactured with 5 percent of its intrinsic weight as moisture. Further, the prevalence of moisture and particulates in

the Refuse stream may be different from that formed in the Recycling stream. Because of the additional complexity introduced into the analysis by the moisture and particulate testing, the impact of the testing on the results is discussed in more detail in Appendix V.

Table 6-1
Statistical Results of the PWSC Refuse Sort

Material Category	Percentage of Refuse Stream	Standard Deviation	Lower Boundary	Upper Boundary
	Column 1	Column 2	Column 3	Column 4
Newspaper	3.71%	3.43%	3.33%	4.10%
Plain OCC/Kraft Paper	1.35%	1.34%	1.19%	1.52%
High Grade Paper	0.67%	1.26%	0.56%	0.79%
Mixed Low Grade Paper	7.34%	4.43%	6.85%	7.84%
Phone Books	0.23%	0.93%	0.17%	0.30%
Paperbacks	0.18%	0.60%	0.14%	0.23%
Paper Bags	0.60%	0.55%	0.54%	0.66%
Polycoated Containers	0.47%	0.43%	0.42%	0.51%
Compostable/Soiled/ Waxed OCC	7.49%	3.46%	7.09%	7.89%
Single Use Plates, Cups	0.51%	0.52%	0.46%	0.57%
Other Nonrecyclable Paper	0.65%	0.87%	0.57%	0.73%
Total Paper	**23.19%**	**9.46%**	**22.08%**	**24.32%**
PET Bottles: Deposit	0.33%	0.35%	0.29%	0.37%
PET Bottles: Non-Deposit	0.64%	0.47%	0.59%	0.70%
HDPE Natural Bottles	0.31%	0.27%	0.27%	0.34%
HDPE Colored Bottles	0.45%	0.91%	0.38%	0.52%
#1-#2 Tubs/Trays: #1 Pet	0.03%	0.07%	0.02%	0.03%
#1-#2 Tubs/Trays: #2 HDPE	0.08%	0.28%	0.06%	0.09%
#3-#7 Containers: #3 PVC	0.01%	0.04%	0.01%	0.02%
#3-#7 Containers: #4 LDPE	0.01%	0.08%	0.01%	0.02%
#3-#7 Containers: #5 PP	0.22%	0.23%	0.20%	0.25%
#3-#7 Containers: #7 Other	0.07%	0.15%	0.06%	0.08%
Other PVC	0.07%	0.43%	0.05%	0.09%
Rigid Polystyrene	0.16%	0.19%	0.14%	0.18%
Expanded Polystyrene	0.69%	0.84%	0.62%	0.76%
Other Rigid Containers/Packaging	0.61%	0.48%	0.55%	0.67%
Plastic Bags	2.79%	1.53%	2.62%	2.97%
Other Film	5.21%	2.15%	4.96%	5.46%
Plastic Crates and Soda Bottle Carriers	0.06%	0.29%	0.04%	0.08%

Table 6-1
Statistical Results of the PWSC Refuse Sort

Material Category	Percentage of Refuse Stream	Standard Deviation	Lower Boundary	Upper Boundary
	Column 1	Column 2	Column 3	Column 4
Single-Use Food Svc	0.78%	0.88%	0.70%	0.87%
Single Use Cameras	0.00%	0.00%	0.00%	0.00%
Disposable Razors	0.01%	0.01%	0.01%	0.01%
Other Plastics Materials	1.67%	1.67%	1.50%	1.85%
Total Plastic	**14.19%**	**4.81%**	**13.62%**	**14.78%**
Clear Glass: Deposit	0.28%	0.64%	0.22%	0.35%
Clear Glass: Non-Deposit	1.00%	1.00%	0.87%	1.13%
Green Glass: Deposit	0.15%	0.34%	0.12%	0.19%
Green Glass: Non-Deposit	0.16%	0.54%	0.12%	0.21%
Brown Glass: Deposit	0.25%	0.57%	0.20%	0.31%
Brown Glass: Non-Deposit	0.06%	0.15%	0.04%	0.07%
Mixed Cullet	0.50%	0.75%	0.42%	0.59%
Other Glass	0.20%	0.37%	0.16%	0.24%
Total Glass	**2.60%**	**2.24%**	**2.35%**	**2.87%**
Aluminum Cans: Deposit	0.17%	0.15%	0.15%	0.19%
Aluminum Cans: Non-Deposit	0.03%	0.06%	0.02%	0.03%
Aluminum Foil/Tins	0.60%	0.51%	0.55%	0.65%
Other Aluminum	0.05%	0.16%	0.04%	0.06%
Other Non-Ferrous	0.06%	0.20%	0.05%	0.08%
Tin Food Cans	0.91%	0.69%	0.83%	1.00%
Empty Aerosol Cans	0.12%	0.15%	0.10%	0.15%
Other Ferrous	1.03%	1.56%	0.88%	1.19%
Mixed Metals	0.56%	1.74%	0.44%	0.70%
Total Metal	**3.54%**	**2.54%**	**3.28%**	**3.80%**
Leaves and Grass	6.23%	10.54%	4.99%	7.59%
Prunings	3.04%	5.87%	2.47%	3.67%
Stumps/Limbs	0.67%	3.39%	0.49%	0.89%
Food	15.93%	8.13%	14.92%	16.97%
Non-C&D, Untreated Wood	0.38%	1.70%	0.28%	0.49%
Non-Clothing Textiles	2.07%	3.68%	1.75%	2.41%
Clothing Textiles	3.70%	3.91%	3.25%	4.18%
Carpet/Upholstery	1.27%	3.58%	0.96%	1.61%
Disposable Diapers/Sanitary Products	3.81%	2.88%	3.46%	4.17%
Animal By-Products	1.25%	2.87%	0.98%	1.55%

Table 6-1
Statistical Results of the PWSC Refuse Sort

Material Category	Percentage of Refuse Stream	Standard Deviation	Lower Boundary	Upper Boundary
	Column 1	Column 2	Column 3	Column 4
Rubber Products	0.32%	0.90%	0.26%	0.38%
Shoes: Leather	0.37%	0.77%	0.29%	0.46%
Shoes: Other	0.09%	0.30%	0.07%	0.12%
Shoes: Rubber	0.20%	0.55%	0.15%	0.25%
Other Leather Products	0.05%	0.47%	0.04%	0.07%
Fines	4.20%	2.28%	3.94%	4.47%
Miscellaneous Organics	3.98%	7.01%	3.28%	4.73%
Total Organic	**47.56%**	**13.04%**	**45.97%**	**49.15%**
Small Appliances	0.27%	1.06%	0.21%	0.35%
Audio/Visual Equipment: Other	0.24%	0.79%	0.18%	0.30%
Audio/Visual Equipment: Cell Phones	0.00%	0.04%	0.00%	0.01%
Computer Monitors	0.05%	0.68%	0.03%	0.07%
Televisions	0.10%	1.14%	0.07%	0.14%
Other Computer Equip.	0.19%	0.98%	0.14%	0.25%
Total Appliance & Electronics	**0.86%**	**2.04%**	**0.68%**	**1.05%**
Untreated Dimension Lumber, Pallets, Crates	0.45%	1.69%	0.34%	0.57%
Treated/Contaminated Wood	2.99%	4.06%	2.54%	3.48%
Gypsum Scrap	1.16%	3.47%	0.88%	1.49%
Fiberglass Insulation	0.06%	0.48%	0.04%	0.08%
Rock/Concrete/Bricks	0.58%	2.14%	0.44%	0.75%
Asphaltic Roofing	0.02%	0.23%	0.01%	0.03%
Other C&D Debris	1.74%	5.43%	1.34%	2.19%
Total Construction Debris	**7.01%**	**8.41%**	**6.06%**	**8.01%**
Misc. Inorganics	0.23%	0.90%	0.18%	0.29%
Ceramics	0.36%	1.32%	0.28%	0.45%
Total Misc.	**0.59%**	**1.60%**	**0.48%**	**0.72%**
Oil Filters	0.00%	0.00%	0.00%	1.48%
Antifreeze	0.00%	0.00%	0.00%	1.48%
Wet-Cell Batteries	0.07%	1.04%	0.05%	0.10%
Gasoline/Kerosene	0.00%	0.01%	0.00%	0.00%
Motor Oil/Diesel Oil	0.00%	0.00%	0.00%	1.48%
Latex Paints	0.05%	0.57%	0.04%	0.07%
Water and Solvent-Based	0.06%	0.47%	0.05%	0.08%

Table 6-1
Statistical Results of the PWSC Refuse Sort

Material Category	Percentage of Refuse Stream	Standard Deviation	Lower Boundary	Upper Boundary
	Column 1	Column 2	Column 3	Column 4
Adhesives/glues				
Oil-Based Paint/Solvent	0.07%	0.70%	0.05%	0.09%
Pesticides/Herbicides/Rodenticides	0.00%	0.01%	0.00%	0.00%
DRY-CELL Batteries	0.07%	0.14%	0.05%	0.08%
Fluorescent Tubes	0.00%	0.05%	0.00%	0.01%
Mercury-Laden waste	0.00%	0.00%	0.00%	0.00%
Compressed Gas Cylinders/Fire Extinguishers	0.00%	0.00%	0.00%	1.48%
Asbestos	0.00%	0.00%	0.00%	1.48%
Explosives	0.00%	0.00%	0.00%	1.48%
Smoke Detectors	0.00%	0.03%	0.00%	0.00%
Home Medical Products	0.04%	0.10%	0.03%	0.05%
Other Potentially Harmful Wastes	0.09%	0.54%	0.06%	0.11%
Total HHW	**0.45%**	**1.62%**	**0.36%**	**0.56%**
GRAND TOTAL	**100.00%**			

Table 6-2 presents a set of more detailed results including an account of various subsorts, such as the subsort of deposit and non-deposit bottles. It also indicates which materials have been designated by DSNY as eligible for recycling.

Table 6-2
Detailed Results of the PWCS Refuse Sort

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Refuse Stream	Weekly Tonnage in Refuse Stream (1)	Recycling Indicator	Recycling Subindicator
Paper	ONP	Newspaper		3.71%	2,210.19	R	R Paper
Paper	OCC	Plain OCC/Kraft paper		1.35%	804.52	R	R Paper
Paper	Mixed Paper	High Grade Paper		0.67%	399.96	R	R Paper
Paper	Mixed Paper	Mixed Low Grade Paper		7.34%	4,373.54	R	R Paper
Paper	Mixed Paper	Phone Books		0.23%	135.54	R	R Paper
Paper	Mixed Paper	Paperbacks		0.18%	109.68	R	R Paper
Paper	Mixed Paper	Paper Bags		0.60%	357.61	R	R Paper
Paper	Bev Cartons	Polycoated Containers		0.47%	278.40	R	R Bev Cartons
Paper	Compostable Paper	Compostable/Soiled/ Waxed OCC		7.49%	4,463.58	NR	NR_Paper
Paper	Compostable Paper	Single Use Plates, Cups		0.51%	305.84	NR	NR_Paper
Paper	Other Paper	Other Nonrecyclable Paper		0.65%	388.28	NR	NR_Paper
Plastic	PET Bottles	PET Bottles	Deposit	0.33%	197.92	R	R Plastics
Plastic	PET Bottles	PET Bottles	Non-Deposit	0.64%	383.61	R	R Plastics
Plastic	HDPE Bottles	HDPE Natural Bottles		0.31%	182.74	R	R Plastics
Plastic	HDPE Bottles	HDPE Colored Bottles		0.45%	268.56	R	R Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#1 Pet	0.03%	15.66	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#2 HDPE	0.08%	45.02	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#3 PVC	0.01%	7.83	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#4 LDPE	0.01%	8.48	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#5 PP	0.22%	132.60	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#7 Other	0.07%	41.18	PR	PR_Plastics

Table 6-2
Detailed Results of the PWCS Refuse Sort

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Refuse Stream	Weekly Tonnage in Refuse Stream (1)	Recycling Indicator	Recycling Subindicator
Plastic	Other Plastic Products	Other PVC		0.07%	42.72	NR	NR_Plastics
Plastic	Other Rigid Containers/Packaging	Rigid Polystyrene		0.16%	95.34	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Expanded Polystyrene		0.69%	411.62	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Other Rigid Containers/Packaging		0.61%	362.88	PR	PR_Plastics
Plastic	Film	Plastic Bags		2.79%	1,664.19	PR	PR_Plastics
Plastic	Film	Other Film		5.21%	3,103.20	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Plastic Crates and Soda Bottle Carriers		0.06%	35.80	PR	PR_Plastics
Plastic	Other Plastic Products	Single-Use Food Svc		0.78%	465.09	NR	NR_Plastics
Plastic	Other Plastic Products	Single Use Cameras		0.00%	0.00	NR	NR_Plastics
Plastic	Other Plastic Products	Disposable Razors		0.01%	4.26	NR	NR_Plastics
Plastic	Other Plastic Products	Other Plastics Materials		1.67%	994.00	NR	NR_Plastics
Glass	Container Glass	Clear Glass	Deposit	0.28%	167.38	R	R Glass
Glass	Container Glass	Clear Glass	Non-Deposit	1.00%	594.78	R	R Glass
Glass	Container Glass	Green Glass	Deposit	0.15%	88.59	R	R Glass
Glass	Container Glass	Green Glass	Non-Deposit	0.16%	96.59	R	R Glass
Glass	Container Glass	Brown Glass	Deposit	0.25%	151.43	R	R Glass
Glass	Container Glass	Brown Glass	Non-Deposit	0.06%	34.43	R	R Glass
Glass	Mixed Cullet	Mixed Cullet		0.50%	300.38	R	R Glass
Glass	Other Glass	Other Glass		0.20%	119.28	PR	PR_Glass
Metal	Aluminum	Aluminum Cans	Deposit	0.17%	101.86	R	R Metal
Metal	Aluminum	Aluminum Cans	Non-Deposit	0.03%	16.11	R	R Metal
Metal	Aluminum	Aluminum Foil/Tins		0.60%	356.92	R	R Metal
Metal	Aluminum	Other Aluminum		0.05%	28.21	R	R Metal
Metal	Other Metal	Other Non-Ferrous		0.06%	37.49	R	R Metal

Table 6-2
Detailed Results of the PWCS Refuse Sort

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Refuse Stream	Weekly Tonnage in Refuse Stream (1)	Recycling Indicator	Recycling Subindicator
Metal	Ferrous	Tin Food Cans		0.91%	544.72	R	R Metal
Metal	Ferrous	Empty Aerosol Cans		0.12%	73.65	R	R Metal
Metal	Ferrous	Other Ferrous		1.03%	614.61	R	R Metal
Metal	Other Metal	Mixed Metals		0.56%	335.45	R	R Metal
Organic	Yard	Leaves and Grass		6.23%	3,712.61	NR	NR_Other
Organic	Yard	Prunings		3.04%	1,815.19	NR	NR_Other
Organic	Wood	Stumps/Limbs		0.67%	402.35	NR	NR_Other
Organic	Food	Food		15.93%	9,498.60	NR	NR_Other
Organic	Wood	Non-C&D, Untreated Wood		0.38%	224.39	NR	NR_Other
Organic	Textiles	Non-Clothing Textiles		2.07%	1,234.32	NR	NR_Other
Organic	Textiles	Clothing Textiles		3.70%	2,205.01	NR	NR_Other
Organic	Textiles	Carpet/Upholstery		1.27%	754.66	NR	NR_Other
Organic	Diapers/Hygeine	Disposable Diapers/Sanitary Products		3.81%	2,269.39	NR	NR_Other
Organic	Misc. Organic	Animal By-Products		1.25%	743.58	NR	NR_Other
Organic	Misc. Organic	Rubber Products		0.32%	189.07	NR	NR_Other
Organic	Textiles	Shoes	Leather	0.37%	222.30	NR	NR_Other
Organic	Textiles	Shoes	Other	0.09%	55.81	NR	NR_Other
Organic	Textiles	Shoes	Rubber	0.20%	119.97	NR	NR_Other
Organic	Textiles	Other Leather Products		0.05%	32.47	NR	NR_Other
Organic	Misc. Organic	Fines		4.20%	2,504.07	NR	NR_Other
Organic	Misc. Organic	Miscellaneous Organics		3.98%	2,370.43	NR	NR_Other
App. & Elec.	Household Appliance	Small Appliances		0.27%	162.46	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Other	0.24%	142.13	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Cell Phones	0.00%	2.67	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Computer Monitors		0.05%	28.92	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Televisions		0.10%	60.42	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Other Computer Equip.		0.19%	115.01	NR	NR_Other

Table 6-2
Detailed Results of the PWCS Refuse Sort

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Refuse Stream	Weekly Tonnage in Refuse Stream (1)	Recycling Indicator	Recycling Subindicator
Const. Debris	Wood	Untreated Dimension Lumber, Pallets, Crates		0.45%	267.55	NR	NR_Other
Const. Debris	Wood	Treated/Contaminated Wood		2.99%	1,784.14	NR	NR_Other
Const. Debris	Inorganic C&D	Gypsum Scrap		1.16%	693.64	NR	NR_Other
Const. Debris	Inorganic C&D	Fiberglass Insulation		0.06%	34.48	NR	NR_Other
Const. Debris	Inorganic C&D	Rock/Concrete/Bricks		0.58%	348.15	NR	NR_Other
Const. Debris	Inorganic C&D	Asphaltic Roofing		0.02%	12.14	NR	NR_Other
Const. Debris	Inorganic C&D	Other C&D Debris		1.74%	1,036.63	NR	NR_Other
Misc.	Misc. Inorganic	Misc. Inorganics		0.23%	139.58	NR	NR_Other
Misc.	Misc. Inorganic	Ceramics		0.36%	214.93	NR	NR_Other
HHW	HHW	Oil Filters		0.00%	0.00	NR	NR_Other
HHW	HHW	Antifreeze		0.00%	0.00	NR	NR_Other
HHW	HHW	Wet-Cell Batteries		0.07%	43.76	NR	NR_Other
HHW	HHW	Gasoline/Kerosene		0.00%	0.55	NR	NR_Other
HHW	HHW	Motor Oil/Diesel Oil		0.00%	0.00	NR	NR_Other
HHW	HHW	Latex Paints		0.05%	29.45	NR	NR_Other
HHW	HHW	Water and Solvent-Based Adhesives/glues		0.06%	37.57	NR	NR_Other
HHW	HHW	Oil-Based Paint/Solvent		0.07%	39.56	NR	NR_Other
HHW	HHW	Pesticides/Herbicides/Rodenticides		0.00%	0.81	NR	NR_Other
HHW	HHW	DRY-CELL Batteries		0.07%	40.02	NR	NR_Other
HHW	HHW	Fluorescent Tubes		0.00%	2.65	NR	NR_Other
HHW	HHW	Mercury-Laden waste		0.00%	0.07	NR	NR_Other
HHW	HHW	Compressed Gas Cylinders/Fire Extinguishers		0.00%	0.00	NR	NR_Other
HHW	HHW	Asbestos		0.00%	0.00	NR	NR_Other
HHW	HHW	Explosives		0.00%	0.00	NR	NR_Other
HHW	HHW	Smoke Detectors		0.00%	1.40	NR	NR_Other

Table 6-2
Detailed Results of the PWCS Refuse Sort

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Refuse Stream	Weekly Tonnage in Refuse Stream (1)	Recycling Indicator	Recycling Subindicator
HHW	HHW	Home Medical Products		0.04%	23.43	NR	NR_Other
HHW	HHW	Other Potentially Harmful Wastes		0.09%	50.74	NR	NR_Other
TOTAL				**100.00%**	**59,618.80**		

NR = Nonrecyclable under DSNY's current Curbside Recycling Program

R = Recyclable under DSNY's current Curbside Recycling Program

(1) Tonnage values are based on 59,618.80 tons which is the average weekly tonnage of refuse that was collected during May and June 2004, as provided by DSNY.

Table 6-3 ranks the material categories on the basis of their estimated Mean. Food waste was found to be the largest component of the City's refuse stream, estimated to be 15.93 percent.

Table 6-3 also presents an estimate of each material's contribution to the weekly tonnage of refuse collected in the City. This estimate is based on weekly tonnage data provided by DSNY.

Table 6-3
Summary Ranking of Materials in the PWCS Refuse Sort

Material Subgroup	% of Refuse Stream	Weekly Tonnages (1)
OVER 1% OF REFUSE STREAM		
Food	15.93%	9,498.60
Misc. Organic	9.74%	5,807.16
Yard	9.27%	5,527.80
Mixed Paper	9.02%	5,376.33
Compostable Paper	8.00%	4,769.42
Film	8.00%	4,767.39
Textiles	7.76%	4,624.54
Wood	4.49%	2,678.42
Diapers/Hygeine	3.81%	2,269.39
ONP	3.71%	2,210.19
Inorganic C&D	3.56%	2,125.04
Other Plastic Products	2.53%	1,506.07
Ferrous	2.07%	1,232.98
Other Rigid Containers/Packaging	1.94%	1,156.43
Container Glass	1.90%	1,133.20
OCC	1.35%	804.52
		55,487.47
UNDER 1% OF REFUSE STREAM		
PET Bottles	0.98%	581.53
Aluminum	0.84%	503.10
HDPE Bottles	0.76%	451.30
Other Paper	0.65%	388.28
Other Metal	0.63%	372.94
Misc. Inorganic	0.59%	354.51
Electronic.AV/Computer	0.59%	349.15
Mixed Cullet	0.50%	300.38
Bev Cartons	0.47%	278.40
HHW	0.45%	270.00
Household Appliance	0.27%	162.46
Other Glass	0.20%	119.28
		4,131.33

(1) Tonnage values are based on 59,618.80 tons which is the average weekly tonnage of refuse that was collected during May and June 2004, as provided by DSNY.

Table 6-4 presents a more detailed ranking of the materials in the refuse stream, including a number of subcategories, such as deposit and non-deposit containers.

Table 6-4
Detailed Ranking of Materials In Refuse Stream

Material Group	Material Category	Sub Category	% of Refuse Stream	Weekly Tonnages[1]
OVER 1% OF REFUSE STREAM				
Organic	Food		15.93%	9,498.60
Organic	Leaves and Grass		6.23%	3,712.61
Paper	Mixed Low Grade Paper		7.34%	4,373.54
Organic	Fines		4.20%	2,504.07
Organic	Miscellaneous Organics		3.98%	2,370.43
Organic	Disposable Diapers/Sanitary Products		3.81%	2,269.39
Paper	Compostable/Soiled/ Waxed OCC		7.49%	4,463.58
Organic	Clothing Textiles		3.70%	2,205.01
Organic	Prunings		3.04%	1,815.19
Const. Debris	Treated/Contaminated Wood		2.99%	1,784.14
Plastic	Other Film		5.21%	3,103.20
Paper	Newspaper		3.71%	2,210.19
Const. Debris	Other C&D Debris		1.74%	1,036.63
Plastic	Other Plastics Materials		1.67%	994.00
Organic	Non-Clothing Textiles		2.07%	1,234.32
Plastic	Plastic Bags		2.79%	1,664.19
Organic	Carpet/Upholstery		1.27%	754.66
Organic	Animal By-Products		1.25%	743.58
Const. Debris	Gypsum Scrap		1.16%	693.64
Metal	Other Ferrous		1.03%	614.61
Glass	Clear Glass	Non-Deposit	1.00%	594.78

Table 6-4
Detailed Ranking of Materials In Refuse Stream

Material Group	Material Category	Sub Category	% of Refuse Stream	Weekly Tonnages[1]
UNDER 1% OF REFUSE STREAM				
Paper	Plain OCC/Kraft paper		1.35%	804.52
Metal	Tin Food Cans		0.91%	544.72
Organic	Stumps/Limbs		0.67%	402.35
Const. Debris	Rock/Concrete/Bricks		0.58%	348.15
Paper	High Grade Paper		0.67%	399.96
Metal	Mixed Metals		0.56%	335.45
Plastic	PET Bottles	Non-Deposit	0.64%	383.61
Plastic	Single-Use Food Svc		0.78%	465.09
Paper	Single Use Plates, Cups		0.51%	305.84
Glass	Mixed Cullet		0.50%	300.38
Plastic	Other Rigid Containers/Packaging		0.61%	362.88
Paper	Other Nonrecyclable Paper		0.65%	388.28
Const. Debris	Untreated Dimension Lumber, Pallets, Crates		0.45%	267.55
Plastic	HDPE Colored Bottles		0.45%	268.56
Plastic	Expanded Polystyrene		0.69%	411.62
Organic	Non-C&D, Untreated Wood		0.38%	224.39
Organic	Shoes	Leather	0.37%	222.30
Paper	Paper Bags		0.60%	357.61
Metal	Aluminum Foil/Tins		0.60%	356.92
Misc.	Ceramics		0.36%	214.93
Paper	Polycoated Containers		0.47%	278.40
Organic	Rubber Products		0.32%	189.07

Table 6-4
Detailed Ranking of Materials In Refuse Stream

Material Group	Material Category	Sub Category	% of Refuse Stream	Weekly Tonnages[1]
Plastic	PET Bottles	Deposit	0.33%	197.92
Glass	Clear Glass	Deposit	0.28%	167.38
Plastic	HDPE Natural Bottles		0.31%	182.74
App. & Elec.	Small Appliances		0.27%	162.46
Glass	Brown Glass	Deposit	0.25%	151.43
App. & Elec.	Audio/Visual Equipment	Other	0.24%	142.13
Misc.	Misc. Inorganics		0.23%	139.58
Plastic	#3-#7 Containers	#5 PP	0.22%	132.60
Paper	Phone Books		0.23%	135.54
Organic	Shoes	Rubber	0.20%	119.97
Glass	Other Glass		0.20%	119.28
App. & Elec.	Other Computer Equip.		0.19%	115.01
Paper	Paperbacks		0.18%	109.68
Glass	Green Glass	Non-Deposit	0.16%	96.59
Glass	Green Glass	Deposit	0.15%	88.59
Metal	Aluminum Cans	Deposit	0.17%	101.86
Plastic	Rigid Polystyrene		0.16%	95.34
Metal	Empty Aerosol Cans		0.12%	73.65
App. & Elec.	Televisions		0.10%	60.42
Organic	Shoes	Other	0.09%	55.81
HHW	Other Potentially Harmful Wastes		0.09%	50.74
Plastic	#1-#2 Tubs/Trays	#2 HDPE	0.08%	45.02
HHW	Wet-Cell Batteries		0.07%	43.76

Table 6-4
Detailed Ranking of Materials In Refuse Stream

Material Group	Material Category	Sub Category	% of Refuse Stream	Weekly Tonnages[1]
Plastic	Other PVC		0.07%	42.72
Plastic	#3-#7 Containers	#7 Other	0.07%	41.18
HHW	DRY-CELL Batteries		0.07%	40.02
HHW	Oil-Based Paint/Solvent		0.07%	39.56
HHW	Water and Solvent-Based Adhesives/glues		0.06%	37.57
Metal	Other Non-Ferrous		0.06%	37.49
Plastic	Plastic Crates and Soda Bottle Carriers		0.06%	35.80
Const. Debris	Fiberglass Insulation		0.06%	34.48
Glass	Brown Glass	Non-Deposit	0.06%	34.43
Organic	Other Leather Products		0.05%	32.47
HHW	Latex Paints		0.05%	29.45
App. & Elec.	Computer Monitors		0.05%	28.92
Metal	Other Aluminum		0.05%	28.21
HHW	Home Medical Products		0.04%	23.43
Plastic	#1-#2 Tubs/Trays	#1 Pet	0.03%	15.66
Metal	Aluminum Cans	Non-Deposit	0.03%	16.11
Const. Debris	Asphaltic Roofing		0.02%	12.14
Plastic	#3-#7 Containers	#4 LDPE	0.01%	8.48
Plastic	#3-#7 Containers	#3 PVC	0.01%	7.83
Plastic	Disposable Razors		0.01%	4.26
App. & Elec.	Audio/Visual Equipment	Cell Phones	0.00%	2.67
HHW	Fluorescent Tubes		0.00%	2.65
HHW	Smoke Detectors		0.00%	1.40

Table 6-4
Detailed Ranking of Materials In Refuse Stream

Material Group	Material Category	Sub Category	% of Refuse Stream	Weekly Tonnages(1)
HHW	Pesticides/Herbicides/Rodenticides		0.00%	0.81
HHW	Gasoline/Kerosene		0.00%	0.55
HHW	Mercury-Laden waste		0.00%	0.07
Plastic	Single Use Cameras		0.00%	-
HHW	Oil Filters		0.00%	-
HHW	Antifreeze		0.00%	-
HHW	Motor Oil/Diesel Oil		0.00%	-
HHW	Compressed Gas Cylinders/Fire Extinguishers		0.00%	-
HHW	Asbestos		0.00%	-
HHW	Explosives		0.00%	-

(1) Tonnage values are based on 59,618.80 tons which is the average weekly tonnage of refuse that was collected during May and June 2004, as provided by DSNY.

Table 6-5 shows the estimated Mean and estimated weekly tonnage by the major material groups. The two largest fractions of the refuse stream are Organics and Paper which together represent more than 70 percent of the refuse stream.

Table 6-5
Summary Composition by Material Group

Material Group	% of Refuse Stream	Weekly Tonnages(1)
App. & Elec.	0.86%	511.61
Const. Debris	7.01%	4,176.73
Glass	2.60%	1,552.86
HHW	0.45%	270.00
Metal	3.54%	2,109.02
Misc.	0.59%	354.51
Organic	47.56%	28,354.23
Paper	23.19%	13,827.13
Plastic	14.19%	8,462.71
Grand Total	100.00%	59,618.80

(1) Tonnage values are based on 59,618.80 tons which is the average weekly tonnage of refuse that was collected during May and June 2004, as provided by DSNY.

Table 6-6 shows the estimated Mean and estimated weekly tonnage by Material Group and Material Category.

Table 6-6
Summary Results by Material Group and Material Category

Material Group	Material Category	% Composition	Weekly Tonnages(1)
App. & Elec.	Audio/Visual Equipment	0.24%	144.80
	Computer Monitors	0.05%	28.92
	Other Computer Equip.	0.19%	115.01
	Small Appliances	0.27%	162.46
	Televisions	0.10%	60.42
App. & Elec. Total		0.86%	511.61
Const. Debris	Asphaltic Roofing	0.02%	12.14
	Fiberglass Insulation	0.06%	34.48
	Gypsum Scrap	1.16%	693.64
	Other C&D Debris	1.74%	1,036.63

Table 6-6
Summary Results by Material Group and Material Category

Material Group	Material Category	% Composition	Weekly Tonnages[1]
	Rock/Concrete/Bricks	0.58%	348.15
	Treated/Contaminated Wood	2.99%	1,784.14
	Untreated Dimension Lumber, Pallets, Crates	0.45%	267.55
Const. Debris Total		7.01%	4,176.73
Glass	Brown Glass	0.31%	185.87
	Clear Glass	1.28%	762.15
	Green Glass	0.31%	185.18
	Mixed Cullet	0.50%	300.38
	Other Glass	0.20%	119.28
Glass Total		2.60%	1,552.86
HHW	Antifreeze	0.00%	0.00
	Asbestos	0.00%	0.00
	Compressed Gas Cylinders/Fire Extinguishers	0.00%	0.00
	DRY-CELL Batteries	0.07%	40.02
	Explosives	0.00%	0.00
	Fluorescent Tubes	0.00%	2.65
	Gasoline/Kerosene	0.00%	0.55
	Home Medical Products	0.04%	23.43
	Latex Paints	0.05%	29.45
	Mercury-Laden waste	0.00%	0.07
	Motor Oil/Diesel Oil	0.00%	0.00
	Oil Filters	0.00%	0.00
	Oil-Based Paint/Solvent	0.07%	39.56
	Other Potentially Harmful Wastes	0.09%	50.74
	Pesticides/Herbicides/Rodenticides	0.00%	0.81
	Smoke Detectors	0.00%	1.40
	Water and Solvent-Based Adhesives/glues	0.06%	37.57
	Wet-Cell Batteries	0.07%	43.76
HHW Total		0.45%	270.00
Metal	Aluminum Cans	0.20%	117.98
	Aluminum Foil/Tins	0.60%	356.92
	Empty Aerosol Cans	0.12%	73.65
	Mixed Metals	0.56%	335.45
	Other Aluminum	0.05%	28.21

Table 6-6
Summary Results by Material Group and Material Category

Material Group	Material Category	% Composition	Weekly Tonnages[1]
	Other Ferrous	1.03%	614.61
	Other Non-Ferrous	0.06%	37.49
	Tin Food Cans	0.91%	544.72
Metal Total		3.54%	2,109.02
Misc.	Ceramics	0.36%	214.93
	Misc. Inorganics	0.23%	139.58
Misc. Total		0.59%	354.51
Organic	Animal By-Products	1.25%	743.58
	Carpet/Upholstery	1.27%	754.66
	Clothing Textiles	3.70%	2,205.01
	Disposable Diapers/Sanitary Products	3.81%	2,269.39
	Fines	4.20%	2,504.07
	Food	15.93%	9,498.60
	Leaves and Grass	6.23%	3,712.61
	Miscellaneous Organics	3.98%	2,370.43
	Non-C&D, Untreated Wood	0.38%	224.39
	Non-Clothing Textiles	2.07%	1,234.32
	Other Leather Products	0.05%	32.47
	Prunings	3.04%	1,815.19
	Rubber Products	0.32%	189.07
	Shoes	0.67%	398.08
	Stumps/Limbs	0.67%	402.35
Organic Total		47.56%	28,354.23
Paper	Compostable/Soiled/ Waxed OCC	7.49%	4,463.58
	High Grade Paper	0.67%	399.96
	Mixed Low Grade Paper	7.34%	4,373.54
	Newspaper	3.71%	2,210.19
	Other Nonrecyclable Paper	0.65%	388.28
	Paper Bags	0.60%	357.61
	Paperbacks	0.18%	109.68
	Phone Books	0.23%	135.54
	Plain OCC/Kraft paper	1.35%	804.52
	Polycoated Containers	0.47%	278.40
	Single Use Plates, Cups	0.51%	305.84

Table 6-6
Summary Results by Material Group and Material Category

Material Group	Material Category	% Composition	Weekly Tonnages[1]
Paper Total		23.19%	13,827.13
Plastic	#1-#2 Tubs/Trays	0.10%	60.68
	#3-#7 Containers	0.32%	190.09
	Disposable Razors	0.01%	4.26
	Expanded Polystyrene	0.69%	411.62
	HDPE Colored Bottles	0.45%	268.56
	HDPE Natural Bottles	0.31%	182.74
	Other Film	5.21%	3,103.20
	Other Plastics Materials	1.67%	994.00
	Other PVC	0.07%	42.72
	Other Rigid Containers/Packaging	0.61%	362.88
	PET Bottles	0.98%	581.53
	Plastic Bags	2.79%	1,664.19
	Plastic Crates and Soda Bottle Carriers	0.06%	35.80
	Rigid Polystyrene	0.16%	95.34
	Single Use Cameras	0.00%	0.00
	Single-Use Food Svc	0.78%	465.09
Plastic Total		14.19%	8,462.71
Grand Total		100.00%	59,618.80

(1) Tonnage values are based on 59,618.80 tons which is the average weekly tonnage of refuse that was collected during May and June 2004, as provided by DSNY.

How much material, designated for recycling, is put out with the garbage? The answer to this question can help in assessing the effectiveness of public education programs and provide guidance in designing new programs. As Table 6-7 shows, the estimated Mean of materials in the refuse stream that are designated by DSNY as eligible for recycling was 22 percent. In terms of the estimate of weekly tonnage, this represents more than 13,000 tons of material. Table 6-7 identifies the estimated Mean and estimated weekly tonnage for specific materials.

Table 6-7
Designated Recycling Materials in the Refuse Stream

	% of Waste Stream	Weekly Tonnages (1)
Designated for Recycling	22.22%	13,244.86
Potentially Designated For Recycling	10.14%	6,043.09
Not Designated For Recycling	67.65%	40,330.85
Grand Total	**100.00%**	**59,618.80**

Detail	% of Waste Stream	Weekly Tonnages (1)
Designated Bev Cartons	0.47%	278.40
Designated Glass	2.40%	1,433.58
Designated Metal	3.54%	2,109.02
Designated Paper	14.07%	8,391.04
Designated Plastics	1.73%	1,032.83
Designated Materials Subtotal	22.22%	13,244.86
Potentially Designated Plastics	9.94%	5,923.81
Potentially Designated Glass	0.20%	119.28
Designated Materials Subtotal	10.14%	6,043.09
Nondesignated Paper	8.65%	5,157.70
Nondesignated Plastics	2.53%	1,506.07
Nondesignated Glass	0.00%	0.00
Other Nondesignated	56.47%	33,667.08
Nondesignated Materials Subtotal	67.65%	40,330.85
Grand Total	**100.00%**	**59,618.80**

(1) Tonnage values are based on 59,618.80 tons which is the average weekly tonnage of refuse that was collected during May and June 2004, as provided by DSNY.

Table 6-8 reorganizes the data in Table 6-7 to show the fractions of Paper, Metal, Glass, Plastic and Beverage Cartons, as well as the totals for each of these groups, which are designated for recycling as well as the fraction of these groups which are not designated for recycling. For example, soiled and waxed paper are not designated for recycling by DSNY. Table 6-8 provides the complete list of DSNY's designated recycling materials.

Table 6-8
Designated Recyclables in the Refuse Stream

BY MATERIAL GROUP

% of Waste Stream	PAPER	METAL	GLASS	PLASTIC	BEV CARTONS
Designated	14.07%	3.54%	2.40%	1.73%	0.47%
Potentially Designated	---	---	0.20%	9.94%	---
Nondesignated	8.65%	---	---	2.53%	---
Total	**22.73%**	**3.54%**	**2.60%**	**14.19%**	**0.47%**
Weekly Tonnages (1)	**PAPER**	**METAL**	**GLASS**	**PLASTIC**	**BEV CARTONS**
Designated	8,391.04	2,109.02	1,433.58	1,032.83	278.40
Potentially Designated	---	---	119.28	5,923.81	---
Nondesignated	5,157.70	---	0.00	1,506.07	---
Total	**13,548.73**	**2,109.02**	**1,552.86**	**8,462.71**	**278.40**

(1) Tonnage values are based on 59,618.80 tons which is the average weekly tonnage of refuse that was collected during May and June 2004, as provided by DSNY.

In addition to weighing each material in each of the refuse samples, certain items were also counted. Shoes, cans, bottles, and certain electronics were individually counted. Because aluminum cans are uniform in weight, the deposit can counts also provide another way to evaluate the level of contamination in disposed aluminum can samples.

Table 6-9 presents the Product Count for the Refuse Sort. This table also shows the economic value of disposed containers that were eligible for reimbursement under the State's deposit law.

Table 6-9
Product Counts (1)

Plastic	Disposable Razors		Count	212	
HHW	Smoke Detectors		Count	2	
App. & Elec.	Computer Monitors		Count	1	
Plastic	Single-Use Cameras		Count	0	
App. & Elec.	Audio/Visual Equipment	Cell Phones	Count	7	
Organic	Shoes	Leather	Count	234	
Organic	Shoes	Other	Count	126	
Organic	Shoes	Rubber	Count	158	
DEPOSIT CONTAINER COUNT					**VALUE**
Metal	Aluminum Cans	Deposit	Count	1,556	$ 77.80
Plastic	PET Bottles	Deposit	Count	1,274	$ 63.70
Glass	Brown Glass	Deposit	Count	224.5	$ 11.23
Glass	Clear Glass	Deposit	Count	200	$ 10.00
Glass	Green Glass	Deposit	Count	131	$ 6.55
Deposit Container Total				3,385.5	$ 169.28

(1) Amounts shown are counts of materials in nearly 47,000 pounds of 200 different, randomly selected samples of curbside refuse from DSNY's collection operations from May 15, 2004 to May 27, 2004.

Table 6-10 compares the estimated Mean of each material in the early week samples with the estimated Mean of the same material in the late week samples. The belief that the composition of the refuse collected on the first collection day of the week would be different from the composition of the refuse collected during the remainder of the week was the reason that the Early Week/Late Week criteria for sampling was used. As Table 6-10 shows, 17 out of the 87 materials show a statistically significant difference between the late week and the early week samples.

Table 6-10
Comparison of Material Composition in Early Week and Late Week Samples

Category Number	Material	Early Week	Late Week	Statistically Same
1	Newspaper	3.75%	3.67%	X
2	Plain OCC/Kraft paper	1.15%	1.53%	
3	High Grade Paper	0.47%	0.85%	
4	Mixed Low Grade Paper	7.04%	7.60%	X
5	Phone Books	0.09%	0.35%	
6	Paperbacks	0.14%	0.23%	X

Table 6-10
Comparison of Material Composition in Early Week and Late Week Samples

Category Number	Material	Early Week	Late Week	Statistically Same
7	Paper Bags	0.60%	0.60%	X
8	Polycoated Containers	0.43%	0.50%	X
9	Compostable/Soiled/ Waxed OCC	7.15%	7.79%	X
10	Single Use Plates, Cups	0.57%	0.46%	X
11	Other Nonrecyclable Paper	0.60%	0.70%	X
TOTAL PAPER		**22.00%**	**24.27%**	
12	PET Bottles: Deposit	0.29%	0.37%	
12	PET Bottles: Non-Deposit	0.63%	0.65%	X
13	HDPE Natural Bottles	0.27%	0.34%	
14	HDPE Colored Bottles	0.39%	0.51%	X
15	#1-#2 Tubs/Trays: #1 Pet	0.05%	0.01%	
15	#1-#2 Tubs/Trays: #2 HDPE	0.07%	0.08%	X
16	#3-#7 Containers: #3 PVC	0.02%	0.01%	
16	#3-#7 Containers: #4 LDPE	0.02%	0.01%	X
16	#3-#7 Containers: #5 PP	0.28%	0.18%	
16	#3-#7 Containers: #7 Other	0.07%	0.07%	X
17	Other PVC	0.04%	0.10%	X
18	Rigid Polystyrene	0.15%	0.17%	X
19	Expanded Polystyrene	0.67%	0.71%	X
20	Other Rigid Containers/Packaging	0.62%	0.60%	X
21	Plastic Bags	2.80%	2.78%	X
22	Other Film	5.24%	5.18%	X
23	Plastic Crates and Soda Bottle Carriers	0.06%	0.06%	X
24	Single-Use Food Svc	0.73%	0.83%	X
25	Single Use Cameras	0.00%	0.00%	X
26	Disposable Razors	0.01%	0.01%	X
27	Other Plastics Materials	1.62%	1.71%	X
TOTAL PLASTIC		**13.99%**	**14.38%**	**X**
28	Clear Glass: Deposit	0.26%	0.31%	X
28	Clear Glass: Non-Deposit	0.87%	1.12%	
29	Green Glass: Deposit	0.18%	0.13%	X
29	Green Glass: Non-Deposit	0.19%	0.16%	X
30	Brown Glass: Deposit	0.26%	0.27%	X

Table 6-10
Comparison of Material Composition in Early Week and Late Week Samples

Category Number	Material	Early Week	Late Week	Statistically Same
30	Brown Glass: Non-Deposit	0.06%	0.06%	X
31	Mixed Cullet	0.48%	0.53%	X
32	Other Glass	0.24%	0.16%	X
TOTAL GLASS		**2.45%**	**2.75%**	**X**
33	Aluminum Cans: Deposit	0.18%	0.17%	X
33	Aluminum Cans: Non-Deposit	0.03%	0.03%	X
34	Aluminum Foil/Tins	0.63%	0.57%	X
35	Other Aluminum	0.05%	0.05%	X
36	Other Non-Ferrous	0.03%	0.09%	
37	Tin Food Cans	0.85%	0.97%	X
38	Empty Aerosol Cans	0.12%	0.12%	X
39	Other Ferrous	1.08%	0.99%	X
40	Mixed Metals	0.67%	0.47%	X
TOTAL METAL		**3.62%**	**3.46%**	**X**
41	Leaves and Grass	7.13%	5.41%	X
42	Prunings	3.67%	2.48%	X
43	Stumps/Limbs	0.72%	0.63%	X
44	Food	16.44%	15.47%	X
45	Non-C&D, Untreated Wood	0.68%	0.10%	
46	Non-Clothing Textiles	1.70%	2.41%	X
47	Clothing Textiles	4.13%	3.31%	X
48	Carpet/Upholstery	1.57%	0.99%	X
49	Disposable Diapers/Sanitary Products	3.83%	3.79%	X
50	Animal By-Products	1.40%	1.11%	X
51	Rubber Products	0.34%	0.30%	X
52	Shoes: Leather	0.56%	0.33%	
52	Shoes: Other	0.15%	0.08%	X
52	Shoes: Rubber	0.24%	0.24%	X
53	Other Leather Products	0.03%	0.07%	X
54	Fines	3.94%	4.43%	X
55	Miscellaneous Organics	3.58%	4.34%	X
TOTAL ORGANIC		**49.98%**	**45.37%**	
56	Small Appliances	0.29%	0.25%	X

Table 6-10
Comparison of Material Composition in Early Week and Late Week Samples

Category Number	Material	Early Week	Late Week	Statistically Same
57	Audio/Visual Equipment	0.38%	0.13%	
57	Audio/Visual Equipment: Cell Phones	0.00%	0.03%	
58	Computer Monitors	0.00%	0.09%	X
59	Televisions	0.16%	0.05%	X
60	Other Computer Equip.	0.21%	0.18%	X
TOTAL APPLIANCE & ELECTRONICS		**1.03%**	**0.70%**	**X**
61	Untreated Dimension Lumber, Pallets, Crates	0.19%	0.68%	
62	Treated/Contaminated Wood	2.40%	3.53%	
63	Gypsum Scrap	0.99%	1.32%	X
64	Fiberglass Insulation	0.06%	0.05%	X
65	Rock/Concrete/Bricks	0.55%	0.61%	X
66	Asphaltic Roofing	0.03%	0.01%	X
67	Other C&D Debris	2.09%	1.42%	X
TOTAL CONSTRUCTION DEBRIS		**6.32%**	**7.63%**	**X**
68	Misc. Inorganics	0.10%	0.36%	
69	Ceramics	0.23%	0.48%	X
TOTAL MISCELLANEOUS		**0.33%**	**0.84%**	
70	Oil Filters	0.00%	0.00%	X
71	Antifreeze	0.00%	0.00%	X
72	Wet-Cell Batteries	0.00%	0.14%	X
73	Gasoline/Kerosene	0.00%	0.00%	X
74	Motor Oil/Diesel Oil	0.00%	0.00%	X
75	Latex Paints	0.00%	0.09%	X
76	Water and Solvent-Based Adhesives/glues	0.08%	0.04%	X
77	Oil-Based Paint/Solvent	0.03%	0.10%	X
78	Pesticides/Herbicides/Rodenticides	0.00%	0.00%	X
79	DRY-CELL Batteries	0.08%	0.05%	X
80	Fluorescent Tubes	0.00%	0.01%	X
81	Mercury-Laden waste	0.00%	0.00%	X
82	Compressed Gas Cylinders/Fire Extinguishers	0.00%	0.00%	X
83	Asbestos	0.00%	0.00%	X
84	Explosives	0.00%	0.00%	X

Table 6-10
Comparison of Material Composition in Early Week and Late Week Samples

Category Number	Material	Early Week	Late Week	Statistically Same
85	Smoke Detectors	0.00%	0.00%	X
86	Home Medical Products	0.04%	0.03%	X
87	Other Potentially Harmful Wastes	0.04%	0.13%	X
TOTAL HHW		**0.28%**	**0.61%**	**X**
GRAND TOTAL		**100.00%**	**100.00%**	

In addition to the Early Week/Late Week criteria, samples were also selected on the basis of their borough of origin. Table 6-11 compares the estimated Mean of the five boroughs. Although the PWCS was not designed to provide statistically significant results for each borough, the differences among the boroughs are fairly significant for certain of the categories. For example, newspaper in the Manhattan refuse stream is significantly higher than in any of the four other boroughs, as is mixed low grade paper, and compostable/soiled/waxed old corrugated containers (OCC). Alternatively, organics represent a relatively small fraction of the Manhattan refuse stream. Again, the results reflected below are not intended to represent a statistically accurate picture of each borough's comparative waste stream, but rather highlights the need to evaluate these differences more comprehensively in future studies.

Table 6-11
Comparison of Material Composition by Borough [1]

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
1	Newspaper	3.64%	3.94%	5.42%	2.85%	1.92%
2	Plain OCC/Kraft paper	1.50%	1.51%	1.39%	1.21%	0.77%
3	High Grade Paper	0.59%	0.45%	1.33%	0.42%	1.06%
4	Mixed Low Grade Paper	6.15%	7.77%	10.50%	5.86%	5.68%
5	Phone Books	0.49%	0.12%	0.06%	0.27%	0.37%
6	Paperbacks	0.20%	0.10%	0.05%	0.30%	0.40%
7	Paper Bags	0.47%	0.57%	1.01%	0.53%	0.30%
8	Polycoated Containers	0.52%	0.45%	0.71%	0.38%	0.19%
9	Compostable/Soiled/ Waxed OCC	6.91%	7.72%	9.26%	6.71%	6.25%
10	Single Use Plates, Cups	0.35%	0.39%	0.76%	0.51%	0.77%
11	Other Nonrecyclable Paper	0.66%	0.74%	0.63%	0.54%	0.70%
TOTAL PAPER		**21.48%**	**23.75%**	**31.11%**	**19.59%**	**18.40%**
12	PET Bottles: Deposit	0.49%	0.34%	0.37%	0.26%	0.15%
12	PET Bottles: Non-Deposit	0.65%	0.68%	0.92%	0.47%	0.44%
13	HDPE Natural Bottles	0.44%	0.33%	0.30%	0.25%	0.15%
14	HDPE Colored Bottles	0.53%	0.49%	0.37%	0.47%	0.26%
15	#1-#2 Tubs/Trays: #1 Pet	0.03%	0.02%	0.05%	0.02%	0.00%
15	#1-#2 Tubs/Trays: #2 HDPE	0.01%	0.07%	0.02%	0.17%	0.01%
16	#3-#7 Containers: #3 PVC	0.01%	0.01%	0.00%	0.02%	0.00%
16	#3-#7 Containers: #4 LDPE	0.02%	0.00%	0.05%	0.00%	0.00%
16	#3-#7 Containers: #5 PP	0.15%	0.25%	0.23%	0.22%	0.24%
16	#3-#7 Containers: #7 Other	0.05%	0.07%	0.09%	0.06%	0.08%
17	Other PVC	0.05%	0.12%	0.11%	0.01%	0.04%

Table 6-11
Comparison of Material Composition by Borough [1]

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
18	Rigid Polystyrene	0.08%	0.13%	0.35%	0.14%	0.09%
19	Expanded Polystyrene	0.64%	0.89%	0.64%	0.57%	0.47%
20	Other Rigid Containers/Packaging	0.43%	0.63%	0.76%	0.58%	0.63%
21	Plastic Bags	3.24%	3.16%	2.99%	2.35%	1.46%
22	Other Film	5.16%	5.35%	6.48%	4.69%	3.57%
23	Plastic Crates and Soda Bottle Carriers	0.01%	0.08%	0.10%	0.05%	0.01%
24	Single-Use Food Svc	0.69%	1.02%	0.57%	0.75%	0.58%
25	Single Use Cameras	0.00%	0.00%	0.00%	0.00%	0.00%
26	Disposable Razors	0.00%	0.01%	0.01%	0.01%	0.01%
27	Other Plastics Materials	1.82%	1.97%	1.12%	1.28%	2.69%
TOTAL PLASTIC		**14.53%**	**15.62%**	**15.51%**	**12.38%**	**10.89%**
28	Clear Glass: Deposit	0.48%	0.41%	0.10%	0.18%	0.15%
28	Clear Glass: Non-Deposit	1.14%	1.20%	1.35%	0.54%	0.62%
29	Green Glass: Deposit	0.31%	0.11%	0.14%	0.13%	0.05%
29	Green Glass: Non-Deposit	0.21%	0.11%	0.41%	0.04%	0.11%
30	Brown Glass: Deposit	0.48%	0.21%	0.32%	0.13%	0.25%
30	Brown Glass: Non-Deposit	0.06%	0.07%	0.11%	0.01%	0.03%
31	Mixed Cullet	0.66%	0.64%	0.59%	0.30%	0.14%
32	Other Glass	0.23%	0.20%	0.12%	0.22%	0.24%
TOTAL GLASS		**3.57%**	**2.96%**	**3.14%**	**1.55%**	**1.60%**
33	Aluminum Cans: Deposit	0.23%	0.14%	0.26%	0.13%	0.10%
33	Aluminum Cans: Non-Deposit	0.03%	0.03%	0.03%	0.02%	0.03%
34	Aluminum Foil/Tins	0.71%	0.67%	0.66%	0.49%	0.33%

Table 6-11
Comparison of Material Composition by Borough [1]

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
35	Other Aluminum	0.02%	0.05%	0.05%	0.07%	0.03%
36	Other Non-Ferrous	0.10%	0.04%	0.06%	0.06%	0.08%
37	Tin Food Cans	1.48%	0.99%	1.00%	0.57%	0.42%
38	Empty Aerosol Cans	0.13%	0.14%	0.12%	0.10%	0.16%
39	Other Ferrous	0.66%	1.03%	1.02%	1.10%	1.55%
40	Mixed Metals	0.16%	0.68%	0.18%	0.71%	1.23%
TOTAL METAL		**3.53%**	**3.77%**	**3.38%**	**3.25%**	**3.92%**
41	Leaves and Grass	3.11%	2.80%	1.31%	11.91%	18.23%
42	Prunings	3.53%	2.25%	0.32%	3.97%	8.37%
43	Stumps/Limbs	0.04%	0.81%	0.48%	1.21%	0.04%
44	Food	17.36%	17.37%	15.58%	15.83%	8.52%
45	Non-C&D, Untreated Wood	0.06%	0.09%	0.46%	0.90%	0.22%
46	Non-Clothing Textiles	2.36%	1.98%	2.34%	2.11%	1.14%
47	Clothing Textiles	5.60%	3.43%	3.25%	2.84%	4.93%
48	Carpet/Upholstery	0.69%	1.00%	1.24%	1.52%	2.66%
49	Disposable Diapers/Sanitary Products	4.39%	3.90%	2.67%	4.47%	2.67%
50	Animal By-Products	0.91%	1.35%	0.87%	1.21%	2.46%
51	Rubber Products	0.32%	0.28%	0.53%	0.21%	0.35%
52	Shoes: Leather	0.28%	0.39%	0.22%	0.44%	0.61%
52	Shoes: Other	0.12%	0.17%	0.04%	0.03%	0.07%
52	Shoes: Rubber	0.30%	0.22%	0.21%	0.07%	0.37%
53	Other Leather Products	0.03%	0.14%	0.01%	0.01%	0.00%
54	Fines	4.06%	4.46%	4.64%	3.91%	3.38%

Table 6-11
Comparison of Material Composition by Borough [1]

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
55	Miscellaneous Organics	6.10%	4.18%	3.70%	2.73%	3.76%
TOTAL ORGANIC		**49.24%**	**44.81%**	**37.88%**	**53.38%**	**57.81%**
56	Small Appliances	0.27%	0.20%	0.03%	0.49%	0.38%
57	Audio/Visual Equipment	0.09%	0.21%	0.21%	0.43%	0.05%
57	Audio/Visual Equipment: Cell Phones	0.00%	0.01%	0.00%	0.01%	0.00%
58	Computer Monitors	0.00%	0.00%	0.00%	0.18%	0.00%
59	Televisions	0.16%	0.24%	0.00%	0.00%	0.00%
60	Other Computer Equip.	0.38%	0.22%	0.07%	0.19%	0.00%
TOTAL APPLIANCE & ELECTRONICS		**0.90%**	**0.88%**	**0.31%**	**1.30%**	**0.44%**
61	Untreated Dimension Lumber, Pallets, Crates	0.45%	0.32%	0.30%	0.82%	0.08%
62	Treated/Contaminated Wood	3.06%	3.52%	2.01%	3.21%	2.24%
63	Gypsum Scrap	0.65%	1.28%	1.07%	1.27%	1.55%
64	Fiberglass Insulation	0.00%	0.02%	0.13%	0.01%	0.32%
65	Rock/Concrete/Bricks	1.19%	0.61%	0.38%	0.49%	0.07%
66	Asphaltic Roofing	0.00%	0.01%	0.09%	0.00%	0.00%
67	Other C&D Debris	0.97%	1.70%	3.47%	1.31%	0.94%
TOTAL CONSTRUCTION DEBRIS		**6.32%**	**7.46%**	**7.44%**	**7.11%**	**5.20%**
68	Misc. Inorganics	0.11%	0.37%	0.28%	0.11%	0.23%
69	Ceramics	0.12%	0.13%	0.54%	0.71%	0.21%
TOTAL MISC.		**0.23%**	**0.50%**	**0.81%**	**0.83%**	**0.43%**
70	Oil Filters	0.00%	0.00%	0.00%	0.00%	0.00%
71	Antifreeze	0.00%	0.00%	0.00%	0.00%	0.00%
72	Wet-Cell Batteries	0.00%	0.00%	0.00%	0.00%	0.92%

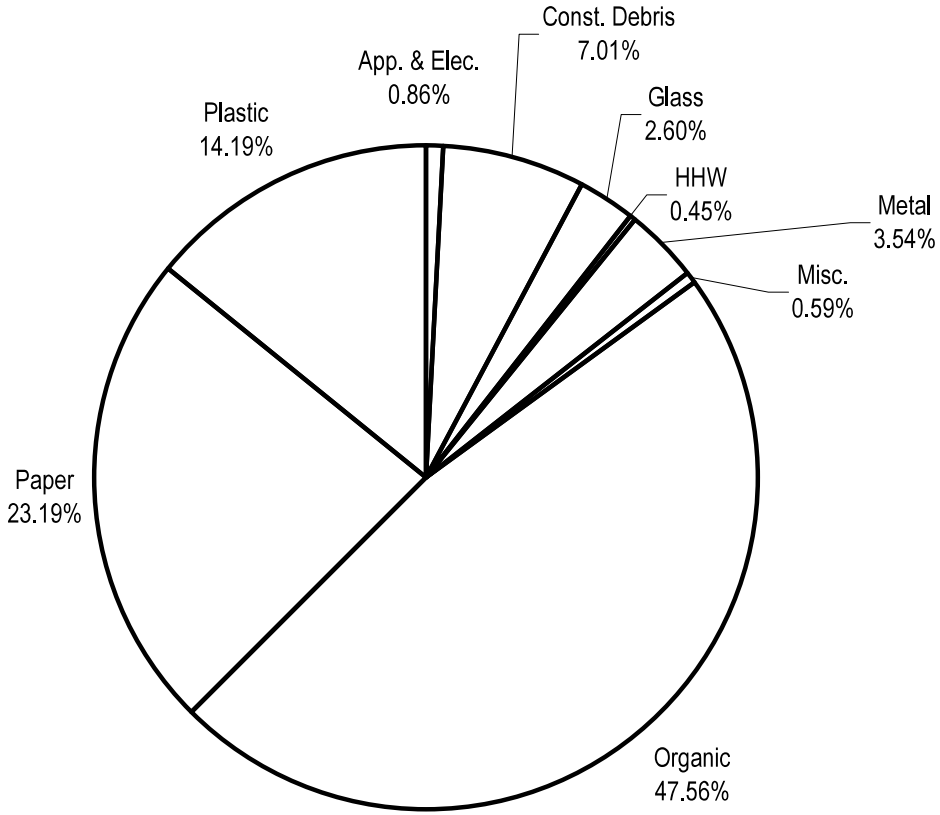
Table 6-11
Comparison of Material Composition by Borough (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
73	Gasoline/Kerosene	0.00%	0.00%	0.00%	0.00%	0.00%
74	Motor Oil/Diesel Oil	0.00%	0.00%	0.00%	0.00%	0.00%
75	Latex Paints	0.00%	0.00%	0.00%	0.19%	0.00%
76	Water and Solvent-Based Adhesives/glues	0.06%	0.08%	0.15%	0.00%	0.01%
77	Oil-Based Paint/Solvent	0.00%	0.00%	0.06%	0.20%	0.01%
78	Pesticides/Herbicides/Rodenticides	0.00%	0.00%	0.00%	0.00%	0.00%
79	DRY-CELL Batteries	0.05%	0.04%	0.13%	0.06%	0.08%
80	Fluorescent Tubes	0.00%	0.00%	0.02%	0.00%	0.00%
81	Mercury-Laden waste	0.00%	0.00%	0.00%	0.00%	0.00%
82	Compressed Gas Cylinders/Fire Extinguishers	0.00%	0.00%	0.00%	0.00%	0.00%
83	Asbestos	0.00%	0.00%	0.00%	0.00%	0.00%
84	Explosives	0.00%	0.00%	0.00%	0.00%	0.00%
85	Smoke Detectors	0.02%	0.00%	0.00%	0.00%	0.00%
86	Home Medical Products	0.05%	0.03%	0.02%	0.06%	0.04%
87	Other Potentially Harmful Wastes	0.02%	0.10%	0.03%	0.10%	0.24%
TOTAL HHW		**0.20%**	**0.25%**	**0.41%**	**0.62%**	**1.31%**
GRAND TOTAL		**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

(1) The statistical accuracy of composition at the borough level is not guaranteed as this study was not designed to analyze borough differences.

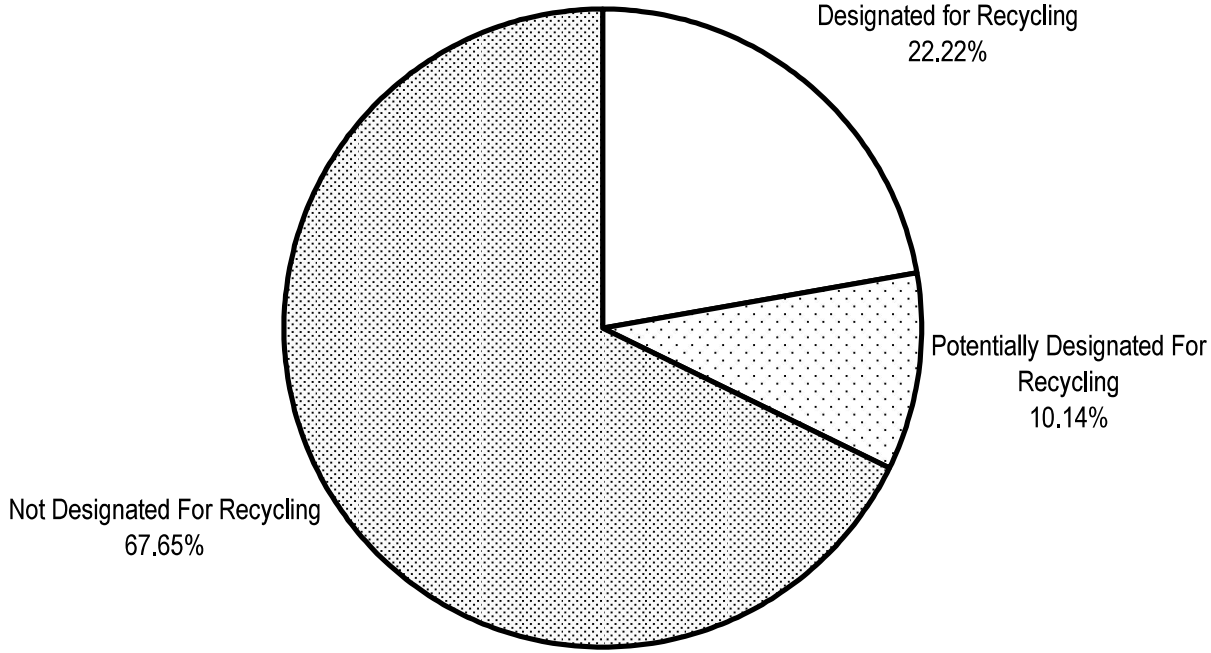
Figure 6-1 presents a pie chart showing the fraction of the refuse stream represented by each of the major material groups.

Figure 6-1 PWCS Refuse Composition by Material Group



Figures 6-2 is a pie chart showing the fraction of the refuse stream represented by designated recycling material.

Figure 6-2 Summary of Materials Designated for Recycling in the PWSC Refuse Sort



Section 7
RECYCLING RESULTS

The results of the PWCS Recycling Sort present an estimate of the composition of the City's recycled paper ("Paper") and metals, glass and plastic ("MGP"), as well as the combination of both recycling streams ("Aggregated Recycling"). Like the results of the Refuse Sort, results of the Recycling Sort are shown for nine material groups (such as paper, plastic, metal, glass, etc.) and the 87 material categories. The list of material groups and categories is presented in Appendix J.

Note that the range of statistical measures used to present the results of the Recycling Sort are the same ones used to present the Refuse Sort results. A full description of these measures can be found at the beginning of Section 6, and will not be repeated here.

Because the Recycling Sort analyzed the Paper and MGP streams separately, it is assumed that the most informative presentation of the results of these studies will include details about Paper and MGP separately, as well as for Aggregated Recycling. For this reason, each table and figure will be repeated three times, once each for Paper, MGP and Aggregated Recycling. This will allow the reader to easily compare the differences in Paper and MGP, and also to quickly gauge the affect of combining these two streams into the total recycling stream.

Note that the Aggregated Recycling results include only the estimated Mean. Although it is possible to calculate the standard deviation and confidence intervals of the Aggregated Recycling, the required statistical calculations may dilute the precision achieved in the individual Paper and MGP Sorts. For this reason, Aggregated Recycling results exclude the standard deviation and confidence interval statistical measures.

Given these limitations, Table 7-1 presents the weighting factors used to develop the results for the Aggregated Recycling. These weighting factors are based on the average weekly Paper and MGP collection from the period May and June 2004.

Table 7-1
Paper and MGP Weighting Factors

	Tons (1)	Weighting Factor
Paper	7,301.4	59.9%
MGP	4,882.0	40.1%
Total	**12,183.4**	100.0%

(1) Average weekly tonnage of recycling that was collected during May and June 2004, as provided by DSNY.

Tables 7-2A, 7-2B and 7-2C present the detailed composition of the Paper, MGP and Aggregated Recycling streams, respectively. These tables contain the same statistical measures that are described in full detail in Section 6. As Table 7-2A shows, the paper materials which represent the largest percentage of the paper set out for recycling, newspaper, OCC Kraft and mixed low-grade paper, which together represent more than 88 percent of the total Paper stream. The largest fraction of nondesignated material is organics represents just over 1 percent of the total Paper stream.

Table 7-2A
Summary Results of the PWCS Recycling Sort - Paper

Material Category	Percentage of Paper Stream	Standard Deviation	Lower Boundary	Upper Boundary
	Column 1	Column 2	Column 3	Column 4
Newspaper	39.84%	14.99%	37.21%	42.50%
Plain OCC/Kraft Paper	20.64%	14.24%	18.24%	23.14%
High Grade Paper	4.22%	4.86%	3.50%	5.00%
Mixed Low Grade Paper	25.04%	9.73%	23.38%	26.74%
Phone Books	3.19%	8.06%	2.16%	4.40%
Paperbacks	1.33%	2.34%	0.98%	1.73%
Paper Bags	0.53%	0.75%	0.41%	0.66%
Polycoated Containers	0.27%	0.38%	0.21%	0.35%
Compostable/Soiled/ Waxed OCC	0.13%	0.60%	0.09%	0.18%
Single Use Plates, Cups	0.01%	0.04%	0.00%	0.01%
Other Nonrecyclable Paper	1.36%	3.86%	0.97%	1.82%
Total Paper	**96.55%**	**3.34%**	**96.03%**	**97.03%**
PET Bottles: Deposit	0.01%	0.04%	0.01%	0.02%
PET Bottles: Non-Deposit	0.05%	0.13%	0.03%	0.06%
HDPE Natural Bottles	0.02%	0.08%	0.01%	0.03%

Table 7-2A
Summary Results of the PWCS Recycling Sort - Paper

Material Category	Percentage of Paper Stream	Standard Deviation	Lower Boundary	Upper Boundary
	Column 1	Column 2	Column 3	Column 4
HDPE Colored Bottles	0.03%	0.13%	0.02%	0.04%
#1-#2 Tubs/Trays: #1 Pet	0.00%	0.00%	0.00%	2.98%
#1-#2 Tubs/Trays: #2 HDPE	0.00%	0.00%	0.00%	0.00%
#3-#7 Containers: #3 PVC	0.00%	0.00%	0.00%	2.98%
#3-#7 Containers: #4 LDPE	0.00%	0.00%	0.00%	0.00%
#3-#7 Containers: #5 PP	0.00%	0.03%	0.00%	0.01%
#3-#7 Containers: #7 Other	0.01%	0.02%	0.00%	0.01%
Other PVC	0.00%	0.00%	0.00%	0.00%
Rigid Polystyrene	0.00%	0.01%	0.00%	0.00%
Expanded Polystyrene	0.05%	0.13%	0.03%	0.06%
Other Rigid Containers/Packaging	0.01%	0.05%	0.00%	0.01%
Plastic Bags	0.22%	0.25%	0.18%	0.27%
Other Film	0.86%	0.61%	0.74%	0.99%
Plastic Crates and Soda Bottle Carriers	0.00%	0.00%	0.00%	2.98%
Single-Use Food Svc	0.01%	0.08%	0.01%	0.02%
Single Use Cameras	0.00%	0.00%	0.00%	2.98%
Disposable Razors	0.00%	0.01%	0.00%	0.00%
Other Plastics Materials	0.31%	0.91%	0.21%	0.42%
Total Plastic	**1.58%**	**1.38%**	**1.37%**	**1.80%**
Clear Glass: Deposit	0.03%	0.16%	0.02%	0.04%
Clear Glass: Non-Deposit	0.06%	0.21%	0.04%	0.08%
Green Glass: Deposit	0.00%	0.00%	0.00%	2.98%
Green Glass: Non-Deposit	0.00%	0.00%	0.00%	2.98%
Brown Glass: Deposit	0.00%	0.00%	0.00%	2.98%
Brown Glass: Non-Deposit	0.00%	0.04%	0.00%	0.01%
Mixed Cullet	0.04%	0.18%	0.03%	0.06%
Other Glass	0.00%	0.01%	0.00%	0.00%
Total Glass	**0.13%**	**0.35%**	**0.09%**	**0.18%**
Aluminum Cans: Deposit	0.01%	0.03%	0.00%	0.01%
Aluminum Cans: Non-Deposit	0.00%	0.01%	0.00%	0.00%
Aluminum Foil/Tins	0.02%	0.11%	0.01%	0.03%
Other Aluminum	0.01%	0.10%	0.01%	0.02%
Other Non-Ferrous	0.00%	0.02%	0.00%	0.00%

Table 7-2A
Summary Results of the PWCS Recycling Sort - Paper

Material Category	Percentage of Paper Stream	Standard Deviation	Lower Boundary	Upper Boundary
	Column 1	Column 2	Column 3	Column 4
Tin Food Cans	0.04%	0.13%	0.03%	0.06%
Empty Aerosol Cans	0.00%	0.01%	0.00%	0.00%
Other Ferrous	0.04%	0.18%	0.03%	0.06%
Mixed Metals	0.09%	0.58%	0.06%	0.14%
Total Metal	**0.22%**	**0.65%**	**0.15%**	**0.28%**
Leaves and Grass	0.00%	0.00%	0.00%	0.00%
Prunings	0.00%	0.00%	0.00%	0.00%
Stumps/Limbs	0.00%	0.00%	0.00%	2.98%
Food	0.40%	0.99%	0.28%	0.55%
Non-C&D, Untreated Wood	0.00%	0.02%	0.00%	0.00%
Non-Clothing Textiles	0.18%	0.52%	0.12%	0.25%
Clothing Textiles	0.12%	0.68%	0.07%	0.17%
Carpet/Upholstery	0.01%	0.11%	0.01%	0.02%
Disposable Diapers/Sanitary Products	0.07%	0.48%	0.05%	0.11%
Animal By-Products	0.02%	0.24%	0.01%	0.04%
Rubber Products	0.01%	0.11%	0.01%	0.02%
Shoes: Leather	0.00%	0.00%	0.00%	2.98%
Shoes: Other	0.00%	0.00%	0.00%	2.98%
Shoes: Rubber	0.02%	0.13%	0.01%	0.03%
Other Leather Products	0.00%	0.03%	0.00%	0.00%
Fines	0.38%	0.49%	0.31%	0.45%
Miscellaneous Organics	0.01%	0.04%	0.00%	0.01%
Total Organic	**1.23%**	**1.98%**	**0.98%**	**1.50%**
Small Appliances	0.06%	0.41%	0.04%	0.09%
Audio/Visual Equipment: Other	0.00%	0.00%	0.00%	2.98%
Audio/Visual Equipment: Cell Phones	0.00%	0.03%	0.00%	0.00%
Computer Monitors	0.00%	0.00%	0.00%	2.98%
Televisions	0.00%	0.00%	0.00%	2.98%
Other Computer Equip.	0.00%	0.00%	0.00%	2.98%
Total Appliance & Electronics	**0.06%**	**0.42%**	**0.04%**	**0.09%**
Untreated Dimension Lumber, Pallets, Crates	0.06%	0.27%	0.03%	0.08%
Treated/Contaminated Wood	0.02%	0.15%	0.01%	0.03%
Gypsum Scrap	0.01%	0.11%	0.01%	0.02%

Table 7-2A
Summary Results of the PWCS Recycling Sort - Paper

Material Category	Percentage of Paper Stream	Standard Deviation	Lower Boundary	Upper Boundary
	Column 1	Column 2	Column 3	Column 4
Fiberglass Insulation	0.00%	0.00%	0.00%	2.98%
Rock/Concrete/Bricks	0.00%	0.00%	0.00%	2.98%
Asphaltic Roofing	0.00%	0.00%	0.00%	2.98%
Other C&D Debris	0.11%	0.59%	0.07%	0.16%
Total Construction Debris	**0.20%**	**0.69%**	**0.13%**	**0.28%**
Misc. Inorganics	0.01%	0.07%	0.01%	0.02%
Ceramics	0.01%	0.08%	0.01%	0.02%
Total Misc.	**0.02%**	**0.11%**	**0.01%**	**0.03%**
Oil Filters	0.00%	0.01%	0.00%	0.00%
Antifreeze	0.00%	0.00%	0.00%	2.98%
Wet-Cell Batteries	0.00%	0.00%	0.00%	2.98%
Gasoline/Kerosene	0.00%	0.00%	0.00%	2.98%
Motor Oil/Diesel Oil	0.00%	0.00%	0.00%	2.98%
Latex Paints	0.00%	0.00%	0.00%	2.98%
Water and Solvent-Based Adhesives/glues	0.00%	0.00%	0.00%	2.98%
Oil-Based Paint/Solvent	0.00%	0.00%	0.00%	2.98%
Pesticides/Herbicides/Rodenticides	0.00%	0.00%	0.00%	2.98%
DRY-CELL Batteries	0.00%	0.01%	0.00%	0.00%
Fluorescent Tubes	0.00%	0.00%	0.00%	2.98%
Mercury-Laden waste	0.00%	0.00%	0.00%	2.98%
Compressed Gas Cylinders/Fire Extinguishers	0.00%	0.00%	0.00%	2.98%
Asbestos	0.00%	0.00%	0.00%	2.98%
Explosives	0.00%	0.00%	0.00%	2.98%
Smoke Detectors	0.00%	0.00%	0.00%	2.98%
Home Medical Products	0.00%	0.03%	0.00%	0.01%
Other Potentially Harmful Wastes	0.00%	0.00%	0.00%	2.98%
Total HHW	**0.01%**	**0.03%**	**0.00%**	**0.01%**
GRAND TOTAL	**100.00%**			

In Table 7-2B, metal (both appliances and metal containers), glass, and plastic represent more than 90 percent of the total MGP stream. The most prominent nondesignated materials in the MGP stream are paper (4.80 percent) and organics (3.31 percent).

Table 7-2B
Summary Results of the PWCS Recycling Sort - MGP

Material Category	Percentage of MGP Stream	Standard Deviation	Lower Boundary	Upper Boundary
	Column 1	Column 2	Column 3	Column 4
Newspaper	0.65%	1.38%	0.47%	0.87%
Plain OCC/Kraft Paper	0.25%	1.11%	0.16%	0.35%
High Grade Paper	0.08%	0.41%	0.05%	0.11%
Mixed Low Grade Paper	1.07%	1.44%	0.84%	1.32%
Phone Books	0.04%	0.25%	0.02%	0.05%
Paperbacks	0.01%	0.13%	0.01%	0.02%
Paper Bags	0.06%	0.50%	0.03%	0.08%
Polycoated Containers	1.67%	1.98%	1.44%	1.91%
Compostable/Soiled/ Waxed OCC	0.33%	0.66%	0.25%	0.42%
Single Use Plates, Cups	0.02%	0.05%	0.01%	0.03%
Other Nonrecyclable Paper	0.63%	0.85%	0.51%	0.77%
Total Paper	**4.80%**	**3.65%**	**4.25%**	**5.39%**
PET Bottles: Deposit	1.21%	1.82%	1.02%	1.41%
PET Bottles: Non-Deposit	4.73%	2.62%	4.33%	5.15%
HDPE Natural Bottles	2.69%	1.54%	2.43%	2.97%
HDPE Colored Bottles	2.68%	1.80%	2.35%	3.03%
#1-#2 Tubs/Trays: #1 Pet	0.00%	0.01%	0.00%	0.00%
#1-#2 Tubs/Trays: #2 HDPE	0.11%	0.27%	0.08%	0.15%
#3-#7 Containers: #3 PVC	0.06%	0.19%	0.04%	0.08%
#3-#7 Containers: #4 LDPE	0.01%	0.14%	0.01%	0.02%
#3-#7 Containers: #5 PP	0.66%	2.78%	0.50%	0.84%
#3-#7 Containers: #7 Other	0.17%	0.53%	0.12%	0.22%
Other PVC	0.08%	0.46%	0.05%	0.11%
Rigid Polystyrene	0.40%	0.83%	0.31%	0.50%
Expanded Polystyrene	0.11%	0.39%	0.08%	0.14%
Other Rigid Containers/Packaging	1.53%	1.73%	1.28%	1.81%
Plastic Bags	0.76%	0.71%	0.65%	0.87%
Other Film	2.46%	1.55%	2.20%	2.75%
Plastic Crates and Soda Bottle Carriers	0.13%	0.62%	0.08%	0.20%
Single-Use Food Svc	0.16%	0.23%	0.13%	0.20%
Single Use Cameras	0.00%	0.00%	0.00%	2.84%

Table 7-2B
Summary Results of the PWCS Recycling Sort - MGP

Material Category	Percentage of MGP Stream	Standard Deviation	Lower Boundary	Upper Boundary
	Column 1	Column 2	Column 3	Column 4
Disposable Razors	0.07%	0.74%	0.04%	0.11%
Other Plastics Materials	3.49%	3.01%	3.01%	4.00%
Total Plastic	**21.53%**	**7.04%**	**20.35%**	**22.73%**
Clear Glass: Deposit	1.01%	1.71%	0.78%	1.28%
Clear Glass: Non-Deposit	6.12%	4.39%	5.36%	6.93%
Green Glass: Deposit	1.09%	1.53%	0.83%	1.38%
Green Glass: Non-Deposit	2.62%	4.43%	1.98%	3.35%
Brown Glass: Deposit	1.09%	1.36%	0.84%	1.37%
Brown Glass: Non-Deposit	0.31%	0.60%	0.22%	0.41%
Mixed Cullet	22.24%	15.76%	19.52%	25.09%
Other Glass	0.62%	1.27%	0.45%	0.82%
Total Glass	**35.11%**	**17.49%**	**32.09%**	**38.18%**
Aluminum Cans: Deposit	0.40%	0.46%	0.34%	0.47%
Aluminum Cans: Non-Deposit	0.39%	0.51%	0.31%	0.47%
Aluminum Foil/Tins	0.97%	1.46%	0.80%	1.15%
Other Aluminum	0.20%	0.66%	0.13%	0.27%
Other Non-Ferrous	0.27%	0.89%	0.18%	0.38%
Tin Food Cans	7.12%	3.36%	6.55%	7.71%
Empty Aerosol Cans	0.64%	0.57%	0.54%	0.75%
Other Ferrous	20.20%	14.39%	14.18%	19.09%
Mixed Metals	0.90%	2.86%	0.60%	1.26%
Total Metal	**31.08%**	**13.95%**	**28.83%**	**33.33%**
Leaves and Grass	0.03%	0.20%	0.02%	0.04%
Prunings	0.03%	0.16%	0.02%	0.04%
Stumps/Limbs	0.00%	0.00%	0.00%	0.00%
Food	1.20%	2.39%	0.88%	1.57%
Non-C&D, Untreated Wood	0.07%	0.23%	0.05%	0.10%
Non-Clothing Textiles	0.16%	0.56%	0.10%	0.22%
Clothing Textiles	0.05%	0.19%	0.04%	0.08%
Carpet/Upholstery	0.00%	0.00%	0.00%	2.84%
Disposable Diapers/Sanitary Products	0.08%	0.37%	0.05%	0.12%
Animal By-Products	0.01%	0.09%	0.01%	0.02%

Table 7-2B
Summary Results of the PWCS Recycling Sort - MGP

Material Category	Percentage of MGP Stream	Standard Deviation	Lower Boundary	Upper Boundary
	Column 1	Column 2	Column 3	Column 4
Rubber Products	0.17%	0.85%	0.11%	0.24%
Shoes: Leather	0.00%	0.00%	0.00%	2.84%
Shoes: Other	0.00%	0.03%	0.00%	0.01%
Shoes: Rubber	0.06%	0.45%	0.04%	0.09%
Other Leather Products	0.02%	0.13%	0.01%	0.02%
Fines	1.24%	4.85%	0.87%	1.67%
Miscellaneous Organics	0.19%	0.83%	0.13%	0.26%
Total Organic	**3.31%**	**5.65%**	**2.65%**	**4.05%**
Small Appliances	2.09%	0.08%	1.81%	3.73%
Audio/Visual Equipment: Other	0.00%	0.00%	0.00%	2.84%
Audio/Visual Equipment: Cell Phones	0.00%	0.03%	0.00%	0.01%
Computer Monitors	0.00%	0.00%	0.00%	2.84%
Televisions	0.00%	0.00%	0.00%	2.84%
Other Computer Equip.	0.81%	2.43%	0.55%	1.13%
Total Appliance & Electronics	**2.91%**	**5.49%**	**2.20%**	**3.95%**
Untreated Dimension Lumber, Pallets, Crates	0.13%	0.66%	0.09%	0.19%
Treated/Contaminated Wood	0.08%	0.43%	0.05%	0.11%
Gypsum Scrap	0.00%	0.00%	0.00%	2.84%
Fiberglass Insulation	0.00%	0.01%	0.00%	0.00%
Rock/Concrete/Bricks	0.06%	0.38%	0.04%	0.08%
Asphaltic Roofing	0.00%	0.00%	0.00%	2.84%
Other C&D Debris	0.01%	0.06%	0.01%	0.01%
Total Construction Debris	**0.28%**	**0.86%**	**0.19%**	**0.38%**
Misc. Inorganics	0.41%	2.51%	0.26%	0.60%
Ceramics	0.45%	0.94%	0.32%	0.59%
Total Misc.	**0.86%**	**2.65%**	**0.61%**	**1.14%**
Oil Filters	0.00%	0.00%	0.00%	2.84%
Antifreeze	0.00%	0.00%	0.00%	2.84%
Wet-Cell Batteries	0.00%	0.00%	0.00%	2.84%
Gasoline/Kerosene	0.00%	0.00%	0.00%	2.84%
Motor Oil/Diesel Oil	0.00%	0.00%	0.00%	2.84%
Latex Paints	0.00%	0.00%	0.00%	2.84%

Table 7-2B
Summary Results of the PWCS Recycling Sort - MGP

Material Category	Percentage of MGP Stream	Standard Deviation	Lower Boundary	Upper Boundary
	Column 1	Column 2	Column 3	Column 4
Water and Solvent-Based Adhesives/glues	0.01%	0.09%	0.01%	0.01%
Oil-Based Paint/Solvent	0.06%	0.42%	0.03%	0.08%
Pesticides/Herbicides/Rodenticides	0.00%	0.00%	0.00%	2.84%
DRY-CELL Batteries	0.04%	0.14%	0.03%	0.06%
Fluorescent Tubes	0.00%	0.01%	0.00%	0.00%
Mercury-Laden waste	0.00%	0.00%	0.00%	2.84%
Compressed Gas Cylinders/Fire Extinguishers	0.01%	0.12%	0.01%	0.02%
Asbestos	0.00%	0.00%	0.00%	2.84%
Explosives	0.00%	0.00%	0.00%	2.84%
Smoke Detectors	0.00%	0.01%	0.00%	0.00%
Home Medical Products	0.00%	0.00%	0.00%	0.00%
Other Potentially Harmful Wastes	0.00%	0.00%	0.00%	2.84%
Total HHW	**0.12%**	**0.46%**	**0.08%**	**0.16%**
GRAND TOTAL	**100.00%**			

As Table 7-2C shows, paper represents almost 60 percent and MGP represents more than 37 percent of the Aggregated Recycling stream. The most prominent nondesignated material in the Aggregated Recycling stream is organics (2.07 percent).

Table 7-2C
Summary Results of the PWCS Recycling Sort - Aggregated Recycling

Material Category	Percentage of Aggregated Recycling Stream
Newspaper	24.14%
Plain OCC/Kraft Paper	12.47%
High Grade Paper	2.56%
Mixed Low Grade Paper	15.43%
Phone Books	1.92%
Paperbacks	0.80%

Table 7-2C
Summary Results of the PWCS Recycling Sort - Aggregated Recycling

Material Category	Percentage of Aggregated Recycling Stream
Paper Bags	0.34%
Polycoated Containers	0.83%
Compostable/Soiled/ Waxed OCC	0.21%
Single Use Plates, Cups	0.01%
Other Nonrecyclable Paper	1.07%
Total Paper	**59.79%**
PET Bottles: Deposit	0.49%
PET Bottles: Non-Deposit	1.92%
HDPE Natural Bottles	1.09%
HDPE Colored Bottles	1.09%
#1-#2 Tubs/Trays: #1 Pet	0.00%
#1-#2 Tubs/Trays: #2 HDPE	0.05%
#3-#7 Containers: #3 PVC	0.02%
#3-#7 Containers: #4 LDPE	0.01%
#3-#7 Containers: #5 PP	0.27%
#3-#7 Containers: #7 Other	0.07%
Other PVC	0.03%
Rigid Polystyrene	0.16%
Expanded Polystyrene	0.07%
Other Rigid Containers/Packaging	0.62%
Plastic Bags	0.44%
Other Film	1.50%
Plastic Crates and Soda Bottle Carriers	0.05%
Single-Use Food Svc	0.07%
Single Use Cameras	0.00%
Disposable Razors	0.03%
Other Plastics Materials	1.58%
Total Plastic	**9.57%**
Clear Glass: Deposit	0.42%
Clear Glass: Non-Deposit	2.49%
Green Glass: Deposit	0.44%
Green Glass: Non-Deposit	1.05%

Table 7-2C
Summary Results of the PWCS Recycling Sort - Aggregated Recycling

Material Category	Percentage of Aggregated Recycling Stream
Brown Glass: Deposit	0.44%
Brown Glass: Non-Deposit	0.13%
Mixed Cullet	8.94%
Other Glass	0.25%
Total Glass	**14.15%**
Aluminum Cans: Deposit	0.16%
Aluminum Cans: Non-Deposit	0.16%
Aluminum Foil/Tins	0.40%
Other Aluminum	0.09%
Other Non-Ferrous	0.11%
Tin Food Cans	2.88%
Empty Aerosol Cans	0.26%
Other Ferrous	8.12%
Mixed Metals	0.42%
Total Metal	**12.59%**
Leaves and Grass	0.01%
Prunings	0.01%
Stumps/Limbs	0.00%
Food	0.72%
Non-C&D, Untreated Wood	0.03%
Non-Clothing Textiles	0.17%
Clothing Textiles	0.09%
Carpet/Upholstery	0.01%
Disposable Diapers/Sanitary Products	0.08%
Animal By-Products	0.02%
Rubber Products	0.08%
Shoes: Leather	0.00%
Shoes: Other	0.00%
Shoes: Rubber	0.04%
Other Leather Products	0.01%
Fines	0.72%
Miscellaneous Organics	0.08%

Table 7-2C
Summary Results of the PWCS Recycling Sort - Aggregated Recycling

Material Category	Percentage of Aggregated Recycling Stream
Total Organic	**2.07%**
Small Appliances	0.87%
Audio/Visual Equipment: Other	0.00%
Audio/Visual Equipment: Cell Phones	0.00%
Computer Monitors	0.00%
Televisions	0.00%
Other Computer Equip.	0.33%
Total Appliance & Electronics	**1.20%**
Untreated Dimension Lumber, Pallets, Crates	0.09%
Treated/Contaminated Wood	0.04%
Gypsum Scrap	0.01%
Fiberglass Insulation	0.00%
Rock/Concrete/Bricks	0.02%
Asphaltic Roofing	0.00%
Other C&D Debris	0.07%
Total Construction Debris	**0.23%**
Misc. Inorganics	0.17%
Ceramics	0.19%
Total Misc.	**0.36%**
Oil Filters	0.00%
Antifreeze	0.00%
Wet-Cell Batteries	0.00%
Gasoline/Kerosene	0.00%
Motor Oil/Diesel Oil	0.00%
Latex Paints	0.00%
Water and Solvent-Based Adhesives/glues	0.00%
Oil-Based Paint/Solvent	0.02%
Pesticides/Herbicides/Rodenticides	0.00%
DRY-CELL Batteries	0.02%
Fluorescent Tubes	0.00%
Mercury-Laden waste	0.00%
Compressed Gas Cylinders/Fire Extinguishers	0.00%

Table 7-2C
Summary Results of the PWCS Recycling Sort - Aggregated Recycling

Material Category	Percentage of Aggregated Recycling Stream
Asbestos	0.00%
Explosives	0.00%
Smoke Detectors	0.00%
Home Medical Products	0.00%
Other Potentially Harmful Wastes	0.00%
Total HHW	**0.05%**
GRAND TOTAL	**100.00%**

Tables 7-3A, B, and C present a set of more detailed results including an account of various subsorts (such as the subsort of deposit and non-deposit bottles) for the Paper, MGP and Aggregated Recycling streams, respectively. These tables also indicate which materials have been designated by DSNY for recycling. The weekly tonnages shown in each table are based on the average weekly tons of paper and MGP collected during May and June 2004.

Table 7-3A
Detailed Results of the PWCS Sort - Paper

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Paper Stream	Weekly Tonnage in Paper Stream (1)	Recycling Indicator	Recycling Subindicator
Paper	ONP	Newspaper		39.84%	2,908.87	R	R Paper
Paper	OCC	Plain OCC/Kraft paper		20.64%	1,506.76	R	R Paper
Paper	Mixed Paper	High Grade Paper		4.22%	307.98	R	R Paper
Paper	Mixed Paper	Mixed Low Grade Paper		25.04%	1,828.22	R	R Paper
Paper	Mixed Paper	Phone Books		3.19%	232.74	R	R Paper
Paper	Mixed Paper	Paperbacks		1.33%	97.00	R	R Paper
Paper	Mixed Paper	Paper Bags		0.53%	38.53	R	R Paper
Paper	Bev Cartons	Polycoated Containers		0.27%	19.92	R	R Bev Cartons
Paper	Compostable Paper	Compostable/Soiled/ Waxed OCC		0.13%	9.58	NR	NR_Paper
Paper	Compostable Paper	Single Use Plates, Cups		0.01%	0.57	NR	NR_Paper
Paper	Other Paper	Other Nonrecyclable Paper		1.36%	99.33	NR	NR_Paper
Plastic	PET Bottles	PET Bottles	Deposit	0.01%	1.00	R	R Plastics
Plastic	PET Bottles	PET Bottles	Non-Deposit	0.05%	3.42	R	R Plastics
Plastic	HDPE Bottles	HDPE Natural Bottles		0.02%	1.55	R	R Plastics
Plastic	HDPE Bottles	HDPE Colored Bottles		0.03%	1.86	R	R Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#1 Pet	0.00%	0.00	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#2 HDPE	0.00%	0.03	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#3 PVC	0.00%	0.00	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#4 LDPE	0.00%	0.01	PR	PR_Plastics

Table 7-3A
Detailed Results of the PWCS Sort - Paper

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Paper Stream	Weekly Tonnage in Paper Stream (1)	Recycling Indicator	Recycling Subindicator
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#5 PP	0.00%	0.32	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#7 Other	0.01%	0.40	PR	PR_Plastics
Plastic	Other Plastic Products	Other PVC		0.00%	0.01	NR	NR_Plastics
Plastic	Other Rigid Containers/Packaging	Rigid Polystyrene		0.00%	0.16	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Expanded Polystyrene		0.05%	3.38	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Other Rigid Containers/Packaging		0.01%	0.55	PR	PR_Plastics
Plastic	Film	Plastic Bags		0.22%	16.35	PR	PR_Plastics
Plastic	Film	Other Film		0.86%	62.93	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Plastic Crates and Soda Bottle Carriers		0.00%	0.00	PR	PR_Plastics
Plastic	Other Plastic Products	Single-Use Food Svc		0.01%	0.79	NR	NR_Plastics
Plastic	Other Plastic Products	Single Use Cameras		0.00%	0.00	NR	NR_Plastics
Plastic	Other Plastic Products	Disposable Razors		0.00%	0.04	NR	NR_Plastics
Plastic	Other Plastic Products	Other Plastics Materials		0.31%	22.49	NR	NR_Plastics
Glass	Container Glass	Clear Glass	Deposit	0.03%	1.95	R	R Glass
Glass	Container Glass	Clear Glass	Non-Deposit	0.06%	4.03	R	R Glass
Glass	Container Glass	Green Glass	Deposit	0.00%	0.00	R	R Glass
Glass	Container Glass	Green Glass	Non-Deposit	0.00%	0.00	R	R Glass
Glass	Container Glass	Brown Glass	Deposit	0.00%	0.00	R	R Glass
Glass	Container Glass	Brown Glass	Non-Deposit	0.00%	0.32	R	R Glass

Table 7-3A
Detailed Results of the PWCS Sort - Paper

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Paper Stream	Weekly Tonnage in Paper Stream (1)	Recycling Indicator	Recycling Subindicator
Glass	Mixed Cullet	Mixed Cullet		0.04%	3.24	R	R Glass
Glass	Other Glass	Other Glass		0.00%	0.10	PR	PR_Glass
Metal	Aluminum	Aluminum Cans	Deposit	0.01%	0.47	R	R Metal
Metal	Aluminum	Aluminum Cans	Non-Deposit	0.00%	0.17	R	R Metal
Metal	Aluminum	Aluminum Foil/Tins		0.02%	1.56	R	R Metal
Metal	Aluminum	Other Aluminum		0.01%	1.01	R	R Metal
Metal	Other Metal	Other Non-Ferrous		0.00%	0.22	R	R Metal
Metal	Ferrous	Tin Food Cans		0.04%	3.06	R	R Metal
Metal	Ferrous	Empty Aerosol Cans		0.00%	0.06	R	R Metal
Metal	Ferrous	Other Ferrous		0.04%	3.05	R	R Metal
Metal	Other Metal	Mixed Metals		0.09%	6.79	R	R Metal
Organic	Yard	Leaves and Grass		0.00%	0.01	NR	NR_Other
Organic	Yard	Prunings		0.00%	0.01	NR	NR_Other
Organic	Wood	Stumps/Limbs		0.00%	0.00	NR	NR_Other
Organic	Food	Food		0.40%	29.45	NR	NR_Other
Organic	Wood	Non-C&D, Untreated Wood		0.00%	0.22	NR	NR_Other
Organic	Textiles	Non-Clothing Textiles		0.18%	13.19	NR	NR_Other
Organic	Textiles	Clothing Textiles		0.12%	8.53	NR	NR_Other
Organic	Textiles	Carpet/Upholstery		0.01%	0.82	NR	NR_Other
Organic	Diapers/Hygeine	Disposable Diapers/Sanitary Products		0.07%	5.29	NR	NR_Other
Organic	Misc. Organic	Animal By-Products		0.02%	1.79	NR	NR_Other

Table 7-3A
Detailed Results of the PWCS Sort - Paper

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Paper Stream	Weekly Tonnage in Paper Stream (1)	Recycling Indicator	Recycling Subindicator
Organic	Misc. Organic	Rubber Products		0.01%	0.98	NR	NR_Other
Organic	Textiles	Shoes	Leather	0.00%	0.00	NR	NR_Other
Organic	Textiles	Shoes	Other	0.00%	0.00	NR	NR_Other
Organic	Textiles	Shoes	Rubber	0.02%	1.36	NR	NR_Other
Organic	Textiles	Other Leather Products		0.00%	0.23	NR	NR_Other
Organic	Misc. Organic	Fines		0.38%	27.47	NR	NR_Other
Organic	Misc. Organic	Miscellaneous Organics		0.01%	0.47	NR	NR_Other
App. & Elec.	Household Appliance	Small Appliances		0.06%	4.28	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Other	0.00%	0.00	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Cell Phones	0.00%	0.21	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Computer Monitors		0.00%	0.00	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Televisions		0.00%	0.00	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Other Computer Equip.		0.00%	0.00	NR	NR_Other
Const. Debris	Wood	Untreated Dimension Lumber, Pallets, Crates		0.06%	4.02	NR	NR_Other
Const. Debris	Wood	Treated/Contaminated Wood		0.02%	1.23	NR	NR_Other
Const. Debris	Inorganic C&D	Gypsum Scrap		0.01%	0.82	NR	NR_Other
Const. Debris	Inorganic C&D	Fiberglass Insulation		0.00%	0.00	NR	NR_Other
Const. Debris	Inorganic C&D	Rock/Concrete/Bricks		0.00%	0.00	NR	NR_Other
Const. Debris	Inorganic C&D	Asphaltic Roofing		0.00%	0.00	NR	NR_Other

Table 7-3A
Detailed Results of the PWCS Sort - Paper

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Paper Stream	Weekly Tonnage in Paper Stream (1)	Recycling Indicator	Recycling Subindicator
Const. Debris	Inorganic C&D	Other C&D Debris		0.11%	8.17	NR	NR_Other
Misc.	Misc. Inorganic	Misc. Inorganics		0.01%	0.78	NR	NR_Other
Misc.	Misc. Inorganic	Ceramics		0.01%	0.76	NR	NR_Other
HHW	HHW	Oil Filters		0.00%	0.07	NR	NR_Other
HHW	HHW	Antifreeze		0.00%	0.00	NR	NR_Other
HHW	HHW	Wet-Cell Batteries		0.00%	0.00	NR	NR_Other
HHW	HHW	Gasoline/Kerosene		0.00%	0.00	NR	NR_Other
HHW	HHW	Motor Oil/Diesel Oil		0.00%	0.00	NR	NR_Other
HHW	HHW	Latex Paints		0.00%	0.00	NR	NR_Other
HHW	HHW	Water and Solvent-Based Adhesives/glues		0.00%	0.00	NR	NR_Other
HHW	HHW	Oil-Based Paint/Solvent		0.00%	0.00	NR	NR_Other
HHW	HHW	Pesticides/Herbicides/Rodenticides		0.00%	0.00	NR	NR_Other
HHW	HHW	DRY-CELL Batteries		0.00%	0.14	NR	NR_Other
HHW	HHW	Fluorescent Tubes		0.00%	0.00	NR	NR_Other
HHW	HHW	Mercury-Laden waste		0.00%	0.00	NR	NR_Other
HHW	HHW	Compressed Gas Cylinders/Fire Extinguishers		0.00%	0.00	NR	NR_Other
HHW	HHW	Asbestos		0.00%	0.00	NR	NR_Other
HHW	HHW	Explosives		0.00%	0.00	NR	NR_Other
HHW	HHW	Smoke Detectors		0.00%	0.00	NR	NR_Other
HHW	HHW	Home Medical Products		0.00%	0.28	NR	NR_Other

Table 7-3A
Detailed Results of the PWCS Sort - Paper

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Paper Stream	Weekly Tonnage in Paper Stream (1)	Recycling Indicator	Recycling Subindicator
HHW	HHW	Other Potentially Harmful Wastes		0.00%	0.00	NR	NR_Other
TOTAL				**100.00%**	**7,301.40**		

NR = Nonrecyclable under DSNY's current Curbside Recycling Program

R = Recyclable under DSNY's current Curbside Recycling Program

(1) Tonnage values are based on 7,301.40 tons which is the average weekly tonnage of Paper recycling that was collected during May and June 2004, as provided by DSNY.

Table 7-3B
Detailed Results of the PWCS Recycling Sort – MGP

Material Group	Material Subgroup	Material Category	Material Subcategory	% of MGP Stream	Weekly Tonnage in MGP Stream (1)	Recycling Indicator	Recycling Subindicator
Paper	ONP	Newspaper		0.65%	31.91	R	R Paper
Paper	OCC	Plain OCC/Kraft paper		0.25%	12.03	R	R Paper
Paper	Mixed Paper	High Grade Paper		0.08%	3.75	R	R Paper
Paper	Mixed Paper	Mixed Low Grade Paper		1.07%	52.11	R	R Paper
Paper	Mixed Paper	Phone Books		0.04%	1.76	R	R Paper
Paper	Mixed Paper	Paperbacks		0.01%	0.61	R	R Paper
Paper	Mixed Paper	Paper Bags		0.06%	2.72	R	R Paper
Paper	Bev Cartons	Polycoated Containers		1.67%	81.49	R	R Bev Cartons
Paper	Compostable Paper	Compostable/Soiled/ Waxed OCC		0.33%	16.16	NR	NR_Paper
Paper	Compostable Paper	Single Use Plates, Cups		0.02%	1.05	NR	NR_Paper
Paper	Other Paper	Other Nonrecyclable Paper		0.63%	30.91	NR	NR_Paper
Plastic	PET Bottles	PET Bottles	Deposit	1.21%	59.02	R	R Plastics
Plastic	PET Bottles	PET Bottles	Non-Deposit	4.73%	230.88	R	R Plastics
Plastic	HDPE Bottles	HDPE Natural Bottles		2.69%	131.46	R	R Plastics
Plastic	HDPE Bottles	HDPE Colored Bottles		2.68%	130.89	R	R Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#1 Pet	0.00%	0.10	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#2 HDPE	0.11%	5.53	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#3 PVC	0.06%	2.98	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#4 LDPE	0.01%	0.72	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#5 PP	0.66%	32.06	PR	PR_Plastics

Table 7-3B
Detailed Results of the PWCS Recycling Sort – MGP

Material Group	Material Subgroup	Material Category	Material Subcategory	% of MGP Stream	Weekly Tonnage in MGP Stream (1)	Recycling Indicator	Recycling Subindicator
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#7 Other	0.17%	8.22	PR	PR_Plastics
Plastic	Other Plastic Products	Other PVC		0.08%	3.87	NR	NR_Plastics
Plastic	Other Rigid Containers/Packaging	Rigid Polystyrene		0.40%	19.67	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Expanded Polystyrene		0.11%	5.24	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Other Rigid Containers/Packaging		1.53%	74.74	PR	PR_Plastics
Plastic	Film	Plastic Bags		0.76%	36.95	PR	PR_Plastics
Plastic	Film	Other Film		2.46%	120.29	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Plastic Crates and Soda Bottle Carriers		0.13%	6.57	PR	PR_Plastics
Plastic	Other Plastic Products	Single-Use Food Svc		0.16%	7.94	NR	NR_Plastics
Plastic	Other Plastic Products	Single Use Cameras		0.00%	0.00	NR	NR_Plastics
Plastic	Other Plastic Products	Disposable Razors		0.07%	3.56	NR	NR_Plastics
Plastic	Other Plastic Products	Other Plastics Materials		3.49%	170.24	NR	NR_Plastics
Glass	Container Glass	Clear Glass	Deposit	1.01%	49.44	R	R Glass
Glass	Container Glass	Clear Glass	Non-Deposit	6.12%	298.85	R	R Glass
Glass	Container Glass	Green Glass	Deposit	1.09%	53.25	R	R Glass
Glass	Container Glass	Green Glass	Non-Deposit	2.62%	128.06	R	R Glass
Glass	Container Glass	Brown Glass	Deposit	1.09%	53.24	R	R Glass
Glass	Container Glass	Brown Glass	Non-Deposit	0.31%	14.99	R	R Glass
Glass	Mixed Cullet	Mixed Cullet		22.24%	1,085.89	R	R Glass
Glass	Other Glass	Other Glass		0.62%	30.27	PR	PR_Glass
Metal	Aluminum	Aluminum Cans	Deposit	0.40%	19.56	R	R Metal
Metal	Aluminum	Aluminum Cans	Non-Deposit	0.39%	18.87	R	R Metal

Table 7-3B
Detailed Results of the PWCS Recycling Sort – MGP

Material Group	Material Subgroup	Material Category	Material Subcategory	% of MGP Stream	Weekly Tonnage in MGP Stream (1)	Recycling Indicator	Recycling Subindicator
Metal	Aluminum	Aluminum Foil/Tins		0.97%	47.30	R	R Metal
Metal	Aluminum	Other Aluminum		0.20%	9.52	R	R Metal
Metal	Other Metal	Other Non-Ferrous		0.27%	13.24	R	R Metal
Metal	Ferrous	Tin Food Cans		7.12%	347.68	R	R Metal
Metal	Ferrous	Empty Aerosol Cans		0.64%	31.19	R	R Metal
Metal	Ferrous	Other Ferrous		20.20%	985.97	R	R Metal
Metal	Other Metal	Mixed Metals		0.90%	43.87	R	R Metal
Organic	Yard	Leaves and Grass		0.03%	1.26	NR	NR_Other
Organic	Yard	Prunings		0.03%	1.34	NR	NR_Other
Organic	Wood	Stumps/Limbs		0.00%	0.00	NR	NR_Other
Organic	Food	Food		1.20%	58.43	NR	NR_Other
Organic	Wood	Non-C&D, Untreated Wood		0.07%	3.55	NR	NR_Other
Organic	Textiles	Non-Clothing Textiles		0.16%	7.67	NR	NR_Other
Organic	Textiles	Clothing Textiles		0.05%	2.62	NR	NR_Other
Organic	Textiles	Carpet/Upholstery		0.00%	0.00	NR	NR_Other
Organic	Diapers/Hygeine	Disposable Diapers/Sanitary Products		0.08%	4.12	NR	NR_Other
Organic	Misc. Organic	Animal By-Products		0.01%	0.68	NR	NR_Other
Organic	Misc. Organic	Rubber Products		0.17%	8.29	NR	NR_Other
Organic	Textiles	Shoes	Leather	0.00%	0.00	NR	NR_Other
Organic	Textiles	Shoes	Other	0.00%	0.19	NR	NR_Other
Organic	Textiles	Shoes	Rubber	0.06%	3.01	NR	NR_Other
Organic	Textiles	Other Leather Products		0.02%	0.82	NR	NR_Other
Organic	Misc. Organic	Fines		1.24%	60.59	NR	NR_Other
Organic	Misc. Organic	Miscellaneous Organics		0.19%	9.24	NR	NR_Other
App. & Elec.	Household Appliance	Small Appliances		2.09%	102.25	NR	NR_Other

Table 7-3B
Detailed Results of the PWCS Recycling Sort – MGP

Material Group	Material Subgroup	Material Category	Material Subcategory	% of MGP Stream	Weekly Tonnage in MGP Stream (1)	Recycling Indicator	Recycling Subindicator
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Other	0.00%	0.00	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Cell Phones	0.00%	0.17	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Computer Monitors		0.00%	0.00	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Televisions		0.00%	0.00	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Other Computer Equip.		0.81%	39.77	NR	NR_Other
Const. Debris	Wood	Untreated Dimension Lumber, Pallets, Crates		0.13%	6.57	NR	NR_Other
Const. Debris	Wood	Treated/Contaminated Wood		0.08%	3.73	NR	NR_Other
Const. Debris	Inorganic C&D	Gypsum Scrap		0.00%	0.00	NR	NR_Other
Const. Debris	Inorganic C&D	Fiberglass Insulation		0.00%	0.04	NR	NR_Other
Const. Debris	Inorganic C&D	Rock/Concrete/Bricks		0.06%	2.77	NR	NR_Other
Const. Debris	Inorganic C&D	Asphaltic Roofing		0.00%	0.00	NR	NR_Other
Const. Debris	Inorganic C&D	Other C&D Debris		0.01%	0.45	NR	NR_Other
Misc.	Misc. Inorganic	Misc. Inorganics		0.41%	20.06	NR	NR_Other
Misc.	Misc. Inorganic	Ceramics		0.45%	21.80	NR	NR_Other
HHW	HHW	Oil Filters		0.00%	0.00	NR	NR_Other
HHW	HHW	Antifreeze		0.00%	0.00	NR	NR_Other
HHW	HHW	Wet-Cell Batteries		0.00%	0.00	NR	NR_Other
HHW	HHW	Gasoline/Kerosene		0.00%	0.00	NR	NR_Other
HHW	HHW	Motor Oil/Diesel Oil		0.00%	0.00	NR	NR_Other
HHW	HHW	Latex Paints		0.00%	0.00	NR	NR_Other

Table 7-3B
Detailed Results of the PWCS Recycling Sort – MGP

Material Group	Material Subgroup	Material Category	Material Subcategory	% of MGP Stream	Weekly Tonnage in MGP Stream (1)	Recycling Indicator	Recycling Subindicator
HHW	HHW	Water and Solvent-Based Adhesives/glues		0.01%	0.44	NR	NR_Other
HHW	HHW	Oil-Based Paint/Solvent		0.06%	2.77	NR	NR_Other
HHW	HHW	Pesticides/Herbicides/Rodenticides		0.00%	0.00	NR	NR_Other
HHW	HHW	DRY-CELL Batteries		0.04%	2.04	NR	NR_Other
HHW	HHW	Fluorescent Tubes		0.00%	0.06	NR	NR_Other
HHW	HHW	Mercury-Laden waste		0.00%	0.00	NR	NR_Other
HHW	HHW	Compressed Gas Cylinders/Fire Extinguishers		0.01%	0.58	NR	NR_Other
HHW	HHW	Asbestos		0.00%	0.00	NR	NR_Other
HHW	HHW	Explosives		0.00%	0.00	NR	NR_Other
HHW	HHW	Smoke Detectors		0.00%	0.04	NR	NR_Other
HHW	HHW	Home Medical Products		0.00%	0.00	NR	NR_Other
HHW	HHW	Other Potentially Harmful Wastes		0.00%	0.00	NR	NR_Other
TOTAL				**100.00%**	**4,882.00**		

NR = Nonrecyclable under DSNY's current Curbside Recycling Program

R = Recyclable under DSNY's current Curbside Recycling Program

(1) Tonnage values are based on 4,882.00 tons which is the average weekly tonnage of MGP recycling that was collected during May and June 2004, as provided by DSNY.

Table 7-3C
Detailed Results of the PWCS Recycling Sort - Aggregated Recycling

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Recycling Stream	Weekly Tonnage in Recycling Stream (1)	Recycling Indicator	Recycling Subindicator
Paper	ONP	Newspaper		24.14%	2,940.78	R	R Paper
Paper	OCC	Plain OCC/Kraft paper		12.47%	1,518.79	R	R Paper
Paper	Mixed Paper	High Grade Paper		2.56%	311.73	R	R Paper
Paper	Mixed Paper	Mixed Low Grade Paper		15.43%	1,880.32	R	R Paper
Paper	Mixed Paper	Phone Books		1.92%	234.49	R	R Paper
Paper	Mixed Paper	Paperbacks		0.80%	97.61	R	R Paper
Paper	Mixed Paper	Paper Bags		0.34%	41.26	R	R Paper
Paper	Bev Cartons	Polycoated Containers		0.83%	101.41	R	R Bev Cartons
Paper	Compostable Paper	Compostable/Soiled/ Waxed OCC		0.21%	25.74	NR	NR_Paper
Paper	Compostable Paper	Single Use Plates, Cups		0.01%	1.61	NR	NR_Paper
Paper	Other Paper	Other Nonrecyclable Paper		1.07%	130.23	NR	NR_Paper
Plastic	PET Bottles	PET Bottles	Deposit	0.49%	60.02	R	R Plastics
Plastic	PET Bottles	PET Bottles	Non-Deposit	1.92%	234.29	R	R Plastics
Plastic	HDPE Bottles	HDPE Natural Bottles		1.09%	133.01	R	R Plastics
Plastic	HDPE Bottles	HDPE Colored Bottles		1.09%	132.75	R	R Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#1 Pet	0.00%	0.10	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#2 HDPE	0.05%	5.56	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#3 PVC	0.02%	2.98	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#4 LDPE	0.01%	0.73	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#5 PP	0.27%	32.37	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#7 Other	0.07%	8.61	PR	PR_Plastics

Table 7-3C
Detailed Results of the PWCS Recycling Sort - Aggregated Recycling

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Recycling Stream	Weekly Tonnage in Recycling Stream (1)	Recycling Indicator	Recycling Subindicator
Plastic	Other Plastic Products	Other PVC		0.03%	3.87	NR	NR_Plastics
Plastic	Other Rigid Containers/Packaging	Rigid Polystyrene		0.16%	19.83	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Expanded Polystyrene		0.07%	8.62	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Other Rigid Containers/Packaging		0.62%	75.30	PR	PR_Plastics
Plastic	Film	Plastic Bags		0.44%	53.29	PR	PR_Plastics
Plastic	Film	Other Film		1.50%	183.22	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Plastic Crates and Soda Bottle Carriers		0.05%	6.57	PR	PR_Plastics
Plastic	Other Plastic Products	Single-Use Food Svc		0.07%	8.73	NR	NR_Plastics
Plastic	Other Plastic Products	Single Use Cameras		0.00%	0.00	NR	NR_Plastics
Plastic	Other Plastic Products	Disposable Razors		0.03%	3.61	NR	NR_Plastics
Plastic	Other Plastic Products	Other Plastics Materials		1.58%	192.73	NR	NR_Plastics
Glass	Container Glass	Clear Glass	Deposit	0.42%	51.39	R	R Glass
Glass	Container Glass	Clear Glass	Non-Deposit	2.49%	302.88	R	R Glass
Glass	Container Glass	Green Glass	Deposit	0.44%	53.25	R	R Glass
Glass	Container Glass	Green Glass	Non-Deposit	1.05%	128.06	R	R Glass
Glass	Container Glass	Brown Glass	Deposit	0.44%	53.24	R	R Glass
Glass	Container Glass	Brown Glass	Non-Deposit	0.13%	15.31	R	R Glass
Glass	Mixed Cullet	Mixed Cullet		8.94%	1,089.13	R	R Glass
Glass	Other Glass	Other Glass		0.25%	30.37	PR	PR_Glass
Metal	Aluminum	Aluminum Cans	Deposit	0.16%	20.03	R	R Metal
Metal	Aluminum	Aluminum Cans	Non-Deposit	0.16%	19.04	R	R Metal
Metal	Aluminum	Aluminum Foil/Tins		0.40%	48.86	R	R Metal
Metal	Aluminum	Other Aluminum		0.09%	10.53	R	R Metal

Table 7-3C
Detailed Results of the PWCS Recycling Sort - Aggregated Recycling

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Recycling Stream	Weekly Tonnage in Recycling Stream (1)	Recycling Indicator	Recycling Subindicator
Metal	Other Metal	Other Non-Ferrous		0.11%	13.45	R	R Metal
Metal	Ferrous	Tin Food Cans		2.88%	350.74	R	R Metal
Metal	Ferrous	Empty Aerosol Cans		0.26%	31.25	R	R Metal
Metal	Ferrous	Other Ferrous		8.12%	989.02	R	R Metal
Metal	Other Metal	Mixed Metals		0.42%	50.66	R	R Metal
Organic	Yard	Leaves and Grass		0.01%	1.27	NR	NR_Other
Organic	Yard	Prunings		0.01%	1.35	NR	NR_Other
Organic	Wood	Stumps/Limbs		0.00%	0.00	NR	NR_Other
Organic	Food	Food		0.72%	87.89	NR	NR_Other
Organic	Wood	Non-C&D, Untreated Wood		0.03%	3.77	NR	NR_Other
Organic	Textiles	Non-Clothing Textiles		0.17%	20.86	NR	NR_Other
Organic	Textiles	Clothing Textiles		0.09%	11.15	NR	NR_Other
Organic	Textiles	Carpet/Upholstery		0.01%	0.82	NR	NR_Other
Organic	Diapers/Hygeine	Disposable Diapers/Sanitary Products		0.08%	9.41	NR	NR_Other
Organic	Misc. Organic	Animal By-Products		0.02%	2.46	NR	NR_Other
Organic	Misc. Organic	Rubber Products		0.08%	9.27	NR	NR_Other
Organic	Textiles	Shoes	Leather	0.00%	0.00	NR	NR_Other
Organic	Textiles	Shoes	Other	0.00%	0.19	NR	NR_Other
Organic	Textiles	Shoes	Rubber	0.04%	4.37	NR	NR_Other
Organic	Textiles	Other Leather Products		0.01%	1.05	NR	NR_Other
Organic	Misc. Organic	Fines		0.72%	88.06	NR	NR_Other
Organic	Misc. Organic	Miscellaneous Organics		0.08%	9.72	NR	NR_Other
App. & Elec.	Household Appliance	Small Appliances		0.87%	106.53	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Other	0.00%	0.00	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Cell Phones	0.00%	0.38	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Computer Monitors		0.00%	0.00	NR	NR_Other

Table 7-3C
Detailed Results of the PWCS Recycling Sort - Aggregated Recycling

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Recycling Stream	Weekly Tonnage in Recycling Stream (1)	Recycling Indicator	Recycling Subindicator
App. & Elec.	Electronic.AV/Computer	Televisions		0.00%	0.00	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Other Computer Equip.		0.33%	39.77	NR	NR_Other
Const. Debris	Wood	Untreated Dimension Lumber, Pallets, Crates		0.09%	10.60	NR	NR_Other
Const. Debris	Wood	Treated/Contaminated Wood		0.04%	4.96	NR	NR_Other
Const. Debris	Inorganic C&D	Gypsum Scrap		0.01%	0.82	NR	NR_Other
Const. Debris	Inorganic C&D	Fiberglass Insulation		0.00%	0.04	NR	NR_Other
Const. Debris	Inorganic C&D	Rock/Concrete/Bricks		0.02%	2.77	NR	NR_Other
Const. Debris	Inorganic C&D	Asphaltic Roofing		0.00%	0.00	NR	NR_Other
Const. Debris	Inorganic C&D	Other C&D Debris		0.07%	8.63	NR	NR_Other
Misc.	Misc. Inorganic	Misc. Inorganics		0.17%	20.84	NR	NR_Other
Misc.	Misc. Inorganic	Ceramics		0.19%	22.56	NR	NR_Other
HHW	HHW	Oil Filters		0.00%	0.07	NR	NR_Other
HHW	HHW	Antifreeze		0.00%	0.00	NR	NR_Other
HHW	HHW	Wet-Cell Batteries		0.00%	0.00	NR	NR_Other
HHW	HHW	Gasoline/Kerosene		0.00%	0.00	NR	NR_Other
HHW	HHW	Motor Oil/Diesel Oil		0.00%	0.00	NR	NR_Other
HHW	HHW	Latex Paints		0.00%	0.00	NR	NR_Other
HHW	HHW	Water and Solvent-Based Adhesives/glues		0.00%	0.44	NR	NR_Other
HHW	HHW	Oil-Based Paint/Solvent		0.02%	2.77	NR	NR_Other
HHW	HHW	Pesticides/Herbicides/Rodenticides		0.00%	0.00	NR	NR_Other
HHW	HHW	DRY-CELL Batteries		0.02%	2.18	NR	NR_Other

Table 7-3C
Detailed Results of the PWCS Recycling Sort - Aggregated Recycling

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Recycling Stream	Weekly Tonnage in Recycling Stream (1)	Recycling Indicator	Recycling Subindicator
HHW	HHW	Fluorescent Tubes		0.00%	0.06	NR	NR_Other
HHW	HHW	Mercury-Laden waste		0.00%	0.00	NR	NR_Other
HHW	HHW	Compressed Gas Cylinders/Fire Extinguishers		0.00%	0.58	NR	NR_Other
HHW	HHW	Asbestos		0.00%	0.00	NR	NR_Other
HHW	HHW	Explosives		0.00%	0.00	NR	NR_Other
HHW	HHW	Smoke Detectors		0.00%	0.04	NR	NR_Other
HHW	HHW	Home Medical Products		0.00%	0.28	NR	NR_Other
HHW	HHW	Other Potentially Harmful Wastes		0.00%	0.00	NR	NR_Other
TOTAL				100.00%	12,183.40		

NR = Nonrecyclable under DSNY's current Curbside Recycling Program

R = Recyclable under DSNY's current Curbside Recycling Program

(1) Tonnage values are based on 12,183.40 tons which is the average weekly tonnage of recycling that was collected during May and June 2004, as provided by DSNY.

Tables 7-4A, B and C rank the material categories for Paper, MGP and Aggregated Recycling materials, respectively, on the basis of their estimated Mean. These tables also present an estimate of each material's contribution to the weekly tonnage of recycling material collected in the City.

As shown in Table 7-4A, at 39.84 percent, newspaper was found to be the largest component of the City's Paper Recycling stream, followed closely by Mixed Paper (34.30 percent).

Table 7-4B shows that Ferrous metal (27.96 percent) and Mixed Cullet (22.24 percent) are the most prevalent material in the MGP stream.

Finally, Table 7-4C shows that Newspaper ("ONP"), Mixed Paper and OCC are the most prevalent of all the City's recycling material.

Table 7-4A
Summary Ranking of Materials in the Recycling Stream - Paper

Material Subgroup	% of Paper Stream	Weekly Tonnages (1)
Over 1% of Paper Stream		
ONP	39.84%	2,908.87
Mixed Paper	34.30%	2,504.47
OCC	20.64%	1,506.76
Other Paper	1.36%	99.33
Film	1.09%	79.27
TOTAL		**7,098.70**
Under 1% of Paper Stream		
Misc. Organic	0.42%	30.71
Food	0.40%	29.45
Textiles	0.33%	24.13
Other Plastic Products	0.32%	23.33
Bev Cartons	0.27%	19.92
Compostable Paper	0.14%	10.15
Inorganic C&D	0.12%	8.99
Other Metal	0.10%	7.00
Container Glass	0.09%	6.31
Ferrous	0.08%	6.17
Wood	0.07%	5.47
Diapers/Hygeine	0.07%	5.29
Other Rigid Containers/Packaging	0.07%	4.85
PET Bottles	0.06%	4.41
Household Appliance	0.06%	4.28

Table 7-4A
Summary Ranking of Materials in the Recycling Stream - Paper

Material Subgroup	% of Paper Stream	Weekly Tonnages (1)
HDPE Bottles	0.05%	3.41
Mixed Cullet	0.04%	3.24
Aluminum	0.04%	3.21
Misc. Inorganic	0.02%	1.54
HHW	0.01%	0.49
Electronic. AV/Computer	0.00%	0.21
Other Glass	0.00%	0.10
Yard	0.00%	0.02
TOTAL		**202.70**

(1) Tonnage values are based on 7,301.40 tons which is the average weekly tonnage of paper recycling that was collected during May and June 2004, as provided by DSNY.

Table 7-4B
Summary Ranking of Materials in the Recycling Stream - MGP

Material Subgroup	% of MGP Stream	Weekly Tonnages (1)
Over 1% of MGP Recycling Stream		
Ferrous	27.96%	1,364.84
Mixed Cullet	22.24%	1,085.89
Container Glass	12.25%	597.83
PET Bottles	5.94%	289.90
HDPE Bottles	5.37%	262.35
Other Plastic Products	3.80%	185.62
Film	3.22%	157.24
Other Rigid Containers/Packaging	3.19%	155.82
Household Appliance	2.09%	102.25
Aluminum	1.95%	95.26
Bev Cartons	1.67%	81.49
Misc. Organic	1.61%	78.80
Mixed Paper	1.25%	60.95
Food	1.20%	58.43
Other Metal	1.17%	57.11

Table 7-4B
Summary Ranking of Materials in the Recycling Stream - MGP

Material Subgroup	% of MGP Stream	Weekly Tonnages (1)
TOTAL		**4,633.78**
Under 1% of MGP Recycling Stream		
Misc. Inorganic	0.86%	41.86
Electronic.AV/Computer	0.82%	39.94
ONP	0.65%	31.91
Other Paper	0.63%	30.91
Other Glass	0.62%	30.27
Compostable Paper	0.35%	17.21
Textiles	0.29%	14.31
Wood	0.28%	13.86
OCC	0.25%	12.03
HHW	0.12%	5.93
Diapers/Hygeine	0.08%	4.12
Inorganic C&D	0.07%	3.26
Yard	0.05%	2.60
Moisture	0.00%	0.00
Particulates	0.00%	0.00
TOTAL		**248.22**

(1) Tonnage values are based on 4,882.00 tons which is the average weekly tonnage of MGP recycling that was collected during May and June 2004, as provided by DSNY.

Table 7-4C
Summary Ranking of Materials in the Recycling Stream - Aggregated Recycling

Material Subgroup	% of Recycling Stream	Weekly Tonnages (1)
Over 1% of Recycling Stream		
ONP	24.14%	2,940.78
Mixed Paper	21.06%	2,565.42
OCC	12.47%	1,518.79
Ferrous	11.25%	1,371.01
Mixed Cullet	8.94%	1,089.13
Container Glass	4.96%	604.13

Table 7-4C
Summary Ranking of Materials in the Recycling Stream - Aggregated Recycling

Material Subgroup	% of Recycling Stream	Weekly Tonnages (1)
PET Bottles	2.42%	294.31
HDPE Bottles	2.18%	265.76
Film	1.94%	236.51
Other Plastic Products	1.71%	208.94
Other Rigid Containers/Packaging	1.32%	160.67
Other Paper	1.07%	130.23
TOTAL		**11,385.70**
Under 1% of Recycling Stream		
Misc. Organic	0.90%	109.51
Household Appliance	0.87%	106.53
Bev Cartons	0.83%	101.41
Aluminum	0.81%	98.46
Food	0.72%	87.89
Other Metal	0.53%	64.11
Misc. Inorganic	0.36%	43.41
Electronic.AV/Computer	0.33%	40.16
Textiles	0.32%	38.44
Other Glass	0.25%	30.37
Compostable Paper	0.22%	27.36
Wood	0.16%	19.34
Inorganic C&D	0.10%	12.26
Diapers/Hygeine	0.08%	9.41
HHW	0.05%	6.42
Yard	0.02%	2.62
TOTAL		**797.70**

(1) Tonnage values are based on 12,183.40 tons which is the average weekly tonnage of recycling that was collected during May and June 2004, as provided by DSNY.

Tables 7-5A, B and C present a more detailed ranking of the materials in the Paper, MGP and Aggregated Recycling streams, respectively, including a number of subcategories, such as deposit and non-deposit containers.

Table 7-5A
Detailed Ranking of Materials In Recycling Stream – Paper

Material Group	Material Category	Sub Category	% of Paper Stream	Weekly Tonnages (1)
Over 1% of Paper Stream				
Paper	Newspaper		39.84%	2,908.87
Paper	Mixed Low Grade Paper		25.04%	1,828.22
Paper	Plain OCC/Kraft paper		20.64%	1,506.76
Paper	High Grade Paper		4.22%	307.98
Paper	Phone Books		3.19%	232.74
Paper	Other Nonrecyclable Paper		1.36%	99.33
Paper	Paperbacks		1.33%	97.00
Under 1% of Paper Stream				
Plastic	Other Film		0.86%	62.93
Paper	Paper Bags		0.53%	38.53
Organic	Food		0.40%	29.45
Organic	Fines		0.38%	27.47
Plastic	Other Plastics Materials		0.31%	22.49
Paper	Polycoated Containers		0.27%	19.92
Plastic	Plastic Bags		0.22%	16.35
Organic	Non-Clothing Textiles		0.18%	13.19
Paper	Compostable/Soiled/ Waxed OCC		0.13%	9.58
Organic	Clothing Textiles		0.12%	8.53
Const. Debris	Other C&D Debris		0.11%	8.17
Metal	Mixed Metals		0.09%	6.79
Organic	Disposable Diapers/Sanitary Products		0.07%	5.29
App. & Elec.	Small Appliances		0.06%	4.28
Glass	Clear Glass	Non-Deposit	0.06%	4.03
Const. Debris	Untreated Dimension Lumber, Pallets, Crates		0.06%	4.02
Plastic	PET Bottles	Non-Deposit	0.05%	3.42
Plastic	Expanded Polystyrene		0.05%	3.38
Glass	Mixed Cullet		0.04%	3.24
Metal	Tin Food Cans		0.04%	3.06
Metal	Other Ferrous		0.04%	3.05
Glass	Clear Glass	Deposit	0.03%	1.95

Table 7-5A
Detailed Ranking of Materials In Recycling Stream – Paper

Material Group	Material Category	Sub Category	% of Paper Stream	Weekly Tonnages (1)
Plastic	HDPE Colored Bottles		0.03%	1.86
Organic	Animal By-Products		0.02%	1.79
Metal	Aluminum Foil/Tins		0.02%	1.56
Plastic	HDPE Natural Bottles		0.02%	1.55
Organic	Shoes	Rubber	0.02%	1.36
Const. Debris	Treated/Contaminated Wood		0.02%	1.23
Metal	Other Aluminum		0.01%	1.01
Plastic	PET Bottles	Deposit	0.01%	1.00
Organic	Rubber Products		0.01%	0.98
Const. Debris	Gypsum Scrap		0.01%	0.82
Organic	Carpet/Upholstery		0.01%	0.82
Plastic	Single-Use Food Svc		0.01%	0.79
Misc.	Misc. Inorganics		0.01%	0.78
Misc.	Ceramics		0.01%	0.76
Paper	Single Use Plates, Cups		0.01%	0.57
Plastic	Other Rigid Containers/Packaging		0.01%	0.55
Organic	Miscellaneous Organics		0.01%	0.47
Metal	Aluminum Cans	Deposit	0.01%	0.47
Plastic	#3-#7 Containers	#7 Other	0.01%	0.40
Glass	Brown Glass	Non-Deposit	0.00%	0.32
Plastic	#3-#7 Containers	#5 PP	0.00%	0.32
HHW	Home Medical Products		0.00%	0.28
Organic	Other Leather Products		0.00%	0.23
Organic	Non-C&D, Untreated Wood		0.00%	0.22
Metal	Other Non-Ferrous		0.00%	0.22
App. & Elec.	Audio/Visual Equipment	Cell Phones	0.00%	0.21
Metal	Aluminum Cans	Non-Deposit	0.00%	0.17
Plastic	Rigid Polystyrene		0.00%	0.16
HHW	DRY-CELL Batteries		0.00%	0.14
Glass	Other Glass		0.00%	0.10
HHW	Oil Filters		0.00%	0.07
Metal	Empty Aerosol Cans		0.00%	0.06

Table 7-5A
Detailed Ranking of Materials In Recycling Stream – Paper

Material Group	Material Category	Sub Category	% of Paper Stream	Weekly Tonnages (1)
Plastic	Disposable Razors		0.00%	0.04
Plastic	#1-#2 Tubs/Trays	#2 HDPE	0.00%	0.03
Organic	Prunings		0.00%	0.01
Plastic	#3-#7 Containers	#4 LDPE	0.00%	0.01
Organic	Leaves and Grass		0.00%	0.01
Plastic	Other PVC		0.00%	0.01
Plastic	#1-#2 Tubs/Trays	#1 Pet	0.00%	
Plastic	#3-#7 Containers	#3 PVC	0.00%	---
Plastic	Plastic Crates and Soda Bottle Carriers		0.00%	---
Plastic	Single Use Cameras		0.00%	---
Glass	Green Glass	Deposit	0.00%	---
Glass	Green Glass	Non-Deposit	0.00%	---
Glass	Brown Glass	Deposit	0.00%	---
Organic	Stumps/Limbs		0.00%	---
Organic	Shoes	Leather	0.00%	---
Organic	Shoes	Other	0.00%	---
App. & Elec.	Audio/Visual Equipment	Other	0.00%	---
App. & Elec.	Computer Monitors		0.00%	---
App. & Elec.	Televisions		0.00%	---
App. & Elec.	Other Computer Equip.		0.00%	---
Const. Debris	Fiberglass Insulation		0.00%	---
Const. Debris	Rock/Concrete/Bricks		0.00%	---
Const. Debris	Asphaltic Roofing		0.00%	---
HHW	Antifreeze		0.00%	---
HHW	Wet-Cell Batteries		0.00%	---
HHW	Gasoline/Kerosene		0.00%	---
HHW	Motor Oil/Diesel Oil		0.00%	---
HHW	Latex Paints		0.00%	---
HHW	Water and Solvent-Based Adhesives/glues		0.00%	---
HHW	Oil-Based Paint/Solvent		0.00%	---

Table 7-5A
Detailed Ranking of Materials In Recycling Stream – Paper

Material Group	Material Category	Sub Category	% of Paper Stream	Weekly Tonnages (1)
HHW	Pesticides/Herbicides/Rodenticides		0.00%	---
HHW	Fluorescent Tubes		0.00%	---
HHW	Mercury-Laden waste		0.00%	---
HHW	Compressed Gas Cylinders/Fire Extinguishers		0.00%	---
HHW	Asbestos		0.00%	---
HHW	Explosives		0.00%	---
HHW	Smoke Detectors		0.00%	---
HHW	Other Potentially Harmful Wastes		0.00%	---

(1) Tonnage values are based on 7,301.40 tons which is the average weekly tonnage of paper recycling that was collected during May and June 2004, as provided by DSNY.

Table 7-5B
Detailed Ranking of Materials In Recycling Stream - MGP

Material Group	Material Category	Sub Category	% of MGP Stream	Weekly Tonnages (1)
Over 1% of MGP Recycling Stream				
Glass	Mixed Cullet		22.24%	1,085.89
Metal	Other Ferrous		20.20%	985.97
Metal	Tin Food Cans		7.12%	347.68
Glass	Clear Glass	Non-Deposit	6.12%	298.85
Plastic	PET Bottles	Non-Deposit	4.73%	230.88
Plastic	Other Plastics Materials		3.49%	170.24
Plastic	HDPE Natural Bottles		2.69%	131.46
Plastic	HDPE Colored Bottles		2.68%	130.89
Glass	Green Glass	Non-Deposit	2.62%	128.06
Plastic	Other Film		2.46%	120.29
App. & Elec.	Small Appliances		2.09%	102.25
Paper	Polycoated Containers		1.67%	81.49
Plastic	Other Rigid Containers/Packaging		1.53%	74.74
Organic	Fines		1.24%	60.59
Plastic	PET Bottles	Deposit	1.21%	59.02

Table 7-5B
Detailed Ranking of Materials In Recycling Stream - MGP

Material Group	Material Category	Sub Category	% of MGP Stream	Weekly Tonnages (1)
Organic	Food		1.20%	58.43
Glass	Green Glass	Deposit	1.09%	53.25
Glass	Brown Glass	Deposit	1.09%	53.24
Paper	Mixed Low Grade Paper		1.07%	52.11
Glass	Clear Glass	Deposit	1.01%	49.44
Under 1% of MGP Recycling Stream				
Metal	Aluminum Foil/Tins		0.97%	47.30
Metal	Mixed Metals		0.90%	43.87
App. & Elec.	Other Computer Equip.		0.81%	39.77
Plastic	Plastic Bags		0.76%	36.95
Plastic	#3-#7 Containers	#5 PP	0.66%	32.06
Paper	Newspaper		0.65%	31.91
Metal	Empty Aerosol Cans		0.64%	31.19
Paper	Other Nonrecyclable Paper		0.63%	30.91
Glass	Other Glass		0.62%	30.27
Misc.	Ceramics		0.45%	21.80
Misc.	Misc. Inorganics		0.41%	20.06
Plastic	Rigid Polystyrene		0.40%	19.67
Metal	Aluminum Cans	Deposit	0.40%	19.56
Metal	Aluminum Cans	Non-Deposit	0.39%	18.87
Paper	Compostable/Soiled/ Waxed OCC		0.33%	16.16
Glass	Brown Glass	Non-Deposit	0.31%	14.99
Metal	Other Non-Ferrous		0.27%	13.24
Paper	Plain OCC/Kraft paper		0.25%	12.03
Metal	Other Aluminum		0.20%	9.52
Organic	Miscellaneous Organics		0.19%	9.24
Organic	Rubber Products		0.17%	8.29
Plastic	#3-#7 Containers	#7 Other	0.17%	8.22
Plastic	Single-Use Food Svc		0.16%	7.94
Organic	Non-Clothing Textiles		0.16%	7.67
Const. Debris	Untreated Dimension Lumber, Pallets, Crates		0.13%	6.57
Plastic	Plastic Crates and Soda Bottle Carriers		0.13%	6.57

Table 7-5B
Detailed Ranking of Materials In Recycling Stream - MGP

Material Group	Material Category	Sub Category	% of MGP Stream	Weekly Tonnages (1)
Plastic	#1-#2 Tubs/Trays	#2 HDPE	0.11%	5.53
Plastic	Expanded Polystyrene		0.11%	5.24
Organic	Disposable Diapers/Sanitary Products		0.08%	4.12
Plastic	Other PVC		0.08%	3.87
Paper	High Grade Paper		0.08%	3.75
Const. Debris	Treated/Contaminated Wood		0.08%	3.73
Plastic	Disposable Razors		0.07%	3.56
Organic	Non-C&D, Untreated Wood		0.07%	3.55
Organic	Shoes	Rubber	0.06%	3.01
Plastic	#3-#7 Containers	#3 PVC	0.06%	2.98
Const. Debris	Rock/Concrete/Bricks		0.06%	2.77
HHW	Oil-Based Paint/Solvent		0.06%	2.77
Paper	Paper Bags		0.06%	2.72
Organic	Clothing Textiles		0.05%	2.62
HHW	DRY-CELL Batteries		0.04%	2.04
Paper	Phone Books		0.04%	1.76
Organic	Prunings		0.03%	1.34
Organic	Leaves and Grass		0.03%	1.26
Paper	Single Use Plates, Cups		0.02%	1.05
Organic	Other Leather Products		0.02%	0.82
Plastic	#3-#7 Containers	#4 LDPE	0.01%	0.72
Organic	Animal By-Products		0.01%	0.68
Paper	Paperbacks		0.01%	0.61
HHW	Compressed Gas Cylinders/Fire Extinguishers		0.01%	0.58
Const. Debris	Other C&D Debris		0.01%	0.45
HHW	Water and Solvent-Based Adhesives/glues		0.01%	0.44
Organic	Shoes	Other	0.00%	0.19
App. & Elec.	Audio/Visual Equipment	Cell Phones	0.00%	0.17
Plastic	#1-#2 Tubs/Trays	#1 Pet	0.00%	0.10
HHW	Fluorescent Tubes		0.00%	0.06
HHW	Smoke Detectors		0.00%	0.04

Table 7-5B
Detailed Ranking of Materials In Recycling Stream - MGP

Material Group	Material Category	Sub Category	% of MGP Stream	Weekly Tonnages (1)
Const. Debris	Fiberglass Insulation		0.00%	0.04
Organic	Stumps/Limbs		0.00%	0.00
HHW	Home Medical Products		0.00%	0.00
Plastic	Single Use Cameras		0.00%	---
Organic	Carpet/Upholstery		0.00%	---
Organic	Shoes	Leather	0.00%	---
App. & Elec.	Audio/Visual Equipment	Other	0.00%	---
App. & Elec.	Computer Monitors		0.00%	---
App. & Elec.	Televisions		0.00%	---
Const. Debris	Gypsum Scrap		0.00%	---
Const. Debris	Asphaltic Roofing		0.00%	---
HHW	Oil Filters		0.00%	---
HHW	Antifreeze		0.00%	---
HHW	Wet-Cell Batteries		0.00%	---
HHW	Gasoline/Kerosene		0.00%	---
HHW	Motor Oil/Diesel Oil		0.00%	---
HHW	Latex Paints		0.00%	---
HHW	Pesticides/Herbicides/Rodenticides		0.00%	---
HHW	Mercury-Laden waste		0.00%	---
HHW	Asbestos		0.00%	---
HHW	Explosives		0.00%	---
HHW	Other Potentially Harmful Wastes		0.00%	

(1) Tonnage values are based on 4,882.00 tons which is the average weekly tonnage of MGP recycling that was collected during May and June 2004, as provided by DSNY.

Table 7-5C
Detailed Ranking of Materials In Recycling Stream - Aggregated Recycling Materials

Material Group	Material Category	Sub Category	% of Recycling Stream	Weekly Tonnages (1)
OVER 1% OF RECYCLING STREAM				
Paper	Newspaper		24.14%	2,940.78
Paper	Mixed Low Grade Paper		15.43%	1,880.32

Table 7-5C
Detailed Ranking of Materials In Recycling Stream - Aggregated Recycling Materials

Material Group	Material Category	Sub Category	% of Recycling Stream	Weekly Tonnages (1)
Paper	Plain OCC/Kraft paper		12.47%	1,518.79
Glass	Mixed Cullet		8.94%	1,089.13
Metal	Other Ferrous		8.12%	989.02
Metal	Tin Food Cans		2.88%	350.74
Paper	High Grade Paper		2.56%	311.73
Glass	Clear Glass	Non-Deposit	2.49%	302.88
Paper	Phone Books		1.92%	234.49
Plastic	PET Bottles	Non-Deposit	1.92%	234.29
Plastic	Other Plastics Materials		1.58%	192.73
Plastic	Other Film		1.50%	183.22
Plastic	HDPE Natural Bottles		1.09%	133.01
Plastic	HDPE Colored Bottles		1.09%	132.75
Paper	Other Nonrecyclable Paper		1.07%	130.23
Glass	Green Glass	Non-Deposit	1.05%	128.06
UNDER 1% OF RECYCLING STREAM				
App. & Elec.	Small Appliances		0.87%	106.53
Paper	Polycoated Containers		0.83%	101.41
Paper	Paperbacks		0.80%	97.61
Organic	Fines		0.72%	88.06
Organic	Food		0.72%	87.89
Plastic	Other Rigid Containers/Packaging		0.62%	75.30
Plastic	PET Bottles	Deposit	0.49%	60.02
Plastic	Plastic Bags		0.44%	53.29
Glass	Green Glass	Deposit	0.44%	53.25
Glass	Brown Glass	Deposit	0.44%	53.24
Glass	Clear Glass	Deposit	0.42%	51.39
Metal	Mixed Metals		0.42%	50.66
Metal	Aluminum Foil/Tins		0.40%	48.86
Paper	Paper Bags		0.34%	41.26
App. & Elec.	Other Computer Equip.		0.33%	39.77
Plastic	#3-#7 Containers	#5 PP	0.27%	32.37
Metal	Empty Aerosol Cans		0.26%	31.25
Glass	Other Glass		0.25%	30.37

Table 7-5C
Detailed Ranking of Materials In Recycling Stream - Aggregated Recycling Materials

Material Group	Material Category	Sub Category	% of Recycling Stream	Weekly Tonnages (1)
Paper	Compostable/Soiled/ Waxed OCC		0.21%	25.74
Misc.	Ceramics		0.19%	22.56
Organic	Non-Clothing Textiles		0.17%	20.86
Misc.	Misc. Inorganics		0.17%	20.84
Metal	Aluminum Cans	Deposit	0.16%	20.03
Plastic	Rigid Polystyrene		0.16%	19.83
Metal	Aluminum Cans	Non-Deposit	0.16%	19.04
Glass	Brown Glass	Non-Deposit	0.13%	15.31
Metal	Other Non-Ferrous		0.11%	13.45
Organic	Clothing Textiles		0.09%	11.15
Const. Debris	Untreated Dimension Lumber, Pallets, Crates		0.09%	10.60
Metal	Other Aluminum		0.09%	10.53
Organic	Miscellaneous Organics		0.08%	9.72
Organic	Disposable Diapers/Sanitary Products		0.08%	9.41
Organic	Rubber Products		0.08%	9.27
Plastic	Single-Use Food Svc		0.07%	8.73
Const. Debris	Other C&D Debris		0.07%	8.63
Plastic	Expanded Polystyrene		0.07%	8.62
Plastic	#3-#7 Containers	#7 Other	0.07%	8.61
Plastic	Plastic Crates and Soda Bottle Carriers		0.05%	6.57
Plastic	#1-#2 Tubs/Trays	#2 HDPE	0.05%	5.56
Const. Debris	Treated/Contaminated Wood		0.04%	4.96
Organic	Shoes	Rubber	0.04%	4.37
Plastic	Other PVC		0.03%	3.87
Organic	Non-C&D, Untreated Wood		0.03%	3.77
Plastic	Disposable Razors		0.03%	3.61
Plastic	#3-#7 Containers	#3 PVC	0.02%	2.98
Const. Debris	Rock/Concrete/Bricks		0.02%	2.77
HHW	Oil-Based Paint/Solvent		0.02%	2.77
Organic	Animal By-Products		0.02%	2.46
HHW	DRY-CELL Batteries		0.02%	2.18

Table 7-5C
Detailed Ranking of Materials In Recycling Stream - Aggregated Recycling Materials

Material Group	Material Category	Sub Category	% of Recycling Stream	Weekly Tonnages (1)
Paper	Single Use Plates, Cups		0.01%	1.61
Organic	Prunings		0.01%	1.35
Organic	Leaves and Grass		0.01%	1.27
Organic	Other Leather Products		0.01%	1.05
Const. Debris	Gypsum Scrap		0.01%	0.82
Organic	Carpet/Upholstery		0.01%	0.82
Plastic	#3-#7 Containers	#4 LDPE	0.01%	0.73
HHW	Compressed Gas Cylinders/Fire Extinguishers		0.00%	0.58
HHW	Water and Solvent-Based Adhesives/glues		0.00%	0.44
App. & Elec.	Audio/Visual Equipment	Cell Phones	0.00%	0.38
HHW	Home Medical Products		0.00%	0.28
Organic	Shoes	Other	0.00%	0.19
Plastic	#1-#2 Tubs/Trays	#1 Pet	0.00%	0.10
HHW	Oil Filters		0.00%	0.07
HHW	Fluorescent Tubes		0.00%	0.06
HHW	Smoke Detectors		0.00%	0.04
Const. Debris	Fiberglass Insulation		0.00%	0.04
Organic	Stumps/Limbs		0.00%	0.00
Plastic	Single Use Cameras		0.00%	---
Organic	Shoes	Leather	0.00%	---
App. & Elec.	Audio/Visual Equipment	Other	0.00%	---
App. & Elec.	Computer Monitors		0.00%	---
App. & Elec.	Televisions		0.00%	---
Const. Debris	Asphaltic Roofing		0.00%	---
HHW	Antifreeze		0.00%	---
HHW	Wet-Cell Batteries		0.00%	---
HHW	Gasoline/Kerosene		0.00%	---
HHW	Motor Oil/Diesel Oil		0.00%	---
HHW	Latex Paints		0.00%	---
HHW	Pesticides/Herbicides/Rodenticides		0.00%	---
HHW	Mercury-Laden waste		0.00%	---
HHW	Asbestos		0.00%	---

Table 7-5C
Detailed Ranking of Materials In Recycling Stream - Aggregated Recycling Materials

Material Group	Material Category	Sub Category	% of Recycling Stream	Weekly Tonnages (1)
HHW	Explosives		0.00%	---
HHW	Other Potentially Harmful Wastes		0.00%	---

(1) Tonnage values are based on 12,183.40 tons which is the average weekly tonnage of recycling that was collected during May and June 2004, as provided by DSNY.

Tables 7-6A, B and C show the estimated Mean and estimated weekly tonnage by the major material groups for Paper, MGP and Aggregated Recycling materials, respectively. These tables highlight the expected difference in the Paper and MGP streams. The Paper material stream was found to be 96.55 percent paper (including designated and nondesignated paper), while the MGP stream contained 87.72 percent Metal, Glass, and Plastic (including designated and nondesignated MGP). The MGP stream fraction of Metal, Glass and Plastic increases to 90.13 percent if Appliances and Electronics are included with the Metal.

In the Aggregated Recycling stream, summarized in Table 7-6C, Paper makes up 59.40 percent, with Metals, Glass and Plastic making up 35.19 percent (37.89 percent including Appliances and Electronics with the Metal).

Table 7-6A
Summary Composition By Material Group - Paper

Material Group	% of Paper Stream	Weekly Tonnages(1)
App. & Elec.	0.06%	4.49
Const. Debris	0.20%	14.25
Glass	0.13%	9.65
HHW	0.01%	0.49
Metal	0.22%	16.38
Misc.	0.02%	1.54
Organic	1.23%	89.82
Paper	96.55%	7,049.50
Plastic	1.58%	115.27
Grand Total	**100.00%**	**7,301.40**

(1) Tonnage values are based on 7,301.40 tons which is the average weekly tonnage of paper recycling that was collected during May and June 2004, as provided by DSNY.

Table 7-6B
Summary Composition By Material Group - MGP

Material Group	% of MGP Stream	Weekly Tonnages (1)
App. & Elec.	2.91%	142.19
Const. Debris	0.28%	13.57
Glass	35.11%	1,713.99
HHW	0.12%	5.93
Metal	31.08%	1,517.21
Misc.	0.86%	41.86
Organic	3.31%	161.82
Paper	4.80%	234.49
Plastic	21.53%	1,050.93
Grand Total	**100.00%**	**4,882.00**

(1) Tonnage values are based on 4,882.00 tons which is the average weekly tonnage of MGP recycling that was collected during May and June 2004, as provided by DSNY.

Table 7-6C
Summary Composition By Material Group - Aggregated Recycling Materials

Material Group	% of Recycling Stream	Weekly Tonnages (1)
App. & Elec.	1.20%	146.68
Const. Debris	0.23%	27.82
Glass	14.15%	1,723.64
HHW	0.05%	6.42
Metal	12.59%	1,533.59
Misc.	0.36%	43.41
Organic	2.07%	251.65
Paper	59.79%	7,283.99
Plastic	9.57%	1,166.20
Grand Total	100.00%	12,183.40

(1) Tonnage values are based on 12,183.40 tons which is the average weekly tonnage of recycling that was collected during May and June 2004, as provided by DSNY.

Tables 7-7A, B and C show the estimated Mean composition and estimated weekly tonnage by Material Group and Material Category for Paper, MGP and Aggregated Recycling materials, respectively.

Table 7-7A
Summary Results by Materials Group and Material Category - Paper

Material Group	Material Category	% Composition	Weekly Tonnages (1)
App. & Elec.	Audio/Visual Equipment	0.00%	0.21
	Computer Monitors	0.00%	0.00
	Other Computer Equip.	0.00%	0.00
	Small Appliances	0.06%	4.28
	Televisions	0.00%	0.00
App. & Elec. Total		**0.06%**	**4.49**
Const. Debris	Asphaltic Roofing	0.00%	0.00
	Fiberglass Insulation	0.00%	0.00
	Gypsum Scrap	0.01%	0.82
	Other C&D Debris	0.11%	8.17

Table 7-7A
Summary Results by Materials Group and Material Category - Paper

Material Group	Material Category	% Composition	Weekly Tonnages (1)
	Rock/Concrete/Bricks	0.00%	0.00
	Treated/Contaminated Wood	0.02%	1.23
	Untreated Dimension Lumber, Pallets, Crates	0.06%	4.02
Const. Debris Total		**0.20%**	**14.25**
Glass	Brown Glass	0.00%	0.32
	Clear Glass	0.08%	5.98
	Green Glass	0.00%	0.00
	Mixed Cullet	0.04%	3.24
	Other Glass	0.00%	0.10
Glass Total		**0.13%**	**9.65**
HHW	Antifreeze	0.00%	0.00
	Asbestos	0.00%	0.00
	Compressed Gas Cylinders/Fire Extinguishers	0.00%	0.00
	DRY-CELL Batteries	0.00%	0.14
	Explosives	0.00%	0.00
	Fluorescent Tubes	0.00%	0.00
	Gasoline/Kerosene	0.00%	0.00
	Home Medical Products	0.00%	0.28
	Latex Paints	0.00%	0.00
	Mercury-Laden waste	0.00%	0.00
	Motor Oil/Diesel Oil	0.00%	0.00
	Oil Filters	0.00%	0.07
	Oil-Based Paint/Solvent	0.00%	0.00
	Other Potentially Harmful Wastes	0.00%	0.00
	Pesticides/Herbicides/Rodenticides	0.00%	0.00
	Smoke Detectors	0.00%	0.00
	Water and Solvent-Based Adhesives/glues	0.00%	0.00
	Wet-Cell Batteries	0.00%	0.00
HHW Total		**0.01%**	**0.49**
Metal	Aluminum Cans	0.01%	0.64
	Aluminum Foil/Tins	0.02%	1.56

Table 7-7A
Summary Results by Materials Group and Material Category - Paper

Material Group	Material Category	% Composition	Weekly Tonnages (1)
	Empty Aerosol Cans	0.00%	0.06
	Mixed Metals	0.09%	6.79
	Other Aluminum	0.01%	1.01
	Other Ferrous	0.04%	3.05
	Other Non-Ferrous	0.00%	0.22
	Tin Food Cans	0.04%	3.06
Metal Total		**0.22%**	**16.38**
Misc.	Ceramics	0.01%	0.76
	Misc. Inorganics	0.01%	0.78
Misc. Total		**0.02%**	**1.54**
Organic	Animal By-Products	0.02%	1.79
	Carpet/Upholstery	0.01%	0.82
	Clothing Textiles	0.12%	8.53
	Disposable Diapers/Sanitary Products	0.07%	5.29
	Fines	0.38%	27.47
	Food	0.40%	29.45
	Leaves and Grass	0.00%	0.01
	Miscellaneous Organics	0.01%	0.47
	Non-C&D, Untreated Wood	0.00%	0.22
	Non-Clothing Textiles	0.18%	13.19
	Other Leather Products	0.00%	0.23
	Prunings	0.00%	0.01
	Rubber Products	0.01%	0.98
	Shoes	0.02%	1.36
	Stumps/Limbs	0.00%	0.00
Organic Total		**1.23%**	**89.82**
Paper	Compostable/Soiled/ Waxed OCC	0.13%	9.58
	High Grade Paper	4.22%	307.98
	Mixed Low Grade Paper	25.04%	1,828.22
	Newspaper	39.84%	2,908.87
	Other Nonrecyclable Paper	1.36%	99.33
	Paper Bags	0.53%	38.53
	Paperbacks	1.33%	97.00

Table 7-7A
Summary Results by Materials Group and Material Category - Paper

Material Group	Material Category	% Composition	Weekly Tonnages (1)
	Phone Books	3.19%	232.74
	Plain OCC/Kraft paper	20.64%	1,506.76
	Polycoated Containers	0.27%	19.92
	Single Use Plates, Cups	0.01%	0.57
Paper Total		**96.55%**	**7,049.50**
Plastic	#1-#2 Tubs/Trays	0.00%	0.03
	#3-#7 Containers	0.01%	0.72
	Disposable Razors	0.00%	0.04
	Expanded Polystyrene	0.05%	3.38
	HDPE Colored Bottles	0.03%	1.86
	HDPE Natural Bottles	0.02%	1.55
	Other Film	0.86%	62.93
	Other Plastics Materials	0.31%	22.49
	Other PVC	0.00%	0.01
	Other Rigid Containers/Packaging	0.01%	0.55
	PET Bottles	0.06%	4.41
	Plastic Bags	0.22%	16.35
	Plastic Crates and Soda Bottle Carriers	0.00%	0.00
	Rigid Polystyrene	0.00%	0.16
	Single Use Cameras	0.00%	0.00
	Single-Use Food Svc	0.01%	0.79
Plastic Total		**1.58%**	**115.27**
Grand Total		**100.00%**	**7,301.40**

(1) Tonnage values are based on 7,301.40 tons which is the average weekly tonnage of paper recycling that was collected during May and June 2004, as provided by DSNY.

Table 7-7B
Summary Results by Materials Group and Material Category - MGP

Material Group	Material Category	% Composition	Weekly Tonnages (1)
App. & Elec.	Audio/Visual Equipment	0.00%	0.17
	Computer Monitors	0.00%	0.00
	Other Computer Equip.	0.81%	39.77
	Small Appliances	2.09%	102.25
	Televisions	0.00%	0.00
App. & Elec. Total		**2.91%**	**142.19**
Const. Debris	Asphaltic Roofing	0.00%	0.00
	Fiberglass Insulation	0.00%	0.04
	Gypsum Scrap	0.00%	0.00
	Other C&D Debris	0.01%	0.45
	Rock/Concrete/Bricks	0.06%	2.77
	Treated/Contaminated Wood	0.08%	3.73
	Untreated Dimension Lumber, Pallets, Crates	0.13%	6.57
Const. Debris Total		**0.28%**	**13.57**
Glass	Brown Glass	1.40%	68.23
	Clear Glass	7.13%	348.29
	Green Glass	3.71%	181.31
	Mixed Cullet	22.24%	1,085.89
	Other Glass	0.62%	30.27
Glass Total		**35.11%**	**1,713.99**
HHW	Antifreeze	0.00%	0.00
	Asbestos	0.00%	0.00
	Compressed Gas Cylinders/Fire Extinguishers	0.01%	0.58
	DRY-CELL Batteries	0.04%	2.04
	Explosives	0.00%	0.00
	Fluorescent Tubes	0.00%	0.06
	Gasoline/Kerosene	0.00%	0.00
	Home Medical Products	0.00%	0.00
	Latex Paints	0.00%	0.00
	Mercury-Laden waste	0.00%	0.00
	Motor Oil/Diesel Oil	0.00%	0.00

Table 7-7B
Summary Results by Materials Group and Material Category - MGP

Material Group	Material Category	% Composition	Weekly Tonnages (1)
	Oil Filters	0.00%	0.00
	Oil-Based Paint/Solvent	0.06%	2.77
	Other Potentially Harmful Wastes	0.00%	0.00
	Pesticides/Herbicides/Rodenticides	0.00%	0.00
	Smoke Detectors	0.00%	0.04
	Water and Solvent-Based Adhesives/glues	0.01%	0.44
	Wet-Cell Batteries	0.00%	0.00
HHW Total		**0.12%**	**5.93**
Metal	Aluminum Cans	0.79%	38.44
	Aluminum Foil/Tins	0.97%	47.30
	Empty Aerosol Cans	0.64%	31.19
	Mixed Metals	0.90%	43.87
	Other Aluminum	0.20%	9.52
	Other Ferrous	20.20%	985.97
	Other Non-Ferrous	0.27%	13.24
	Tin Food Cans	7.12%	347.68
Metal Total		**31.08%**	**1,517.21**
Misc.	Ceramics	0.45%	21.80
	Misc. Inorganics	0.41%	20.06
Misc. Total		**0.86%**	**41.86**
Organic	Animal By-Products	0.01%	0.68
	Carpet/Upholstery	0.00%	0.00
	Clothing Textiles	0.05%	2.62
	Disposable Diapers/Sanitary Products	0.08%	4.12
	Fines	1.24%	60.59
	Food	1.20%	58.43
	Leaves and Grass	0.03%	1.26
	Miscellaneous Organics	0.19%	9.24
	Non-C&D, Untreated Wood	0.07%	3.55
	Non-Clothing Textiles	0.16%	7.67
	Other Leather Products	0.02%	0.82
	Prunings	0.03%	1.34

Table 7-7B
Summary Results by Materials Group and Material Category - MGP

Material Group	Material Category	% Composition	Weekly Tonnages (1)
	Rubber Products	0.17%	8.29
	Shoes	0.07%	3.20
	Stumps/Limbs	0.00%	0.00
Organic Total		**3.31%**	**161.82**
Paper	Compostable/Soiled/ Waxed OCC	0.33%	16.16
	High Grade Paper	0.08%	3.75
	Mixed Low Grade Paper	1.07%	52.11
	Newspaper	0.65%	31.91
	Other Nonrecyclable Paper	0.63%	30.91
	Paper Bags	0.06%	2.72
	Paperbacks	0.01%	0.61
	Phone Books	0.04%	1.76
	Plain OCC/Kraft paper	0.25%	12.03
	Polycoated Containers	1.67%	81.49
	Single Use Plates, Cups	0.02%	1.05
Paper Total		**4.80%**	**234.49**
Plastic	#1-#2 Tubs/Trays	0.12%	5.62
	#3-#7 Containers	0.90%	43.98
	Disposable Razors	0.07%	3.56
	Expanded Polystyrene	0.11%	5.24
	HDPE Colored Bottles	2.68%	130.89
	HDPE Natural Bottles	2.69%	131.46
	Other Film	2.46%	120.29
	Other Plastics Materials	3.49%	170.24
	Other PVC	0.08%	3.87
	Other Rigid Containers/Packaging	1.53%	74.74
	PET Bottles	5.94%	289.90
	Plastic Bags	0.76%	36.95

Table 7-7B
Summary Results by Materials Group and Material Category - MGP

Material Group	Material Category	% Composition	Weekly Tonnages (1)
	Plastic Crates and Soda Bottle Carriers	0.13%	6.57
	Rigid Polystyrene	0.40%	19.67
	Single Use Cameras	0.00%	0.00
	Single-Use Food Svc	0.16%	7.94
Plastic Total		**21.53%**	**1,050.93**
Grand Total		**100.00%**	**4,882.00**

(1) Tonnage values are based on 4,882.00 tons which is the average weekly tonnage of MGP recycling that was collected during May and June 2004, as provided by DSNY.

Table 7-7C
Summary Results by Materials Group and Material Category - Aggregated Recycling Materials

Material Group	Material Category	% Composition	Weekly Tonnages (1)
App. & Elec.	Audio/Visual Equipment	0.00%	0.38
	Computer Monitors	0.00%	0.00
	Other Computer Equip.	0.33%	39.77
	Small Appliances	0.87%	106.53
	Televisions	0.00%	0.00
App. & Elec. Total		**1.20%**	**146.68**
Const. Debris	Asphaltic Roofing	0.00%	0.00
	Fiberglass Insulation	0.00%	0.04
	Gypsum Scrap	0.01%	0.82
	Other C&D Debris	0.07%	8.63
	Rock/Concrete/Bricks	0.02%	2.77
	Treated/Contaminated Wood	0.04%	4.96
	Untreated Dimension Lumber, Pallets, Crates	0.09%	10.60
Const. Debris Total		**0.23%**	**27.82**
Glass	Brown Glass	0.56%	68.55
	Clear Glass	2.91%	354.27
	Green Glass	1.49%	181.31

Table 7-7C
Summary Results by Materials Group and Material Category - Aggregated Recycling Materials

Material Group	Material Category	% Composition	Weekly Tonnages (1)
	Mixed Cullet	8.94%	1,089.13
	Other Glass	0.25%	30.37
Glass Total		**14.15%**	**1,723.64**
HHW	Antifreeze	0.00%	0.00
	Asbestos	0.00%	0.00
	Compressed Gas Cylinders/Fire Extinguishers	0.00%	0.58
	DRY-CELL Batteries	0.02%	2.18
	Explosives	0.00%	0.00
	Fluorescent Tubes	0.00%	0.06
	Gasoline/Kerosene	0.00%	0.00
	Home Medical Products	0.00%	0.28
	Latex Paints	0.00%	0.00
	Mercury-Laden waste	0.00%	0.00
	Motor Oil/Diesel Oil	0.00%	0.00
	Oil Filters	0.00%	0.07
	Oil-Based Paint/Solvent	0.02%	2.77
	Other Potentially Harmful Wastes	0.00%	0.00
	Pesticides/Herbicides/Rodenticides	0.00%	0.00
	Smoke Detectors	0.00%	0.04
	Water and Solvent-Based Adhesives/glues	0.00%	0.44
	Wet-Cell Batteries	0.00%	0.00
HHW Total		**0.05%**	**6.42**
Metal	Aluminum Cans	0.32%	39.07
	Aluminum Foil/Tins	0.40%	48.86
	Empty Aerosol Cans	0.26%	31.25
	Mixed Metals	0.42%	50.66
	Other Aluminum	0.09%	10.53
	Other Ferrous	8.12%	989.02
	Other Non-Ferrous	0.11%	13.45
	Tin Food Cans	2.88%	350.74
Metal Total		**12.59%**	**1,533.59**
Misc.	Ceramics	0.19%	22.56

Table 7-7C
Summary Results by Materials Group and Material Category - Aggregated Recycling Materials

Material Group	Material Category	% Composition	Weekly Tonnages (1)
	Misc. Inorganics	0.17%	20.84
Misc. Total		**0.36%**	**43.41**
Organic	Animal By-Products	0.02%	2.46
	Carpet/Upholstery	0.01%	0.82
	Clothing Textiles	0.09%	11.15
	Disposable Diapers/Sanitary Products	0.08%	9.41
	Fines	0.72%	88.06
	Food	0.72%	87.89
	Leaves and Grass	0.01%	1.27
	Miscellaneous Organics	0.08%	9.72
	Non-C&D, Untreated Wood	0.03%	3.77
	Non-Clothing Textiles	0.17%	20.86
	Other Leather Products	0.01%	1.05
	Prunings	0.01%	1.35
	Rubber Products	0.08%	9.27
	Shoes	0.04%	4.56
	Stumps/Limbs	0.00%	0.00
Organic Total		**2.07%**	**251.65**
Paper	Compostable/Soiled/ Waxed OCC	0.21%	25.74
	High Grade Paper	2.56%	311.73
	Mixed Low Grade Paper	15.43%	1,880.32
	Newspaper	24.14%	2,940.78
	Other Nonrecyclable Paper	1.07%	130.23
	Paper Bags	0.34%	41.26
	Paperbacks	0.80%	97.61
	Phone Books	1.92%	234.49
	Plain OCC/Kraft paper	12.47%	1,518.79
	Polycoated Containers	0.83%	101.41
	Single Use Plates, Cups	0.01%	1.61
Paper Total		**59.79%**	**7,283.99**
Plastic	#1-#2 Tubs/Trays	0.05%	5.66
	#3-#7 Containers	0.37%	44.70
	Disposable Razors	0.03%	3.61

Table 7-7C
Summary Results by Materials Group and Material Category - Aggregated Recycling Materials

Material Group	Material Category	% Composition	Weekly Tonnages (1)
	Expanded Polystyrene	0.07%	8.62
	HDPE Colored Bottles	1.09%	132.75
	HDPE Natural Bottles	1.09%	133.01
	Other Film	1.50%	183.22
	Other Plastics Materials	1.58%	192.73
	Other PVC	0.03%	3.87
	Other Rigid Containers/Packaging	0.62%	75.30
	PET Bottles	2.42%	294.31
	Plastic Bags	0.44%	53.29
	Plastic Crates and Soda Bottle Carriers	0.05%	6.57
	Rigid Polystyrene	0.16%	19.83
	Single Use Cameras	0.00%	0.00
	Single-Use Food Svc	0.07%	8.73
Plastic Total		**9.57%**	**1,166.20**
Grand Total		**100.00%**	**12,183.40**

(1) Tonnage values are based on 12,183.40 tons which is the average weekly tonnage of recycling that was collected during May and June 2004, as provided by DSNY.

Tables 7-8A, B and C show the estimated Mean of materials designated by DSNY as recycling material for Paper, MGP and Aggregated Recycling material, respectively. For these tables, three other classes of materials in the Recycling Sorts are shown.

- *Recyclable materials not currently designated under DSNY's recycling program* includes nondesignated plastic or glass in the MGP recycling stream.
- *Contamination* includes nondesignated materials other than nondesignated glass or plastic in the MGP recycling stream or nondesignated materials other than nondesignated paper in the Paper recycling stream. For example, food waste in the MGP recycling stream would be an example of Contamination.
- *Cross-Stream Recycling* includes designated MGP materials in the Paper recycling stream or designated Paper materials in the MGP recycling stream.

As shown in Table 7-8A, 94.78 percent of the materials found in the Paper stream were designated Paper materials, while 1.5 percent was Paper not currently designated under DSNY's recycling program, 0.74 percent was Cross-Stream Recycling, and 4.49 percent was Contamination.

In the MGP stream (Table 7-8B), 78.55 percent of the materials found were designated MGP materials and 7.03 percent was recyclable materials not currently designated under DSNY's recycling program, 2.15 percent was Cross-Stream Recycling, and 12.27 percent was Contamination.

Table 7-8C shows that 88.03 percent of the Aggregated Recycling steam was properly designated materials, and 11.97 percent were not properly designated materials.

Table 7-8A
Designated Recyclables in the Recyclables Stream - Paper

	% of Paper Stream	Weekly Tonnages(1)
Designated Paper	94.78%	6,920.10
Contamination	4.49%	327.63
Cross-Stream Recycling	0.74%	53.67
Grand Total	100.00%	7,301.40
Detail	**% of Paper Stream**	**Weekly Tonnages** (1)
Nondesignated Paper	1.50%	109.48
Nondesignated Plastics	1.47%	107.45
Nondesignated Glass	0.00%	0.10
Designated Bev Cartons	0.27%	19.92
Designated Glass	0.13%	9.54
Designated Metal	0.22%	16.38
Designated Paper	94.78%	6,920.10
Designated Plastics	0.11%	7.82
Other Nondesignated	1.51%	110.60
Grand Total	**100.00%**	**7,301.40**

(1) Tonnage values are based on 7,301.40 tons which is the average weekly tonnage of paper recycling that was collected during May and June 2004, as provided by DSNY.

BY MATERIAL GROUP

% of Recyclable Paper Stream	PAPER	METAL	GLASS	PLASTIC	BEV CARTONS
Designated Paper	94.78%	---	---	---	---
Contamination	1.50%	---	0.00%	1.47%	---
Cross-Stream Recycling	---	0.22%	0.13%	0.11%	0.27%
Total	96.28%	0.22%	0.13%	1.58%	0.27%
Weekly Tonnages(1)	**PAPER**	**METAL**	**GLASS**	**PLASTIC**	**BEV CARTONS**
Designated Paper	6,920.10	---	---	---	---
Contamination	109.48	---	0.10	107.45	---
Cross-Stream Recycling	---	16.38	9.54	7.82	19.92
Total	**7,029.58**	**16.38**	**9.65**	**115.27**	**19.92**

(1) Tonnage values are based on 7,301.40 tons which is the average weekly tonnage of paper recycling that was collected during May and June 2004, as provided by DSNY.

Table 7-8B
Designated Materials in the Recycling Stream - MGP

	% of Recyclable MGP Stream	Weekly Tonnages (1)
Designated MGP	78.55%	3,834.67
Potentially Designated Plastic (2)	6.41%	313.06
Potentially Designated Glass (2)	0.62%	30.27
Contamination	12.27%	599.11
Cross-Stream Recycling	2.15%	104.89
Grand Total	100.00%	4,882.00
Detail	**% of Recyclable MGP Stream**	**Weekly Tonnages (1)**
Designated Bev Cartons	1.67%	81.49
Designated Glass	34.49%	1,683.72
Designated Metal	31.08%	1,517.21
Designated Paper	2.15%	104.89
Designated Plastics	11.31%	552.25
Designated Materials Subtotal	80.70%	3,939.55
Potentially Designated Plastic (2)	6.41%	313.06
Potentially Designated Glass (2)	0.62%	30.27
Potentially Designated Materials Subtotal	7.03%	343.33
Nondesignated Paper	0.99%	48.11
Nondesignated Plastics	3.80%	185.62
Nondesignated Glass	0.00%	0.00
Other Nondesignated	7.48%	365.38
Nondesignated Materials Subtotal	12.27%	599.11
Grand Total	**100.00%**	**4,882.00**

(1) Tonnage values are based on 4,882.00 tons which is the average weekly tonnage of MGP recycling that was collected during May and June 2004, as provided by DSNY.

(2) Recyclable materials not currently designated under DSNY's recycling program, (i.e., non-designated glass and plastics).

BY MATERIAL GROUP

% of MGP Stream	PAPER	METAL	GLASS	PLASTIC	BEV CARTONS
Designated MGP	---	31.08%	34.49%	11.31%	1.67%
Potentially Designated Plastic (2)	---	---	---	6.41%	---
Potentially Designated Glass (2)	---	---	0.62%	---	---
Contamination	0.99%	---	---	3.80%	---
Cross-Stream Recycling	2.15%	---	---	---	---
Total	**3.13%**	**31.08%**	**35.11%**	**21.53%**	**1.67%**
Weekly Tonnages (1)	**PAPER**	**METAL**	**GLASS**	**PLASTIC**	**BEV CARTONS**
Designated MGP	---	1,517.21	1,683.72	552.25	81.49
Potentially Designated Plastic (2)	---	---	---	313.06	---
Potentially Designated Glass (2)	---	---	30.27	---	---
Contamination	48.11	---	---	185.62	---
Cross-Stream Recycling	104.89	---	---	---	---
Total	**153.00**	**1,517.21**	**1,713.99**	**1,050.93**	**81.49**

(1) Tonnage values are based on 4,882.00 tons which is the average weekly tonnage of MGP recycling that was collected during May and June 2004, as provided by DSNY.

Table 7-8C
Designated Recyclables in the Recyclables Stream - Recycling

	% of Recycling Stream	Weekly Tonnages (1)
Designated Materials	88.27%	10,754.77
Potentially Designated Plastic (2)	2.57%	313.06
Potentially Designated Glass (2)	0.25%	30.27
Contamination	7.61%	926.74
Cross-Stream Recycling	1.30%	158.56
Grand Total	100.00%	12,183.39
Detail	**% of Recycling Stream**	**Weekly Tonnages (1)**
Designated Bev Cartons	0.83%	101.41
Designated Glass	13.90%	1,693.26
Designated Metal	12.59%	1,533.59
Designated Paper	57.66%	7,024.99
Designated Plastics	4.60%	560.07
Designated Materials Subtotal	89.58%	10,913.32
Potentially Designated Plastic (2)	3.26%	397.19
Potentially Designated Glass (2)	0.25%	30.37
Potentially Designated Materials Subtotal	3.51%	427.56
Nondesignated Paper	1.29%	157.59
Nondesignated Plastics	1.71%	208.94
Nondesignated Glass	0.00%	0.00
Other Nondesignated	3.91%	475.98
Nondesignated Materials Subtotal	6.92%	842.51
Grand Total	**100.00%**	**12,183.40**

(1) Tonnage values are based on 12,183.40 tons which is the average weekly tonnage of recycling that was collected during May and June 2004, as provided by DSNY.

(2) Recyclable materials not currently designated under DSNY's recycling program, (i.e., non-designated glass and plastics).

BY MATERIAL GROUP

% of Recycling Stream	PAPER	METAL	GLASS	PLASTIC	BEV CARTONS
Designated Materials	56.80%	12.45%	13.82%	4.53%	0.67%
Potentially Designated Plastic (2)	---	---	---	2.57%	---
Potentially Designated Glass (2)	---	---	0.25%	---	---
Contamination	1.29%	---	0.00%	2.41%	---
Cross-Stream Recycling	0.86%	0.13%	0.08%	0.06%	0.16%
Total	58.95%	12.59%	14.15%	9.57%	0.83%
Weekly Tonnages (1)	**PAPER**	**METAL**	**GLASS**	**PLASTIC**	**BEV CARTONS**
Designated Materials	6,920.10	1,517.21	1,683.72	552.25	81.49
Potentially Designated Plastic (2)	---	---	---	313.06	---
Potentially Designated Glass (2)	---	---	30.27	---	---
Contamination	157.59	---	0.10	293.07	---
Cross-Stream Recycling	104.89	16.38	9.54	7.82	19.92
Total	7,182.58	1,533.59	1,723.64	1,166.20	101.41

(1) Tonnage values are based on 12,183.40 tons which is the average weekly tonnage of recycling that was collected during May and June 2004, as provided by DSNY.
(2) Recyclable materials not currently designated under DSNY's recycling program, (i.e., non-designated glass and plastics).

In addition to weighing each material in each of the Paper and MGP samples, certain items were also counted. Shoes, cans, bottles, and certain electronics were individually counted. Tables 7-9A, B and C present the Product Count for the Paper, MGP and Aggregated Recycling material during the Recycling Sort. These tables also show the economic value of recycled containers that were eligible for reimbursement under the State's deposit law. As would be expected, there were a significant number of deposit containers in the MGP stream, representing over $150 in lost deposits to the consumers in the City who purchased the containers (as well as $150 in deposits that will never need to be repaid by the State because the containers have been recycled).

Table 7-9A
Product Counts - Paper (1)

Plastic	Disposable Razors		Count	2
HHW	Smoke Detectors		Count	0
App. & Elec.	Computer Monitors		Count	0
Plastic	Single-Use Cameras		Count	0
App. & Elec.	Audio/Visual Equipment	Cell Phones	Count	1
Organic	Shoes	Leather	Count	0
Organic	Shoes	Other	Count	0
Organic	Shoes	Rubber	Count	3

Table 7-9A
Product Counts - Paper (1)

DEPOSIT CONTAINER COUNT					VALUE
Metal	Aluminum Cans	Deposit	Count	12	$ 0.60
Plastic	PET Bottles	Deposit	Count	14	$ 0.70
Glass	Brown Glass	Deposit	Count	0	$ ---
Glass	Clear Glass	Deposit	Count	6	$ 0.30
Glass	Green Glass	Deposit	Count	0	$ ---
Deposit Container Total				32	$ 1.60

(1) Amounts shown are counts of materials in more than 11,500 pounds of 99 different, randomly selected samples of recyclable paper from DSNY's collection operations from June 5, 2004 to June 11, 2004.

Table 7-9B
Product Counts - MGP (1)

Plastic	Disposable Razors		Count	1	
HHW	Smoke Detectors		Count	0	
App. & Elec.	Computer Monitors		Count	0	
Plastic	Single-Use Cameras		Count	0	
App. & Elec.	Audio/Visual Equipment	Cell Phones	Count	2	
Organic	Shoes	Leather	Count	1	
Organic	Shoes	Other	Count	0	
Organic	Shoes	Rubber	Count	7	
DEPOSIT CONTAINER COUNT					**VALUE**
Metal	Aluminum Cans	Deposit	Count	1311	$ 65.55
Plastic	PET Bottles	Deposit	Count	1065	$ 53.25
Glass	Brown Glass	Deposit	Count	271	$ 13.55
Glass	Clear Glass	Deposit	Count	200	$ 10.00
Glass	Green Glass	Deposit	Count	205	$ 10.25
Deposit Container Total				3052	$ 152.60

(1) Amounts shown are counts of materials in over 13,000 pounds of 104 different, randomly selected samples of recyclable MGP from DSNY's collection operations from June 5, 2004 to June 11, 2004.

Table 7-9C
Product Counts – MGP and Paper Combined (1)

Plastic	Disposable Razors		Count	3	
HHW	Smoke Detectors		Count	0	
App. & Elec.	Computer Monitors		Count	0	
Plastic	Single-Use Cameras		Count	0	
App. & Elec.	Audio/Visual Equipment	Cell Phones	Count	3	
Organic	Shoes	Leather	Count	1	
Organic	Shoes	Other	Count	0	
Organic	Shoes	Rubber	Count	10	
DEPOSIT CONTAINER COUNT					**VALUE**
Metal	Aluminum Cans	Deposit	Count	1,323	$ 66.15
Plastic	PET Bottles	Deposit	Count	1,079	$ 53.95
Glass	Brown Glass	Deposit	Count	271	$ 13.55
Glass	Clear Glass	Deposit	Count	206	$ 10.30
Glass	Green Glass	Deposit	Count	205	$ 10.25
Deposit Container Total				3,084	$ 154.20

(1) Amounts shown are counts of materials in over 24,500 pounds of 203 different, randomly selected samples from DSNY's collection operations from June 5, 2004 to June 11, 2004.

Tables 7-10A, B and C compare the estimated Mean of the five boroughs for Paper, MGP and Aggregated Recycling materials, respectively. Although the PWCS was not designed to provide statistically significant results for each borough, the differences among the boroughs are significant for certain of the material categories. For example, newspaper in the Staten Island Paper stream is significantly higher than in any of the four other boroughs, while OCC/Kraft paper is lower.

Note that the results reflected in these three tables are not intended to represent a statistically accurate picture of each borough's comparative waste stream, but rather highlight the need to evaluate these differences more comprehensively in future studies.

Table 7-10A
Comparison of Material Composition by Borough – Paper (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
1	Compostable/Soiled/ Waxed OCC	0.02%	0.02%	0.10%	0.27%	0.16%
2	High Grade Paper	5.04%	4.19%	5.24%	3.57%	3.23%
3	Mixed Low Grade Paper	24.18%	26.47%	26.36%	24.03%	22.18%
4	Newspaper	30.70%	39.20%	39.23%	39.96%	50.78%
5	Other Nonrecyclable Paper	1.00%	0.73%	2.91%	1.04%	0.73%
6	Paper Bags	0.92%	0.43%	0.39%	0.69%	0.22%
7	Paperbacks	2.36%	0.58%	1.20%	1.65%	1.65%
8	Phone Books	8.58%	1.97%	5.55%	1.92%	0.00%
9	Plain OCC/Kraft paper	24.43%	22.63%	15.92%	22.49%	17.15%
10	Polycoated Containers	0.30%	0.34%	0.18%	0.31%	0.16%
11	Single Use Plates, Cups	0.02%	0.01%	0.01%	0.00%	0.01%
TOTAL PAPER		**97.55%**	**96.58%**	**97.08%**	**95.93%**	**96.28%**
12	#1-#2 Tubs/Trays: #1 PET	0.00%	0.00%	0.00%	0.00%	0.00%
12	#1-#2 Tubs/Trays: #2 HDPE	0.00%	0.00%	0.00%	0.00%	0.00%
13	#3-#7 Containers: #3 PVC	0.00%	0.00%	0.00%	0.00%	0.00%
14	#3-#7 Containers: #4 LDPE	0.00%	0.00%	0.00%	0.00%	0.00%
15	#3-#7 Containers: #5 PP	0.00%	0.00%	0.00%	0.01%	0.01%
15	#3-#7 Containers: #7 Other	0.00%	0.00%	0.00%	0.01%	0.00%
16	Disposable Razors	0.00%	0.00%	0.00%	0.00%	0.00%
16	Expanded Polystyrene	0.04%	0.03%	0.01%	0.08%	0.08%
16	HDPE Colored Bottles	0.00%	0.00%	0.01%	0.07%	0.00%
16	HDPE Natural Bottles	0.03%	0.04%	0.02%	0.01%	0.01%

Table 7-10A
Comparison of Material Composition by Borough – Paper (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
17	Other Film	0.75%	0.78%	0.89%	1.00%	0.67%
18	Other Plastics Materials	0.44%	0.20%	0.07%	0.48%	0.51%
19	Other PVC	0.00%	0.00%	0.00%	0.00%	0.00%
20	Other Rigid Containers/Packaging	0.00%	0.00%	0.02%	0.00%	0.00%
21	PET Bottles: Deposit	0.01%	0.01%	0.02%	0.00%	0.04%
22	PET Bottles: Non-Deposit	0.02%	0.04%	0.07%	0.05%	0.02%
23	Plastic Bags	0.13%	0.20%	0.16%	0.23%	0.48%
24	Plastic Crates and Soda Bottle Carriers	0.00%	0.00%	0.00%	0.00%	0.00%
25	Rigid Polystyrene	0.00%	0.00%	0.00%	0.00%	0.01%
26	Single Use Cameras	0.00%	0.00%	0.00%	0.00%	0.00%
27	Single-Use Food Svc	0.00%	0.00%	0.01%	0.03%	0.01%
TOTAL PLASTIC		**1.43%**	**1.31%**	**1.29%**	**1.98%**	**1.84%**
28	Aluminum Cans: Deposit	0.00%	0.02%	0.00%	0.00%	0.00%
28	Aluminum Cans: Non-Deposit	0.00%	0.00%	0.00%	0.00%	0.01%
29	Aluminum Foil/Tins	0.00%	0.01%	0.04%	0.00%	0.07%
29	Empty Aerosol Cans	0.00%	0.00%	0.00%	0.00%	0.00%
30	Mixed Metals	0.09%	0.07%	0.02%	0.20%	0.00%
30	Other Aluminum	0.00%	0.04%	0.01%	0.01%	0.00%
31	Other Ferrous	0.04%	0.00%	0.03%	0.04%	0.15%
32	Other Non-Ferrous	0.02%	0.00%	0.00%	0.00%	0.00%
33	Tin Food Cans	0.01%	0.07%	0.05%	0.01%	0.05%
TOTAL METAL		**0.17%**	**0.22%**	**0.16%**	**0.27%**	**0.28%**
34	Brown Glass: Deposit	0.00%	0.00%	0.00%	0.00%	0.00%

Table 7-10A
Comparison of Material Composition by Borough – Paper (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
35	Brown Glass: Non-Deposit	0.00%	0.00%	0.00%	0.01%	0.00%
36	Clear Glass: Deposit	0.00%	0.07%	0.02%	0.00%	0.04%
37	Clear Glass: Non-Deposit	0.07%	0.03%	0.04%	0.07%	0.09%
38	Green Glass: Deposit	0.00%	0.00%	0.00%	0.00%	0.00%
39	Green Glass: Non-Deposit	0.00%	0.00%	0.00%	0.00%	0.00%
40	Mixed Cullet	0.09%	0.03%	0.07%	0.04%	0.00%
41	Other Glass	0.00%	0.00%	0.01%	0.00%	0.00%
TOTAL GLASS		**0.16%**	**0.13%**	**0.13%**	**0.13%**	**0.13%**
42	Animal By-Products	0.00%	0.09%	0.00%	0.00%	0.00%
43	Carpet/Upholstery	0.00%	0.00%	0.00%	0.04%	0.00%
44	Clothing Textiles	0.00%	0.06%	0.00%	0.27%	0.17%
45	Disposable Diapers/Sanitary Products	0.00%	0.04%	0.02%	0.17%	0.06%
46	Fines	0.38%	0.42%	0.36%	0.36%	0.34%
47	Food	0.03%	0.51%	0.60%	0.35%	0.18%
48	Leaves and Grass	0.00%	0.00%	0.00%	0.00%	0.00%
49	Miscellaneous Organics	0.06%	0.00%	0.00%	0.00%	0.00%
50	Non-C&D, Untreated Wood	0.02%	0.00%	0.00%	0.01%	0.00%
51	Non-Clothing Textiles	0.12%	0.25%	0.08%	0.12%	0.46%
52	Other Leather Products	0.00%	0.01%	0.00%	0.00%	0.00%
52	Prunings	0.00%	0.00%	0.00%	0.00%	0.00%
52	Rubber Products	0.00%	0.00%	0.05%	0.01%	0.00%
53	Shoes: Leather	0.00%	0.00%	0.00%	0.00%	0.00%
54	Shoes: Other	0.00%	0.00%	0.00%	0.00%	0.00%

Table 7-10A
Comparison of Material Composition by Borough – Paper (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
55	Shoes: Rubber	0.00%	0.04%	0.04%	0.00%	0.00%
56	Stumps/Limbs	0.00%	0.00%	0.00%	0.00%	0.00%
TOTAL ORGANIC		**0.61%**	**1.42%**	**1.15%**	**1.31%**	**1.22%**
57	Ceramics	0.02%	0.00%	0.00%	0.03%	0.00%
58	Misc. Inorganics	0.00%	0.03%	0.00%	0.01%	0.00%
TOTAL MISC.		**0.02%**	**0.03%**	**0.00%**	**0.04%**	**0.00%**
60	Audio/Visual Equipment: Cell Phones	0.00%	0.00%	0.01%	0.00%	0.00%
61	Audio/Visual Equipment: Other	0.00%	0.00%	0.00%	0.00%	0.00%
62	Computer Monitors	0.00%	0.00%	0.00%	0.00%	0.00%
63	Other Computer Equip.	0.00%	0.00%	0.00%	0.00%	0.00%
64	Small Appliances	0.00%	0.03%	0.01%	0.15%	0.03%
65	Televisions	0.00%	0.00%	0.00%	0.00%	0.00%
TOTAL APP. & ELEC.		**0.00%**	**0.03%**	**0.02%**	**0.15%**	**0.03%**
66	Asphaltic Roofing	0.00%	0.00%	0.00%	0.00%	0.00%
67	Fiberglass Insulation	0.00%	0.00%	0.00%	0.00%	0.00%
68	Gypsum Scrap	0.00%	0.00%	0.00%	0.04%	0.00%
69	Other C&D Debris	0.02%	0.24%	0.05%	0.12%	0.00%
70	Rock/Concrete/Bricks	0.00%	0.00%	0.00%	0.00%	0.00%
71	Treated/Contaminated Wood	0.02%	0.00%	0.07%	0.00%	0.00%
72	Untreated Dimension Lumber, Pallets, Crates	0.02%	0.04%	0.06%	0.02%	0.23%
TOTAL CONST. DEBRIS		**0.06%**	**0.28%**	**0.17%**	**0.17%**	**0.23%**
73	Antifreeze	0.00%	0.00%	0.00%	0.00%	0.00%
74	Asbestos	0.00%	0.00%	0.00%	0.00%	0.00%

Table 7-10A
Comparison of Material Composition by Borough – Paper (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
75	Compressed Gas Cylinders/Fire Extinguishers	0.00%	0.00%	0.00%	0.00%	0.00%
76	DRY-CELL Batteries	0.00%	0.00%	0.00%	0.00%	0.00%
77	Explosives	0.00%	0.00%	0.00%	0.00%	0.00%
78	Fluorescent Tubes	0.00%	0.00%	0.00%	0.00%	0.00%
79	Gasoline/Kerosene	0.00%	0.00%	0.00%	0.00%	0.00%
80	Home Medical Products	0.00%	0.01%	0.00%	0.00%	0.00%
81	Latex Paints	0.00%	0.00%	0.00%	0.00%	0.00%
82	Mercury-Laden waste	0.00%	0.00%	0.00%	0.00%	0.00%
83	Motor Oil/Diesel Oil	0.00%	0.00%	0.00%	0.00%	0.00%
84	Oil Filters	0.00%	0.00%	0.00%	0.00%	0.00%
85	Oil-Based Paint/Solvent	0.00%	0.00%	0.00%	0.00%	0.00%
86	Other Potentially Harmful Wastes	0.00%	0.00%	0.00%	0.00%	0.00%
87	Pesticides/Herbicides/Rodenticides	0.00%	0.00%	0.00%	0.00%	0.00%
88	Smoke Detectors	0.00%	0.00%	0.00%	0.00%	0.00%
89	Water and Solvent-Based Adhesives/glues	0.00%	0.00%	0.00%	0.00%	0.00%
89	Wet-Cell Batteries	0.00%	0.00%	0.00%	0.00%	0.00%
TOTAL HHW		**0.00%**	**0.01%**	**0.00%**	**0.01%**	**0.00%**
GRAND TOTAL		**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

(1) The statistical accuracy of composition at the borough level is not guaranteed as this study was not designed to analyze borough differences.

Table 7-10B
Comparison of Material Composition by Borough - MGP (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
1	Compostable/Soiled/ Waxed OCC	0.27%	0.35%	0.14%	0.50%	0.09%
2	High Grade Paper	0.00%	0.05%	0.01%	0.11%	0.34%
3	Mixed Low Grade Paper	1.10%	0.98%	1.36%	0.99%	0.76%
4	Newspaper	0.14%	0.54%	0.52%	1.01%	0.79%
5	Other Nonrecyclable Paper	0.71%	0.81%	0.30%	0.66%	0.34%
6	Paper Bags	0.00%	0.18%	0.00%	0.01%	0.00%
7	Paperbacks	0.00%	0.00%	0.00%	0.04%	0.00%
8	Phone Books	0.00%	0.05%	0.00%	0.07%	0.00%
9	Plain OCC/Kraft paper	0.01%	0.58%	0.06%	0.16%	0.22%
10	Polycoated Containers	1.10%	1.50%	1.08%	2.36%	1.08%
11	Single Use Plates, Cups	0.01%	0.03%	0.01%	0.02%	0.00%
TOTAL PAPER		**3.35%**	**5.06%**	**3.49%**	**5.93%**	**3.62%**
12	#1-#2 Tubs/Trays: #1 PET	0.00%	0.00%	0.00%	0.00%	0.00%
12	#1-#2 Tubs/Trays: #2 HDPE	0.07%	0.13%	0.03%	0.13%	0.15%
13	#3-#7 Containers: #3 PVC	0.02%	0.03%	0.07%	0.05%	0.14%
14	#3-#7 Containers: #4 LDPE	0.00%	0.00%	0.01%	0.04%	0.00%
15	#3-#7 Containers: #5 PP	0.43%	1.21%	0.22%	0.61%	0.22%
15	#3-#7 Containers: #7 Other	0.07%	0.07%	0.12%	0.33%	0.05%
16	Disposable Razors	0.00%	0.26%	0.00%	0.00%	0.00%
16	Expanded Polystyrene	0.08%	0.19%	0.06%	0.09%	0.00%
16	HDPE Colored Bottles	2.47%	2.19%	1.71%	3.17%	3.80%
16	HDPE Natural Bottles	3.04%	2.35%	1.70%	3.14%	2.18%

Table 7-10B
Comparison of Material Composition by Borough - MGP (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
17	Other Film	3.18%	2.11%	2.72%	2.39%	1.29%
18	Other Plastics Materials	5.06%	3.53%	2.80%	2.64%	4.23%
19	Other PVC	0.00%	0.00%	0.00%	0.21%	0.12%
20	Other Rigid Containers/Packaging	1.93%	1.71%	0.71%	1.52%	1.52%
21	PET Bottles: Deposit	0.98%	1.02%	1.74%	0.89%	2.15%
22	PET Bottles: Non-Deposit	4.68%	4.54%	3.54%	4.96%	5.09%
23	Plastic Bags	0.77%	0.55%	0.80%	0.92%	0.63%
24	Plastic Crates and Soda Bottle Carriers	0.00%	0.21%	0.00%	0.15%	0.20%
25	Rigid Polystyrene	0.20%	0.45%	0.27%	0.52%	0.33%
26	Single Use Cameras	0.00%	0.00%	0.00%	0.00%	0.00%
27	Single-Use Food Svc	0.22%	0.14%	0.08%	0.14%	0.32%
TOTAL PLASTIC		**23.21%**	**20.67%**	**16.56%**	**21.90%**	**22.43%**
28	Aluminum Cans: Deposit	0.33%	0.24%	0.38%	0.40%	1.01%
28	Aluminum Cans: Non-Deposit	0.12%	0.45%	0.25%	0.46%	0.42%
29	Aluminum Foil/Tins	0.91%	1.42%	0.38%	0.93%	0.59%
29	Empty Aerosol Cans	0.82%	0.74%	0.33%	0.60%	0.49%
30	Mixed Metals	0.44%	1.05%	0.50%	1.27%	0.12%
30	Other Aluminum	0.05%	0.32%	0.10%	0.16%	0.34%
31	Other Ferrous	21.46%	22.58%	22.97%	19.10%	28.28%
32	Other Non-Ferrous	0.06%	0.31%	0.01%	0.31%	0.92%
33	Tin Food Cans	8.95%	6.87%	3.91%	7.34%	7.63%
TOTAL METAL		**33.15%**	**34.00%**	**28.83%**	**30.58%**	**39.78%**
34	Brown Glass: Deposit	0.83%	0.96%	1.46%	0.97%	1.44%

Table 7-10B
Comparison of Material Composition by Borough - MGP (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
35	Brown Glass: Non-Deposit	0.01%	0.17%	0.45%	0.50%	0.03%
36	Clear Glass: Deposit	0.84%	1.41%	1.22%	0.58%	0.70%
37	Clear Glass: Non-Deposit	3.24%	6.79%	5.07%	6.91%	5.85%
38	Green Glass: Deposit	0.79%	1.11%	1.57%	0.84%	0.70%
39	Green Glass: Non-Deposit	0.43%	1.29%	8.01%	1.96%	0.62%
40	Mixed Cullet	22.64%	18.72%	25.79%	22.03%	19.01%
41	Other Glass	0.76%	0.51%	0.60%	0.62%	0.46%
TOTAL GLASS		**29.55%**	**30.97%**	**44.17%**	**34.41%**	**28.81%**
43	Animal By-Products	0.00%	0.01%	0.00%	0.03%	0.00%
44	Carpet/Upholstery	0.00%	0.00%	0.00%	0.00%	0.00%
45	Clothing Textiles	0.10%	0.02%	0.04%	0.07%	0.03%
46	Disposable Diapers/Sanitary Products	0.03%	0.25%	0.02%	0.02%	0.00%
47	Fines	0.37%	0.62%	3.23%	1.13%	0.95%
48	Food	1.24%	0.74%	0.35%	1.59%	0.63%
49	Leaves and Grass	0.00%	0.00%	0.00%	0.08%	0.00%
50	Miscellaneous Organics	0.10%	0.09%	0.10%	0.39%	0.07%
51	Non-C&D, Untreated Wood	0.12%	0.04%	0.06%	0.07%	0.10%
52	Non-Clothing Textiles	0.06%	0.43%	0.13%	0.00%	0.00%
52	Other Leather Products	0.00%	0.00%	0.07%	0.01%	0.00%
52	Prunings	0.00%	0.00%	0.08%	0.04%	0.00%
53	Rubber Products	0.09%	0.29%	0.24%	0.07%	0.05%
54	Shoes: Leather	0.00%	0.00%	0.00%	0.00%	0.00%
55	Shoes: Other	0.00%	0.00%	0.02%	0.00%	0.00%

Table 7-10B
Comparison of Material Composition by Borough - MGP (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
56	Shoes: Rubber	0.02%	0.03%	0.00%	0.03%	0.57%
57	Stumps/Limbs	0.00%	0.00%	0.00%	0.00%	0.00%
TOTAL ORGANIC		**2.13%**	**2.51%**	**4.34%**	**3.52%**	**2.41%**
58	Ceramics	0.69%	0.34%	0.20%	0.54%	0.28%
59	Misc. Inorganics	1.08%	0.12%	0.00%	0.66%	0.00%
TOTAL MISC.		**1.77%**	**0.47%**	**0.21%**	**1.20%**	**0.28%**
60	Audio/Visual Equipment: Cell Phones	0.00%	0.00%	0.00%	0.01%	0.00%
61	Audio/Visual Equipment: Other	1.20%	0.26%	0.77%	0.83%	0.34%
62	Computer Monitors	0.00%	0.00%	0.00%	0.00%	0.00%
63	Other Computer Equip.	2.38%	0.58%	0.92%	0.41%	0.19%
64	Small Appliances	2.61%	5.08%	0.60%	0.97%	1.08%
65	Televisions	0.00%	0.00%	0.00%	0.00%	0.00%
TOTAL APP. & ELEC.		**6.18%**	**5.92%**	**2.28%**	**2.21%**	**1.61%**
66	Asphaltic Roofing	0.00%	0.00%	0.00%	0.00%	0.00%
67	Fiberglass Insulation	0.00%	0.00%	0.00%	0.00%	0.00%
68	Gypsum Scrap	0.00%	0.00%	0.00%	0.00%	0.00%
69	Other C&D Debris	0.02%	0.02%	0.00%	0.00%	0.00%
70	Rock/Concrete/Bricks	0.00%	0.00%	0.00%	0.12%	0.22%
71	Treated/Contaminated Wood	0.16%	0.13%	0.08%	0.00%	0.00%
72	Untreated Dimension Lumber, Pallets, Crates	0.46%	0.14%	0.01%	0.06%	0.09%
TOTAL CONST. DEBRIS		**0.63%**	**0.30%**	**0.09%**	**0.18%**	**0.31%**
73	Antifreeze	0.00%	0.00%	0.00%	0.00%	0.00%
74	Asbestos	0.00%	0.00%	0.00%	0.00%	0.00%

Table 7-10B
Comparison of Material Composition by Borough - MGP (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
75	Compressed Gas Cylinders/Fire Extinguishers	0.00%	0.04%	0.00%	0.00%	0.00%
76	DRY-CELL Batteries	0.03%	0.03%	0.03%	0.06%	0.01%
77	Explosives	0.00%	0.00%	0.00%	0.00%	0.00%
78	Fluorescent Tubes	0.00%	0.00%	0.00%	0.00%	0.00%
79	Gasoline/Kerosene	0.00%	0.00%	0.00%	0.00%	0.00%
80	Home Medical Products	0.00%	0.00%	0.00%	0.00%	0.00%
81	Latex Paints	0.00%	0.00%	0.00%	0.00%	0.00%
82	Mercury-Laden waste	0.00%	0.00%	0.00%	0.00%	0.00%
83	Motor Oil/Diesel Oil	0.00%	0.00%	0.00%	0.00%	0.00%
84	Oil Filters	0.00%	0.00%	0.00%	0.00%	0.00%
85	Oil-Based Paint/Solvent	0.00%	0.00%	0.00%	0.00%	0.74%
86	Other Potentially Harmful Wastes	0.00%	0.00%	0.00%	0.00%	0.00%
87	Pesticides/Herbicides/Rodenticides	0.00%	0.00%	0.00%	0.00%	0.00%
88	Smoke Detectors	0.01%	0.00%	0.00%	0.00%	0.00%
89	Water and Solvent-Based Adhesives/glues	0.00%	0.03%	0.00%	0.00%	0.00%
89	Wet-Cell Batteries	0.00%	0.00%	0.00%	0.00%	0.00%
TOTAL HHW		**0.04%**	**0.11%**	**0.03%**	**0.06%**	**0.74%**
GRAND TOTAL		**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

(1) The statistical accuracy of composition at the borough level is not guaranteed as this study was not designed to analyze borough differences.

Table 7-10C
Comparison of Material Composition by Borough - Aggregated Recycling Materials (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
1	Compostable/Soiled/ Waxed OCC	0.12%	0.15%	0.11%	0.36%	0.13%
2	High Grade Paper	3.02%	2.53%	3.14%	2.18%	2.07%
3	Mixed Low Grade Paper	14.93%	16.26%	16.34%	14.80%	13.60%
4	Newspaper	18.45%	23.71%	23.71%	24.35%	30.75%
5	Other Nonrecyclable Paper	0.88%	0.76%	1.87%	0.89%	0.57%
6	Paper Bags	0.55%	0.33%	0.24%	0.42%	0.13%
7	Paperbacks	1.42%	0.35%	0.72%	1.00%	0.99%
8	Phone Books	5.14%	1.20%	3.32%	1.18%	0.00%
9	Plain OCC/Kraft paper	14.64%	13.79%	9.57%	13.54%	10.37%
10	Polycoated Containers	0.62%	0.81%	0.54%	1.13%	0.53%
11	Single Use Plates, Cups	0.01%	0.02%	0.01%	0.01%	0.01%
TOTAL PAPER		**59.80%**	**59.90%**	**59.58%**	**59.87%**	**59.15%**
12	#1-#2 Tubs/Trays: #1 PET	0.00%	0.00%	0.00%	0.00%	0.00%
12	#1-#2 Tubs/Trays: #2 HDPE	0.03%	0.05%	0.01%	0.05%	0.06%
13	#3-#7 Containers: #3 PVC	0.01%	0.01%	0.03%	0.02%	0.06%
14	#3-#7 Containers: #4 LDPE	0.00%	0.00%	0.00%	0.02%	0.00%
15	#3-#7 Containers: #5 PP	0.17%	0.48%	0.09%	0.25%	0.10%
15	#3-#7 Containers: #7 Other	0.03%	0.03%	0.05%	0.14%	0.02%
16	Disposable Razors	0.00%	0.10%	0.00%	0.00%	0.00%
16	Expanded Polystyrene	0.06%	0.09%	0.03%	0.09%	0.05%
16	HDPE Colored Bottles	0.99%	0.88%	0.69%	1.31%	1.52%
16	HDPE Natural Bottles	1.24%	0.96%	0.69%	1.27%	0.88%

Table 7-10C
Comparison of Material Composition by Borough - Aggregated Recycling Materials (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
17	Other Film	1.73%	1.31%	1.62%	1.56%	0.92%
18	Other Plastics Materials	2.29%	1.53%	1.16%	1.34%	2.00%
19	Other PVC	0.00%	0.00%	0.00%	0.08%	0.05%
20	Other Rigid Containers/Packaging	0.77%	0.68%	0.30%	0.61%	0.61%
21	PET Bottles: Deposit	0.40%	0.42%	0.71%	0.36%	0.88%
22	PET Bottles: Non-Deposit	1.89%	1.84%	1.46%	2.02%	2.06%
23	Plastic Bags	0.38%	0.34%	0.42%	0.51%	0.54%
24	Plastic Crates and Soda Bottle Carriers	0.00%	0.09%	0.00%	0.06%	0.08%
25	Rigid Polystyrene	0.08%	0.18%	0.11%	0.21%	0.14%
26	Single Use Cameras	0.00%	0.00%	0.00%	0.00%	0.00%
27	Single-Use Food Svc	0.09%	0.06%	0.04%	0.07%	0.13%
TOTAL PLASTIC		**10.16%**	**9.07%**	**7.41%**	**9.96%**	**10.09%**
28	Aluminum Cans: Deposit	0.13%	0.11%	0.15%	0.16%	0.40%
28	Aluminum Cans: Non-Deposit	0.05%	0.18%	0.10%	0.19%	0.17%
29	Aluminum Foil/Tins	0.37%	0.58%	0.18%	0.37%	0.28%
29	Empty Aerosol Cans	0.33%	0.30%	0.13%	0.24%	0.19%
30	Mixed Metals	0.23%	0.46%	0.21%	0.63%	0.05%
30	Other Aluminum	0.02%	0.15%	0.05%	0.07%	0.14%
31	Other Ferrous	8.63%	9.05%	9.22%	7.68%	11.42%
32	Other Non-Ferrous	0.04%	0.13%	0.01%	0.13%	0.37%
33	Tin Food Cans	3.60%	2.80%	1.60%	2.95%	3.09%
TOTAL METAL		**13.39%**	**13.75%**	**11.65%**	**12.42%**	**16.11%**
34	Brown Glass: Deposit	0.33%	0.39%	0.59%	0.39%	0.58%

Table 7-10C
Comparison of Material Composition by Borough - Aggregated Recycling Materials (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
35	Brown Glass: Non-Deposit	0.00%	0.07%	0.18%	0.21%	0.01%
36	Clear Glass: Deposit	0.34%	0.61%	0.50%	0.23%	0.30%
37	Clear Glass: Non-Deposit	1.34%	2.74%	2.06%	2.81%	2.40%
38	Green Glass: Deposit	0.32%	0.44%	0.63%	0.34%	0.28%
39	Green Glass: Non-Deposit	0.17%	0.52%	3.21%	0.78%	0.25%
40	Mixed Cullet	9.13%	7.52%	10.38%	8.85%	7.62%
41	Other Glass	0.31%	0.21%	0.25%	0.25%	0.19%
TOTAL GLASS		**11.94%**	**12.49%**	**17.78%**	**13.86%**	**11.62%**
42	Animal By-Products	0.00%	0.06%	0.00%	0.01%	0.00%
43	Carpet/Upholstery	0.00%	0.00%	0.00%	0.02%	0.00%
44	Clothing Textiles	0.04%	0.04%	0.02%	0.19%	0.12%
45	Disposable Diapers/Sanitary Products	0.01%	0.12%	0.02%	0.11%	0.04%
46	Fines	0.37%	0.50%	1.51%	0.67%	0.58%
47	Food	0.52%	0.60%	0.50%	0.85%	0.36%
48	Leaves and Grass	0.00%	0.00%	0.00%	0.03%	0.00%
49	Miscellaneous Organics	0.08%	0.03%	0.04%	0.16%	0.03%
50	Non-C&D, Untreated Wood	0.06%	0.01%	0.02%	0.03%	0.04%
51	Non-Clothing Textiles	0.10%	0.32%	0.10%	0.08%	0.28%
52	Other Leather Products	0.00%	0.01%	0.03%	0.01%	0.00%
52	Prunings	0.00%	0.00%	0.03%	0.01%	0.00%
52	Rubber Products	0.03%	0.12%	0.12%	0.03%	0.02%
53	Shoes: Leather	0.00%	0.00%	0.00%	0.00%	0.00%
54	Shoes: Other	0.00%	0.00%	0.01%	0.00%	0.00%

Table 7-10C
Comparison of Material Composition by Borough - Aggregated Recycling Materials (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
55	Shoes: Rubber	0.01%	0.03%	0.02%	0.01%	0.23%
56	Stumps/Limbs	0.00%	0.00%	0.00%	0.00%	0.00%
TOTAL ORGANIC		**1.22%**	**1.86%**	**2.43%**	**2.20%**	**1.69%**
57	Ceramics	0.29%	0.14%	0.08%	0.23%	0.11%
58	Misc. Inorganics	0.43%	0.07%	0.00%	0.27%	0.00%
TOTAL MISC.		**0.72%**	**0.20%**	**0.08%**	**0.50%**	**0.11%**
60	Audio/Visual Equipment: Cell Phones	0.00%	0.00%	0.01%	0.00%	0.00%
61	Audio/Visual Equipment: Other	0.48%	0.10%	0.31%	0.33%	0.14%
62	Computer Monitors	0.00%	0.00%	0.00%	0.00%	0.00%
63	Other Computer Equip.	0.95%	0.23%	0.37%	0.16%	0.07%
64	Small Appliances	1.05%	2.05%	0.24%	0.48%	0.45%
65	Televisions	0.00%	0.00%	0.00%	0.00%	0.00%
TOTAL APP. & ELEC.		**2.48%**	**2.39%**	**0.93%**	**0.98%**	**0.66%**
66	Asphaltic Roofing	0.00%	0.00%	0.00%	0.00%	0.00%
67	Fiberglass Insulation	0.00%	0.00%	0.00%	0.00%	0.00%
68	Gypsum Scrap	0.00%	0.00%	0.00%	0.02%	0.00%
69	Other C&D Debris	0.02%	0.15%	0.03%	0.07%	0.00%
70	Rock/Concrete/Bricks	0.00%	0.00%	0.00%	0.05%	0.09%
71	Treated/Contaminated Wood	0.07%	0.05%	0.07%	0.00%	0.00%
72	Untreated Dimension Lumber, Pallets, Crates	0.20%	0.08%	0.04%	0.04%	0.17%
TOTAL CONST. DEBRIS		**0.29%**	**0.29%**	**0.14%**	**0.18%**	**0.26%**
73	Antifreeze	0.00%	0.00%	0.00%	0.00%	0.00%
74	Asbestos	0.00%	0.00%	0.00%	0.00%	0.00%

Table 7-10C
Comparison of Material Composition by Borough - Aggregated Recycling Materials (1)

Category Number	Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
75	Compressed Gas Cylinders/Fire Extinguishers	0.00%	0.02%	0.00%	0.00%	0.00%
76	DRY-CELL Batteries	0.01%	0.01%	0.01%	0.03%	0.00%
77	Explosives	0.00%	0.00%	0.00%	0.00%	0.00%
78	Fluorescent Tubes	0.00%	0.00%	0.00%	0.00%	0.00%
79	Gasoline/Kerosene	0.00%	0.00%	0.00%	0.00%	0.00%
80	Home Medical Products	0.00%	0.01%	0.00%	0.00%	0.00%
81	Latex Paints	0.00%	0.00%	0.00%	0.00%	0.00%
82	Mercury-Laden waste	0.00%	0.00%	0.00%	0.00%	0.00%
83	Motor Oil/Diesel Oil	0.00%	0.00%	0.00%	0.00%	0.00%
84	Oil Filters	0.00%	0.00%	0.00%	0.00%	0.00%
85	Oil-Based Paint/Solvent	0.00%	0.00%	0.00%	0.00%	0.30%
86	Other Potentially Harmful Wastes	0.00%	0.00%	0.00%	0.00%	0.00%
87	Pesticides/Herbicides/Rodenticides	0.00%	0.00%	0.00%	0.00%	0.00%
88	Smoke Detectors	0.00%	0.00%	0.00%	0.00%	0.00%
89	Water and Solvent-Based Adhesives/glues	0.00%	0.01%	0.00%	0.00%	0.00%
89	Wet-Cell Batteries	0.00%	0.00%	0.00%	0.00%	0.00%
TOTAL HHW		**0.01%**	**0.05%**	**0.01%**	**0.03%**	**0.30%**
GRAND TOTAL		100.00%	100.00%	100.00%	100.00%	100.00%

(1) The statistical accuracy of composition at the borough level is not guaranteed as this study was not designed to analyze borough differences.

Tables 7-11A and B indicate the percentage of designated and nondesignated materials from each of the City's five boroughs.

Table 7-11A
Designated Recycling in the Paper Stream by Borough

	% of Paper Recycling Stream				
	Bronx	**Brooklyn**	**Manhattan**	**Queens**	**Staten Island**
Designated Paper	96.21%	95.47%	93.88%	94.31%	95.20%
Contamination	3.09%	3.75%	5.53%	4.84%	4.16%
Cross-Stream Recycling	0.70%	0.78%	0.59%	0.84%	0.64%
Grand Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
Detail	**% of Paper Recycling Stream**				
	Bronx	**Brooklyn**	**Manhattan**	**Queens**	**Staten Island**
Designated Bev Cartons	0.30%	0.34%	0.18%	0.31%	0.16%
Designated Glass	0.16%	0.13%	0.13%	0.13%	0.13%
Designated Metal	0.17%	0.22%	0.16%	0.27%	0.28%
Designated Paper	96.21%	95.47%	93.88%	94.31%	95.20%
Designated Plastics	0.07%	0.09%	0.12%	0.13%	0.06%
Designated Materials Subtotal	96.91%	96.25%	94.47%	95.15%	95.84%
Nondesignated Paper	1.04%	0.76%	3.02%	1.31%	0.91%
Nondesignated Plastics	1.36%	1.21%	1.17%	1.85%	1.77%
Nondesignated Glass	0.00%	0.00%	0.01%	0.00%	0.00%
Other Nondesignated	0.69%	1.77%	1.34%	1.68%	1.47%
Nondesignated Materials Subtotal	3.09%	3.75%	5.53%	4.84%	4.16%
Grand Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Table 7-11B
Designated Recycling in the MGP Stream by Borough

	% of MGP Recycling Stream				
	Bronx	**Brooklyn**	**Manhattan**	**Queens**	**Staten Island**
Designated MGP	74.20%	76.05%	82.16%	78.88%	82.42%
Potentially Designated Plastic	6.76%	6.66%	4.99%	6.76%	4.54%
Potentially Designated Glass	0.76%	0.51%	0.60%	0.62%	0.46%

Table 7-11B
Designated Recycling in the MGP Stream by Borough

	% of MGP Recycling Stream				
Contamination	17.03%	14.41%	10.30%	11.35%	10.45%
Cross-Stream Recycling	1.25%	2.37%	1.95%	2.39%	2.12%
Grand Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
Detail	**% of MGP Recycling Stream**				
	Bronx	**Brooklyn**	**Manhattan**	**Queens**	**Staten Island**
Designated Bev Cartons	1.10%	1.50%	1.08%	2.36%	1.08%
Designated Glass	28.79%	30.46%	43.57%	33.78%	28.35%
Designated Metal	33.15%	34.00%	28.83%	30.58%	39.78%
Designated Paper	1.25%	2.37%	1.95%	2.39%	2.12%
Designated Plastics	11.16%	10.09%	8.68%	12.16%	13.21%
Designated Materials Subtotal	75.45%	78.42%	84.11%	81.26%	84.54%
Nondesignated Paper	0.99%	1.18%	0.46%	1.18%	0.43%
Nondesignated Plastics	12.05%	10.58%	7.88%	9.74%	9.22%
Nondesignated Glass	0.76%	0.51%	0.60%	0.62%	0.46%
Other Nondesignated	10.75%	9.30%	6.95%	7.19%	5.35%
Nondesignated Materials Subtotal	24.55%	21.58%	15.89%	18.73%	15.46%
Grand Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

In order to provide additional insight into the City's recycling program, the MGP Sort included an additional analysis of the containers eligible for recycling to determine how many required a five cent deposit as part of New York State's container deposit legislation. Furthermore, because the State is currently considering legislation that would expand the number of products that qualify for the deposit, the MGP Sort also identified "potential deposit" containers. Table 7-12 summarizes, for plastic, glass and aluminum containers, the fraction (by weight) of each container that is either Deposit, Non-Deposit, or Potential Deposit. The far right column shows the weight percent of each container type in the MGP stream, and the more prevalent materials have been bolded.

Table 7-12
MGP Sort Detailed Results Deposit, Non-Deposit and Potential Deposit Containers by Container Type

Material Category	Deposit	Potential Deposit	Non-Deposit	Grand Total	% of MGP Stream
PET Bottles	**17.41%**	**57.76%**	**24.82%**	**100%**	**5.94%**
HDPE Natural Bottles	**0.59%**	**20.04%**	**79.38%**	**100%**	**2.69%**
HDPE Pigment Bottles	**0.07%**	**2.74%**	**97.19%**	**100%**	**2.68%**
#3 Bottles	0.00%	4.76%	95.24%	100%	0.04%
#4 Bottles	0.00%	28.57%	71.43%	100%	0.00%
#5 Bottles	0.00%	2.86%	97.14%	100%	0.34%
#7 Bottles	0.00%	20.39%	79.61%	100%	0.14%
Clear Glass	**15.71%**	**17.62%**	**66.67%**	**100%**	**7.13%**
Green Glass	**43.25%**	**1.90%**	**54.85%**	**100%**	**3.71%**
Brown Glass	**79.47%**	**1.17%**	**19.35%**	**100%**	**1.40%**
Blue/Red/Yellow Glass	32.14%	17.86%	50.00%	100%	0.09%
Aluminum Cans	**60.25%**	**6.65%**	**33.11%**	**100%**	**0.79%**
Weighted Average	21.56%	31.12%	47.33%	100%	

As shown in Table 7-12, very few of the plastic bottles collected in the City's MGP stream are deposit containers, which suggests that the City's residents are either returning or disposing of these containers. Brown glass bottles show the highest proportion of deposit containers (79.47 percent of those sorted), followed by Aluminum Cans (60.25 percent) and Green Glass (43.25 percent).

While recycling was a growth industry throughout the 1990s, in the past several years national recycling rates have leveled or even dropped for some material types. Plastic recycling rates in particular have decreased since their peak in the late 1990s. One of the causes of the decrease in the plastic recycling rate that has been cited is the significant increase in so-called "single-serve" plastic beverage bottles. These smaller plastic bottles, defined to include any plastic bottle that is 24 ounces or less, are designed to be consumed in their entirety by one consumer. Single-serve bottles are purchased, consumed and disposed in many cases completely outside the residential dwelling unit, and therefore are believed to be underrecycled in the typical residential recycling program. Table 7-13 presents the proportion of single-serve beverage, multi-serve beverage, and non-beverage plastic bottles found during the MGP sort. The far right column shows the weight percent of each container type in the MGP stream, and the more prevalent materials have been bolded.

Table 7-13
MGP Sort Detailed Results Single-Serve, Multi-Serve, and Non-Beverage Plastic Bottles by Resin

Material Category	Single Serve	Multi Serve	Non Beverage	Grand Total	% of MGP Stream
PET Bottles	**56.63%**	**28.78%**	**14.59%**	**100%**	**5.94%**
HDPE Natural Bottles	**9.73%**	**73.25%**	**17.02%**	**100%**	**2.69%**
HDPE Pigment Bottles	**7.28%**	**7.51%**	**85.21%**	**100%**	**2.68%**
#3 Bottles	8.70%	0.00%	91.30%	100%	0.04%
#4 Bottles	33.33%	0.00%	66.67%	100%	0.00%
#5 Bottles	0.00%	12.82%	87.18%	100%	0.34%
#7 Bottles	13.64%	16.67%	69.70%	100%	0.14%
Weighted Average	38.81%	35.03%	26.16%	100%	

As shown in the table above, the majority of PET bottles found in the MGP sort were of the single serve variety. These include many of the small sports drinks, water, iced teas, and some low percentage juices. HDPE Natural bottles—which contain most of the milk sold nationally—were primarily multi-serve container sizes. HDPE Pigmented bottles were largely for the packaging of non-beverages.

To provide information on the types of small appliances being discarded at the curb, a subsort and product count was conducted on the small appliances found in the MGP stream. The appliances were divided into two groups, those appliances containing more than 50 percent metal and those containing less than 50 percent metal. Almost 65 percent of the small appliances, by weight, were more than 50 percent metal. Table 7-14A and 7-14B show the results of the subsort and product count of small appliances.

Table 7-14A
Summary Results of the PWCS MGP Recycling Sort
Small Appliances

Material	Average % of MGP Recycling Stream	Weekly Tonnages (1)	Small Appliance Breakdown
Small Appliances – Metal	3.63%	179.57	64.31%
Small Appliances - Plastic	2.09%	99.68	35.69%
Grand Total	5.72%	279.25	100.00%

(1) Tonnage values are based on 4,882.00 tons which is the average weekly tonnage of MGP recycling that was collected during May and June 2004, as provided by DSNY.

Table 7-14B
Product Counts
Small Appliances in MGP Recycling (1)

Material	Count of Appliances	Total Weight of Appliances (in pounds)	Average Weight of Appliance (in pounds)
App. & Elec.: Small Appliances - Metal	24	222.93	9.29
App. & Elec.: Small Appliances - Plastic	30	153.33	5.11
Grand Total	54	376.26	6.97

(1) Amounts shown are counts of materials in over 13,000 pounds of 104 different, randomly selected samples of recyclable MGP from DSNY's collection operations from June 5, 2004 to June 11, 2004.

Figures 7-1A, B and C present pie charts showing the major material group fractions in the Paper, MGP and Aggregate Recycling steams, respectively.

Figure 7-1A Paper Composition by Material Group

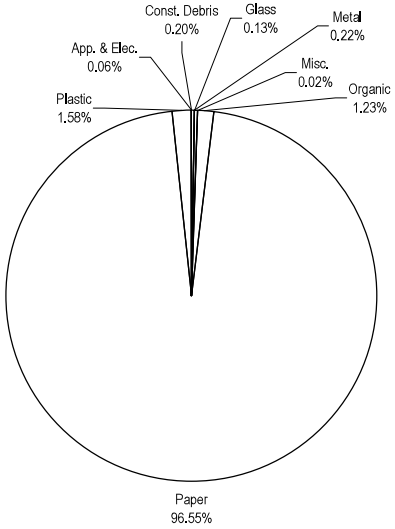


Figure 7-1B MGP Composition by Material Group

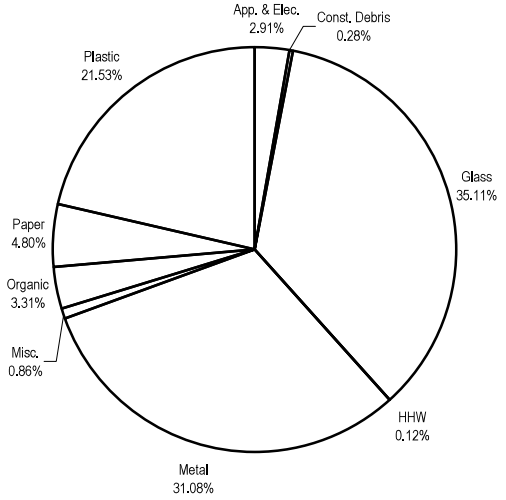
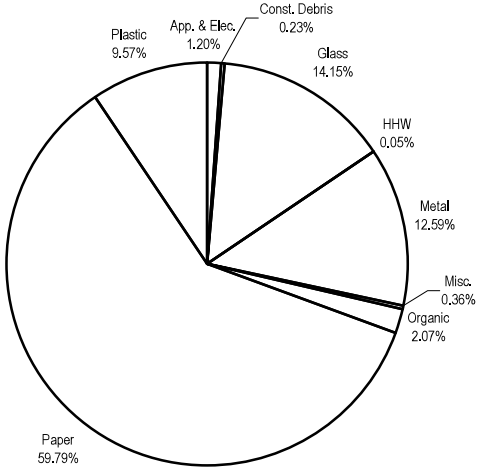


Figure 7-1C Aggregated Recycling Composition by Material Group



Figures 7-2A, B and C are pie charts showing the percentages of designated materials and the three types of contamination for paper, MGP and Aggregated Recycling.

Figure 7-2A Paper Recycling Stream Contamination(1)

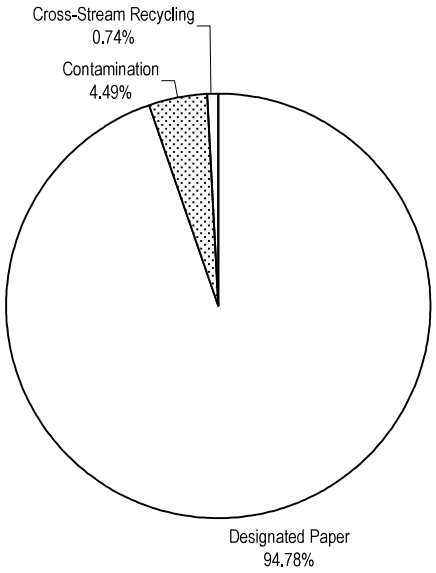
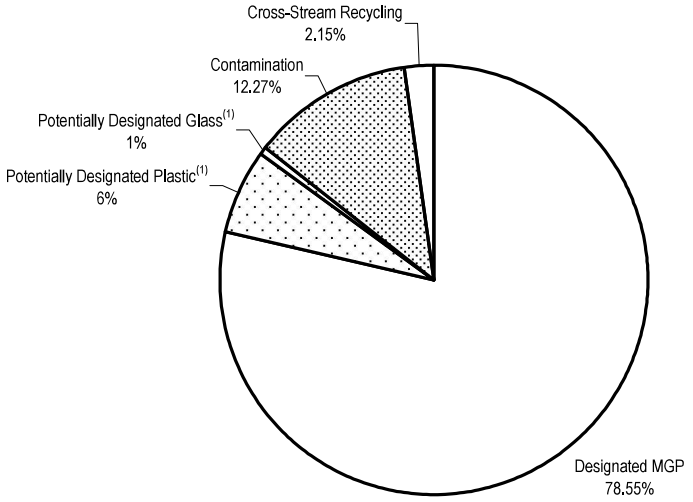
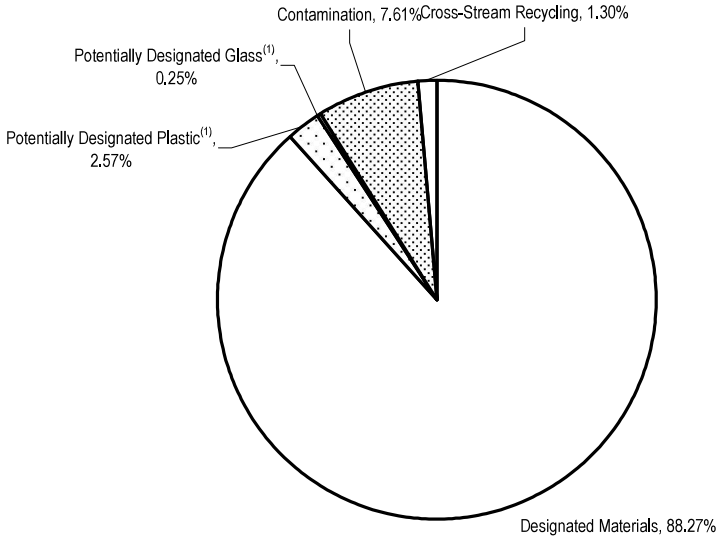


Figure 7-2B MGP Recycling Stream Contamination (1)



(1) Recyclable materials not currently designated under DSNY's recycling program, (i.e., non-designated glass and plastics).

Figure 7-2C Aggregated Recycling Stream Contamination



(1) Recyclable materials not currently designated under DSNY's recycling program, (i.e., non-designated glass and plastics).

Section 8
AGGREGATED WASTE COMPOSITION RESULTS

The aggregated waste composition results combine the results of the Refuse Sort discussed in Section 6 and the Recycling Sort discussed in Section 7 to present a more comprehensive estimate of the City's curbside waste. The same nine materials groups (such as paper, plastic, metal, glass, etc.) and 87 material categories used in describing the Refuse and Recycling Sorts are used here. The list of material groups and categories are presented in Appendices I and J.

Table 8-1 shows the estimated Mean for each of the 87 Material Categories for the combined refuse and recycling materials. The combined estimated Mean was calculated as follows:

First, the average weekly amount of refuse collected by DSNY for May and June, 2004 was provided by DSNY. For refuse, the average weekly tonnage was 59,618.8 tons. The average weekly amounts of MGP and paper collected for recycling during the same period were 4,882.0 tons for MGP and 7301.4 tons for paper. The average total amount of waste collected per week was 71,802.25.

Second, the percentage contribution of each of these three streams to the total average amount of waste collected was calculated. Refuse represents 83.03 percent of the total; MGP represents 6.80 percent; and paper represents 10.17 percent.

Third, the percentage of each stream was multiplied by the percentage of each material in that stream. For example, as shown in Sections 6 and 7, newspaper represented 3.71 percent of the PWCS refuse sort. In the Recycling Sort, newspaper was 0.65 percent of the MGP stream and 39.84 percent of the Paper stream.

Newspaper as a percentage of the Waste =

$$(3.71\ \% \times 83.03\ \%) + (0.65\ \% \times 6.80\ \%) + (39.84\ \% \times 10.17\ \%) = 7.17\ \%$$

For example, Table 8-1 shows that newspaper represented 7.17 percent of the waste stream. Food waste, which represented 13.35 percent of the waste stream, was the largest single category of material.

Table 8-1
Summary Results of the PWCS Waste Sorts (1)

Material Category	Percentage of Waste Stream
Newspaper	7.17%
Plain OCC/Kraft Paper	3.24%

Table 8-1
Summary Results of the PWCS Waste Sorts (1)

Material Category	Percentage of Waste Stream
High Grade Paper	0.99%
Mixed Low Grade Paper	8.71%
Phone Books	0.52%
Paperbacks	0.29%
Paper Bags	0.56%
Polycoated Containers	0.53%
Compostable/Soiled/ Waxed OCC	6.25%
Single Use Plates, Cups	0.43%
Other Nonrecyclable Paper	0.72%
Total Paper	**29.40%**
PET Bottles: Deposit	0.36%
PET Bottles: Non-Deposit	0.86%
HDPE Natural Bottles	0.44%
HDPE Colored Bottles	0.56%
#1-#2 Tubs/Trays: #1 Pet	0.02%
#1-#2 Tubs/Trays: #2 HDPE	0.07%
#3-#7 Containers: #3 PVC	0.02%
#3-#7 Containers: #4 LDPE	0.01%
#3-#7 Containers: #5 PP	0.23%
#3-#7 Containers: #7 Other	0.07%
Other PVC	0.06%
Rigid Polystyrene	0.16%
Expanded Polystyrene	0.59%
Other Rigid Containers/Packaging	0.61%
Plastic Bags	2.39%
Other Film	4.58%
Plastic Crates and Soda Bottle Carriers	0.06%
Single-Use Food Svc	0.66%
Single Use Cameras	0.00%
Disposable Razors	0.01%
Other Plastics Materials	1.65%
Total Plastic	**13.41%**
Clear Glass: Deposit	0.30%

Table 8-1
Summary Results of the PWCS Waste Sorts (1)

Material Category	Percentage of Waste Stream
Clear Glass: Non-Deposit	1.25%
Green Glass: Deposit	0.20%
Green Glass: Non-Deposit	0.31%
Brown Glass: Deposit	0.29%
Brown Glass: Non-Deposit	0.07%
Mixed Cullet	1.94%
Other Glass	0.21%
Total Glass	**4.56%**
Aluminum Cans: Deposit	0.17%
Aluminum Cans: Non-Deposit	0.05%
Aluminum Foil/Tins	0.57%
Other Aluminum	0.05%
Other Non-Ferrous	0.07%
Tin Food Cans	1.25%
Empty Aerosol Cans	0.15%
Other Ferrous	2.23%
Mixed Metals	0.54%
Total Metal	**5.07%**
Leaves and Grass	5.17%
Prunings	2.53%
Stumps/Limbs	0.56%
Food	13.35%
Non-C&D, Untreated Wood	0.32%
Non-Clothing Textiles	1.75%
Clothing Textiles	3.09%
Carpet/Upholstery	1.05%
Disposable Diapers/Sanitary Products	3.17%
Animal By-Products	1.04%
Rubber Products	0.28%
Shoes: Leather	0.31%
Shoes: Other	0.08%
Shoes: Rubber	0.17%
Other Leather Products	0.05%

Table 8-1
Summary Results of the PWCS Waste Sorts (1)

Material Category	Percentage of Waste Stream
Fines	3.61%
Miscellaneous Organics	3.31%
Total Organic	**39.84%**
Small Appliances	0.37%
Audio/Visual Equipment: Other	0.20%
Audio/Visual Equipment: Cell Phones	0.00%
Computer Monitors	0.04%
Televisions	0.08%
Other Computer Equip.	0.22%
Total Appliance & Electronics	**0.92%**
Untreated Dimension Lumber, Pallets, Crates	0.39%
Treated/Contaminated Wood	2.49%
Gypsum Scrap	0.97%
Fiberglass Insulation	0.05%
Rock/Concrete/Bricks	0.49%
Asphaltic Roofing	0.02%
Other C&D Debris	1.46%
Total Construction Debris	**5.86%**
Misc. Inorganics	0.22%
Ceramics	0.33%
Total Misc.	**0.55%**
Oil Filters	0.00%
Antifreeze	0.00%
Wet-Cell Batteries	0.06%
Gasoline/Kerosene	0.00%
Motor Oil/Diesel Oil	0.00%
Latex Paints	0.04%
Water and Solvent-Based Adhesives/glues	0.05%
Oil-Based Paint/Solvent	0.06%
Pesticides/Herbicides/Rodenticides	0.00%
DRY-CELL Batteries	0.06%
Fluorescent Tubes	0.00%
Mercury-Laden waste	0.00%

Table 8-1
Summary Results of the PWCS Waste Sorts (1)

Material Category	Percentage of Waste Stream
Compressed Gas Cylinders/Fire Extinguishers	0.00%
Asbestos	0.00%
Explosives	0.00%
Smoke Detectors	0.00%
Home Medical Products	0.03%
Other Potentially Harmful Wastes	0.07%
Total HHW	**0.38%**
GRAND TOTAL	**100.00%**

(1) Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50% metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

Table 8-2 presents a set of more detailed results, including an account of various subsorts, such as the subsort of deposit and non-deposit bottles. It also indicates which materials are designated for recycling by DSNY. Table 8-2 also shows the estimated contribution of each material to the total average weekly tonnage of 71,802.25 tons of waste.

Table 8-2
Detailed Results of the PWCS Waste Sorts (1)

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Waste Stream	Weekly Tonnage in Waste Stream (2)	Recycling Indicator	Recycling Subindicator
Paper	ONP	Newspaper		7.17%	5,150.99	R	R Paper
Paper	OCC	Plain OCC/Kraft paper		3.24%	2,323.31	R	R Paper
Paper	Mixed Paper	High Grade Paper		0.99%	711.69	R	R Paper
Paper	Mixed Paper	Mixed Low Grade Paper		8.71%	6,253.87	R	R Paper
Paper	Mixed Paper	Phone Books		0.52%	370.04	R	R Paper
Paper	Mixed Paper	Paperbacks		0.29%	207.29	R	R Paper
Paper	Mixed Paper	Paper Bags		0.56%	398.87	R	R Paper
Paper	Bev Cartons	Polycoated Containers		0.53%	379.81	R	R Bev Cartons
Paper	Compostable Paper	Compostable/Soiled/ Waxed OCC		6.25%	4,489.32	NR	NR_Paper
Paper	Compostable Paper	Single Use Plates, Cups		0.43%	307.45	NR	NR_Paper
Paper	Other Paper	Other Nonrecyclable Paper		0.72%	518.51	NR	NR_Paper
Plastic	PET Bottles	PET Bottles	Deposit	0.36%	257.94	R	R Plastics
Plastic	PET Bottles	PET Bottles	Non-Deposit	0.86%	617.90	R	R Plastics
Plastic	HDPE Bottles	HDPE Natural Bottles		0.44%	315.75	R	R Plastics
Plastic	HDPE Bottles	HDPE Colored Bottles		0.56%	401.31	R	R Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#1 Pet	0.02%	15.76	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#2 HDPE	0.07%	50.58	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#3 PVC	0.02%	10.81	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#4 LDPE	0.01%	9.21	PR	PR_Plastics

Table 8-2
Detailed Results of the PWCS Waste Sorts (1)

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Waste Stream	Weekly Tonnage in Waste Stream (2)	Recycling Indicator	Recycling Subindicator
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#5 PP	0.23%	164.97	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#7 Other	0.07%	49.79	PR	PR_Plastics
Plastic	Other Plastic Products	Other PVC		0.06%	46.59	NR	NR_Plastics
Plastic	Other Rigid Containers/Packaging	Rigid Polystyrene		0.16%	115.17	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Expanded Polystyrene		0.59%	420.25	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Other Rigid Containers/Packaging		0.61%	438.18	PR	PR_Plastics
Plastic	Film	Plastic Bags		2.39%	1,717.49	PR	PR_Plastics
Plastic	Film	Other Film		4.58%	3,286.42	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Plastic Crates and Soda Bottle Carriers		0.06%	42.37	PR	PR_Plastics
Plastic	Other Plastic Products	Single-Use Food Svc		0.66%	473.81	NR	NR_Plastics
Plastic	Other Plastic Products	Single Use Cameras		0.00%	0.00	NR	NR_Plastics
Plastic	Other Plastic Products	Disposable Razors		0.01%	7.87	NR	NR_Plastics
Plastic	Other Plastic Products	Other Plastics Materials		1.65%	1,186.74	NR	NR_Plastics
Glass	Container Glass	Clear Glass	Deposit	0.30%	218.77	R	R Glass
Glass	Container Glass	Clear Glass	Non-Deposit	1.25%	897.66	R	R Glass
Glass	Container Glass	Green Glass	Deposit	0.20%	141.84	R	R Glass
Glass	Container Glass	Green Glass	Non-Deposit	0.31%	224.65	R	R Glass
Glass	Container Glass	Brown Glass	Deposit	0.29%	204.67	R	R Glass

Table 8-2
Detailed Results of the PWCS Waste Sorts (1)

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Waste Stream	Weekly Tonnage in Waste Stream (2)	Recycling Indicator	Recycling Subindicator
Glass	Container Glass	Brown Glass	Non-Deposit	0.07%	49.74	R	R Glass
Glass	Mixed Cullet	Mixed Cullet		1.94%	1,389.51	R	R Glass
Glass	Other Glass	Other Glass		0.21%	149.65	PR	PR_Glass
Metal	Aluminum	Aluminum Cans	Deposit	0.17%	121.89	R	R Metal
Metal	Aluminum	Aluminum Cans	Non-Deposit	0.05%	35.16	R	R Metal
Metal	Aluminum	Aluminum Foil/Tins		0.57%	405.77	R	R Metal
Metal	Aluminum	Other Aluminum		0.05%	38.74	R	R Metal
Metal	Other Metal	Other Non-Ferrous		0.07%	50.94	R	R Metal
Metal	Ferrous	Tin Food Cans		1.25%	895.46	R	R Metal
Metal	Ferrous	Empty Aerosol Cans		0.15%	104.90	R	R Metal
Metal	Ferrous	Other Ferrous		2.23%	1,603.63	R	R Metal
Metal	Other Metal	Mixed Metals		0.54%	386.11	R	R Metal
Organic	Yard	Leaves and Grass		5.17%	3,713.88	NR	NR_Other
Organic	Yard	Prunings		2.53%	1,816.54	NR	NR_Other
Organic	Wood	Stumps/Limbs		0.56%	402.35	NR	NR_Other
Organic	Food	Food		13.35%	9,586.48	NR	NR_Other
Organic	Wood	Non-C&D, Untreated Wood		0.32%	228.16	NR	NR_Other
Organic	Textiles	Non-Clothing Textiles		1.75%	1,255.18	NR	NR_Other
Organic	Textiles	Clothing Textiles		3.09%	2,216.17	NR	NR_Other
Organic	Textiles	Carpet/Upholstery		1.05%	755.47	NR	NR_Other
Organic	Diapers/Hygeine	Disposable Diapers/Sanitary Products		3.17%	2,278.81	NR	NR_Other
Organic	Misc. Organic	Animal By-Products		1.04%	746.05	NR	NR_Other
Organic	Misc. Organic	Rubber Products		0.28%	198.34	NR	NR_Other

Table 8-2
Detailed Results of the PWCS Waste Sorts (1)

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Waste Stream	Weekly Tonnage in Waste Stream (2)	Recycling Indicator	Recycling Subindicator
Organic	Textiles	Shoes	Leather	0.31%	222.30	NR	NR_Other
Organic	Textiles	Shoes	Other	0.08%	56.00	NR	NR_Other
Organic	Textiles	Shoes	Rubber	0.17%	124.34	NR	NR_Other
Organic	Textiles	Other Leather Products		0.05%	33.52	NR	NR_Other
Organic	Misc. Organic	Fines		3.61%	2,592.14	NR	NR_Other
Organic	Misc. Organic	Miscellaneous Organics		3.31%	2,380.15	NR	NR_Other
App. & Elec.	Household Appliance	Small Appliances		0.37%	268.99	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Other	0.20%	142.13	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Cell Phones	0.00%	3.05	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Computer Monitors		0.04%	28.92	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Televisions		0.08%	60.42	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Other Computer Equip.		0.22%	154.78	NR	NR_Other
Const. Debris	Wood	Untreated Dimension Lumber, Pallets, Crates		0.39%	278.15	NR	NR_Other
Const. Debris	Wood	Treated/Contaminated Wood		2.49%	1,789.10	NR	NR_Other
Const. Debris	Inorganic C&D	Gypsum Scrap		0.97%	694.46	NR	NR_Other
Const. Debris	Inorganic C&D	Fiberglass Insulation		0.05%	34.52	NR	NR_Other
Const. Debris	Inorganic C&D	Rock/Concrete/Bricks		0.49%	350.92	NR	NR_Other
Const. Debris	Inorganic C&D	Asphaltic Roofing		0.02%	12.14	NR	NR_Other

Table 8-2
Detailed Results of the PWCS Waste Sorts (1)

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Waste Stream	Weekly Tonnage in Waste Stream (2)	Recycling Indicator	Recycling Subindicator
Const. Debris	Inorganic C&D	Other C&D Debris		1.46%	1,045.26	NR	NR_Other
Misc.	Misc. Inorganic	Misc. Inorganics		0.22%	160.42	NR	NR_Other
Misc.	Misc. Inorganic	Ceramics		0.33%	237.49	NR	NR_Other
HHW	HHW	Oil Filters		0.00%	0.07	NR	NR_Other
HHW	HHW	Antifreeze		0.00%	0.00	NR	NR_Other
HHW	HHW	Wet-Cell Batteries		0.06%	43.76	NR	NR_Other
HHW	HHW	Gasoline/Kerosene		0.00%	0.55	NR	NR_Other
HHW	HHW	Motor Oil/Diesel Oil		0.00%	0.00	NR	NR_Other
HHW	HHW	Latex Paints		0.04%	29.45	NR	NR_Other
HHW	HHW	Water and Solvent-Based Adhesives/glues		0.05%	38.00	NR	NR_Other
HHW	HHW	Oil-Based Paint/Solvent		0.06%	42.33	NR	NR_Other
HHW	HHW	Pesticides/Herbicides/Rodenticides		0.00%	0.81	NR	NR_Other
HHW	HHW	DRY-CELL Batteries		0.06%	42.20	NR	NR_Other
HHW	HHW	Fluorescent Tubes		0.00%	2.71	NR	NR_Other
HHW	HHW	Mercury-Laden waste		0.00%	0.07	NR	NR_Other
HHW	HHW	Compressed Gas Cylinders/Fire Extinguishers		0.00%	0.58	NR	NR_Other
HHW	HHW	Asbestos		0.00%	0.00	NR	NR_Other
HHW	HHW	Explosives		0.00%	0.00	NR	NR_Other

Table 8-2
Detailed Results of the PWCS Waste Sorts (1)

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Waste Stream	Weekly Tonnage in Waste Stream (2)	Recycling Indicator	Recycling Subindicator
HHW	HHW	Smoke Detectors		0.00%	1.45	NR	NR_Other
HHW	HHW	Home Medical Products		0.03%	23.71	NR	NR_Other
HHW	HHW	Other Potentially Harmful Wastes		0.07%	50.74	NR	NR_Other
TOTAL							

NR = Nonrecyclable under DSNY's current Curbside Recycling Program

PR = Potentially Designated for Recycling Under future DSNY programs

R = Recyclable under DSNY's current Curbside Recycling Program

(1) Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50% metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

(2) Tonnage values are based on 71,802.25 tons which is the average weekly tonnage of waste that was collected during May and June 2004, as provided by DSNY.

Table 8-3 ranks the material subgroups on the basis of their estimated Mean. As noted above, Food Waste is the largest single category of material at 13.35 percent, followed by Mixed Paper (11.06 percent) and Miscellaneous Organics (8.24 percent).

Table 8-3
Summary Ranking of Material Subgroups in the PWCS Waste Sorts (1)

Material Subgroup	% of Waste Stream	Weekly Raw Tonnages (2)
Over 1% of Waste Stream		
Food	13.35%	9,586.48
Mixed Paper	11.06%	7,941.76
Misc. Organic	8.24%	5,916.67
Yard	7.70%	5,530.42
ONP	7.17%	5,150.99
Film	6.97%	5,003.90
Compostable Paper	6.68%	4,796.78
Textiles	6.49%	4,662.98
Wood	3.76%	2,697.76
Ferrous	3.63%	2,603.99
OCC	3.24%	2,323.31
Diapers/Hygeine	3.17%	2,278.81
Inorganic C&D	2.98%	2,137.30
Container Glass	2.42%	1,737.34
Other Plastic Products	2.39%	1,715.01
Mixed Cullet	1.94%	1,389.51
Other Rigid Containers/Packaging	1.83%	1,317.10
PET Bottles	1.22%	875.84
HDPE Bottles	1.00%	717.06
TOTAL		**68,383.02**
Under 1% of Waste Stream		
Aluminum	0.84%	601.57
Other Paper	0.72%	518.51
Other Metal	0.61%	437.05
Misc. Inorganic	0.55%	397.91
Electronic.AV/Computer	0.54%	389.30
Bev Cartons	0.53%	379.81
HHW	0.38%	276.43

Table 8-3
Summary Ranking of Material Subgroups in the PWCS Waste Sorts (1)

Material Subgroup	% of Waste Stream	Weekly Raw Tonnages (2)
Household Appliance	0.37%	268.99
Other Glass	0.21%	149.65
TOTAL		**3,419.23**

(1) Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50% metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

(2) Tonnage values are based on 71,802.25 tons which is the average weekly tonnage of waste that was collected during May and June 2004, as provided by DSNY.

Table 8-4 presents a more detailed ranking of the materials in the waste stream, including a number of subcategories, such as deposit and non-deposit containers.

Table 8-4
Detailed Ranking of Materials In the PWCS Waste Sorts (1)

Material Group	Material Category	Sub Category	% of Waste Stream	Weekly Tonnages (2)
Over 1% of Waste Stream				
Organic	Food		13.35%	9,586.48
Paper	Mixed Low Grade Paper		8.71%	6,253.87
Paper	Newspaper		7.17%	5,150.99
Paper	Compostable/Soiled/ Waxed OCC		6.25%	4,489.32
Organic	Leaves and Grass		5.17%	3,713.88
Plastic	Other Film		4.58%	3,286.42
Organic	Fines		3.61%	2,592.14
Organic	Miscellaneous Organics		3.31%	2,380.15
Paper	Plain OCC/Kraft paper		3.24%	2,323.31
Organic	Disposable Diapers/Sanitary Products		3.17%	2,278.81
Organic	Clothing Textiles		3.09%	2,216.17
Organic	Prunings		2.53%	1,816.54
Const. Debris	Treated/Contaminated Wood		2.49%	1,789.10
Plastic	Plastic Bags		2.39%	1,717.49
Metal	Other Ferrous		2.23%	1,603.63
Glass	Mixed Cullet		1.94%	1,389.51

Table 8-4
Detailed Ranking of Materials In the PWCS Waste Sorts (1)

Material Group	Material Category	Sub Category	% of Waste Stream	Weekly Tonnages (2)
Organic	Non-Clothing Textiles		1.75%	1,255.18
Plastic	Other Plastics Materials		1.65%	1,186.74
Const. Debris	Other C&D Debris		1.46%	1,045.26
Glass	Clear Glass	Non-Deposit	1.25%	897.66
Metal	Tin Food Cans		1.25%	895.46
Organic	Carpet/Upholstery		1.05%	755.47
Organic	Animal By-Products		1.04%	746.05
Under 1% of Waste Stream				
Paper	High Grade Paper		0.99%	711.69
Const. Debris	Gypsum Scrap		0.97%	694.46
Plastic	PET Bottles	Non-Deposit	0.86%	617.90
Paper	Other Nonrecyclable Paper		0.72%	518.51
Plastic	Single-Use Food Svc		0.66%	473.81
Plastic	Other Rigid Containers/Packaging		0.61%	438.18
Plastic	Expanded Polystyrene		0.59%	420.25
Metal	Aluminum Foil/Tins		0.57%	405.77
Organic	Stumps/Limbs		0.56%	402.35
Plastic	HDPE Colored Bottles		0.56%	401.31
Paper	Paper Bags		0.56%	398.87
Metal	Mixed Metals		0.54%	386.11
Paper	Polycoated Containers		0.53%	379.81
Paper	Phone Books		0.52%	370.04
Const. Debris	Rock/Concrete/Bricks		0.49%	350.92
Plastic	HDPE Natural Bottles		0.44%	315.75
Paper	Single Use Plates, Cups		0.43%	307.45
Const. Debris	Untreated Dimension Lumber, Pallets, Crates		0.39%	278.15
App. & Elec.	Small Appliances		0.37%	268.99
Plastic	PET Bottles	Deposit	0.36%	257.94
Misc.	Ceramics		0.33%	237.49
Organic	Non-C&D, Untreated Wood		0.32%	228.16
Glass	Green Glass	Non-Deposit	0.31%	224.65
Organic	Shoes	Leather	0.31%	222.30
Glass	Clear Glass	Deposit	0.30%	218.77

Table 8-4
Detailed Ranking of Materials In the PWCS Waste Sorts (1)

Material Group	Material Category	Sub Category	% of Waste Stream	Weekly Tonnages (2)
Paper	Paperbacks		0.29%	207.29
Glass	Brown Glass	Deposit	0.29%	204.67
Organic	Rubber Products		0.28%	198.34
Plastic	#3-#7 Containers	#5 PP	0.23%	164.97
Misc.	Misc. Inorganics		0.22%	160.42
App. & Elec.	Other Computer Equip.		0.22%	154.78
Glass	Other Glass		0.21%	149.65
App. & Elec.	Audio/Visual Equipment	Other	0.20%	142.13
Glass	Green Glass	Deposit	0.20%	141.84
Organic	Shoes	Rubber	0.17%	124.34
Metal	Aluminum Cans	Deposit	0.17%	121.89
Plastic	Rigid Polystyrene		0.16%	115.17
Metal	Empty Aerosol Cans		0.15%	104.90
App. & Elec.	Televisions		0.08%	60.42
Organic	Shoes	Other	0.08%	56.00
Metal	Other Non-Ferrous		0.07%	50.94
HHW	Other Potentially Harmful Wastes		0.07%	50.74
Plastic	#1-#2 Tubs/Trays	#2 HDPE	0.07%	50.58
Plastic	#3-#7 Containers	#7 Other	0.07%	49.79
Glass	Brown Glass	Non-Deposit	0.07%	49.74
Plastic	Other PVC		0.06%	46.59
HHW	Wet-Cell Batteries		0.06%	43.76
Plastic	Plastic Crates and Soda Bottle Carriers		0.06%	42.37
HHW	Oil-Based Paint/Solvent		0.06%	42.33
HHW	DRY-CELL Batteries		0.06%	42.20
Metal	Other Aluminum		0.05%	38.74
HHW	Water and Solvent-Based Adhesives/glues		0.05%	38.00
Metal	Aluminum Cans	Non-Deposit	0.05%	35.16
Const. Debris	Fiberglass Insulation		0.05%	34.52
Organic	Other Leather Products		0.05%	33.52
HHW	Latex Paints		0.04%	29.45

Table 8-4
Detailed Ranking of Materials In the PWCS Waste Sorts (1)

Material Group	Material Category	Sub Category	% of Waste Stream	Weekly Tonnages (2)
App. & Elec.	Computer Monitors		0.04%	28.92
HHW	Home Medical Products		0.03%	23.71
Plastic	#1-#2 Tubs/Trays	#1 Pet	0.02%	15.76
Const. Debris	Asphaltic Roofing		0.02%	12.14
Plastic	#3-#7 Containers	#3 PVC	0.02%	10.81
Plastic	#3-#7 Containers	#4 LDPE	0.01%	9.21
Plastic	Disposable Razors		0.01%	7.87
App. & Elec.	Audio/Visual Equipment	Cell Phones	0.00%	3.05
HHW	Fluorescent Tubes		0.00%	2.71
HHW	Smoke Detectors		0.00%	1.45
HHW	Pesticides/Herbicides/Rodenticides		0.00%	0.81
HHW	Compressed Gas Cylinders/Fire Extinguishers		0.00%	0.58
HHW	Gasoline/Kerosene		0.00%	0.55
HHW	Mercury-Laden waste		0.00%	0.07
HHW	Oil Filters		0.00%	0.07
Plastic	Single Use Cameras		0.00%	---
HHW	Antifreeze		0.00%	---
HHW	Motor Oil/Diesel Oil		0.00%	---
HHW	Asbestos		0.00%	---
HHW	Explosives		0.00%	---

(1) Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50 percent metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

(2) Tonnage values are based on 71,802.25 tons which is the average weekly tonnage of waste that was collected during May and June 2004, as provided by DSNY.

Table 8-5 presents the estimated Mean and estimated weekly tonnage by the major material groups. The two largest fractions, Paper and Organics, represent almost 70 percent of the waste stream.

Table 8-5
Summary Composition of the PWCS Waste Sorts by Material Group (1)

Material Group	% of Waste Stream	Weekly Tonnages (2)
App. & Elec.	0.92%	658.30
Const. Debris	5.86%	4,204.55
Glass	4.56%	3,276.51
HHW	0.38%	276.43
Metal	5.07%	3,642.61
Misc.	0.55%	397.91
Organic	39.84%	28,605.88
Paper	29.40%	21,111.16
Plastic	13.41%	9,628.91
Grand Total	**100.00%**	**71,802.25**

(1) Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50% metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

(2) Tonnage values are based on 71,802.25 tons which is the average weekly tonnage of waste that was collected during May and June 2004, as provided by DSNY.

Table 8-6 shows the estimated Mean and weekly tonnage by major material group and each of the 87 material categories.

Table 8-6
Summary Composition of the PWCS Waste Sorts by Material Group and Material Category (1)

Material Group	Material Category	% Composition	Weekly Tonnages (2)
App. & Elec.	Audio/Visual Equipment	0.20%	145.18
	Computer Monitors	0.04%	28.92
	Other Computer Equip.	0.22%	154.78
	Small Appliances	0.37%	268.99
	Televisions	0.08%	60.42
App. & Elec. Total		**0.92%**	**658.30**
Const. Debris	Asphaltic Roofing	0.02%	12.14
	Fiberglass Insulation	0.05%	34.52
	Gypsum Scrap	0.97%	694.46
	Other C&D Debris	1.46%	1,045.26

Table 8-6
Summary Composition of the PWCS Waste Sorts by Material Group and Material Category (1)

Material Group	Material Category	% Composition	Weekly Tonnages (2)
	Rock/Concrete/Bricks	0.49%	350.92
	Treated/Contaminated Wood	2.49%	1,789.10
	Untreated Dimension Lumber, Pallets, Crates	0.39%	278.15
Const. Debris Total		**5.86%**	**4,204.55**
Glass	Brown Glass	0.35%	254.41
	Clear Glass	1.55%	1,116.43
	Green Glass	0.51%	366.50
	Mixed Cullet	1.94%	1,389.51
	Other Glass	0.21%	149.65
Glass Total		**4.56%**	**3,276.51**
HHW	Antifreeze	0.00%	0.00
	Asbestos	0.00%	0.00
	Compressed Gas Cylinders/Fire Extinguishers	0.00%	0.58
	DRY-CELL Batteries	0.06%	42.20
	Explosives	0.00%	0.00
	Fluorescent Tubes	0.00%	2.71
	Gasoline/Kerosene	0.00%	0.55
	Home Medical Products	0.03%	23.71
	Latex Paints	0.04%	29.45
	Mercury-Laden waste	0.00%	0.07
	Motor Oil/Diesel Oil	0.00%	0.00
	Oil Filters	0.00%	0.07
	Oil-Based Paint/Solvent	0.06%	42.33
	Other Potentially Harmful Wastes	0.07%	50.74
	Pesticides/Herbicides/Rodenticides	0.00%	0.81
	Smoke Detectors	0.00%	1.45
	Water and Solvent-Based Adhesives/glues	0.05%	38.00
	Wet-Cell Batteries	0.06%	43.76
HHW Total		**0.38%**	**276.43**
Metal	Aluminum Cans	0.22%	157.05

Table 8-6
Summary Composition of the PWCS Waste Sorts by Material Group and Material Category (1)

Material Group	Material Category	% Composition	Weekly Tonnages (2)
	Aluminum Foil/Tins	0.57%	405.77
	Empty Aerosol Cans	0.15%	104.90
	Mixed Metals	0.54%	386.11
	Other Aluminum	0.05%	38.74
	Other Ferrous	2.23%	1,603.63
	Other Non-Ferrous	0.07%	50.94
	Tin Food Cans	1.25%	895.46
Metal Total		**5.07%**	**3,642.61**
Misc.	Ceramics	0.33%	237.49
	Misc. Inorganics	0.22%	160.42
Misc. Total		**0.55%**	**397.91**
Organic	Animal By-Products	1.04%	746.05
	Carpet/Upholstery	1.05%	755.47
	Clothing Textiles	3.09%	2,216.17
	Disposable Diapers/Sanitary Products	3.17%	2,278.81
	Fines	3.61%	2,592.14
	Food	13.35%	9,586.48
	Leaves and Grass	5.17%	3,713.88
	Miscellaneous Organics	3.31%	2,380.15
	Non-C&D, Untreated Wood	0.32%	228.16
	Non-Clothing Textiles	1.75%	1,255.18
	Other Leather Products	0.05%	33.52
	Prunings	2.53%	1,816.54
	Rubber Products	0.28%	198.34
	Shoes	0.56%	402.64
	Stumps/Limbs	0.56%	402.35
Organic Total		**39.84%**	**28,605.88**
Paper	Compostable/Soiled/ Waxed OCC	6.25%	4,489.32
	High Grade Paper	0.99%	711.69
	Mixed Low Grade Paper	8.71%	6,253.87
	Newspaper	7.17%	5,150.99

Table 8-6
Summary Composition of the PWCS Waste Sorts by Material Group and Material Category (1)

Material Group	Material Category	% Composition	Weekly Tonnages (2)
	Other Nonrecyclable Paper	0.72%	518.51
	Paper Bags	0.56%	398.87
	Paperbacks	0.29%	207.29
	Phone Books	0.52%	370.04
	Plain OCC/Kraft paper	3.24%	2,323.31
	Polycoated Containers	0.53%	379.81
	Single Use Plates, Cups	0.43%	307.45
Paper Total		**29.40%**	**21,111.16**
Plastic	#1-#2 Tubs/Trays	0.09%	66.34
	#3-#7 Containers	0.33%	234.79
	Disposable Razors	0.01%	7.87
	Expanded Polystyrene	0.59%	420.25
	HDPE Colored Bottles	0.56%	401.31
	HDPE Natural Bottles	0.44%	315.75
	Other Film	4.58%	3,286.42
	Other Plastics Materials	1.65%	1,186.74
	Other PVC	0.06%	46.59
	Other Rigid Containers/Packaging	0.61%	438.18
	PET Bottles	1.22%	875.84
	Plastic Bags	2.39%	1,717.49
	Plastic Crates and Soda Bottle Carriers	0.06%	42.37
	Rigid Polystyrene	0.16%	115.17
	Single Use Cameras	0.00%	0.00
	Single-Use Food Svc	0.66%	473.81
Plastic Total		**13.41%**	**9,628.91**
Grand Total		**100.00%**	**71,802.25**

(1) Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50% metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

(2) Tonnage values are based on 71,802.25 tons which is the average weekly tonnage of waste that was collected during May and June 2004, as provided by DSNY.

Table 8-7 presents the percentages of the waste stream which contain MGP and paper materials designated by DSNY for recycling, as well as the percentage of non-designated materials. Table 8-7 also provides the estimated weekly tonnages for these materials.

Table 8-7
Materials Designated for Recycling in the PWCS Waste Sorts (1)

	% of Waste Stream	Weekly Tonnages (2)
Designated MGP	12.18%	8,742.16
Designated Paper	21.47%	15,416.07
Potentially Designated Plastic	8.80%	6,321.00
Potentially Designated Glass	0.21%	149.65
Not Designated For Recycling	57.34%	41,173.37
Grand Total	**100.00%**	**71,802.25**

Detail	**% of Waste Stream**	**Weekly Tonnages (2)**
Designated Bev Cartons	0.53%	379.81
Designated Glass	4.35%	3,126.85
Designated Metal	5.07%	3,642.61
Designated Paper	21.47%	15,416.07
Designated Plastics	2.22%	1,592.90
Designated Materials Subtotal	**33.65%**	**24,158.23**
Potentially Designated Plastic	8.80%	6,321.00
Potentially Designated Glass	0.21%	149.65
Potentially Designated Materials Subtotal	9.01%	6,470.65
Nondesignated Paper	7.40%	5,315.29
Nondesignated Plastics	2.39%	1,715.01
Nondesignated Glass	0.00%	0.00
Other Nondesignated	47.55%	34,143.06
Nondesignated Materials Subtotal	**57.34%**	**41,173.37**
Grand Total	**100.00%**	**71,802.25**

(1) Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50% metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

(2) Tonnage values are based on 71,802.25 tons which is the average weekly tonnage of waste that was collected during May and June 2004, as provided by DSNY.

Table 8-8 reorganizes the data in Table 8-7 to show designated and nondesignated fractions of paper, metal, glass, plastic, and beverage cartons. The list of DSNY's materials designated for recycling are shown in Table 8-2.

Table 8-8
Designated Recyclables in the Waste Stream (1)

BY MATERIAL GROUP

% of Waste Stream	PAPER	METAL	GLASS	PLASTIC	BEVERAGE CARTONS
Designated MGP	---	5.07%	4.35%	2.22%	0.53%
Designated Paper	21.47%	---	---	---	---
Potentially Designated Plastic	---	---	---	8.87%	---
Potentially Designated Glass	---	---	0.21%	---	---
Not Designated For Recycling	7.40%	---	0.00%	2.32%	---
Total	**28.87%**	**5.07%**	**4.56%**	**13.41%**	**0.53%**
Weekly Tonnages (2)	**PAPER**	**METAL**	**GLASS**	**PLASTIC**	**BEVERAGE CARTONS**
Designated MGP	---	3,642.61	3,126.85	1,592.90	379.81
Designated Paper	15,416.07	---	---	---	---
Potentially Designated Plastic	---	---	---	6,367.59	
Potentially Designated Glass	---	---	149.65	---	
Not Designated For Recycling	5,315.29	---	0.00	1,668.42	---
Total	**20,731.36**	**3,642.61**	**3,276.51**	**9,628.91**	**379.81**

(1) Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50% metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

(2) Tonnage values are based on 71,802.25 tons which is the average weekly tonnage of waste that was collected during May and June 2004, as provided by DSNY.

In addition to weighing each material in the three PWCS sorts, certain items were also counted. Shoes, can, bottles, and certain electronics were individually counted. Table 8-9 presents the combined Product Count for the three sorts. This table also shows the economic value of disposed containers that were eligible for reimbursement under New York State's deposit law.

Table 8-9
PWCS Waste Sort Product Count (1) (2)

Plastic	Disposable Razors		Count	215	
HHW	Smoke Detectors		Count	2	
App. & Elec.	Computer Monitors		Count	1	
Plastic	Single-Use Cameras		Count	0	
App. & Elec.	Audio/Visual Equipment	Cell Phones	Count	10	
Organic	Shoes	Leather	Count	235	
Organic	Shoes	Other	Count	126	
Organic	Shoes	Rubber	Count	168	
DEPOSIT CONTAINER COUNT					**VALUE**
Metal	Aluminum Cans	Deposit	Count	2879	$ 143.95
Plastic	PET Bottles	Deposit	Count	2353	$ 117.65
Glass	Brown Glass	Deposit	Count	495.5	$ 24.78
Glass	Clear Glass	Deposit	Count	406	$ 20.30
Glass	Green Glass	Deposit	Count	336	$ 16.80
Deposit Container Total				**6469.5**	**$ 323.48**

(1) Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50 percent metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

(2) Amounts shown are the sum of counts of materials in more than 200 different, randomly selected refuse samples from May 15, 2004 through May 27, 2004; 104 different, randomly selected MGP recyclables samples and 99 different, randomly selected samples of recyclable paper from June 5, 2004 through June 11, 2004 in DSNY's collections. All in all, the 403 samples weighed nearly 36 tons.

One of the criteria used in selecting samples was the borough of origin. Table 8-10 compares the estimated Mean of the five boroughs. Although the PWCS was not designed to provide statistically significant results of each of the five boroughs, the difference among the boroughs are impressive for some material categories. For example, the percentage of food waste is significantly lower in Staten Island than in the other four boroughs. Again, the results reflected below are not intended to represent a statistically accurate picture of each borough's comparative waste stream, but rather highlights the need to evaluate these differences more comprehensively in future studies.

Table 8-10
Comparison of Waste Composition in the PWCS Sorts by Borough (1) (2)

Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
Newspaper	6.15%	7.29%	8.52%	6.50%	6.81%
Plain OCC/Kraft paper	3.73%	3.60%	2.78%	3.31%	2.40%
High Grade Paper	1.00%	0.80%	1.63%	0.72%	1.23%
Mixed Low Grade Paper	7.64%	9.21%	11.49%	7.38%	7.02%
Phone Books	1.28%	0.31%	0.61%	0.42%	0.31%
Paperbacks	0.41%	0.14%	0.16%	0.42%	0.50%
Paper Bags	0.48%	0.53%	0.88%	0.51%	0.27%
Polycoated Containers	0.54%	0.51%	0.68%	0.51%	0.24%
Compostable/Soiled/ Waxed OCC	5.76%	6.44%	7.71%	5.63%	5.21%
Single Use Plates, Cups	0.30%	0.33%	0.63%	0.43%	0.64%
Other Nonrecyclable Paper	0.70%	0.74%	0.84%	0.60%	0.68%
TOTAL PAPER	27.99%	29.88%	35.94%	26.42%	25.32%
PET Bottles: Deposit	0.48%	0.35%	0.43%	0.28%	0.27%
PET Bottles: Non-Deposit	0.86%	0.87%	1.01%	0.73%	0.72%
HDPE Natural Bottles	0.58%	0.44%	0.37%	0.43%	0.27%
HDPE Colored Bottles	0.61%	0.56%	0.42%	0.61%	0.48%
#1-#2 Tubs/Trays: #1 Pet	0.03%	0.02%	0.04%	0.02%	0.00%
#1-#2 Tubs/Trays: #2 HDPE	0.02%	0.07%	0.02%	0.15%	0.02%
#3-#7 Containers: #3 PVC	0.01%	0.01%	0.01%	0.02%	0.01%
#3-#7 Containers: #4 LDPE	0.01%	0.00%	0.05%	0.01%	0.00%
#3-#7 Containers: #5 PP	0.16%	0.29%	0.20%	0.23%	0.22%
#3-#7 Containers: #7 Other	0.05%	0.07%	0.08%	0.07%	0.07%
Other PVC	0.04%	0.10%	0.09%	0.02%	0.04%
Rigid Polystyrene	0.08%	0.14%	0.31%	0.15%	0.10%
Expanded Polystyrene	0.54%	0.76%	0.54%	0.49%	0.40%
Other Rigid Containers/Packaging	0.49%	0.64%	0.68%	0.58%	0.63%
Plastic Bags	2.76%	2.68%	2.55%	2.04%	1.30%
Other Film	4.58%	4.66%	5.66%	4.16%	3.12%
Plastic Crates and Soda Bottle Carriers	0.01%	0.08%	0.08%	0.05%	0.02%
Single-Use Food Svc	0.59%	0.85%	0.48%	0.63%	0.51%
Single Use Cameras	0.00%	0.00%	0.00%	0.00%	0.00%
Disposable Razors	0.00%	0.03%	0.01%	0.01%	0.00%
Other Plastics Materials	1.90%	1.89%	1.13%	1.29%	2.57%

Table 8-10
Comparison of Waste Composition in the PWCS Sorts by Borough [(1)] [(2)]

Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
TOTAL PLASTIC	13.79%	14.51%	14.13%	11.97%	10.75%
Clear Glass: Deposit	0.45%	0.44%	0.16%	0.19%	0.18%
Clear Glass: Non-Deposit	1.17%	1.46%	1.47%	0.93%	0.92%
Green Glass: Deposit	0.32%	0.17%	0.23%	0.17%	0.09%
Green Glass: Non-Deposit	0.20%	0.18%	0.89%	0.17%	0.13%
Brown Glass: Deposit	0.46%	0.24%	0.36%	0.17%	0.31%
Brown Glass: Non-Deposit	0.05%	0.07%	0.12%	0.05%	0.03%
Mixed Cullet	2.09%	1.81%	2.25%	1.75%	1.41%
Other Glass	0.24%	0.20%	0.14%	0.23%	0.23%
TOTAL GLASS	4.99%	4.57%	5.63%	3.64%	3.30%
Aluminum Cans: Deposit	0.21%	0.14%	0.24%	0.14%	0.16%
Aluminum Cans: Non-Deposit	0.03%	0.06%	0.04%	0.05%	0.05%
Aluminum Foil/Tins	0.66%	0.65%	0.58%	0.47%	0.32%
Other Aluminum	0.02%	0.07%	0.05%	0.07%	0.04%
Other Non-Ferrous	0.09%	0.05%	0.05%	0.07%	0.13%
Tin Food Cans	1.84%	1.30%	1.10%	0.98%	0.87%
Empty Aerosol Cans	0.16%	0.16%	0.12%	0.12%	0.16%
Other Ferrous	2.01%	2.39%	2.42%	2.22%	3.22%
Mixed Metals	0.17%	0.65%	0.18%	0.70%	1.03%
TOTAL METAL	5.20%	5.47%	4.78%	4.81%	5.98%
Leaves and Grass	2.58%	2.33%	1.08%	9.89%	15.14%
Prunings	2.93%	1.86%	0.27%	3.30%	6.95%
Stumps/Limbs	0.03%	0.67%	0.40%	1.00%	0.03%
Food	14.51%	14.53%	13.02%	13.29%	7.14%
Non-C&D, Untreated Wood	0.06%	0.08%	0.39%	0.75%	0.19%
Non-Clothing Textiles	1.98%	1.69%	1.96%	1.77%	0.99%
Clothing Textiles	4.66%	2.86%	2.70%	2.39%	4.12%
Carpet/Upholstery	0.57%	0.83%	1.03%	1.27%	2.21%
Disposable Diapers/Sanitary Products	3.65%	3.26%	2.22%	3.73%	2.23%
Animal By-Products	0.75%	1.13%	0.73%	1.01%	2.04%
Rubber Products	0.27%	0.25%	0.46%	0.18%	0.30%
Shoes: Leather	0.23%	0.32%	0.18%	0.37%	0.50%
Shoes: Other	0.10%	0.14%	0.03%	0.03%	0.06%

Table 8-10
Comparison of Waste Composition in the PWCS Sorts by Borough (1) (2)

Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
Shoes: Rubber	0.25%	0.19%	0.18%	0.06%	0.35%
Other Leather Products	0.02%	0.12%	0.02%	0.01%	0.00%
Fines	3.44%	3.79%	4.11%	3.36%	2.91%
Miscellaneous Organics	5.08%	3.48%	3.08%	2.29%	3.13%
TOTAL ORGANIC	41.10%	37.52%	31.87%	44.69%	48.28%
Misc. Inorganics	0.16%	0.32%	0.23%	0.14%	0.19%
Ceramics	0.15%	0.13%	0.46%	0.63%	0.19%
TOTAL MISC.	0.31%	0.45%	0.69%	0.77%	0.38%
Small Appliances	0.40%	0.51%	0.07%	0.49%	0.40%
Audio/Visual Equipment: Other	0.16%	0.19%	0.22%	0.41%	0.07%
Audio/Visual Equipment: Cell Phones	0.00%	0.01%	0.00%	0.00%	0.00%
Computer Monitors	0.00%	0.00%	0.00%	0.15%	0.00%
Televisions	0.13%	0.20%	0.00%	0.00%	0.00%
Other Computer Equip.	0.48%	0.22%	0.12%	0.19%	0.01%
TOTAL APP. & ELEC.	1.17%	1.14%	0.41%	1.25%	0.48%
Untreated Dimension Lumber, Pallets, Crates	0.41%	0.28%	0.25%	0.69%	0.10%
Treated/Contaminated Wood	2.55%	2.93%	1.68%	2.67%	1.86%
Gypsum Scrap	0.54%	1.07%	0.89%	1.05%	1.29%
Fiberglass Insulation	0.00%	0.02%	0.11%	0.01%	0.26%
Rock/Concrete/Bricks	0.99%	0.50%	0.32%	0.42%	0.08%
Asphaltic Roofing	0.00%	0.01%	0.07%	0.00%	0.00%
Other C&D Debris	0.81%	1.43%	2.88%	1.10%	0.78%
TOTAL CONST. DEBRIS	5.29%	6.24%	6.20%	5.94%	4.36%
Oil Filters	0.00%	0.00%	0.00%	0.00%	0.00%
Antifreeze	0.00%	0.00%	0.00%	0.00%	0.00%
Wet-Cell Batteries	0.00%	0.00%	0.00%	0.00%	0.76%
Gasoline/Kerosene	0.00%	0.00%	0.00%	0.00%	0.00%
Motor Oil/Diesel Oil	0.00%	0.00%	0.00%	0.00%	0.00%
Latex Paints	0.00%	0.00%	0.00%	0.15%	0.00%
Water and Solvent-Based Adhesives/glues	0.05%	0.07%	0.13%	0.00%	0.01%
Oil-Based Paint/Solvent	0.00%	0.00%	0.05%	0.17%	0.06%
Pesticides/Herbicides/Rodenticides	0.00%	0.00%	0.00%	0.00%	0.00%

Table 8-10
Comparison of Waste Composition in the PWCS Sorts by Borough (1) (2)

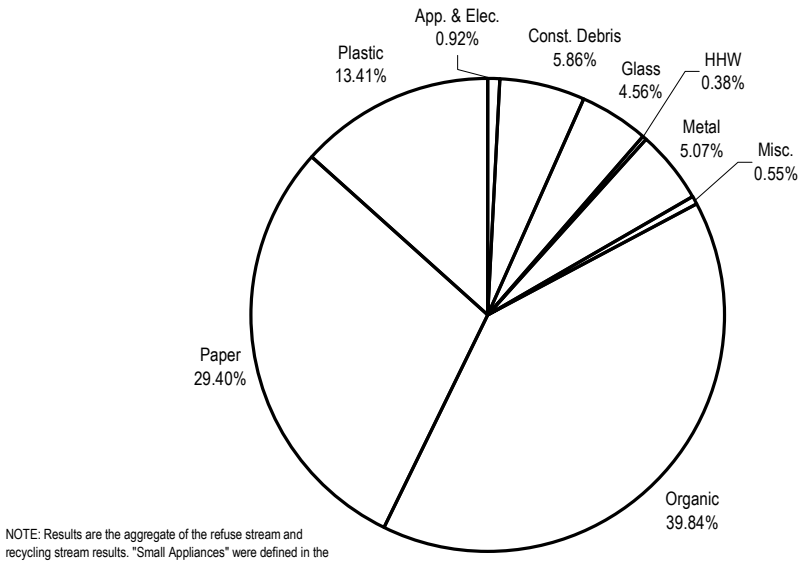
Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
DRY-CELL Batteries	0.04%	0.04%	0.11%	0.05%	0.07%
Fluorescent Tubes	0.00%	0.00%	0.02%	0.00%	0.00%
Mercury-Laden waste	0.00%	0.00%	0.00%	0.00%	0.00%
Compressed Gas Cylinders/Fire Extinguishers	0.00%	0.00%	0.00%	0.00%	0.00%
Asbestos	0.00%	0.00%	0.00%	0.00%	0.00%
Explosives	0.00%	0.00%	0.00%	0.00%	0.00%
Smoke Detectors	0.01%	0.00%	0.00%	0.00%	0.00%
Home Medical Products	0.04%	0.03%	0.01%	0.05%	0.04%
Other Potentially Harmful Wastes	0.02%	0.08%	0.02%	0.09%	0.20%
TOTAL HHW	**0.16%**	**0.22%**	**0.34%**	**0.52%**	**1.14%**
GRAND TOTAL	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

(1) Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50 percent metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

(2) The statistical accuracy of composition at the borough level is not guaranteed as this study was not designed to analyze borough differences.

Figure 8-1 presents a pie chart showing the fractions of the waste stream represented by each of the major material groups.

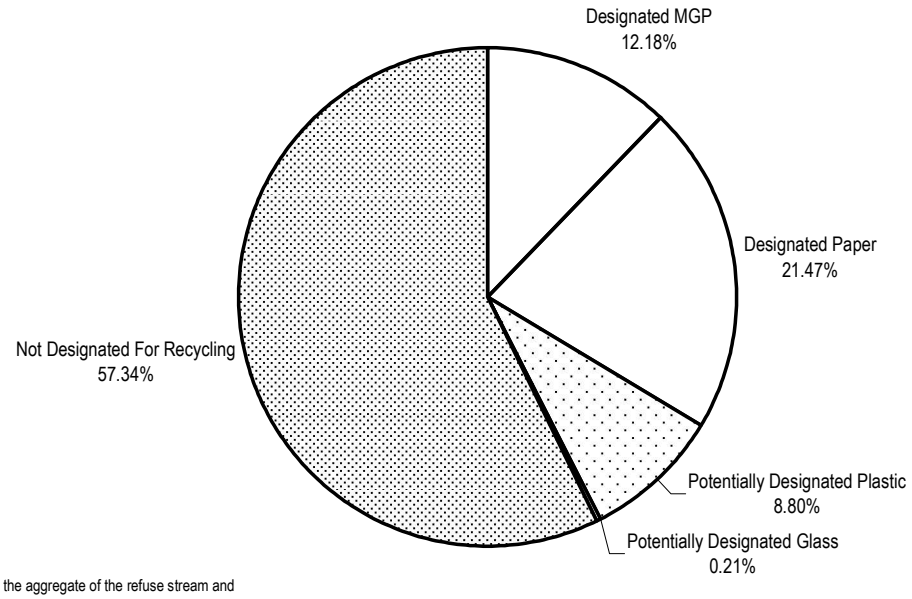
Figure 8-1
Summary of the PWCS Waste Stream by Major Material Group



NOTE: Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50% metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

Figure 8-2 shows the fraction of the waste stream that contains materials designated by the DSNY for recycling.

Figure 8-2
Details of the PWCS Waste Stream by Designated Materials



NOTE: Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50% metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

Section 9
RECOMMENDATIONS

The PWCS provided an excellent field test for the Phase I Study. The following recommendations should be addressed prior to the commencement of the Phase I Study.

1. The protocol used to characterize for bulk items, particularly those MGP stream, should be re-examined and refined. The fact that DSNY collects bulk metal with curbside MGP, and, to a lesser extent, curbside non-metal bulk with refuse distinguishes it from other jurisdictions, most of which conduct separate bulk item collections, or require residents to transport bulk items to drop-off centers. While the PWCS accurately characterized the contribution of such items to overall waste composition, it may be useful to gather more detailed information on the material and product characteristics of the bulk portion of the waste stream. See Appendix W for a complete discussion of the sampling issues related to bulk metal in the MGP stream.
2. Because the Waste Characterization Study, including the PWCS, is to be used for DSNY's planning over the next decade, it is recommended that, in developing materials categories for the Phase I Study, most if not all of the existing sort categories be retained. In addition, it may be useful to refine certain categories with additional subsorts.
3. In the combined refuse and recycling streams, appliances and electronics represented 1.17 percent and total textiles represented 6.45 percent (includes clothing and non-clothing textiles, carpet and upholstery and shoes). It is recommended that a more detailed examination of the product and material characteristics of the items in these categories be included in the Phase I Study.
4. Given the significant percentage of moisture and particulates found in the refuse and recycling streams, particularly for materials such as paper and textiles, it is recommended that moisture and particulate testing be conducted in the Phase I Study. See Appendix V for the PWCS results adjusted for moisture and particulates.
5. Because the subsort of "potential deposit" and single-use containers in the MGP stream provided useful information, it is recommended that a similar subsort be included for both the refuse and recycling streams in the Phase I Study.

GLOSSARY

Accurately Set Out Recycling: Designated MGP set out at the curb for collection as MGP Recycling; Designated Paper set out at the curb for collection as Paper Recycling .

Contamination: Nondesignated materials other than nondesignated glass or nondesignated plastic in MGP recycling; or nondesignated materials other than nondesignated paper in the Paper recycling.

Cross-Stream Recycling: Designated MGP under the City's current recycling program that is placed in the paper recycling bin, or Designated Paper under the City's current recycling program that is placed in the MGP bin.

Designated Materials: Material designated for MGP or Paper recycling under the City's current recycling program.

Designated MGP: Materials designated for recycling as MGP under the City's current recycling program, including: all household metal; #1 and #2 plastic bottles and jugs; glass bottles and jars.

Designated Paper: Materials designated for recycling as Paper under the City's current recycling program, including all forms of paper except soiled paper cups and plates; and paper napkins, towels and wipes.

Inaccurately Set Out Recycling: Designated MGP set out at the curb for collection as Paper Recycling; Designated Paper set out at the curb for collection as MGP Recycling.

MGP Recycling: Materials set out at the curb for collection as MGP Recycling.

Nondesignated Materials: Waste materials not designated for recycling as Paper or MGP under New York City's current recycling program.

Paper Recycling: Materials set out at the curb for collection as Paper Recycling.

Recyclable materials not currently designated under DSNY's recycling program: Nondesignated glass or nondesignated plastic in MGP recycling.

Recycling: Materials set out at the curb for collection as Paper Recycling or MGP Recycling.

Refuse: Materials set out at the curb for collection as refuse.

Waste: Sum of Refuse and Recycling.

Appendix A
PWCS Operational Plan

DEPARTMENT OF SANITATION OF NEW YORK CITY
PRELIMINARY WASTE CHARACTERIZATION STUDY

PWCS Operations Plan

Introduction

The Department of Sanitation of New York City ("DSNY") has asked the R. W. Beck Project Team ("R. W. Beck") to develop an estimate of the composition of New York City's (the "City") refuse and recyclables. By "composition", we mean the percentage, by weight, of paper, plastic, metals, glass, yard waste, and other materials in the City's waste. R.W. Beck proposes to develop this estimate of composition by sorting samples of the City's refuse and recyclables.

The first part of this estimate is a Preliminary Waste Characterization Study ("PWCS") which is designed to provide a "snapshot" of the residential curbside refuse and recyclables. The plan presented below describes how the PWCS will be developed and carried out.

Sampling Plan

The first step in the PWCS is to develop a sampling plan which will be the basis for an accurate estimate of the City's refuse and recyclables composition. The accuracy of this estimate (i.e., how close the composition from the samples matches the composition of the entire City) will depend on a number of factors, including how carefully the Study is done, the size of the samples being sorted, the number of samples that are sorted, and the method for selecting the samples.

Refuse Sampling

The Refuse Sampling Plan ("RSP") is divided into four parts.

Sample Weight

The weight of each sample of refuse will be between 200 pounds and 250 pounds, based on current industry practice and studies by the USEPA and academic studies (e.g., Klee).

Sample Number

In a waste characterization study, the number of samples that are sorted affects the accuracy of the estimate. For example, if only one 200-pound sample of the City's refuse were sorted, it is very unlikely that the estimate resulting from sorting that single sample would match the composition of the City's entire curbside refuse. On the other hand, if hundreds of thousands of 200–pound samples were sorted – enough samples so that every ounce of the City refuse and recyclables were sorted – the resulting estimate would be very accurate indeed. In fact, it would be perfectly accurate. So, how many samples should be sorted?

Before we answer the question about the number of samples, we should understand the nature of the material that will be sorted. If the material being sorted (i.e., the refuse) were consistently and homogeneously discarded by households, it would be relatively easy to arrive at an estimate. It would take very few samples to develop an estimate if there were only two materials in the refuse stream and they were always found in the same proportion in every sample. Of course this is not the case. Refuse, and to a lesser degree, recyclables are extremely variable. The percentage of each type of waste material can vary considerably among samples. Even from the same household, the type of waste can vary depending on when the sample is collected. For example, during the autumn, one would expect to find large amounts of leaves, but in the winter there will be few leaves or none. On the other hand, food waste will be found throughout the year. Because of the potential for variability between samples, a different number of samples may be required to obtain an accurate estimate for different types of waste. Continuing the example, since food waste is likely to be found more consistently than leaves, fewer samples would be required to obtain an accurate estimate of the food waste percentage in the refuse stream.

Typically, an estimate of the composition of waste is presented as three numbers: (1) the Sample Mean; (2) the Confidence Level; and (2) the Confidence Interval. The Sample Mean is the average percentage of a given material found in the samples sorted. For example, after sorting thirty samples of refuse, we will have a list of thirty percentages of paper waste. If the average of the thirty percentages of paper is 35 percent, then the Sample Mean of paper is 35 percent.

The Confidence Level and the Confidence Interval are intertwined concepts. Together, they allow statements to be made about the entire population from the sample taken. The Sample Mean is, after all, simply the average value of the samples; it is unlikely that the percentage of a given type of waste for the entire population matches the Sample Mean exactly. The Confidence Level and the Confidence Interval provide a way to convey how much the Sample Mean tell us about the entire population.

The Confidence Level indicates the degree of certainty that the Confidence Interval contains the population's mean value. The higher the Confidence Level, the greater our certainty that the mean of the entire population is contained within the Confidence Interval. For example, if the Confidence Interval around the Sample Mean – 33 percent to 37 percent for paper – is based on a Confidence Level of 90 percent, we can be 90 percent confident that the population's percentage of paper waste is contained in that interval. The purpose of the Confidence Level is to provide an indication of the accuracy of the sampling results. In waste characterization studies, a 90 percent Confidence Level is a widely accepted standard.

The third number used in describing the composition of the refuse is the Confidence Interval. This is an expression of the uncertainty regarding the population Mean. For example, our Sample Mean of 35 percent for paper waste may have a Confidence Interval of ±7 percent, at a 90 percent Confidence Level. That is, based on our number of samples and results obtained, we would expect that 90 percent of the time, the amount of paper waste in the refuse of the entire population would be between 28 percent and 42 percent. Or, put another way, if we could

actually go out and determine the exact percentage of paper waste in our population, we are 90 percent certain that the value would be between 28 percent and 42 percent. If we wanted a more accurate estimate, we would have to sort more samples.

In recommending the number of samples of refuse and recyclables to sort, R. W. Beck considered not only the level of accuracy of the estimate, but the cost of providing this estimate and the variability of materials being sorted. As noted above, the variability of some material in the refuse is greater than other materials. Yard Waste is much more variable than food waste. Therefore, for a given number of samples, the estimate of some materials will be more accurate than the estimate for others. Sorting a few hundred samples of refuse may provide a Confidence Interval of ±8 percent for paper, but a ±30 percent for yard waste. To achieve a ±8 percent for yard waste would require significantly more samples and be prohibitively expensive.

In practical terms, "variability" simply means the variation we are likely to find between samples. If we sort through 10 samples and each sample has between 28 percent to 32 percent of a given waste type, we can be pretty certain that the percentage of this waste type for the population as a whole lies in this general range. But if we sort through these same 10 samples and find results of 1 percent, 80 percent, 20 percent, 65 percent, and so forth, you can see that we are much less certain about the percentage of this waste type in the entire population.

There is a point of diminishing returns for waste sampling. After that point, the cost of achieving small increases in accuracy is high. Below that point, significant increases in accuracy can be achieved with relatively little cost.

R. W. Beck is recommending that at least 200 samples of refuse be sorted in the PWCS. The tables in Attachment 1 show the Confidence Level and Confidence Intervals from seven recent studies for seven categories of materials. It should be emphasized that the seven studies were not identical. There were differences among the seven waste streams and the goals of each of the clients. However, the general pattern is clear: the more samples that were sorted, the greater the accuracy of the estimate.

Because recyclables are a smaller, more homogeneous stream of materials, R. W. Beck is recommending that at least 100 samples of recyclable paper and 100 samples of recyclable metal, glass, and plastic ("MGP") be sorted. The type of information shown in Table 1 for refuse is not available for recyclables because very few of R. W. Beck's clients have requested a recyclables sort. Our recommendation is based on our experience in sorting refuse and our knowledge of the difference between the refuse and recyclables.

Sample Selection

In selecting samples from the City's curbside refuse for the PWCS, R. W. Beck and the DSNY agreed to use two criteria. First, the samples selected from each of the City's five boroughs would reflect the contribution of that borough to the City's waste stream as a whole. Second, the DSNY and R. W. Beck agreed that refuse collected early in the week might be both quantitatively and qualitatively different from refuse collected late in the week. The first day of

collection in the week will include refuse generated during the weekend and any weekdays before the collection day. To test this, it was decided to make a distinction between early week ("EW") samples and late week ("LW") samples.

That is, for sections of the City that receive 3-day a week collection (i.e., Monday-Wednesday-Friday or Tuesday-Thursday-Saturday), the EW samples would be taken from the Monday and Tuesday routes and the LW samples would be taken from the Wednesday, Thursday, Friday, and Saturday routes. For sections of the City that receive 2-day a week collection (i.e., Monday-Wednesday, Tuesday-Thursday, or Wednesday-Saturday), the EW samples would be taken from the Monday,Tuesday and Wednesday routes and the LW samples would be taken from the Thursday, Friday, and Saturday routes.

To estimate the number of samples from each borough, the average amount of refuse collected from each borough each week in the City between July, 2004 and February, 2004 was used. These averages are shown in Table 1.

Table 1
Refuse Collected – July 2003 to February 2004

	Avg. Tons Collected (1)	% of Avg. Refuse Collected	Number of Samples
Bronx	9,032	16%	31
Brooklyn	18,100	31%	63
Manhattan	10,431	18%	37
Queens	16,021	28%	54
Staten Island	4,328	7%	15
Total	57,912	100%	200

(1) Source: DSNY

The Sampling Plan calls for the total number of samples from each borough to be those shown in Table 1.

To determine how many EW sample and how many LW samples would be acquired for the PSCS involved a three-step process. First, the average weekly tonnages collected for each day of the week in each borough was obtained from by the DSNY. Second, the percentage of waste from the first days of the week were determined.

For example, Manhattan has three-day a week refuse collection. The Manhattan routes are either Monday-Wednesday-Friday or Tuesday-Thursday-Saturday. Therefore, the first collection days in Manhattan are Monday and Tuesday. Based on data provided by the DSNY, it is estimated that 42 percent of Manhattan's refuse is collected on Monday and Tuesday (EW) and 58 percent is collected on the other four days of the week (LW).

On the other hand, Staten Island has two-day a week refuse collection and the first collection days on Staten Island are Monday, Tuesday, and Wednesday. DSNY data shows that EW collection represents 58 percent of the average collected per week and the LW collection represents 42 percent. Because both the Bronx and Brooklyn have a combination of 2-day a week and 3-day a week collection, the estimates had to be adjusted accordingly. The EW and LW percentages were then applied to the total number of samples from each borough, as shown in Table 1, to determine the number of EW and LW samples to be acquired for the PWCS. Table 2 shows the EW and LW percentages for each borough and the resulting number of EW and LW samples.

Table 2
Early Week and Late Week Percentages(1)

	EW Percent	LW Percent	EW Samples	LW Samples
Bronx	43%	55%	13	18
Brooklyn	41%	59%	26	37
Manhattan	42%	58%	16	21
Queens	57%	43%	31	23
Staten Island	58%	42%	9	6
Total			95	105

(1) Based on the average weekly tonnages from March 15 to April 11, 2004. Source: DSNY

To be sure that every pound of waste in the City has an equal opportunity to be sampled, R. W. Beck determined that only one sample per collection vehicle will be used.

To select the EW and LW samples from each borough, R. W. Beck obtained a list of the total number of routes on each day in each borough from the DSNY. From each list of routes, the appropriate number of samples was randomly selected. For example, to obtain the 21 LW routes for Manhattan, 21 routes were randomly selected from the 110 refuse collection routes on Friday in Manhattan. An identical process was used to determine the selected routes/samples for each borough.

Sample Collection

The samples will be acquired at one of two private transfers stations owned by Waste Management, Inc. ("WMI") and under contract with the DSNY to receive residential curbside refuse. The two transfer stations are WMI's Varick Road transfer station and Harlem River Yard transfer station. The DSNY has agreed to divert the trucks that have been selected for sampling to one of these two transfer stations. The drivers of these trucks as well as the scale-house operator at the transfer station will have been notified ahead of time that the truck is to be sampled.

When a selected truck arrives at the transfer station, an R. W. Beck Sample Manager will be notified. When the truck has tipped its load a front-end loader ("FEL") from the transfer station will take a randomly selected portion of the tipped load dump into two or three 96-gallon toters. The random selection of the portion of the tipped load to be sampled will be made by the Sample Manager before the FEL begins to grab the sample.

The FEL will dump the selected portion of the load into toters that have been positioned by the Sample Manager and Assistant in an area designated by WMI. Once the refuse has been dumped into the toters, the FEL will manage the remainder of the tipped load as it normally would.

The Sample Manager and assistant will then weigh each toter to be sure that the sample of refuse weighs 200 pounds to 250 pounds. In a test conducted on May 7, 2004, it was found that a single 96-gallon toter held approximately 150 pounds of refuse. Therefore, we estimate that, typically, two toters of refuse should contain one sample of waste. After the toters have been weighed, each toter will be marked with the date, Sample number, a Sample Code, the truck number. In addition, each sample will have a Sample Management Form which will be taped to the toters.

After the samples are weighed and labeled, they will be loaded on an R. W. Beck truck and transported to the Greenpoint Marine Transfer Station where they will be unloaded and positioned for sorting.

It is likely that some samples will contain bulky items that do not fit into 96-gallon toters. When this occurs, the bulky items will be manually set aside. The Sample Manager will weigh the item and record the weight and a description of the item on the Sample Management Form. This information will be included when the remainder of the sample is sorted and weighed at the sorting site.

Recyclables Sampling

It is anticipated that the sampling of recyclables will be similar to the sampling of refuse, but this protocol has not been fully developed at this time. A Recyclable Sampling Plan will be completed and submitted to the DSNY before any sorting of recyclables takes place.

Material Categories

Refuse Categories

The list of material categories to be used in the refuse sorting will be available on the first day of sorting.

Recyclables Categories

The list of material categories to be used in the recyclable sorting has not been completed at this time. It will be included with the Recyclables Sampling Plan before any sorting of recyclables takes place.

Field Procedures

Health and Safety Plan

R. W. Beck's current Health and Safety Plan ("HASP") is attached to this document as Attachment 2.

Sorting Procedures

Once the samples of refuse have been transported by the Sample Manager from private transfer stations to the Sorting Site (the Greenpoint Marine Transfer Station), the Site Supervisor will check in each of the samples, being sure that the Sample Management Forms and Sample labels are consistent.

After the Samples have been checked in, each Crew Chief and crew will begin sorting samples. The refuse will be sorted into 87 material categories. When all material has been sorted, the material falling through the ½" screen on the sorting table, called "fines", will be swept up and included as one of the material categories. All sorted materials will then be weighed. All weights will be recorded by the R. W. Beck Crew Chief. The tare weight of the containers will be put into the scale so that only the net weight of the sorted material is recorded. When the weighing of all material in the sample has been completed, the sorted refuse will be placed in a roll-off container and disposed.

The Crew Chief and crew will then begin sorting the next sample. Each crew is expected to sort and weigh an average of 10 samples per day. This average is based on our experience in previous waste characterization studies.

Staffing

The professional staff for the Refuse Sorting of the PWCS will include:

- Tom Jones – Project Manager: Mr. Jones has been with R. W. Beck for the past 16 years and is currently a Senior Director of the firm. His work has included waste characterization studies, solid waste facility financings, and planning/implementation work.
- Tanya Tarnecki – Site Supervisor: Ms. Tarnecki manages several waste management projects for Cascadia Consulting, including data collection and reporting waste characterization projects in King County, Washington, San Bernadino and Orange County, California.
- Brian Scott, E.I.T. – Sample Manager: Mr. Scott, a Project Engineer, applies his engineering knowledge to both mechanical and civil engineering-based projects, with

emphasis on solid waste projects. Mr. Scott has conducted environmental compliance assessments and technical reviews and received waste characterization training in R. W. Beck Georgia Waste Characterization Study.

- John Buri – Sample Manager: Mr. Buri's areas of specialty include rural economic and policy initiatives, human resource management and government information systems. He received waste characterization training in R. W. Beck Georgia Waste Characterization Study.
- Sean Perera, E.I.T. - Crew Chief: Mr. Perera, a Civil/Environmental Engineer, joined R. W. Beck's National Water/Waste Practice in 2000 as a Consulting Engineer. His primary responsibilities include solid waste system design, solid waste management planning, management and consulting services for procurement and construction activities. He has participated in several waste characterization studies as both a Crew Chief and Field Supervisor.
- Rory Tipton, E.I.T.– Crew Chief: Mr. Tipton has more than two years of civil engineering experience working as a project engineer on solid waste projects. He has been responsible for engineering design, documentation, cost estimating, and production coordination for projects of varying size and complexity. He received waste characterization training in R. W. Beck Georgia Waste Characterization Study.
- John Culbertson – Technical Advisor: Mr. Culbertson is a Project Manager in the Environmental Services Group with 11 years of experience in environmental and information management consulting. His specific areas of expertise include solid waste and recycling collection efficiency; waste composition and generation; and solid waste system financial and strategic analysis.
- Deborah McDonough, E.I.T. – Data Manager: Ms. McDonough, an Engineer with R. W. Beck since 2001, is responsible for conducting transmission analyses and specializes in designing software programs, data management applications, and interactive graphical tools for use in projects associated with solid waste composition studies, locational marginal pricing, transmission power flow studies, transmission constraint analysis, and rate analyses. She is also Project Manager of the Georgia State Waste Characterization Study.

The professional staff for the Recyclables Sorting of the PWCS will include:

- Tom Jones – Project Manager: (see above)
- Sean Perera – Site Supervisor (see above)
- Timothy Buwalda – Sample Manager: Mr. Buwalda is a Senior Engineer with more than 13 years of experience, specializing in waste reduction and materials recovery. His background includes comprehensive solid waste management and recycling experience in both municipal and private settings.
- Michael Giampetro, P.E. – Crew Chief: Mr. Giampetro, a Senior Engineer, has been responsible for on-site assignments for both domestic and international projects. His

experience includes workflow planning, material planning, finite element analysis ("FEA"), and combustion turbine performance testing. He received waste characterization training in R. W. Beck Georgia Waste Characterization Study.

- Whitney Rusert – Crew Chief: Ms. Rusert, an Analyst with R. W. Beck, has had recent training on crew chiefing techniques at the Georgia Waste Characterization Study. She has past work experience in specialty plastics. Ms. Rusert is also assisting in several solid waste projects which are currently underway.
- Jon Hoyle – Crew Chief: Mr. Hoyle, an Analyst/Project Manager, has an acute knowledge of accounting, finance, and operations as they pertain to the utility industry. Mr. Hoyle also has a background in information technology and is proficient in data management and manipulation, computer modeling, and information systems management.
- John Culbertson – Technical Advisor: (see above)
- Deborah McDonough – Data Manager: (see above)

Staff Training

The first day of each sorting period will be devoted to staff training. The training for the Refuse Sort will be conducted by John Culbertson, the Technical Advisor and Charlie Scott of Cascadia Consulting. The individuals in charge of training for the recyclables sort have not yet been determined.

Training will include an introduction to the Study, a discussion of health and safety policies and practices, and an explanation of sorting and weighing procedures. The first couple of samples to be sorted will be used as means of teaching material categories, proper sorting technique, and safe practices.

Equipment

The safety equipment for each sorter is described in the HASP. Other equipment being used include:

- Sample acquisition: 96-gallon toters, a battery-operated H&V scale, brooms, shovels, rakes, and trucks with lift gates;
- Sample sorting: A sorting table, bins for sorted materials, a battery-operated H&V scale, hand rakes and small brooms;
- Post-Sort Disposal and Recycling;
- Post-Sort Disposal of Refuse; and
- The DSNY has agreed to provide roll-off containers for disposing of the sorted refuse and to remove the containers when they are full.

Post-Sort Recycling

The DSNY has agreed to provide roll-off containers for disposing of the sorted recyclables and to remove the containers when they are full.

Data Recording and QA/QC

Three types of data developed during the PWCS. The first type will be the Sample Management Form. As each sample is acquired, as described in the Sampling Plan above, information on the borough of origin, route, and truck number, will be recorded on a Sample Management Form filled out by the Sample Manager. The Sample Management Form will include the following information:

- The date on which the sample was acquired;
- The name of the transfer station from which the sample was acquired;
- The name of the Sample Manager and assistant;
- The Sample Number, which is the number of the sample acquired on that day;
- The count of the toters (i.e., 1 of 3);
- The Sample Code, which shows the borough , district, section and route of the truck from which the sample was taken. For example, Manhattan 1, Sec. 12, Rt. 3 indicates that the truck route from which this sample was taken was in Manhattan District 1, Section 1, Route 3;
- The truck number, which will be provided by DSNY when they assign a truck to the selected route;
- The weight of each toter in the sample; and
- The weight and description of any bulky waste items that are part of the sample. These will not be transported to the Sorting Site.

A copy of the Sample Management Form will be affixed to the sample when it is transported from the private transfer station to the Sorting Site. It will remain with the documentation for that sample.

The second type of data will be the material weight data recorded by the Crew Chief when the sorting of each sample is completed. This form, called the Sample Sort Form, will include the net weight of each category of waste that has been sorted and, in the case of some materials, a count of the items in the category (e.g., shoes).

When the sample has been sorted the Crew Chief and the Site Supervisor will review the forms for completeness and accuracy and sign them. At the end of the day, the Crew Chiefs, Site Supervisor, and Project Manager will review all the forms again and note any unusual samples or circumstances that may have affected the data.

The forms will then be faxed to the Data Manager who will have the data entered into an Access database. The Data Manager will check the data for completeness and accuracy. Once this procedure has been completed, the Data Manager will confer with the Project Manager and if they are satisfied that the data for that day of sampling is complete, it will be posted on the project website where the DSNY Project Manager can view the data.

The third type of data will be the results of the moisture and contamination testing that will be conducted by the Woods End Laboratory ("Woods End"). This data will be sent directly from Woods End to the Project Manager and Data Manager. The Data Manager will enter it into the database as it is received. The QA/QC procedure for this data is still being worked out with Woods End. When the procedure is completely defined, a copy of the procedure will be provided to the DSNY Project Manager.

This procedure for recording and checking the data will be reviewed during the PWCS and, if R. W. Beck believes that changes will make the procedures more efficient, without compromising completeness and accuracy, or more accurate and complete, we will recommend these changes to the DSNY.

Appendix B
Refuse Truck Deliveries

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Saturday, May 15th

Date Refuse is Collected	Friday, May 14th
Transfer Station Delivery	Harlem River Yards
Delivery Date	Saturday, May 15th
Delivery Hours	12am to 6am
Borough of Origin	Manhattan
Number of Samples	21

Sample Number	Selected Routes	Truck Number
1	Manhattan 1, Sec. 13, Rt. 1	25CW 542
2	Manhattan 2, Sec. 22, Rt. 1	25CW 143
3	Manhattan 2, Sec. 22, Rt. 2	25CF 258
4	Manhattan 4, Sec. 43, Rt. 1	25CW 169
5	Manhattan 5, Sec. 51, Rt. 1	25CF 161
6	Manhattan 6, Sec. 62, Rt. 1	25CN 565
7	Manhattan 7, Sec. 72, Rt. 1	25CU 128
8	Manhattan 7, Sec. 72, Rt. 3	25CW 175
9	Manhattan 8, Sec. 82, Rt. 4	25CW 162
10	Manhattan 8, Sec. 83, Rt. 1	25CF 038
11	Manhattan 8, Sec. 83, Rt. 3	25CU 097
12	Manhattan 8, Sec. 84, Rt. 2	25CU 152
13	Manhattan 8, Sec. 85, Rt. 1	25CN 823
14	Manhattan 8, Sec. 85, Rt. 2	25CN 085
15	Manhattan 9, Sec. 93, Rt. 1	25CU 095
16	Manhattan 9, Sec. 93, Rt. 2	25CF 092
17	Manhattan 10, Sec. 101, Rt. 2	25CU 130
18	Manhattan 11, Sec. 111, Rt. 4	25CN 052
19	Manhattan 12, Sec. 122, Rt. 1	25CW 041
20	Manhattan 12, Sec. 123, Rt. 1	25CU 166
21	Manhattan 12, Sec. 124, Rt. 4	25CW 312

5/15/2004

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Monday, May 17th

Date Refuse is Collected	Saturday, May 15th
Transfer Station Delivery	Varick Street
Delivery Date	Monday, May 17th
Delivery Hours	12am to 6am
Borough of Origin	Brooklyn
Number of Samples	21

Sample Number	Selected Routes	Truck Number
1	Brooklyn 1, Sec. 11, Rt. 2	25CF-104
2	Brooklyn 1, Sec. 12, Rt. 3	25CW-193
3	Brooklyn 2, Sec. 22, Rt. 1	25CN-712
4	Brooklyn 3, Sec. 31, Rt. 3	25CF-174
5	Brooklyn 3, Sec. 31, Rt. 4	25CW-017
6	Brooklyn 3, Sec. 34, Rt. 1	25CN-649
7	Brooklyn 3, Sec. 35, Rt. 2	25CF-201
8	Brooklyn 4, Sec. 41, Rt. 2	25CN-509
9	Brooklyn 5, Sec. 51, Rt. 1	25CN-309
10	Brooklyn 5, Sec. 54, Rt. 5	25CF-270
11	Brooklyn 7, Sec. 72, Rt. 2	25CN-688
12	Brooklyn 9, Sec. 91, Rt. 1	25CW-074
13	Brooklyn 11, Sec. 111, Rt. 1	25CN-748
14	Brooklyn 11, Sec. 113, Rt. 3	25CU-011
15	Brooklyn 12, Sec. 121, Rt. 2	25CN-403
16	Brooklyn 12, Sec. 122, Rt. 4	25CN-466
17	Brooklyn 13, Sec. 132, Rt. 2	25CN-193
18	Brooklyn 17, Sec. 171, Rt. 2	25CU-107
19	Brooklyn 17, Sec. 172, Rt. 1	25CN-523
20	Brooklyn 18, Sec. 184, Rt. 3	25CW-108
21	Brooklyn 18, Sec. 186, Rt. 4	25CW-065

date prepared: May 16, 2004

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Wednesday, May 19th

Date Refuse is Collected	Tuesday, May 18th
Transfer Station Delivery	Varick Street
Delivery Date	Wednesday, May 19th
Delivery Hours	12am to 6am
Borough of Origin	Brooklyn
Number of Samples	5

Sample Number	Selected Routes	Truck Number
1	Brooklyn 1, Sec. 13, Rt. 5	25 CF 116
2	Brooklyn 6, Sec. 61, Rt. 1	25 CF 114
3	Brooklyn 10, Sec. 102, Rt. 1	25 CU 010
4	Brooklyn 17, Sec. 175, Rt. 2	25 CU 127
5	Brooklyn 18, Sec. 187, Rt. 3	25 CW 022

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Wednesday, May 19th

Date Refuse is Collected	Tuesday, May 18th
Transfer Station Delivery	Harlem River Yards
Delivery Date	Wednesday, May 19th
Delivery Hours	12am to 6am
Borough of Origin	Manhattan
Number of Samples	16

Sample Number	Selected Routes	Truck Number
1	Manhattan 2, Sec. 21, Rt. 2	25 CU 317
2	Manhattan 3, Sec. 33, Rt. 1	25 CW 167
3	Manhattan 3, Sec. 34 Rt. 1	25 CW 160
4	Manhattan 4, Sec. 41, Rt. 1	25 CN 485
5	Manhattan 7, Sec. 73, Rt. 2	25 CW 179
6	Manhattan 7, Sec. 73, Rt. 3	25 CF 135
7	Manhattan 7, Sec. 74, Rt. 1	25 CN 080
8	Manhattan 8, Sec. 81, Rt. 1	25 CN 814
9	Manhattan 8, Sec. 82, Rt. 3	25 CN 415
10	Manhattan 8, Sec. 84, Rt. 2	25 CN 519
11	Manhattan 9, Sec. 91, Rt. 1	25 CU 164
12	Manhattan 10, Sec. 101, Rt. 1	25 CW 098
13	Manhattan 11, Sec. 113, Rt. 2	25 CF 079
14	Manhattan 12, Sec. 121, Rt. 4	25 CU 211
15	Manhattan 12, Sec. 122, Rt. 2	25 CU 080
16	Manhattan 12, Sec. 124, Rt. 1	25 CF 281

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Tuesday, May 18th

Date Refuse is Collected	Tuesday, May 18th
Transfer Station Delivery	Harlem River Yard
Delivery Date	Tuesday, May 18th
Delivery Hours	10am to 6pm
Borough of Origin	Bronx
Number of Samples	13

Sample Number	Selected Routes	Truck Number
1	Bronx 2 Sec. 21, Rt. 1	25 CN 636
2	Bronx 4 Sec. 43, Rt. 2	25 CW 015
3	Bronx 4 Sec. 43, Rt. 3	25 CW 021
4	Bronx 5 Sec. 53, Rt. 2	25 CW 012
5	Bronx 6 Sec. 61, Rt. 3	25 CU 193
6	Bronx 9 Sec. 92, Rt. 1	25 CU 298
7	Bronx 9 Sec. 92, Rt. 2	25 CU 186
8	Bronx 9 Sec. 94, Rt. 3	25 CU 025
9	Bronx 10 Sec. 103, Rt. 1	25 CN 435
10	Bronx 11Sec. 112, Rt. 3	25 CU 291
11	Bronx 11Sec. 113, Rt. 2	25 CU 314
12	Bronx 11Sec. 113, Rt. 3	25 CW 322
13	Bronx 12Sec. 123, Rt. 2	25 CN 746

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Tuesday, May 18th

Date Refuse is Collected	Monday, May 17th
Transfer Station Delivery	Varick Street
Delivery Date	Tuesday, May 18th
Delivery Hours	12am to 6am
Borough of Origin	Brooklyn
Number of Samples	8

Sample Number	Selected Routes	Truck Number
1	Brooklyn 2, Sec. 21, Rt. 2	25 CW 087
2	Brooklyn 2, Sec. 22, Rt. 3	25 CW 128
3	Brooklyn 4, Sec. 41, Rt. 1	25 CN 439
4	Brooklyn 5, Sec. 52, Rt. 5	25 CN 773
5	Brooklyn 8, Sec. 81, Rt. 5	25 CN 714
6	Brooklyn 10, Sec. 104, Rt. 1	25 CU 053
7	Brooklyn 10, Sec. 104, Rt. 2	25 CU 048
8	Brooklyn 11 Sec. 115, Rt. 1	25 CW 215

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Thursday, May 20th

Date Refuse is Collected	Thursday, May 20th
Transfer Station Delivery	Harlem River Yards
Delivery Date	Thursday, May 20th
Delivery Hours	10am to 6pm
Borough of Origin	Bronx
Number of Samples	8

Sample Number	Selected Routes	Truck Number
1	Bronx 1, Sec. 12, Rt. 1	25 CW 025
2	Bronx 1, Sec. 12, Rt. 2	25 CN 725
3	Bronx 5, Sec. 51, Rt. 1	25 CW 023
4	Bronx 6, Sec. 61, Rt. 1	25 CW 006
5	Bronx 6, Sec. 61, Rt. 3	25 CU 193
6	Bronx 7, Sec. 72, Rt. 2	25 CW 325
7	Bronx 8, Sec. 83, Rt. 3	25 CN 742
8	Bronx 12, Sec. 125, Rt. 2	25 CW 139

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Friday, May 21st

Date Refuse is Collected	Thursday, May 20th
Transfer Station Delivery	Varick Street
Delivery Date	Friday, May 21st
Delivery Hours	12am to 6am
Borough of Origin	Brooklyn
Number of Samples	11

Sample Number	Selected Routes	Truck Number
1	Brooklyn 2, Sec. 23, Rt. 2	25 CW 069
2	Brooklyn 4, Sec. 42, Rt. 1	25 CN 592
3	Brooklyn 9, Sec. 91, Rt. 2	25 CU 055
4	Brooklyn 9, Sec. 92 Rt. 3	25 CW 057
5	Brooklyn 11, Sec. 111, Rt. 2	25 CU 264
6	Brooklyn 11, Sec. 113, Rt. 1	25 CN 763
7	Brooklyn 11, Sec. 116, Rt. 2	25 CN 759
8	Brooklyn 12, Sec. 122, Rt. 4	25 CN 533
9	Brooklyn 12, Sec. 123, Rt. 3	25 CU 260
10	Brooklyn 12, Sec. 124, Rt. 3	25 CW 001
11	Brooklyn 16, Sec. 162, Rt. 4	25 CW 053

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Thursday, May 20th

Date Refuse is Collected	Wednesday, May 19th
Transfer Station Delivery	Varick Street
Delivery Date	Thursday, May 20th
Delivery Hours	12am to 6am
Borough of Origin	Brooklyn
Number of Samples	13

Sample Number	Selected Routes	Truck Number
1	Brooklyn 14, Sec. 142, Rt. 3	25 CU 094
2	Brooklyn 14, Sec. 143, Rt. 3	25 CF 248
3	Brooklyn 14, Sec. 144, Rt. 1	25 CN 590
4	Brooklyn 15, Sec. 151 Rt. 2	25 CU 013
5	Brooklyn 15, Sec. 155, Rt. 1	25 CU 005
6	Brooklyn 17, Sec. 173, Rt. 1	25 CN 589
7	Brooklyn 17, Sec. 175, Rt. 1	25 CU 121
8	Brooklyn 18, Sec. 181, Rt. 2	25 CW 050
9	Brooklyn 18, Sec. 181, Rt. 3	25 CN 740
10	Brooklyn 18, Sec. 184, Rt. 1	25 CW 048
11	Brooklyn 18, Sec. 185, Rt. 1	25 CW 096
12	Brooklyn 18, Sec. 186, Rt. 3	25 CW 035
13	Brooklyn 18, Sec. 186, Rt. 4	25 CW 033

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Saturday, May 22nd

Date Refuse is Collected	Friday, May 21st
Transfer Station Delivery	Varick Street
Delivery Date	Saturday, May 22nd
Delivery Hours	12am to 6am
Borough of Origin	Staten Island
Number of Samples	7

Sample Number	Selected Routes	Truck Number
1	Staten Island 1, Sec. 12, Rt. 3	25 CW 131
2	Staten Island 1, Sec. 14, Rt. 2	25 CU 042
3	Staten Island 2, Sec. 23, Rt. 2	25 CN 056
4	Staten Island 2, Sec. 23, Rt. 3	25 CU 096
5	Staten Island 3, Sec. 33, Rt. 2	25 CF 093
6	Staten Island 3, Sec. 38, Rt. 1	25 CW 126
7	Staten Island 3, Sec. 38, Rt. 2	25 CW 142

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Saturday, May 22nd

Date Refuse is Collected	Friday, May 21st
Transfer Station Delivery	Harlem River Yards
Delivery Date	Saturday, May 22nd
Delivery Hours	12am to 6am
Borough of Origin	Queens
Number of Samples	15

Sample Number	Selected Routes	Truck Number
1	Queens 2 Sec. 22, Rt. 2	25 CU 208
2	Queens 6 Sec. 62, Rt. 3	25 CF 055
3	Queens 7 Sec. 72, Rt. 1	25 CW 527
4	Queens 8 Sec. 82, Rt. 5	25 CN 117
5	Queens 8 Sec. 84, Rt. 2	25 CU 133
6	Queens 10 Sec. 102, Rt. 1	25 CW 526
7	Queens 10 Sec. 103, Rt. 4	25 CW 563
8	Queens 12 Sec. 122, Rt. 3	25 CN 121
9	Queens 13 Sec. 132, Rt. 2	25 CU 209
10	Queens 13 Sec. 132, Rt. 4	25 CN 233
11	Queens 13 Sec. 136, Rt. 2	25 CW 517
12	Queens 13 Sec. 138, Rt. 3	25 CW 508
13	Queens 14 Sec. 141, Rt. 4	25 CN 124
14	Queens 14 Sec. 143, Rt. 2	25 CU 304
15	Queens 14 Sec. 143, Rt. 3	25 CU 303

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Friday, May 21st

Date Refuse is Collected	Friday, May 21st
Transfer Station Delivery	Harlem River Yards
Delivery Date	Friday, May 21st
Delivery Hours	10am to 6pm
Borough of Origin	Bronx
Number of Samples	10

Sample Number	Selected Routes	Truck Number
1	Bronx 1, Sec. 11, Rt. 2	25 CN 703
2	Bronx 1, Sec. 11, Rt. 3	25 CN 725
3	Bronx 3, Sec. 31, Rt. 4	25 CN 766
4	Bronx 5, Sec. 52, Rt. 1	25 CW 023
5	Bronx 6, Sec. 62, Rt. 2	25 CU 294
6	Bronx 6, Sec. 62, Rt. 3	25 CU 198
7	Bronx 8, Sec. 82, Rt. 1	25 CN 771
8	Bronx 8, Sec. 83, Rt. 3	25 CN 742
9	Bronx 10, Sec. 101, Rt. 1	25 CW 054
10	Bronx 10, Sec. 102, Rt. 2	25 CW 056

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Monday, May 24th

Date Refuse is Collected	Saturday, May 22nd
Transfer Station Delivery	Varick Street
Delivery Date	Monday, May 24
Delivery Hours	12am to 6am
Borough of Origin	Brooklyn
Number of Samples	7

Sample Number	Selected Routes	Truck Number
1	Brooklyn 1, Sec. 12, Rt. 3	25 CU 078
2	Brooklyn 1, Sec. 14, Rt. 2	25 CW 144
3	Brooklyn 1, Sec. 15, Rt. 4	25 CN 367
4	Brooklyn 4, Sec. 42, Rt. 4	25 NG 409
5	Brooklyn 4, Sec. 43, Rt. 3	25 CW 218
6	Brooklyn 5, Sec. 51, Rt. 1	25 CF 156
7	Brooklyn 5, Sec. 52, Rt. 4	25 CW 156

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Monday, May 24th

Date Refuse is Collected	Saturday, May 22nd
Transfer Station Delivery	Harlem River Yards
Delivery Date	Monday, May 24
Delivery Hours	12am to 6am
Borough of Origin	Queens
Number of Samples	11

Sample Number	Selected Routes	Truck Number
1	Queens 1, Sec. 14, Rt. 1	25 CF 010
2	Queens 2, Sec. 21, Rt. 2	25 CN 215
3	Queens 5, Sec. 55, Rt. 1	25 CF 027
4	Queens 10, Sec. 103, Rt. 1	25 CU 272
5	Queens 10, Sec. 103, Rt. 5	25 CW 563
6	Queens 11, Sec. 116, Rt. 2	25 CN 194
7	Queens 12, Sec. 124, Rt. 3	25 CW 554
8	Queens 12, Sec. 125, Rt. 4	25 CU 256
9	Queens 12, Sec. 126, Rt. 1	25 CN 137
10	Queens 13, Sec. 132, Rt. 1	25 CN 371
11	Queens 13, Sec. 136, Rt. 3	25 CW 508

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Tuesday, May 25th

Date Refuse is Collected	Monday, May 24th
Transfer Station Delivery	Harlem River Yards
Delivery Date	Tuesday, May 25th
Delivery Hours	12am to 6am
Borough of Origin	Queens
Number of Samples	22

Sample Number	Selected Routes	Truck Number
1	Queens 1 Sec. 11, Rt. 1	25 CN 585
2	Queens 1 Sec. 13, Rt. 3	25 RY 114
3	Queens 1 Sec. 13, Rt. 4	25 CN 243
4	Queens 2 Sec. 21, Rt. 3	25 CU 231
5	Queens 3 Sec. 31, Rt. 7	25 CN 318
6	Queens 4 Sec. 41, Rt. 2	25 CF 024
7	Queens 4 Sec. 41, Rt. 3	25 CN 326
8	Queens 7 Sec. 74, Rt. 2	25 CF 177
9	Queens 7 Sec. 76, Rt. 3	25 CW 527
10	Queens 8 Sec. 82, Rt. 6	25 CN 113
11	Queens 8 Sec. 83, Rt. 2	25 CU 212
12	Queens 8 Sec. 84, Rt. 4	25 CN 104
13	Queens 9 Sec. 92, Rt. 1	25 CF 059
14	Queens 9 Sec. 94, Rt. 2	25 CN 364
15	Queens 11 Sec. 113, Rt. 1	25 CU 221
16	Queens 11 Sec. 114, Rt. 2	25 CU 230
17	Queens 12 Sec. 122, Rt. 3	25 CN 216
18	Queens 12 Sec. 125, Rt. 3	25 CU 246
19	Queens 12 Sec. 127, Rt. 3	25 CN 146
20	Queens 13 Sec. 134, Rt. 2	25 CU 292
21	Queens 13 Sec. 135, Rt. 4	25 CW 517
22	Queens 13 Sec. 133, Rt. 5	25 CW 508

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Wednesday, May 26th

Date Refuse is Collected	Tuesday, May 25th
Transfer Station Delivery	Varick Street
Delivery Date	Wednesday, May 26th
Delivery Hours	12am to 6am
Borough of Origin	Staten Island
Number of Samples	10

Sample Number	Selected Routes	Truck Number
1	Staten Island 1, Sec. 11, Rt. 3	25 CN 718
2	Staten Island 1, Sec. 12, Rt. 5	25 CW 131
3	Staten Island 1, Sec. 13, Rt. 3	25 CF 001
4	Staten Island 1, Sec. 13, Rt. 4	25 CN 020
5	Staten Island 2, Sec. 22, Rt. 6	25 CN 038
6	Staten Island 2, Sec. 23, Rt. 4	25 CU 096
7	Staten Island 2, Sec. 24, Rt. 3	25 CU 033
8	Staten Island 3, Sec. 33, Rt. 3	25 CU 129
9	Staten Island 3, Sec. 35, Rt. 1	25 CU 027
10	Staten Island 3, Sec. 36, Rt. 1	25 CW 134

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Wednesday, May 26th

Date Refuse is Collected	Tuesday, May 25th
Transfer Station Delivery	Harlem River Yards
Delivery Date	Wednesday, May 26th
Delivery Hours	12am to 6am
Borough of Origin	Queens
Number of Samples	10

Sample Number	Selected Routes	Truck Number
1	Queens 7, Sec. 74, Rt. 1	25 CF 177
2	Queens 8, Sec. 82, Rt. 3	25 CU 113
3	Queens 8, Sec. 84, Rt. 1	25 CU 204
4	Queens 8, Sec. 84, Rt. 3	25 CU 168
5	Queens 10, Sec. 101, Rt. 1	25 CW 526
6	Queens 10, Sec. 103, Rt. 4	25 CW 563
7	Queens 10, Sec. 104, Rt. 4	25 CU 189
8	Queens 12, Sec. 125, Rt. 2	25 CN 174
9	Queens 13, Sec. 134, Rt. 1	25 CW 508
10	Queens 13, Sec. 136, Rt. 4	25 CW 547

Department of Sanitation of New York City
PRELIMINARY WASTE CHARACTERIZATION STUDY
Delivery Schedule: Thursday, May 26th

Date Refuse is Collected	Wednesday, May 26th
Transfer Station Delivery	Harlem River Yards
Delivery Date	Thursday, May 27th
Delivery Hours	12am to 6am
Borough of Origin	Manhattan
Number of Samples	1

Sample Number	**Selected Routes**	**Truck Number**
1	Manhattan 2, Sec. 22, Rt. 1	25 CW 124

Appendix C
Recycling Truck Deliveries

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

MGP ROUTES

Delivery Schedule Monday, June 7, 2004

Date MGP is Collected	Saturday, June 5, 2004
Vendor for Delivery	Hugo Neu Schnitzer, Long Island City
Delivery Date	Monday, June 7, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Manhattan
Number of Samples	8

SELECTED MGP ROUTES

Sample Number	Borough	District	Section	Route	Truck Number	
1	Manhattan	1	1	1	25 CW 170	
2	Manhattan	1	1	2	25 CU 149	
3	Manhattan	2	1	1	25 CN 549	
4	Manhattan	5	1	1	25 CN 527	
5	Manhattan	8	4	1	25 CF 041	
6	Manhattan	8	5	1	25 CN 821	
7	Manhattan	8	5	3	25 CN 422	
8	Manhattan	12	4	2	25 CF 035	see note 1 on following page

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

PAPER ROUTES

Delivery Schedule Monday, June 7, 2004

Date Paper is Collected	Saturday, June 5, 2004
Vendor for Delivery	Shepherd Avenue (Metropolitan Paper)
Delivery Date	Monday, June 7, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Manhattan
Number of Samples	12

SELECTED PAPER ROUTES

Sample Number	Borough	District	Section	Route	Truck Number	
1	Manhattan	1	1	2	LOST	see note 2 on following page
2	Manhattan	1	1	3	25 CU 067	
3	Manhattan	2	1	1	25 CW 122	
4	Manhattan	2	2	1	25 CW 582	
5	Manhattan	2	2	2	25 CU 117	
6	Manhattan	6	3	2	25 CN 804	
7	Manhattan	6	3	4	25 CN 687	
8	Manhattan	8	4	3	25 CN 053	see note 3 on following page
9	Manhattan	8	5	2	25 CF 267	
10	Manhattan	10	3	1	25 CU 100	
11	Manhattan	12	4	2	25 CW 312	
12	Manhattan	12	4	3	25 CN 046	

NOTES

1. The "Weekly Recycling Summary Sheet" originally listed 3 MGP routes in Manhattan Distric 12, Section 4.
On 6/5/04 BCC informed BWPRR that there were only 2 MGP Routes in that District/Section.
The sample truck for that District has been changed from Section 4, Route 3 to Section 4, Route 2.

2. Truck originally assigned (25 CN-066) accidentally dumped on shift.
There was no replacement truck available from Manhattan 1, Section 1.

3. Original truck assigned to this route 25 CN 102 broke down. Replaced by 25 CN 053, which will deliver a half load for sampling to Shepherd on May 7, 12AM-8AM shift.

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

MGP ROUTES

Delivery Schedule Monday, June 7, 2004

Date MGP is Collected	Saturday, June 5, 2004
Vendor for Delivery	Hugo Neu Schnitzer, Long Island City
Delivery Date	Monday, June 7, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Queens
Number of Samples	5

SELECTED MGP ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Queens West	2	2	1	25 CN 240
2	Queens West	2	3	1	25 CN 278
3	Queens West	3	1	1	25 CN 373
4	Queens West	4	1	1	25 CN 615
5	Queens West	4	3	1	25 CU 060

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

PAPER ROUTES

Delivery Schedule Monday, June 7, 2004

Date Paper is Collected	Saturday, June 5, 2004
Vendor for Delivery	Shepherd Avenue (Metropolitan Paper)
Delivery Date	Monday, June 7, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Queens
Number of Samples	1

SELECTED PAPER ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Queens West	2	2	2	25 CU 223

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

DUAL-BIN ROUTES

Delivery Schedule Monday, June 7, 2004

Date MGP/Paper is Collected	Saturday, June 5, 2004
Vendor for Delivery	Hugo Neu LIC, then Shepherd Avenue (Metropolitan Paper)
Delivery Date	Monday, June 7, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Queens
Number of Samples	4

SELECTED DUAL-BIN ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Queens West	5	3	1	25 CM 014
2	Queens East	7	1	1	25 CM 061
3	Queens East	10	3	1	25 CM065
4	Queens East	12	3	1	25 CM147

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

MGP ROUTES

Delivery Schedule Tuesday, June 8, 2004

Date MGP is Collected	Monday, June 7, 2004
Vendor for Delivery	Hugo Neu Schnitzer, Long Island City
Delivery Date	Tuesday, June 8, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Bronx
Number of Samples	8

SELECTED MGP ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Bronx	4	3	1	25 CU 018
2	Bronx	5	3	2	25 CF 134
3	Bronx	7	3	2	25 CF 203
4	Bronx	8	1	1	25 CU 017
5	Bronx	11	1	2	25 CN 454
6	Bronx	12	1	1	25 CN 329
7	Bronx	12	2	1	25 CN 435
8	Bronx	12	3	1	25 CN 449

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

PAPER ROUTES

Delivery Schedule Tuesday, June 8, 2004

Date Paper is Collected	Monday, June 7, 2004
Vendor for Delivery	Shepherd Avenue (Metropolitan Paper)
Delivery Date	Tuesday, June 8, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Bronx
Number of Samples	4

SELECTED PAPER ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Bronx	5	3	1	25 CU 306
2	Bronx	7	3	1	25 CN 255
3	Bronx	8	1	1	25 CU 079
4	Bronx	11	1	2	25 CF 235

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

MGP ROUTES

Delivery Schedule Tuesday, June 8, 2004

Date MGP is Collected	Monday, June 7, 2004
Vendor for Delivery	Hugo Neu Schnitzer, Long Island City
Delivery Date	Tuesday, June 8, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Queens
Number of Samples	0

SELECTED MGP ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
	NONE				

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

PAPER ROUTES

Delivery Schedule Tuesday, June 8, 2004

Date Paper is Collected	Monday, June 7, 2004
Vendor for Delivery	Shepherd Avenue (Metropolitan Paper)
Delivery Date	Tuesday, June 8, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Queens
Number of Samples	1

SELECTED PAPER ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Queens West	4	2	2	25 CW 164

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

DUAL-BIN ROUTES

Delivery Schedule Tuesday, June 8, 2004

Date MGP/Paper is Collected	Monday, June 7, 2004
Vendor for Delivery	Hugo Neu LIC, then Shepherd Avenue (Metropolitan Paper)
Delivery Date	Tuesday, June 8, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Queens
Number of Samples	12

SELECTED DUAL-BIN ROUTES

Sample Number	Borough	District	Section	Route	Truck Number

1	Queens West	1	3	1	25 CA 001
2	Queens West	5	4	1	25 CM 008
3	Queens East	7	5	1	25 CM 061
4	Queens East	7	8	1	25 CM 073
5	Queens East	8	1	1	25 CM 013
6	Queens East	8	2	1	25 CM 040
7	Queens West	9	3	1	25 CM 091
8	Queens West	9	4	1	25 CM 059
9	Queens East	10	2	1	25 CM 071
10	Queens East	11	1	1	25 BW 018
11	Queens East	13	6	1	25 CM 113
12	Queens East	14	1	2	25 CM 095

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

MGP ROUTES

Delivery Schedule Wednesday, June 9, 2004

Date MGP is Collected	Tuesday, June 8, 2004
Vendor for Delivery	Hugo Neu Schnitzer, Long Island City
Delivery Date	Wednesday, June 9, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Queens
Number of Samples	0

SELECTED MGP ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
	NONE				

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

PAPER ROUTES

Delivery Schedule Wednesday, June 9, 2004

Date Paper is Collected	Tuesday, June 8, 2004
Vendor for Delivery	Shepherd Avenue (Metropolitan Paper)
Delivery Date	Wednesday, June 9, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Queens
Number of Samples	2

SELECTED PAPER ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Queens West	3	3	1	25 CN 809
2	Queens West	4	2	1	25 CN 234

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

DUAL-BIN ROUTES

Delivery Schedule Wednesday, June 9, 2004

Date MGP/Paper is Collected	Tuesday, June 8, 2004
Vendor for Delivery	Hugo Neu LIC, then Shepherd Avenue (Metropolitan Paper)
Delivery Date	Wednesday, June 9, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Queens
Number of Samples	5

SELECTED DUAL-BIN ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Queens West	5	5	2	25 CM 008
2	Queens East	10	1	1	25 CM 071
3	Queens East	12	1	1	25 CM 157
4	Queens East	12	5	1	25 CM 136
5	Queens East	13	6	2	25 CM 132

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

MGP ROUTES

Delivery Schedule Wednesday, June 9, 2004

Date MGP is Collected	Tuesday, June 8, 2004
Vendor for Delivery	Hugo Neu Schnitzer, Long Island City
Delivery Date	Wednesday, June 9, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Brooklyn
Number of Samples	7

SELECTED MGP ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Brooklyn North	5	1	1	25 CW 202
2	Brooklyn North	5	2	1	25 CN 563
3	Brooklyn North	5	2	2	25 CN 535
4	Brooklyn South	6	5	1	25 CN 210
5	Brooklyn North	8	1	1	25 CN 412
6	Brooklyn South	13	1	1	25 CN 416
7	Brooklyn South	13	2	1	25 CN 434

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

PAPER ROUTES

Delivery Schedule Wednesday, June 9, 2004

Date Paper is Collected	Tuesday, June 8, 2004
Vendor for Delivery	Shepherd Avenue (Metropolitan Paper)
Delivery Date	Wednesday, June 9, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Brooklyn
Number of Samples	6

SELECTED PAPER ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Brooklyn North	1	1	1	25 CN 279
2	Brooklyn North	3	2	1	25 CF 247
3	Brooklyn South	7	1	3	25 CN 487
4	Brooklyn North	8	1	1	25 CN 453
5	Brooklyn North	8	1	3	25 CN 528
6	Brooklyn North	8	1	2*	25 CN 557

*note: changed from Route 4 to Route 2

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

DUAL-BIN ROUTES

Delivery Schedule Wednesday, June 9, 2004

Date MGP/Paper is Collected	Tuesday, June 8, 2004
Vendor for Delivery	Hugo Neu LIC, then Shepherd Avenue (Metropolitan Paper)
Delivery Date	Wednesday, June 9, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Brooklyn
Number of Samples	4

SELECTED DUAL-BIN ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Brooklyn South	10	1	1	25 CM 244
2	Brooklyn South	12	2	1	25 CM 055
3	Brooklyn South	15	2	1	25 CM 250
4	Brooklyn South	15	2	2	25 CM 269

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

MGP ROUTES

Delivery Schedule Thursday, June 10, 2004

Date MGP is Collected	Wednesday, June 9, 2004
Vendor for Delivery	Hugo Neu Schnitzer, Long Island City
Delivery Date	Thursday, June 10, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Queens
Number of Samples	4

SELECTED MGP ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Queens West	2	1	1	25 CW 560
2	Queens West	3	3	1	25 CN 632
3	Queens West	3	3	2	25 CF 015
4	Queens West	6	1	3	25 CN 602

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

PAPER ROUTES

Delivery Schedule Thursday, June 10, 2004

Date Paper is Collected	Wednesday, June 9, 2004
Vendor for Delivery	Shepherd Avenue (Metropolitan Paper)
Delivery Date	Thursday, June 10, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Queens
Number of Samples	2

SELECTED PAPER ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Queens West	2	2	1	25 CNG 410
2	Queens West	6	1	3	25 RY 109

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

DUAL-BIN ROUTES

Delivery Schedule Thursday, June 10, 2004

Date MGP/Paper is Collected	Wednesday, June 9, 2004
Vendor for Delivery	Hugo Neu LIC, then Shepherd Avenue (Metropolitan Paper)
Delivery Date	Thursday, June 10, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Queens
Number of Samples	4

SELECTED DUAL-BIN ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Queens West	1	3	1	25 CA 003
2	Queens West	9	3	1	25 CM 080
3	Queens East	11	1	1	25 CM 025
4	Queens East	11	4	1	25 CM 060

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

MGP ROUTES

Delivery Schedule Thursday, June 10, 2004

Date MGP is Collected	Wednesday, June 9, 2004
Vendor for Delivery	Hugo Neu Schnitzer, Long Island City
Delivery Date	Thursday, June 10, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Brooklyn
Number of Samples	4

SELECTED MGP ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Brooklyn North	3	1	1	25 CW 113
2	Brooklyn South	9	3	2	25 CU 268
3	Brooklyn South	13	1	1	25 CU 047
4	Brooklyn South	14	4	1	25 CU 105

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

PAPER ROUTES

Delivery Schedule Thursday, June 10, 2004

Date Paper is Collected	Wednesday, June 9, 2004
Vendor for Delivery	Shepherd Avenue (Metropolitan Paper)
Delivery Date	Thursday, June 10, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Brooklyn
Number of Samples	4

SELECTED PAPER ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Brooklyn North	1	2	1	25 CN 394
2	Brooklyn South	6	5	2	25 CN 616
3	Brooklyn South	13	1	1	25 CU 037
4	Brooklyn South	16	1	2	25 CW 059

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

DUAL-BIN ROUTES

Delivery Schedule Thursday, June 10, 2004

Date MGP/Paper is Collected	Wednesday, June 9, 2004
Vendor for Delivery	Hugo Neu LIC, then Shepherd Avenue (Metropolitan Paper)
Delivery Date	Thursday, June 10, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Brooklyn
Number of Samples	5

SELECTED DUAL-BIN ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Brooklyn South	11	3	1	25 CM 167
2	Brooklyn South	15	2	2	25 CM 238
3	Brooklyn South	17	3	1	25 CM 185
4	Brooklyn South	18	5	2	25 CM 012
5	Brooklyn South	18	7	1	25 CM 184

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

MGP ROUTES

Delivery Schedule Friday, June 11, 2004

Date MGP is Collected	Thursday, June 10, 2004
Vendor for Delivery	Hugo Neu Schnitzer, Long Island City
Delivery Date	Friday, June 11, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Manhattan
Number of Samples	10

SELECTED MGP ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Manhattan	4	3	2	25 CU 173
2	Manhattan	6	1	1	25 CU 167
3	Manhattan	6	2	1	25 CN 802
4	Manhattan	7	4	1	25 CN 508
5	Manhattan	7	4	3	25 CN 517
6	Manhattan	7	3	1	25 CN 488
7	Manhattan	8	2	1	25 CN 422
8	Manhattan	8	2	2	25 CN 075
9	Manhattan	10	1	1	25 CU 200
10	Manhattan	12	1	2	25 CU 080

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

PAPER ROUTES

Delivery Schedule Friday, June 11, 2004

Date Paper is Collected	Thursday, June 10, 2004
Vendor for Delivery	Shepherd Avenue (Metropolitan Paper)
Delivery Date	Friday, June 11, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Manhattan
Number of Samples	12

SELECTED PAPER ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Manhattan	2	3	1	25 CW 570
2	Manhattan	2	3	4	25 CU 117
3	Manhattan	3	4	1	25 CN 469
4	Manhattan	4	3	1	25 CN 012
5	Manhattan	6	1	1	25 CN 601
6	Manhattan	6	1	4	25 CN 808
7	Manhattan	6	2	1	25 CU 035
8	Manhattan	6	2	4	25 CU 145
9	Manhattan	7	3	1	25 CN 807
10	Manhattan	8	1	3	25 CF 041
11	Manhattan	8	2	3	25 CF 267
12	Manhattan	10	1	1	25 CU 100

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

MGP ROUTES

Delivery Schedule Friday, June 11, 2004

Date MGP is Collected	Thursday, June 10, 2004
Vendor for Delivery	Hugo Neu Schnitzer, Long Island City
Delivery Date	Friday, June 11, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Bronx
Number of Samples	6

SELECTED MGP ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Bronx	2	1	2	25 CN 746
2	Bronx	5	2	1	25 CU 321
3	Bronx	7	2	1	25 CN 409
4	Bronx	7	2	2	25 CN 424
5	Bronx	9	2	1	25 CF 077
6	Bronx	9	2	2	25 CU 266

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

PAPER ROUTES

Delivery Schedule Friday, June 11, 2004

Date Paper is Collected	Thursday, June 10, 2004
Vendor for Delivery	Shepherd Avenue (Metropolitan Paper)
Delivery Date	Friday, June 11, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Bronx
Number of Samples	4

SELECTED PAPER ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Bronx	8	2	1	26 CU 079
2	Bronx	8	3	1	25 CU 036
3	Bronx	11	3	1	25 CF 235
4	Bronx	12	4	2	25 CN 630

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

DUAL-BIN ROUTES

Delivery Schedule Friday, June 11, 2004

Date MGP/Paper is Collected	Thursday, June 10, 2004
Vendor for Delivery	Hugo Neu LIC, then Shepherd Avenue (Metropolitan Paper)
Delivery Date	Friday, June 11, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Bronx
Number of Samples	1

SELECTED DUAL-BIN ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Bronx	10	2	1	25 CM 156

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

MGP ROUTES

Delivery Schedule Saturday, June 12 2004

Date MGP is Collected	Friday, June 11, 2004
Vendor for Delivery	Hugo Neu Schnitzer, Long Island City
Delivery Date	Saturday, June 12 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Brooklyn
Number of Samples	8

SELECTED MGP ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Brooklyn North	2	3	1	25 CN 561
2	Brooklyn North	2	3	2	25 CN 494
3	Brooklyn South	7	3	1	25 CU 144
4	Brooklyn South	7	4	2	25 CN 324
5	Brooklyn South	9	1	1	25 CU 192
6	Brooklyn South	9	2	1	25 CU 282
7	Brooklyn South	9	2	2	25 CU 242
8	Brooklyn South	14	1	2	25 CN 308

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

PAPER ROUTES

Delivery Schedule Saturday, June 12 2004

Date Paper is Collected	Friday, June 11, 2004
Vendor for Delivery	Shepherd Avenue (Metropolitan Paper)
Delivery Date	Saturday, June 12 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Brooklyn
Number of Samples	6

SELECTED PAPER ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Brooklyn South	7	4	2	25 CN 487
2	Brooklyn North	8	3	1	25 CN 736
3	Brooklyn South	9	2	1	25 CU 258
4	Brooklyn South	13	2	2	25 CU 054
5	Brooklyn South	14	2	1	25 CN 379
6	Brooklyn South	16	2	1	25 CW 059

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

DUAL-BIN ROUTES

Delivery Schedule Saturday, June 12 2004

Date MGP/Paper is Collected	Friday, June 11, 2004
Vendor for Delivery	Hugo Neu LIC, then Shepherd Avenue (Metropolitan Paper)
Delivery Date	Saturday, June 12 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Brooklyn
Number of Samples	1

SELECTED DUAL-BIN ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Brooklyn South	12	1	1	25 CM 055

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

MGP ROUTES

Delivery Schedule Saturday, June 12, 2004

Date MGP is Collected	Friday, June 11, 2004
Vendor for Delivery	Hugo Neu Schnitzer, Long Island City
Delivery Date	Saturday, June 12, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Staten Island
Number of Samples	0

SELECTED MGP ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
	NONE				

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

PAPER ROUTES

Delivery Schedule Saturday, June 12, 2004

Date Paper is Collected	Friday, June 11, 2004
Vendor for Delivery	Shepherd Avenue (Metropolitan Paper)
Delivery Date	Saturday, June 12, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Staten Island
Number of Samples	0

SELECTED PAPER ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
	NONE				

New York City Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY

DUAL-BIN ROUTES

Delivery Schedule Saturday, June 12, 2004

Date MGP/Paper is Collected	Friday, June 11, 2004
Vendor for Delivery	Hugo Neu LIC, then Shepherd Avenue (Metropolitan Paper)
Delivery Date	Saturday, June 12, 2004
Delivery Hours	12AM to 8AM
Borough of Origin	Staten Island
Number of Samples	10

SELECTED DUAL-BIN ROUTES

Sample Number	Borough	District	Section	Route	Truck Number
1	Staten Island	1	3	1	25 CM 266
2	Staten Island	1	3	2	25 CM 254
3	Staten Island	1	4	1	25 CM 231
4	Staten Island*	1	4	3	25 CM 206
5	Staten Island	2	4	1	25 CM 276
6	Staten Island*	2	4	2	25 CM 262
7	Staten Island	3	4	2	25 CM 240
8	Staten Island	3	5	1	25 CM 246
9	Staten Island	3	5	2	25 CM 203
10	Staten Island	3	8	1	25 CM 219

SI District 1, Section 4, Route 3 and SI District 2, Section 4, Route 2
will dump paper at Shepherd Avenue but will dump MGP at its normal site (Jersey City)

Appendix D
Refuse Sample Management Form

Department of Sanitation of New York City
Preliminary Waste Characterization Study
Refuse Sampling - May 17 to May 28th

SAMPLE MANAGEMENT FORM

Date:	5/22/2004	
Hours:	1:15am	
Weather:	Dry	
Transfer Station:	Harlem River	
Sample Manger:	Brian Scott	
Assistant:	Dennis Brown	
Sample Number:	201	
Sample Code:	Q22-2	
Truck Number:	25CU-208	
Sample Weight		
Bin #1	111.9	
Bin #2	100.4	
Bin #3		
Bulk Items		**Description of Bulk Item**
Item #1 Weight	16.8	C&D wood
Item #2 Weight		
Item #3 Weight		
TOTAL SAMPLE WEIGHT	229.1	

Appendix E
Recycling Sample Management Form

Department of Sanitation of New York City
Preliminary Waste Characterization Study
Recycling Sampling - May 17 to May 28th

SAMPLE MANAGEMENT FORM

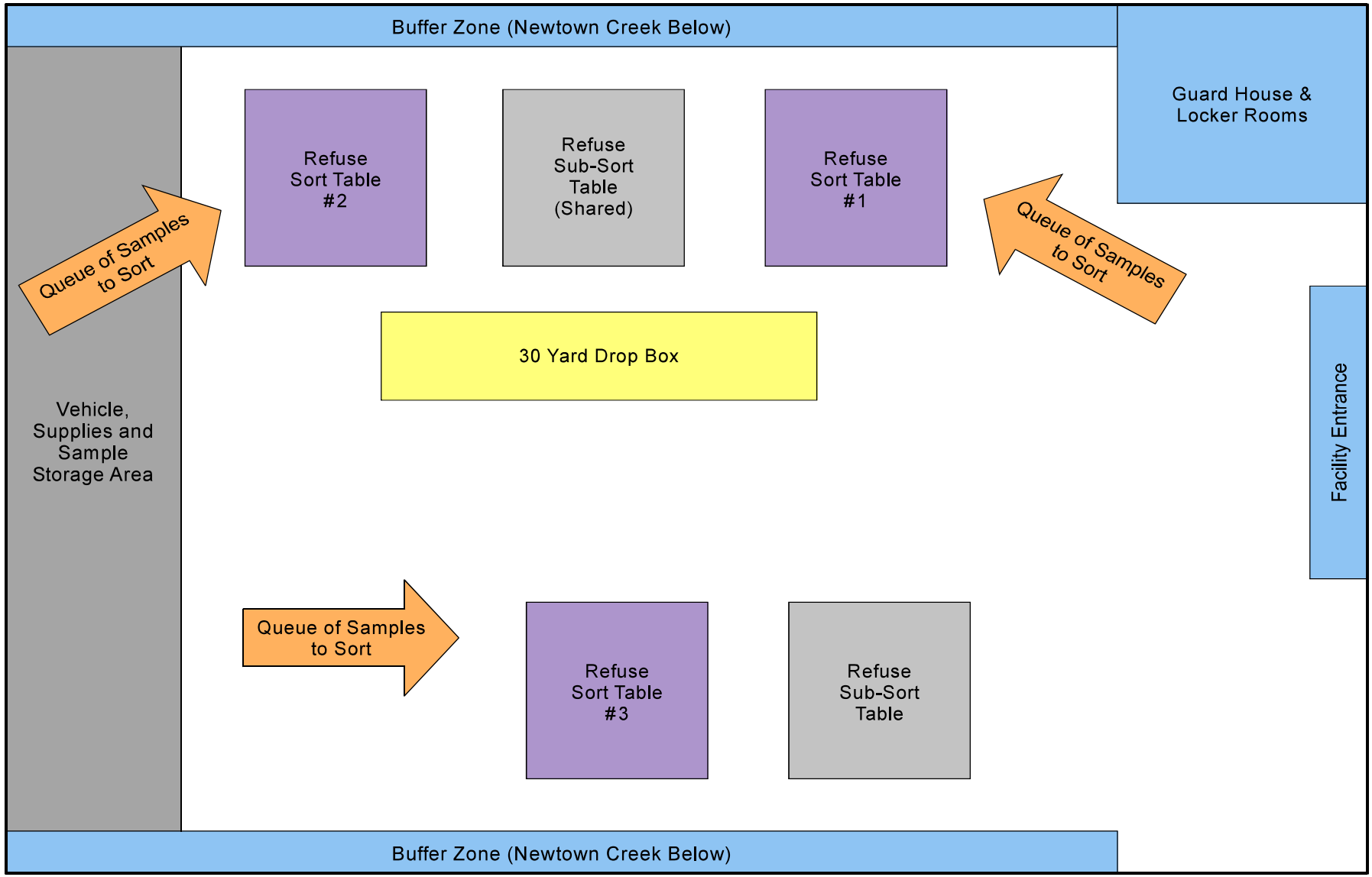
Date:	6/10/2004	
Hours:	2:15am	
Weather:	Clear, Warm	
Transfer Station:	Hugo Nell	
Sample Manger:	Craig Shepard	
Assistant:	Dennis	
Paper or MGP:	MGP	
Sample Number:	114	
Sample Code:	BK-15-2-2	
Truck Number:	25CM-238	
Sample Weight		
Bin #1	110.4	
Bin #2		
Bin #3		
Bulk Items		**Description of Bulk Item**
Item #1 Weight		
Item #2 Weight		
Item #3 Weight		
TOTAL SAMPLE WEIGHT	110.4	

Appendix F
Refuse Site Layout

Physical Layout

The activities that took place within the MTS included storage of equipment, parking Sampling trucks and other vehicles, storage of samples acquired at the transfer stations, sorting and weighing of samples, and placement of roll-off containers for disposal of sorted waste. The general site layout for the Refuse Sort is shown below.

Refuse Site Layout



Appendix G
Recycling Site Layout

Physical Layout

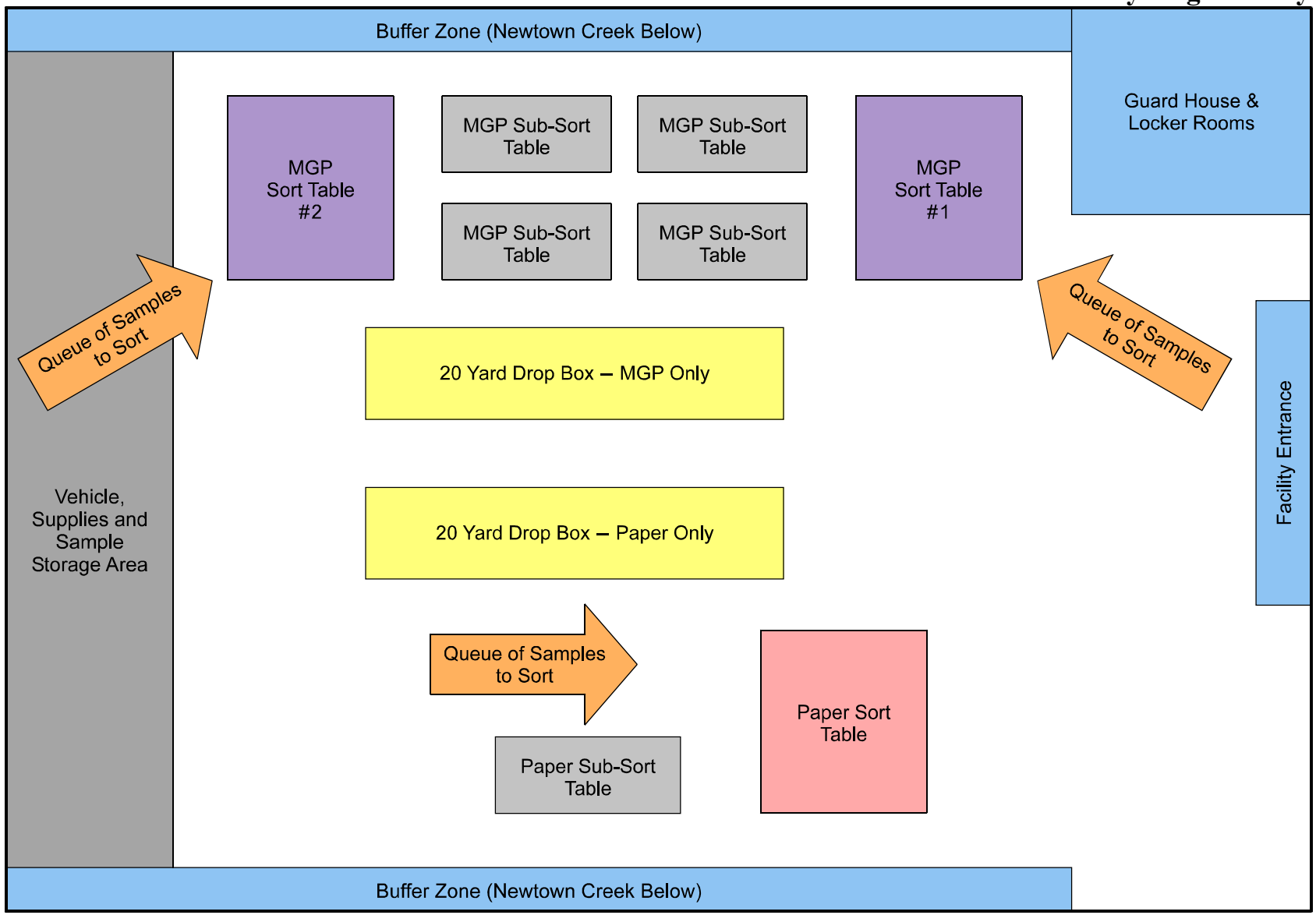
The activities that took place within the MTS included storage of equipment, parking Sampling trucks and other vehicles, storage of samples acquired at the transfer stations, sorting and weighing of samples, and placement of roll-off containers for disposal of sorted waste. The general site layout for the Recycling Sort is shown below.

There were several differences in the site layout at the Recyclables Sort compared to the Refuse Sort. Where the Refuse Sort required a single 30-yard roll-off to dispose of the sorted material, the Recyclable Sort required two 20-yard roll-offs, one of the sorted paper and one for the sorted MGP. The sorted material in these roll-offs was returned to the appropriate processing center – paper to Metropolitan Paper and MGP to Hugo Neu Schnitzer.

At the Refuse Sort, the three sorting stations were made up of a primary sort table, although there were two additional work tables that could be used for subsorting on an as-needed basis by any of the three crews. The Recyclables Sort required a more specialized sorting procedure on the basis of having to further stratify a large number recyclable containers by their deposit status and, in the case of plastic bottles, by their size. In order to manage the sorting and sub-sorting process for the MGP samples, it was necessary to provide two sub-sort tables for each of the two MGP primary sort tables.

Although the configuration of the primary sort tables and the sub-sort tables proved appropriate for the Paper and MGP sorting, incremental efficiencies evolved over the first few days of the sorting period. As the Field Supervisor, Technical Advisor, and Crew Chiefs became more familiar with the nature of the recyclables and the capabilities of the temporary workers, it was possible to optimize the materials requiring sub-sorting and to adjust the bins needed at the primary sort table accordingly.

Recycling Site Layout



Appendix H
R. W. Beck Health and Safety Plan

R.W. BECK, Inc.
Health and Safety Plan for Waste Composition Field Sorting

Date: April 29, 2004

Introduction

Corporate Safety Policy

R.W. Beck, Inc. believes that the health and safety of its employees is of paramount importance. The issue of health and safety is particularly important in conducting solid waste composition field sorting. The terms "waste sort," "waste composition study," "waste characterization study," and the like may be used interchangeably, and all relate to any project that requires the manual handling of municipal solid waste ("MSW") and subsequent sorting and weighing MSW to determine the percentage of different components in the MSW stream.

To address this issue, the following Health and Safety Plan ("HASP") has been developed to provide guidelines to Project Managers, Field Supervisors, Crew Chiefs, and other field workers ("Field Personnel") involved in R.W. Beck's waste characterization studies. This Plan has also been prepared for distribution to third parties, such as R. W. Beck's clients who are commissioning the waste composition study, solid waste management facility managers who may be hosting a waste composition study, and subconsultants retained by the firm to assist with the performance of any of the on-site activities of a waste composition study.

Objectives of the Plan

R.W. Beck's HASP for Waste Characterization Field Sorting has the following four objectives:

- To align R. W. Beck's health and safety efforts with policies and procedures that are already in place at the solid waste management facilities that host waste composition studies,
- To describe the roles and responsibilities of professional staff regarding health and safety,
- To describe the personal and site safety equipment that must be provided at all waste sorting sites,
- To provide field personnel with a description of the safety procedures to be followed in waste sorting,
- To describe the training and monitoring that R. W. Beck field personnel, subconsultants, and temporary workers must undergo before engaging in waste sorting activities.

Host Facility Health and Safety Coordination

Facilities at which R.W. Beck will sort waste may be owned and operated by third parties that have their own health and safety plans and procedures. It is important that, as guests at the facility, R.W. Beck's workers understand and adhere to the facility's health and safety plan. Adherence to the facility plan may include:

- Confining our waste sorting activities to the areas designated by the facility's owner/operator
- Wearing safety equipment required by the facility's owner/operator, and
- Understanding emergency plans and procedures.

It is important that the Field Supervisor or Project Manager work closely with the facility's owner/operator to integrate operations, including training staff regarding health and safety planning. Specific hold harmless of indemnification requirements by the Host Facility should be reviewed in accordance with the firm's Authorization Policy.

Staff Roles and Responsibilities

Every waste characterization study is unique in some way. Differences in the scope of work, size of the project, and sorting sites, for example, will require different configurations of staffing. However, for the purposes of this Health and Safety Plan, the responsibilities of four types of professionals are described here: (1) Safety Manager, (2) Project Manager, (3) Field Supervisor, and (4) Crew Chief. Some of these roles may overlap in practice. Their roles and responsibilities in the safety effort are described below.

Safety Manager

The Safety Manager is an R. W. Beck employee who is responsible for overseeing the health and safety policies and practices for all waste characterization projects across the firm. This responsibility includes seeing that the HASP is up-to-date, that an appropriate level of safety training for professional staff and temporary workers is maintained, that the most appropriate safety equipment is available to sorting crews, and that issues relating to the health and safety on waste characterization projects have been addressed. The Safety Manager is also responsible for communicating significant HASP changes or updates, newly acquired waste composition-related projects, and any health or safety-related events that occur while performing a waste composition study to R. W. Beck's Risk Management Department so that the firm can comprehensively and accurately monitor the success of the Plan.

Project Manager

The Project Manager of a waste characterization study has overall responsibility for the safety and health of all members of his Project Team. Although he/she will delegate some

of these responsibilities to the Field Supervisor and Crew Chief(s), the Project Manager remains the primary responsible party. The Project Manager must be an R. W. Beck employee.

The Project Manager is responsible for developing a project budget, schedule, and scope of work that provides the time and funds for conducting a safe waste sort. Proper safety equipment (see Section ___ - Safety Equipment) must be obtained and issued to workers, and the training of the professional staff and temporary workers must take place before any actual sorting begins. This training is discussed in more detail below. The Project Manager must instill in his/her Project Team an attitude of prudence and care in carrying out the sort.

The Project Manager is also responsible for coordinating with host facility management regarding risk management issues such as waivers, indemnification, and/or adding the host facility as an additional insured to Beck's insurance policy(s), if required.

The Project Manager is not required to participate in any phases of the on-site waste sorting. However, when less experienced Field Supervisors or Crew Chiefs may be involved, the Project Manager should use professional judgment in deciding whether to observe and/or participate on the initial day of field sorting to assure that health and safety practices are being followed, and to communicate to the client, host facility manager, or other parties in the event of any problems. The Project Manager is also responsible for performing periodic observations, as appropriate, to assure that HASP standards are met.

Field Supervisor

The Field Supervisor is generally the most experienced and knowledgeable member of the field sorting team. The Field Supervisor will be the primary contact with the sorting site owner/operator, coordinating sorting activities with other site activities, and supporting any incidents that may occur.

The Field Supervisor has overall responsibility for the sorting site, including the designation of the area where the sorting will take place. In addition to securing the sorting site (i.e. identifying and marking the boundaries of the sorting site), the Field Supervisor should ensure that the sort workers are protected from other equipment and activities on the site. Typically, the Field Supervisor will oversee the selection, delivery, and queuing of samples. The Field Supervisor has the authority to reject any samples and/or immediately terminate any staff who have not following appropriate health and safety practices.

Crew Chief

The Crew Chief is the individual most directly responsible for the health and safety of the individuals sorting waste. The Crew Chief does not have to be an R. W. Beck employee.

He/She should take a leading role in pre-sort training, be sure that sorting workers have proper personal protective equipment, and that safe sorting procedures are followed throughout the project. As the supervisor working most closely with sorters, the Crew Chief must be alert to unsafe practices (e.g. shoving a hand into the middle of a pile of waste) and warn workers about these practices when they occur. The Crew Chief may be the first person to see an accident and must take appropriate action immediately. The Crew Chief has the authority to immediately terminate sort employees not following appropriate health and safety practices.

Sorter

Sort laborers for waste composition studies may be acquired from multiple organizations, including temporary staffing companies, subconsultants, college or high school internship programs, prison labor programs, professional solid waste trade association membership, and volunteers from numerous other sources (including the client organization and from within R. W. Beck during waste sort training). Regardless of the labor source, sorters are responsible for observing the training provided at the outset of a sort, adhering to the proper health and safety practices throughout the sort, wearing the appropriate personal protective equipment while engaged in sorting, and following the directions provided by the Crew Chief and Field Supervisor at all times. Any sorter not following directions may be terminated immediately without cause.

All MSW site employees, regardless of their level of authority, have the responsibility to report unsafe conditions immediately to their supervisor or to the clients on-site representative.

Safety Equipment

Personal Protection Equipment ("PPE")

The selection of Personal Protective Equipment is based upon a thorough analysis of anticipated and actual hazards on the MSW site.

PPE is broken down into two classes: (1) PPE that must be worn at all times during any sorting of MSW, and (2) PPE that may be required in addition to the required PPE, depending on local host facility requirements and/or work conditions.

The following safety equipment may be provided for each member of the sorting crew (both professional staff and temporary workers), depending on the host facility requirements and comfort.

- Protective coveralls
- Protective eyewear
- Ear plugs
- Dust mask

- Hard hat
- Reflective vest
- Puncture-resistant gloves, and
- Back-support belts
- Would traffic vests be appropriate in some cases?

We require all workers to wear a sturdy work boot, although we do not supply these. A more detailed description of the personal safety equipment is presented in Appendix A. At a minimum, the following equipment must be worn at all times by all members of the sorting crew.

- Protective coveralls
- Protective eyewear
- Puncture-resistant gloves
- Boots

Other PPE may be required depending on the policy of the facility operator or the judgment of the Crew Chief and/or Field Supervisor.

Site Safety Equipment

In addition to the personal safety equipment provided to each worker, each sorting site will have the following equipment,

- A Industrial First Aid Kit;
- An Eye-Wash kit or five eye wash bottles per crew person;
- Moist towelettes;
- Traffic cones;
- Yellow caution tape;
- A fire extinguisher;
- A cell phone or facility-maintained two-way radio ;
- Insect Repellent;
- Ice chest with drinks;
- Tent, if appropriate, and
- Heaters, if necessary.
- Emergency notification information

A more detailed description of the site safety equipment is provided in Appendix B.

Field Sorting Safety Procedures

Site Layout

Waste sorting may take place at a variety of venues – landfills, transfer stations, or other facilities. Before any sorting takes place, an R.W. Beck supervisor must inspect the site for the following::

1. Sorting activities will be well away from other activities, such as equipment and vehicle operations, that might endanger or impede waste sorting work.

2. There is adequate room to carry out the sorting activities, including the receiving and queuing samples and the disposal and recycling of sorted waste. This includes safety precautions in the refuse trucks being used.

3. If the site is outside and extreme weather may be encountered, provisions should be made for a tent or other temporary shelter to be erected.

4. Arrangements for toilet facilities and a "break" area have been made, and;

5. Access to the site by a vehicle moving the sorting equipment and crew on and off the site is available. Or: Transportation of equipment and sort personnel to and from the site is available.

Once a suitable site has been located, the Project Manager or the Field Supervisor will schedule the sort at a time agreed to by the Client and the site owner/operator. When the schedule has been determined, arrangements will be made to deliver sorting and safety equipment to the site.

If the Sorting Site is close to operational activities at the facility, it should be marked with traffic cones or high visibility warning tape so that it is clear to all Field Personnel, subconsultants, temporary workers, and facility workers exactly what area is designated for the sorting activities. It must be made clear that all areas which are not designated for sorting activities are strictly off-limits. See Appendix C for a typical sorting site layout.

MSW Facility Safety Procedures

If the sorting site is located at a facility that disposes, transfers, or otherwise processes MSW, R.W. Beck's Project Manager or Field Supervisor should meet with the Site Owner/Operator to coordinate the safety procedures at the site with R.W. Beck's safety procedures. For example, the site may require the wearing of reflective vests and this must become a requirement for the sorting crew on this project. This meeting must take place before any sorting commences.

The Site Manager should outline the facility's health and safety plan and explain the facility's emergency procedures. The location of the nearest hospital, emergency services, and poison control offices should be obtained from the Site Owner/Operator.

R.W. Beck's Supervisor should provide the Site Owner/Operator with a copy of our Health and Safety Plan, explain our safety procedures, and provide documentation of safety training for the Field Personnel, subconsultants, and temporary workers on the waste sort. During this exchange of information, any potential conflicts in approach or procedures should be resolved and both parties should be clear regarding safety and health issues.

The Project Manager should be prepared to sign an indemnification form, and possibly to add the host landfill as an additional insured on R. W. Beck's general liability policy.

Communications

It is important that supervisory staff be able to communicate with each other at all times. If one of the professional staff must leave the site for some reason, he/she should make it clear where they are going, when they will return, and what steps should be taken in case of an emergency. If, for example, the Crew Chief must leave the site, the Field Supervisor should take over the Crew Chief's duties at the sorting table. Either the Field Supervisor or Crew Chief, or both, should have a working cell phone or a facility-managed two-way radio (a standard item in the Site Safety Equipment) in case of an emergency.

Site Control

The integrity of the sorting site must be maintained at all times. Where appropriate, the area boundaries should be marked. Workers should understand that they must remain within the sort site and that other are on the site are prohibited. Both the Field Supervisor and the Crew Chief are responsible to see that sorting activities and workers stay within the sorting area.

There should be no smoking, eating, or drinking during sorting activities. Food and non-alcoholic liquids must be consumed away from the sorting area. Drinks should be taken in single-use disposable cups or from the original single serve containers. Personal hygiene practices such a hand washing and removal of contaminated coveralls should be conducted prior to eating, drinking or smoking.

Ergonomics

Waste sorts often involve moving and lifting containers of waste that may weigh 100 lbs or more. To prevent back strain and pulled muscles, staff must be trained in proper lifting techniques as part of the pre-sort training. When heavy containers must be moved or lifted, the Crew Chief should assign an appropriate number of workers and material handling equipment to the job.

Environmental Conditions

Extreme Heat

The risk of heat stress can be significant in summer sorts where the temperature and humidity are high. In these conditions, Crew Chiefs should monitor workers for signs of fatigue and listlessness. Breaks in the work schedule, plenty of fluids, and clothing which allows sweat to evaporate can all help to alleviate the dangers of heat stress.

Extreme Cold

Winter sorts may take place at sites with very low temperatures and high winds. Protection from the cold should include proper clothing, walls on the tent to lessen the effects of wind, and electric or gas heaters (properly ventilated). Crew Chiefs should be alert for indications of cold-effects, such as shivering and fatigue.

Fatigue

Most projects have tight schedules and the uncertainties associated with the delivery of solid waste to a landfill or transfer station can interrupt this schedule. As a result, there is usually pressure to work as long and as quickly as possible. This, in turn, can lead to carelessness and worker fatigue. Regular breaks in sorting should be built into the schedule to provide for rest and recuperation. Typically these breaks include 15 minute breaks in the morning and afternoon and a 30-60 lunch break. If sorting goes beyond 8 hours, additional breaks should be scheduled. The judgment of the Crew Chief is critical. Workers showing signs of fatigue should be given an opportunity to rest, especially if they are becoming careless or tired.

Injury Prevention

Three of the most common sources of potential injury in waste sorting are:

- Careless handling of waste,
- Lifting heavy objects, including containers of materials, and
- Walking into areas where heavy equipment is operating.

Risks associated with handling mixed solid waste can include contact with hazardous materials, sharps, and other potentially dangerous objects. Controls against injury associated with those risks are:
(1) Wear proper safety equipment at all times and
(2) Know what you are picking up. Never reach into the middle of a pile of waste to pull out material. Always select only material or objects you can see. Hand rakes can be used to spread out a pile of waste; hands or arms should never be used. Using the puncture-resistant gloves provided to the crew, sorters can more safely remove needles, broken glass, and sharpened metal from a pile of waste, if the sorter sees what he/she is removing and handles it with care.

Unidentifiable Liquids, Powders, or Medical Waste

Unidentifiable liquids or powders should be treated as hazardous. If there is any question about any material or object, the sorter should immediately stop sorting and notify the Crew Chief. If, at any time, the Crew Chief believes that the sample being sorted includes institutional medical waste or a significant amount of hazardous materials, the crew should stop sorting. The Crew Chief and Field Supervisor should confer and determine if that sample should be discarded without further sorting. The sorting of institutional medical waste and commercial hazardous waste is not performed by R. W. Beck, and the responsibility for handling this material shall be solely with the host facility in the event such material is encountered. It is the responsibility of the Field Supervisor to alert the host facility management.

Lifting Controls

The Crew Chief direct lifting activities at all times. Specifically, the Crew Chief should be sure workers asked to move or lift heavy containers of waste have help available from other members of the crew. Items that cannot be lifted safely by multiple sort laborers shall not be manually weighed and shall be removed by other means. If back injuries or muscle pulls do occur, the Crew Chief should have the worker rest and decide if the injury is severe enough to warrant medical attention.

Both the Field Supervisor and the Crew Chief must see that the sorting area is clearly marked and that the sorting crew understands where the boundaries are. Moving through the area outside the sorting area should be done only with the permission and guidance of the Crew Chief.

Bloodborne Pathogens

Injuries involving cuts and puncture wounds can potentially offer an entry-point for bloodborne pathogens, such as those carrying Hepatitis and HIV. Every cut and puncture wound should be treated and the following steps should be taken by the Crew Chief or Field Supervisor:

- Using sterile gloves, immediately clean the wound with antiseptic and wrap in gauze;
- Place the needle or object causing the wound in a plastic bag;
- If, in the judgment of the Crew Chief and Field Supervisor, the wound caused by a hypodermic needle or a metal object, poses a health or safety risk to the worker, the worker will be taken to the nearest hospital or clinic for evaluation and treatment;
- Notify the Site owner/operator, the Employment Agency (if the patient is a temporary worker), and the Project Manager, who in turn should alert the Safety Manager; and the R.W. Beck Risk Manager.
- Document the incident on an accident report form and submit the completed form to the Safety Manager.

Similar steps should be taken if the worker has been exposed to potentially hazardous material and shows abnormal or unusual symptoms.

Accident Reporting & Investigation

As a part of the Site Training of the crew, the Field Supervisor should educate workers so they are familiar with the Emergency Contact Information Sheet (see Appendix D) and that it is clearly posted in the sorting area.

All accidents must be reported in writing by the Crew Chief or Field Supervisor, using the Accident Report Form shown in Appendix E. A copy of the completed form should provided to the Site Owner/Operator, the Employment Agency (if the patient is a temporary worker), the Project Manager, who in turn notifies the Safety Manager.

It is the responsibility of the Safety Manager to maintain a file of completed accident report forms and to see that the "lessons learned" for accidents are incorporated into the HASP. Root cause analysis should be the goal of all accident/incident investigations.

Health and Safety Training

All members of a crew responsible for sorting waste must undergo, at a minimum, the training outlined below.

Professional Staff Training

R.W. Beck's professional staff should, at a minimum, have 8 hours of pre-sort training and serve a 2-day apprenticeship before taking on the role of Crew Chief. The pre-sort training must include review and understanding of the HASP and viewing R.W. Beck's safety videos. Training related to other aspects of the sort, such as material identification can also be done during this 8-hour period. Professional staff should have a current tetanus booster.

A Crew Chief should work for at least one full week before being considered for the position of Field Supervisor.

Sorter Training

Before any waste sorting takes place, the Crew Chief and/or Field Supervisor must review relevant sections of the R.W. Beck HASP with temporary workers, be sure that all safety procedures are clear, and that all questions from the sorters have been answered. A Sorter Training Acknowledgment Form is presented in Appendix E.

Next, a "test sort" should be run at a very slow pace to be certain that all safety equipment is being worn properly and that sorters understand the safe and proper way to sort samples of waste.

At the beginning of each day of the sort, the Crew Chief should take a few minutes to check that all safety equipment is being worn and is in good shape. The Crew Chief should also remind the crew about safe sorting and go over the lessons learned from any accidents, or near accidents that have occurred.

Appendix A: Personal Protection Equipment

Personal Protection Equipment ("PPE") will be supplied to all workers sorting waste to protect them from the various hazards that might be encountered in carrying out their work. Some of the PPE is mandatory and must be worn at all times by all workers. Other PPE may be worn depending on the weather, site conditions, policy of the sorting site, and judgment of the Crew Chief and Field Supervisor.

The mandatory PPE include:

- Protective coveralls – Tyvek or cotton coveralls must be worn at all times to protect worker's clothing from accidental spills, offer an added layer of warmth in cold weather conditions, and provide added visibility to worker's on the site.

- Puncture-resistant gloves – Rubber, plastic, or leather gloves must be worn while sorting waste. They are designed to protect sorters from accidental cuts or punctures from needles, broken glass, and sharpened metal. A latex or cotton inner glove will also be provided.

    - Our preferred gloves are MAPA Stanzoil Heavy-Duty Neoprene Gloves
    - Also, recommended are Wells Lamont Puncture- and cut-resistant gloves and Wells Lamont Drivers gloves.
- Protective Eyewear – to provide splash/spatter protection for the sorters
    - Our preferred eyewear protection is the Uvex Astro 3001 for "over the glasses" style for sorters who need to wear their own glasses and Crews Klondike for others.

- Sturdy work boots in good repair

PPE which may be worn, at the discretion of the Crew Chief or Field Supervisor include:

- Back-support belts
- Dust Masks – a dust mask should provide protection from dust and MSW particulates.

    - Our preferred dust mask is the 3M 3-panel disposable Respirator
    - Also recommended are the AOSafety "Pleats Plus" and the Wils0n Saf-T-FIT N95 Respirators.
- Ear plugs
- Hard hat
- Reflective vest
- Steel-toed boots

All pieces of equipment listed above will be available to all crew members at any time.

Appendix B: Site Safety Equipment

Site Safety Equipment ("SSE") will be available at all times on the sorting site to protect workers from hazards and provide emergency first aid. The standard SSE includes:

- A Industrial First Aid Kit – an OSHA-rated 25-person first aid kit or better
- An Eye-Wash kit or five eye wash bottles per crew.
- Moist towelettes
- Traffic cones – four cones to help demarcate the sorting area
- Yellow caution tape – to mark the sorting area.
- A fire extinguisher – a multi-purpose extinguisher that can be used on ordinary combustibles, flammable liquids, and electrically energized fires.
- A cell phone or facility-managed two-way radio
- Insect Repellent
- Ice chest with drinks

If site conditions and weather warrant, a tent will be provided to protect against sun, rain, and wind. Side flaps may also be installed if the weather is cold and/or windy. For very cold conditions, a gas or electric heater may be used. If a gas heater is used, adequate ventilation must be arranged.

Appendix C: Accident Report Forms

Sort Dates:

Sort Site Information
Location:
Office Telephone:
General Manager:
Site Manager:

Field Supervisor:

Crew Chief(s):

Description of Accident:

- **Date**
- **Name of Injured Person**

Actions Taken:

Reported by: _____
Date: _____

Appendix D: Emergency Contact Form

Sort Dates:

Sort Site Information
Location:
Office Telephone:
General Manager:
Site Manager:

Field Supervisor:

Crew Chief(s):

Local Hospital
Name:
Address:
Telephone:
Directions from Sort Site:

Emergency Medical Services
Name:
Address:
Telephone:
Directions from Sort Site:

Police
Name:
Address:
Telephone:
Directions from Sort Site

Fire
Name:
Address:
Telephone:

Directions from Sort Site

Poison Control Center
Telephone:

R.W. Beck Office
R.W. Beck, Inc
Suite 300
800 N. Magnolia Ave.
PO Box 538814
Orlando, FL 32803
(407) 422-4911
Contact: Debbie McDonough, John Culbertson
Safety Manager:

Appendix E: Sorter Training Acknowledgment Form

A critical element of training personnel to sort refuse is health and safety training. Before any work can begin, all sorting personnel are trained in safe procedures for handling and sorting waste. This training includes the following topics.

- Purpose of the waste sort
- Site layout – Landfill hazards
- Introduction to professional staff roles and responsibilities
- Sorters responsibilities
    - Punctuality
    - Rest
    - No drugs or alcohol
    - No smoking
    - Prescribed medications
- Sort Safety Procedures
    - Waste handling
    - Use of Personal Protective Equipment
    - Site Safety Equipment
    - Designated work and break areas
- Ergonomics
    - Safe lifting to avoid back stress
- Environmental Conditions
    - Heat Stress
    - Cold
    - Fatigue
- Injury Prevention
- Hazardous Wastes
- Bloodborne Pathogens
- Emergency Procedures
- Accident Reporting
- Training Sort

Acknowledgement
I acknowledge that the professional staff from R.W. Beck has discussed and explained the topics listed above, addressed any question I have about these topics, and conducted a training sort to demonstrate the safe handling and sorting of waste.

Signed _____ Date _____

Appendix I
Refuse Materials Categories List

NYC Waste Characterization Study
FINAL REFUSE MATERIAL SORT CATEGORIES
Tuesday, May 11, 2004

Group		Category	Description	Subsort(s)	Include Count	Moisture/ Contamination Test
Paper	1	NEWSPAPER	Printed ground wood newsprint (Advertising "slicks" (glossy paper), if found mixed with newspaper; otherwise, ad slicks are included with mixed low grade.).			✓
	2	PLAIN OCC/KRAFT PAPER	Old unwaxed/uncoated corrugated container boxes, and Kraft paper other than paper bags			✓
	3	HIGH GRADE PAPER	White and lightly colored bond, rag, or stationary grade paper. This includes white or lightly colored sulfite/sulfate bond, copy papers, notebook paper, envelopes, Continuous-feed sulfite/sulfate computer printouts and forms of all types, excluding carbonless copy paper			✓
	4	MIXED LOW GRADE PAPER	Includes junk mail, magazines, colored papers, bleached Kraft other than bags, boxboard, mailing tubes, carbonless copy paper, ground wood computer printouts			✓
	5	PHONE BOOKS	telephone directories			✓
	6	PAPERBACKS	paperback books			✓
	7	PAPER BAGS	white, brown or other colored paper bags			✓
	8	POLYCOATED PAPER CONTAINERS	Beverage containers made of bleached and unbleached paperboard coated with HDPE film. This includes polycoated milk and juice containers, and aseptic juice containers, including those with plastic spouts attached. Excludes juice concentrate cans, ice cream containers, and frozen food packaging.			✓
	9	COMPOSTABLE/SOILED PAPER/WAXED OCC/KRAFT	waxed papers and cardboards other papers that were soiled with food during use (e.g., pizza box inserts); paper towels, wipes and napkins. Excludes paper plates, platters, cups, and bowls.			✓
	10	SINGLE USE PLATES, CUPS	paper plates, platters, cups and bowls			✓
	11	OTHER NONRECYCLABLE PAPER	polycoated frozen food and ice cream containers/packaing and other polycoated papers (excluding cups, plates, bowls and platters; milk/juice cartons, and aseptic packaging); paper with other materials attached (e.g. orange juice cans and spiral notebooks), and other non-recyclable papers such as carbon copy paper, hardcover books, and photographs.			✓
Plastic	12	PET BOTTLES	#1 Polyethylene terephthalate translucent bottles and jars.	Deposit, Nondeposit	of deposit only	✓
	13	HDPE NATURAL BOTTLES	High-density translucent polyethylene (#2) milk, juice, beverage, oil, vinegar, distilled water bottles with necks and jars			✓
	14	HDPE COLORED BOTTLES	High-density colored polyethylene (#2) bottles. Liquid detergent bottles, some hair care bottles with necks and jars			✓
	15	#1-#2 TUBS/TRAYS	Wide mouth tubs and trays without a neck, such as yogurt, cottage cheese, and margarine.	#1 PET #2 HDPE		
	16	#3-#7 CONTAINERS	#3, #4, #5 and #7 bottles and tubs	#3 PVC #4 LDPE #5 PP #7 Other		
	17	OTHER PVC	plumbing pipe, identifiable PVC packaging other than PVC bottles/tubs			
	18	RIGID POLYSTYRENE CONTAINERS AND PACKAGING	#6 clear trays, salad containers/trays, clamshells, cookie tray inserts, dairy tubs, CD Boxes			✓
	19	EXPANDED POLYSTYRENE CONTAINERS AND PACKAGING.	Includes packaging and finished products made of expanded polystyrene. Excludes styrofoam plates, cupts, bowls and platters.			✓
	20	OTHER RIGID CONTAINERS/PACKAGING	packaging that is not identifable as #1-6, including containers of all types, clamshells, toothpaste tubes, and plastic spools.			✓
	21	PLASTIC BAGS	plastic bags, including labeled grocery and merchandise, dry cleaner, and newspaper polyethylene film bags. Does not include garbage bags, baggies or ziploc bags; or bags heavily soiled with food.			✓
	22	OTHER FILM:	Film packaging not defined above, or: was contaminated with food, liquid or grit during use; is woven together (e.g., grain bags); contains multiple layers of film or other materials that have been fused together (e.g., potato chip bags); garbage bags, baggies or ziploc bags, plastic wraps.			
	23	PLASTIC CRATES AND SODA BOTTLE CARRIERS				
	24	SINGLE-USE PLATES, CUPS, CUTLERY	plastic spoons, forks, knives, plates, cups, bowls, and platters of various resins, including styrofoam.			✓
	25	SINGLE USE CAMERAS	disposable cameras		✓	
	26	DISPOSABLE RAZORS	self explanatory		✓	

NYC Waste Characterization Study
FINAL REFUSE MATERIAL SORT CATEGORIES
Tuesday, May 11, 2004

Group		Category	Description	Subsort(s)	Include Count	Moisture/ Contamination Test
	27	OTHER PLASTICS MATERIALS:	items that are predominately plastic with other materials attached pens, lighters, toys, and 3-ring binders. Finished plastic products made entirely of plastic such as toys, toothbrushes, vinyl hose -- not including plastic crates and soda bottle carriers.			
Glass	28	CLEAR CONTAINER GLASS	Manually sortable glass that is greater than 3" x 3"; Classify containers as "deposit" only if intact or with neck missing; not if in pieces.	Deposit Non-deposit	of deposit only	
	29	GREEN CONTAINER GLASS	Manually sortable glass that is greater than 3" x 3" Classify containers as "deposit" only if intact or with neck missing; not if in pieces.	Deposit Non-deposit	of deposit only	
	30	BROWN CONTAINER GLASS	Manually sortable glass that is greater than 3" x 3" Classify containers as "deposit" only if intact or with neck missing; not if in pieces.	Deposit Non-deposit	of deposit only	
	31	MIXED CULLET	clear, green or brown glass not manually sortable (under 3" x 3"); glass shards			
	32	OTHER GLASS	window glass, mirrors, light bulbs (except fluorescent tubes), glassware, and blue/red/yellow glass bottles.			
Metal	33	ALUMINUM CANS	Aluminum beverage cans (UBC) and bi-metal cans made mostly of aluminum.	Deposit Non-deposit	of deposit only	✓
	34	ALUMINUM FOIL/CONTAINERS	Aluminum food containers, trays, and foil.			✓
	35	OTHER ALUMINUM	Aluminum products and scrap that are 50% or more aluminum, such as window frames, cookware.			
	36	OTHER NONFERROUS	Non-aluminum metals not derived from iron, to which a magnet will not adhere, and which are not significantly contaminated with other metals or materials.			
	37	TIN FOOD CANS	Tinned steel food containers, including bi-metal cans mostly of steel.			✓
	38	EMPTY AEROSOL CANS	Empty, mixed material/metal aerosol cans. (Aerosols that still contain product are sorted according to that material-for instance, solvent-based paint.)			
	39	OTHER FERROUS	Ferrous and alloyed ferrous scrap metals to which a magnet adheres and which are not significantly contaminated with other metals or materials.			
	40	MIXED METALS	Items that are predominately metal with other materials attached such as motors, insulated wire, and finished products containing a mixture of metals, or metals and other materials, that are not classified in the "small appliances" section below. Includes pieces of white goods.			
Organic	41	LEAVES AND GRASS	Non-woody plant materials from a yard or garden area, including grass clippings, leaves, weeds, and garden wastes.			
	42	PRUNINGS	Cut prunings, 6" or less in diameter, from bushes, shrubs, and trees.			
	43	STUMPS/LIMBS	Compostable prunings or stumps 6" or greater in diameter.			
	44	FOOD:	Food wastes and scraps, including bone, rinds, etc. Excludes the weight of food containers, except when container weight is not appreciable compared to the food inside.			
	45	NON-C&D UNTREATED WOOD	Untreated wood products not associated with C&D activities, such as some furniture, popsicle sticks, chopsticks, wooden spoons, and other miscellaneous household wood products			
	46	NONCLOTHING TEXTILES	non-clothing fabrics made of rag stock fabric materials including natural and synthetic textiles such as cotton, wool, silk, woven nylon, rayon, and polyester. Includes handbags, linens, draperies, tablecloths, nylon rope.			✓
	47	CLOTHING TEXTILES	clothing textiles, not including shoes			✓
	48	CARPET/UPHOLSTERY	General category of flooring applications and non-rag stock textiles consisting of various natural or synthetic fibers bonded to some type of backing material.			
	49	DISPOSABLE DIAPERS & SANITARY PRODUCTS	Diapers and sanitary products made from a combination of fibers, synthetic, and/or natural, and made for the purpose of single use. This includes disposable baby diapers, adult protective undergarments, and feminine hygiene products.			
	50	ANIMAL BY-PRODUCTS	Animal carcasses not resulting from food storage or preparation, animal wastes, and kitty litter.			
	51	RUBBER PRODUCTS	Finished products and scrap materials made of natural and synthetic rubber, such as bath mats, inner tubes, rubber hoses, foam rubber, tire pieces, latex gloves. Does not include shoes and boots that are predominantly rubber.			
	52	SHOES	Shoes, sneakers or boots.	Rubber Leather Other	✓	
	53	OTHER LEATHER PRODUCTS	Leather jackets, belts, bags, purses, and other non-shoe leather products.			
	54	FINES	fines smaller than 1/2 inch screen			
	55	MISCELLANEOUS ORGANICS	Wax, bar soap, cigarette butts, briquettes, and fireplace, burn barrel and fire pit ash, vacuum cleaner bags and contents, and other organic materials not classified above.			
Appliances and Electronics	56	SMALL APPLIANCES	Small electric appliances such as toasters, microwave ovens, power tools, curling irons, and light fixtures.			
	57	AUDIO/VISUAL EQUIPMENT	Stereos, radios, tape decks, VCRs, and cell phones.	cell phones	✓	
	58	COMPUTER MONITORS	Items other than televisions containing a cathode ray tube (CRT) such as computer monitors and laptops.			
	59	TELEVISIONS	Television sets containing a cathode ray tube (CRT).			
	60	OTHER COMPUTER EQUIPMENT	Computer items not containing CRTs such as processors, mice and mouse pads, keyboards, and disk drives, and cell phones, calculators			
Construction Debris	61	UNTREATED DIMENSION LUMBER, PALLETS, CRATES	Untreated, milled lumber commonly used in construction for framing and related uses, including 2 x 4's, 2 x 6's.			
	62	TREATED/CONTAMINATED WOOD	Lumber and wood products that have been painted or treated so as to render them difficult to compost (with generally 50% or more of the surface area treated). This includes painted and chemically treated lumber, plywood, strandboard, and particleboard. Predominantly wood and lumber products that are mixed with other materials in such a way that they cannot easily be separated.			
	63	GYPSUM SCRAP	Calcium sulfate dehydrate sandwiched between heavy layers of Kraft-type paper. Also known as drywall.			

NYC Waste Characterization Study
FINAL REFUSE MATERIAL SORT CATEGORIES
Tuesday, May 11, 2004

Group	Category		Description	Subsort(s)	Include Count	Moisture/ Contamination Test
	64	FIBERGLASS INSULATION	Fiberglass building and mechanical insulation, batt or rigid.			
	65	ROCK/CONCRETE/BRICKS	Rock gravel larger than 2" diameter, Portland cement mixtures (set or unset), and fired-clay bricks.			
	66	ASPHALTIC ROOFING	Asphalt shingles and tarpaper of built-up roofing.			
	67	OTHER CONSTRUCTION DEBRIS	Construction debris (other than wood) that cannot be classified elsewhere, and mixed fine building material scraps. For example, floor sweepings from construction activities containing sawdust, nails, wire, etc.			
Miscellaneous	68	MISCELLANEOUS INORGANICS	Other inorganic materials not classified elsewhere.			
	69	CERAMICS	Whole or fragmented ceramic or porcelain products larger than 1/2 inch screen			
Household Hazardous Wastes		See Second Tab				

Total **24**

NYC Waste Characterization Study
FINAL REFUSE MATERIAL SORT CATEGORIES--HHW SUBSORTS

HHW Bin Number	Bin Description	Count	Category	Description	Include Count
HHW-1	Automotive-related Products	70	OIL FILTERS	Metal oil filters used in cars and other automobiles.	
		71	ANTIFREEZE	self explanatory	
		72	WET-CELL BATTERIES:	Wet-cell batteries of various sizes and types as commonly used in automobiles.	
		73	GASOLINE/KEROSENE:	Gasoline, diesel fuel, and fuel oils.	
		74	MOTOR OIL/DIESEL OIL:	Lubricating oils, primarily used in vehicles but including other types with similar characteristics.	
HHW-2	HHW Contained in Cans/Bottles/Tubs	75	LATEX PAINTS:	Water-based paints and similar products.	
		76	WATER AND SOLVENT-BASED ADHESIVES/GLUES:	Water or Oil/resin/volatile solvent-based glues and adhesives, including epoxy, rubber cement, two-part glues and sealers, and auto body fillers.	
		77	OIL-BASED PAINT/SOLVENT:	Solvent-based paints, varnishes, and similar products. Various solvents, including chlorinated and flammable solvents, paint strippers, solvents contaminated with other products such as paints, degreasers and some other cleaners if the primary ingredient	
		78	PESTICIDES/HERBICIDES/ RODENTICIDES	Variety of poisons with the purpose of discouraging or killing insects, weeds, vermin, or microorganisms. Fungicides and wood preservatives, such as pentachlorophenol, are also included.	
HHW-3	Dry-cell Batteries	79	DRY-CELL BATTERIES:	Dry-cell batteries of various sizes and types as commonly used in households. Includes cell phone and button cell batteries.	
HHW-4	Other HHW	80	FLUORESCENT TUBES:	Fluorescent light tubes and compact fluorescent bulbs (CFL).	
		81	MERCURY-LADEN WASTES	Thermostats, thermometers, and other items containing mercury.	
		82	COMPRESSED GAS CYLINDERS, FIRE EXTINGUISHERS	self explanatory	
		83	ASBESTOS:	Asbestos and asbestos-containing wastes (if this is the primary hazard associated with these wastes).	
		84	EXPLOSIVES:	Gunpowder, fireworks unspent ammunition, picric acid, and other potentially explosive chemicals.	

NYC Waste Characterization Study
FINAL REFUSE MATERIAL SORT CATEGORIES--HHW SUBSORTS

HHW Bin Number	Bin Description	Count	Category	Description	Include Count
		85	SMOKE DETECTORS		✓
		86	HOME MEDICAL PRODUCTS	Syringes, IV bags, medical tubing	
		87	OTHER POTENTIALLY HARMFUL WASTES:	Caustic acids and bases whose primary purpose is to clean surfaces, unclog drains, or perform other actions; photography chemicals, chemistry sets. Household disinfectants. Pool chemicals.	

Appendix J
Recycling Materials Categories List

NYC Preliminary Waste Characterization Study
RECYCLING / REFUSE
SORT CATEGORIES
8/4/2004

	Category	Description	Subsort deposit legend	Count	Subsort size-type legend	Moisture
	PAPER					
1	NEWSPAPER	Printed ground wood newsprint (Advertising "slicks" (glossy paper), if found mixed with newspaper; otherwise, ad slicks are included with mixed low grade.).				Yes
2	PLAIN OCC/KRAFT PAPER	Old unwaxed/uncoated corrugated container boxes, and Kraft paper other than paper bags				Yes
3	HIGH GRADE PAPER	White and lightly colored bond, rag, or stationary grade paper. This includes white or lightly colored sulfite/sulfate bond, copy papers, notebook paper, envelopes, Continuous-feed sulfite/sulfate computer printouts and forms of all types.				Yes
4	MIXED LOW GRADE PAPER	Includes junk mail, magazines, colored papers, bleached Kraft other than bags, boxboard, mailing tubes, carbonless copy paper, ground wood computer printouts				Yes
5	PHONE BOOKS	telephone directories				Yes
6	PAPERBACKS	paperback books				Yes
7	PAPER BAGS	white, brown or other colored paper bags				Yes
8	POLYCOATED PAPER CONTAINERS	Beverage containers made of bleached and unbleached paperboard coated with HDPE film. This includes polycoated milk and juice containers, and aseptic juice containers, including those with plastic spouts attached. Excludes juice concentrate cans, ice cream containers.				Yes
9	COMPOSTABLE/SOILED PAPER/WAXED OCC/KRAFT	waxed papers and cardboards other papers that were soiled with food during use (e.g., pizza box inserts); paper towels, wipes and napkins. Excludes paper plates, platters, cups, and bowls.				Yes
10	SINGLE USE PLATES, CUPS	paper plates, platters, cups and bowls				Yes
11	OTHER NONRECYCLABLE PAPER	polycoated frozen food and ice cream containers/packaging and other polycoated papers (excluding cups, plates, bowls and platters; milk/juice cartons, and aseptic packaging); paper with other materials attached (e.g. orange juice cans, nut cans, ajax/comet containers)				Yes
	PLASTIC					
12	PET BOTTLES	#1 Polyethylene terephthalate translucent bottles and jars.	Deposit, Non-deposit, Maybe	Yes	Yes	Yes
13	HDPE NATURAL BOTTLES	High-density translucent polyethylene (#2) milk, juice, beverage, oil, vinegar, distilled water bottles with necks and jars	Non-deposit, Maybe	Yes	Yes	Yes
14	HDPE COLORED BOTTLES	High-density colored polyethylene (#2) bottles. Liquid detergent bottles, some hair care bottles with necks and jars	Non-deposit, Maybe	Yes	Yes	Yes
15	#1-#2 TUBS/TRAYS	Wide mouth tubs and trays without a neck, such as yogurt, cottage cheese, and margarine.	#1 PET, #2 HDPE			
16a	#3 BOTTLES		Non-deposit, Maybe	Yes	Yes	
16b	#4 BOTTLES		Non-deposit, Maybe	Yes	Yes	
16c	#5 BOTTLES		Non-deposit, Maybe	Yes	Yes	
16d	#6 BOTTLES		Non-deposit, Maybe	Yes	Yes	
16e	#3-#7 TUBS	#3, #4, #5 and #7 injection molded tubs	#3 PVC, #4 LDPE, #5 PP, #7 Oth	Yes		
17	OTHER PVC	plumbing pipe, identifiable PVC packaging other than PVC bottles/tubs				
18	RIGID POLYSTYRENE CONTAINERS AND PACKAGING	#6 clear trays, salad containers/trays, clamshells, cookie tray inserts, dairy tubs, CD Boxes				Yes
19	EXPANDED POLYSTYRENE CONTAINERS AND PACKAGING.	Includes packaging and finished products made of expanded polystyrene. Excludes styrofoam plates, cups, bowls, takeout clamshells, and platters.				Yes
20	OTHER RIGID CONTAINERS/ PACKAGING	packaging that is not identifiable as #1-6, including containers of all types, toothpaste tubes, and plastic spools. Also: thermaformed/press molded rigid plastics with 1,2,3,4,5 or 7 IPC code. Plastic straws.				Yes
21	PLASTIC BAGS	plastic bags, including labeled grocery and merchandise, dry cleaner, and newspaper polyethylene film bags. Does not include garbage bags, baggies or ziploc bags; or bags heavily soiled with food.				Yes
22	OTHER FILM:	Film packaging not defined above, or: was contaminated with food, liquid or grit during use; is woven together (e.g., grain bags); contains multiple layers of film or other materials that have been fused together (e.g., potato chip bags); garbage bags.				Yes
23	PLASTIC CRATES AND SODA BOTTLE CARRIERS	self explanatory				
24	SINGLE-USE PLATES, CUPS, CUTLERY	plastic spoons, forks, knives, plates, cups, bowls, and platters of various resins, including styrofoam. Cup lids. Takeout clamshells.				Yes
25	SINGLE USE CAMERAS	disposable cameras. Include count.				
26	DISPOSABLE RAZORS	self explanatory; Include count.				

NYC Preliminary Waste Characterization Study
RECYCLING / REFUSE
SORT CATEGORIES
8/4/2004

	Category	Description	Subsort deposit legend	Count	Subsort size-type legend	Moisture
27	OTHER PLASTICS MATERIALS:	items that are predominately plastic with other materials attached pens, lighters, toys, and 3-ring binders. Finished plastic products made entirely of plastic such as toys, toothbrushes, vinyl hose -- not including plastic crates and soda bottle carriers				
	GLASS					
28	CLEAR CONTAINER GLASS	Manually sortable glass that is greater than 3" x 3"; Classify containers as "deposit" or "potential deposit" only if intact or with neck missing; not if in pieces. *Subsort and count: Deposit, Potential Deposit, Nondeposit (see legend).*	Deposit, Non-deposit, Maybe	Yes		
29	GREEN CONTAINER GLASS	Manually sortable glass that is greater than 3" x 3" Classify containers as "deposit" or "potential deposit" only if intact or with neck missing; not if in pieces. *Subsort and count: Deposit, Potential Deposit, Nondeposit (see legend).*	Deposit, Non-deposit, Maybe	Yes		
30	BROWN CONTAINER GLASS	Manually sortable glass that is greater than 3" x 3" Classify containers as "deposit" or "potential deposit" only if intact or with neck missing; not if in pieces. *Subsort and count: Deposit, Potential Deposit, Nondeposit (see legend).*	Deposit, Non-deposit, Maybe	Yes		
31	MIXED CULLET	clear, green or brown glass not manually sortable (under 3" x 3"); glass shards				
32a	OTHER GLASS BOTTLES	Blue, red or yellow bottles	Deposit, Non-deposit, Maybe	Yes		
32b	OTHER GLASS	window glass, mirrors, light bulbs (except fluorescent tubes), glassware, and blue/red/yellow glass bottles. *(For intact blue/red/yellow glass bottles, subsort and count potential deposit and nondeposit containers, see legend).*				
	METAL					
33	ALUMINUM CANS	Aluminum beverage cans (UBC) and bi-metal cans made mostly of aluminum. *Subsort and count: Deposit, Potential Deposit, Nondeposit (see legend)*	Deposit, Non-deposit, Maybe	Yes		Yes
34	ALUMINUM FOIL/CONTAINERS	Aluminum food containers, trays, and foil.				Yes
35	OTHER ALUMINUM	Aluminum products and scrap that are 50% or more aluminum, such as window frames, cookware.				
36	OTHER NONFERROUS	Non-aluminum metals not derived from iron, to which a magnet will not adhere, and which are not significantly contaminated with other metals or materials.				
37	TIN FOOD CANS	Tinned steel food containers, including bi-metal cans mostly of steel.	Deposit, Non-deposit, Maybe	Yes		
38	EMPTY AEROSOL CANS	Empty, mixed material/metal aerosol cans. (Aerosols that still contain product are sorted according to that material-for instance, solvent-based paint.)				
39	OTHER FERROUS	Ferrous and alloyed ferrous scrap metals to which a magnet adheres and which are not significantly contaminated with other metals or materials.				
40	MIXED METALS	Items that are predominately metal with other materials attached such as motors, insulated wire, and finished products containing a mixture of metals, or metals and other materials, that are not classified in the "appliances" section below.				
	ORGANICS					
41	LEAVES AND GRASS	Non-woody plant materials from a yard or garden area, including grass clippings, leaves, weeds, and garden wastes.				
42	PRUNINGS	Cut prunings, 6" or less in diameter, from bushes, shrubs, and trees.				
43	STUMPS/LIMBS	Compostable prunings or stumps 6" or greater in diameter.				
44	FOOD:	Food wastes and scraps, including bone, rinds, etc. Excludes the weight of food containers, except when container weight is not appreciable compared to the food inside.				
45	NON-C&D UNTREATED WOOD	Untreated wood products not associated with C&D activities, such as some furniture, popsicle sticks, chopsticks, wooden spoons, and other miscellaneous household wood products				
46	NONCLOTHING TEXTILES	non-clothing fabrics made of rag stock fabric materials including natural and synthetic textiles such as cotton, wool, silk, woven nylon, rayon, and polyester. Includes handbags, linens, draperies, tablecloths, nylon rope, stuffed toys.				Yes
47	CLOTHING TEXTILES	clothing textiles, not including shoes				Yes
48	CARPET/UPHOLSTERY	General category of flooring applications and non-rag stock textiles consisting of various natural or synthetic fibers bonded to some type of backing material.				
49	DISPOSABLE DIAPERS & SANITARY PRODUCTS	Diapers and sanitary products made from a combination of fibers, synthetic, and/or natural, and made for the purpose of single use. This includes disposable baby diapers, adult protective undergarments, and feminine hygiene products.				
50	ANIMAL BY-PRODUCTS	Animal carcasses not resulting from food storage or preparation, animal wastes, and kitty litter.				
51	RUBBER PRODUCTS	Finished products and scrap materials made of natural and synthetic rubber, such as bath mats, inner tubes, rubber hoses, foam rubber, tire pieces, latex gloves. Does not include shoes and boots that are predominantly rubber.				
52	SHOES	Shoes, sneakers or boots.	Rubber, leather, other	Yes		
53	OTHER LEATHER PRODUCTS	Leather jackets, belts, bags, purses, and other non-shoe leather products.				

NYC Preliminary Waste Characterization Study
RECYCLING / REFUSE
SORT CATEGORIES
8/4/2004

	Category	Description	Subsort deposit legend	Count	Subsort size-type legend	Moisture
54	FINES	fines smaller than 1/2 inch screen				
55	MISCELLANEOUS ORGANICS	Wax, bar soap, cigarette butts, briquettes, and fireplace, burn barrel and fire pit ash, vacuum cleaner bags and contents, crushed upholstered furniture (if an equal mix of wood, and other organic materials not classified above.				
	APPLIANCES AND ELECTRONICS					
56	SMALL APPLIANCES	Small electric appliances such as toasters, microwave ovens, power tools, curling irons, and light fixtures.				
57	AUDIO/VISUAL EQUIPMENT	Telephones, Stereos, radios, tape decks, VCRs, and cell phones.	Cell phone	Cell phone		
58	COMPUTER MONITORS	Items other than televisions containing a cathode ray tube (CRT) such as computer monitors and laptops.				
59	TELEVISIONS	Television sets containing a cathode ray tube (CRT).				
60	OTHER COMPUTER EQUIPMENT	Computer items not containing CRTs such as processors, mice and mouse pads, keyboards, and disk drives, and cell phones, calculators				
	CONSTRUCTION AND DEMOLITION DEBRIS					
61	UNTREATED DIMENSION LUMBER, PALLETS, CRATES	Untreated, milled lumber commonly used in construction for framing and related uses. Pallets and wooden crates.				
62	TREATED/ CONTAMINATED WOOD	Lumber and wood products that have been painted or treated so as to render them difficult to compost (with generally 50% or more of the surface area treated). This includes painted and chemically treated lumber, plywood, strandboard, and particleboard.				
63	GYPSUM SCRAP	Calcium sulfate dehydrate sandwiched between heavy layers of Kraft-type paper. Also known as drywall.				
64	FIBERGLASS INSULATION	Fiberglass building and mechanical insulation, batt or rigid.				
65	ROCK/CONCRETE/BRICKS	Rock gravel larger than 2" diameter, Portland cement mixtures (set or unset), and fired-clay bricks.				
66	ASPHALTIC ROOFING	Asphalt shingles and tarpaper of built-up roofing.				
67	OTHER CONSTRUCTION DEBRIS	Construction debris (other than wood) that cannot be classified elsewhere, and mixed fine building material scraps. For example, floor sweepings from construction activities containing sawdust, nails, wire, etc.				
	MISCELLANEOUS					
68	MISCELLANEOUS INORGANICS	Other inorganic materials not classified elsewhere.				
69	CERAMICS	Whole or fragmented ceramic or porcelain products larger than 1/2 inch screen				

NYC Waste Characterization Study
RECYCLING/REFUSE SORT CATEGORIES--HHW SUBSORTS

HHW Bin Number	Bin Description	Count	Category	Description	Count
HHW-1	Automotive-related Products	70	OIL FILTERS	Metal oil filters used in cars and other automobiles.	
		71	ANTIFREEZE	self explanatory	
		72	WET-CELL BATTERIES:	Wet-cell batteries of various sizes and types as commonly used in automobiles.	
		73	GASOLINE/KEROSENE:	Gasoline, diesel fuel, and fuel oils.	
		74	MOTOR OIL/DIESEL OIL:	Lubricating oils, primarily used in vehicles but including other types with similar characteristics.	
HHW-2	HHW Contained in Cans/Bottles/Tubs	75	LATEX PAINTS:	Water-based paints and similar products.	
		76	WATER AND SOLVENT-BASED ADHESIVES/GLUES:	Water or Oil/resin/volatile solvent-based glues and adhesives, including epoxy, rubber cement, two-part glues and sealers, and auto body fillers.	
		77	OIL-BASED PAINT/SOLVENT:	Solvent-based paints, varnishes, and similar products. Various solvents, including chlorinated and flammable solvents, paint strippers, solvents contaminated with other products such as paints, degreasers and some other cleaners if the primary ingredient	
		78	PESTICIDES/HERBICIDES/ RODENTICIDES	Variety of poisons with the purpose of discouraging or killing insects, weeds, vermin, or microorganisms. Fungicides and wood preservatives, such as pentachlorophenol, are also included.	
HHW-3	Dry-cell Batteries	79	DRY-CELL BATTERIES:	Dry-cell batteries of various sizes and types as commonly used in households. Includes cell phone and button cell batteries.	
HHW-4	Other HHW	80	FLUORESCENT TUBES:	Fluorescent light tubes and compact fluorescent bulbs (CFL).	
		81	MERCURY-LADEN WASTES	Thermostats, thermometors, and other items containing mercury.	
		82	COMPRESSED GAS CYLINDERS, FIRE EXTINGUISHERS	self explanatory	

NYC Waste Characterization Study
RECYCLING/REFUSE SORT CATEGORIES--HHW SUBSORTS

HHW Bin Number	Bin Description	Count	Category	Description	Count
		83	ASBESTOS:	Asbestos and asbestos-containing wastes (if this is the primary hazard associated with these wastes).	
		84	EXPLOSIVES:	Gunpowder, fireworks unspent ammunition, picric acid, and other potentially explosive chemicals.	
		85	SMOKE DETECTORS		Yes
		86	HOME MEDICAL PRODUCTS	Syringes, IV bags, medical tubing, and other home medical products and supplies.	
		87	OTHER POTENTIALLY HARMFUL WASTES:	Caustic acids and bases whose primary purpose is to clean surfaces, unclog drains, or perform other actions; photography chemicals, chemistry sets. Household disinfectants. Pool chemicals.	

NYC Waste Characterization Study

CURRENT DEPOSIT CONTAINERS, POTENTIAL DEPOSIT CONTAINERS, NON-DEPOSIT CONTAINERS
New York State

Deposit Containers
soda pop cans, bottles
beer cans, bottles
wine cooler bottles
seltzer cans, bottles
sparkling water cans, bottles

Potential Deposit Containers
iced tea cans, bottles
still water bottles
gatorade, snapple bottles
flavored water cans and bottles
bottles/cans containing juice drink that is less than 70% pure vegetable or fruit juice

Non-Deposit Containers
milk bottles
liquor and wine bottles
medicine bottles/cans
Ensure or other meal replacement bottles/cans
bottles/cans containing frozen or powdered concentrates
bottles containing non-food items
bottles/cans containing juice drink that is 70% or more pure vegetable or fruit juice

NYC Waste Characterization Study

PLASTIC BOTTLE SUBSORT BY SIZE AND PRODUCT TYPE
New York State

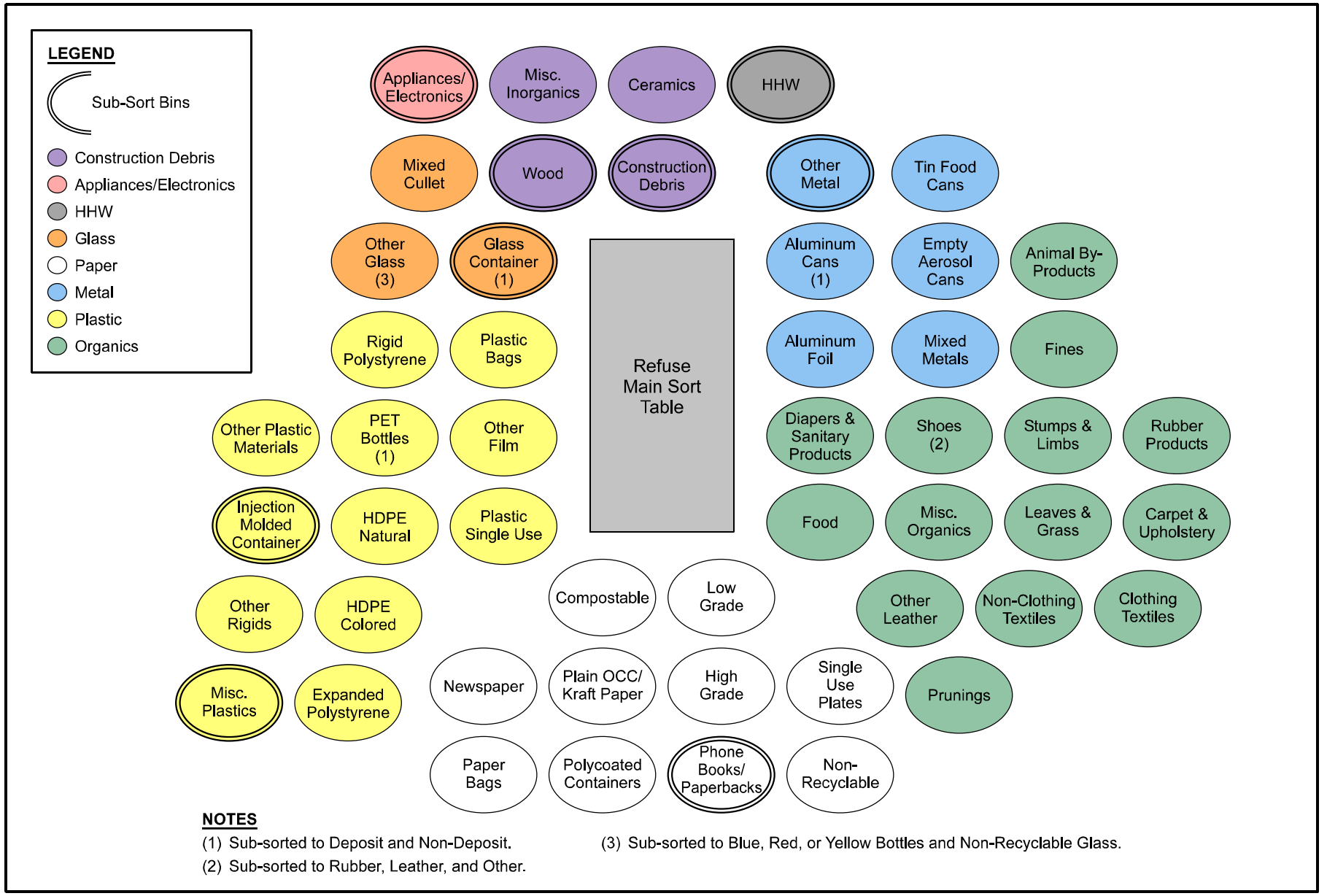
Single Serve Beverage
24-oz
20 oz
16 oz
half liter
12 oz
8 oz & less

Multiple-Serve Beverage
1 gallon and above
half gallon
2 liter and above
1 liter
96-oz
64-oz
48-oz
32-oz

Non-beverage Bottles
non-beverage food bottles
jars (peanut butter, etc)
cleaning products
household products
misc products

Appendix K
Refuse Sorting Procedure

Initial Sort



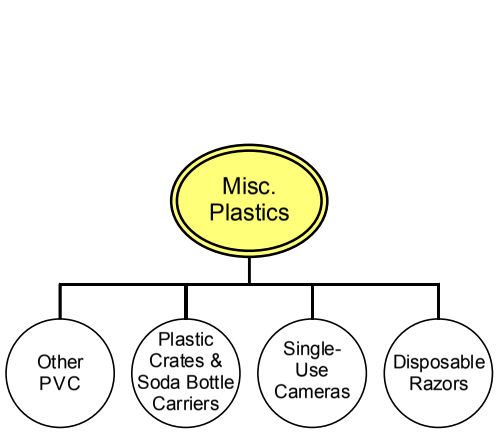
NOTES

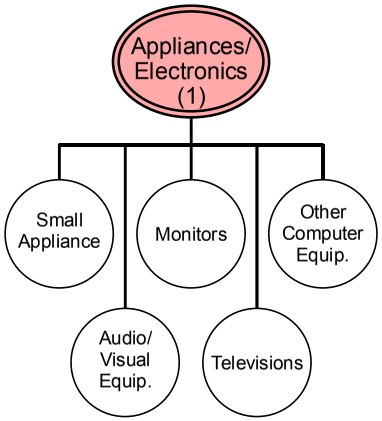
(1) Sub-sorted to Deposit and Non-Deposit.

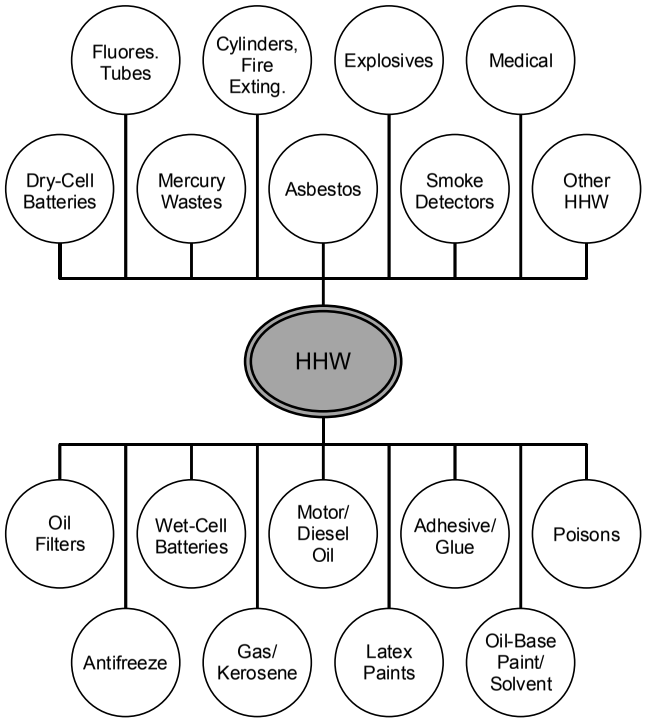
(2) Sub-sorted to Rubber, Leather, and Other.

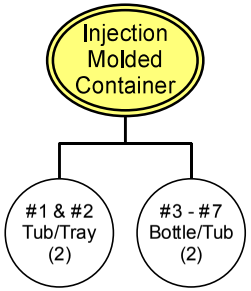
(3) Sub-sorted to Blue, Red, or Yellow Bottles and Non-Recyclable Glass.

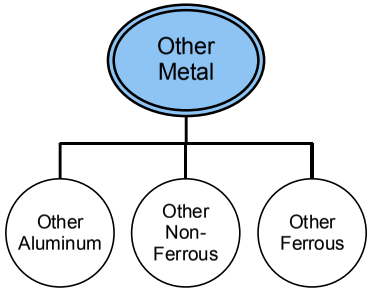
Sub-Sorts for: Appliances/Electronics, Misc. Plastics, Injection Molded Container, Other Metal, HHW







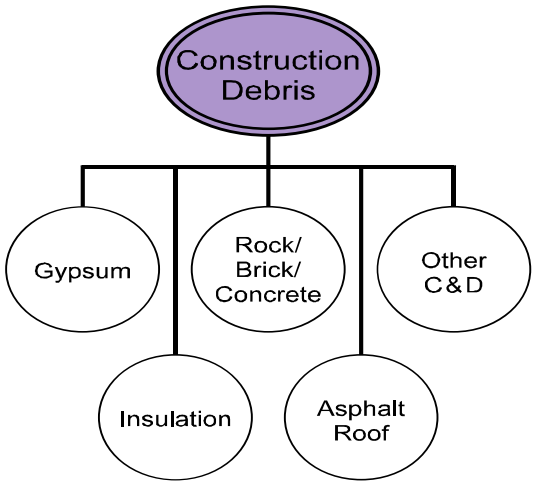


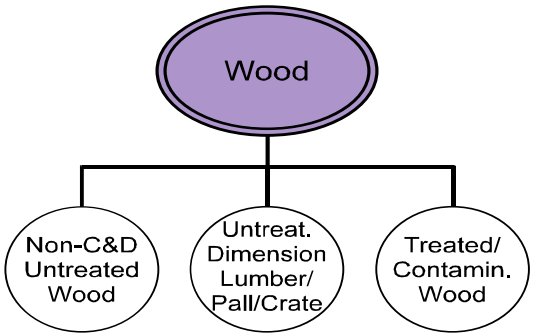


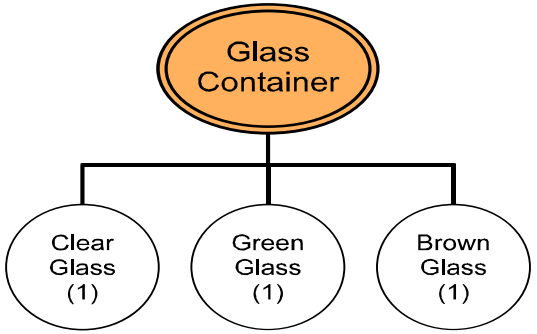
(1) Sorted by metal (50% or more metal) and non-metal

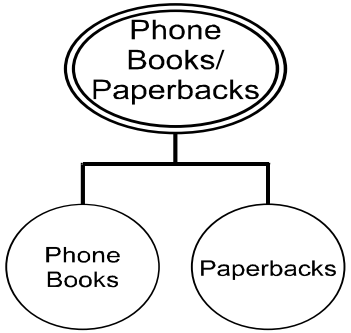
(2) Sub-sorted to stated categories

Sub-Sorts for: Construction Debris, Wood, Glass Container, Phone Books/Paperbacks





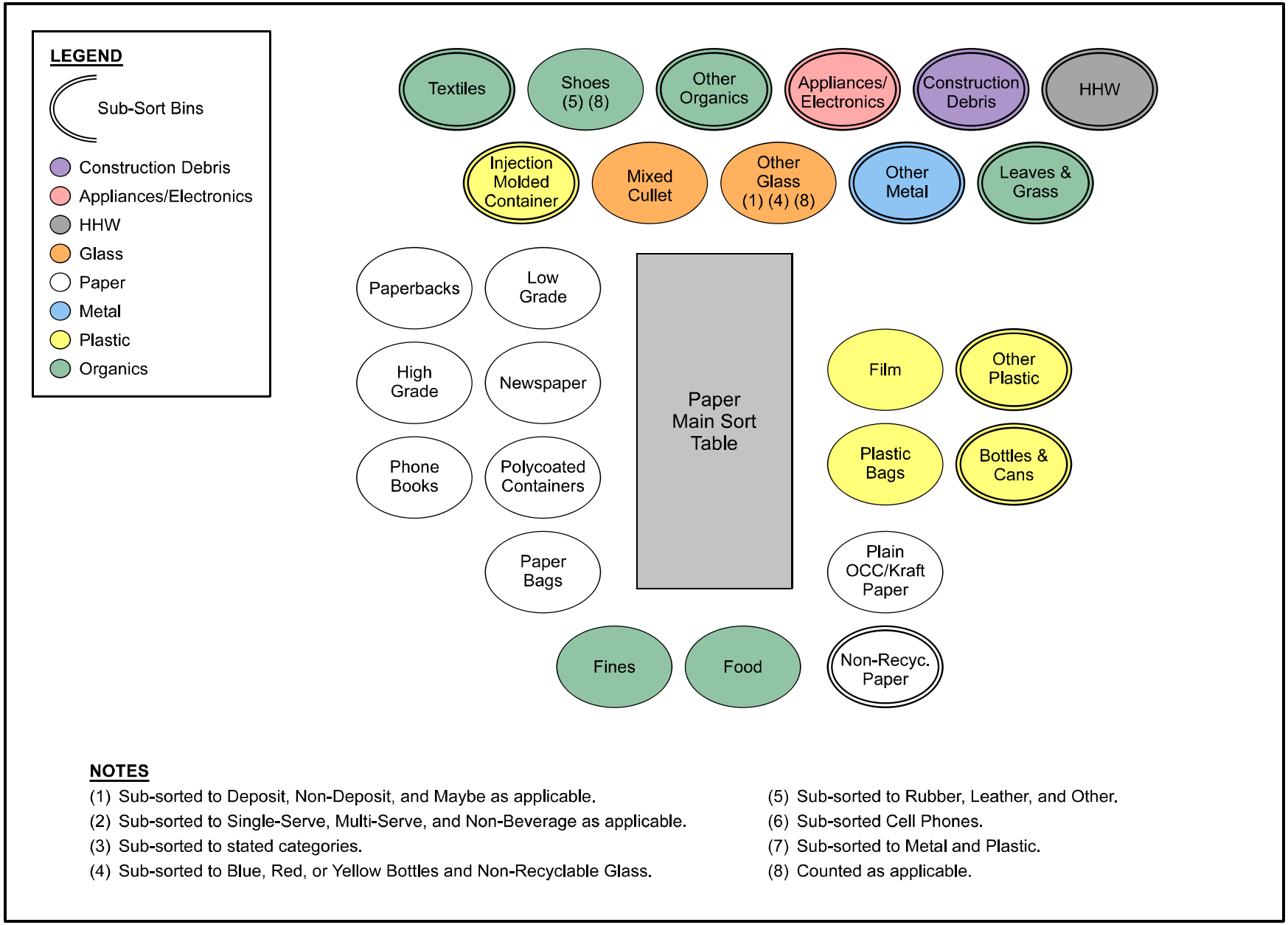




(1) Sub-sorted to Deposit and Non-Deposit

Appendix L
Paper Sorting Procedure

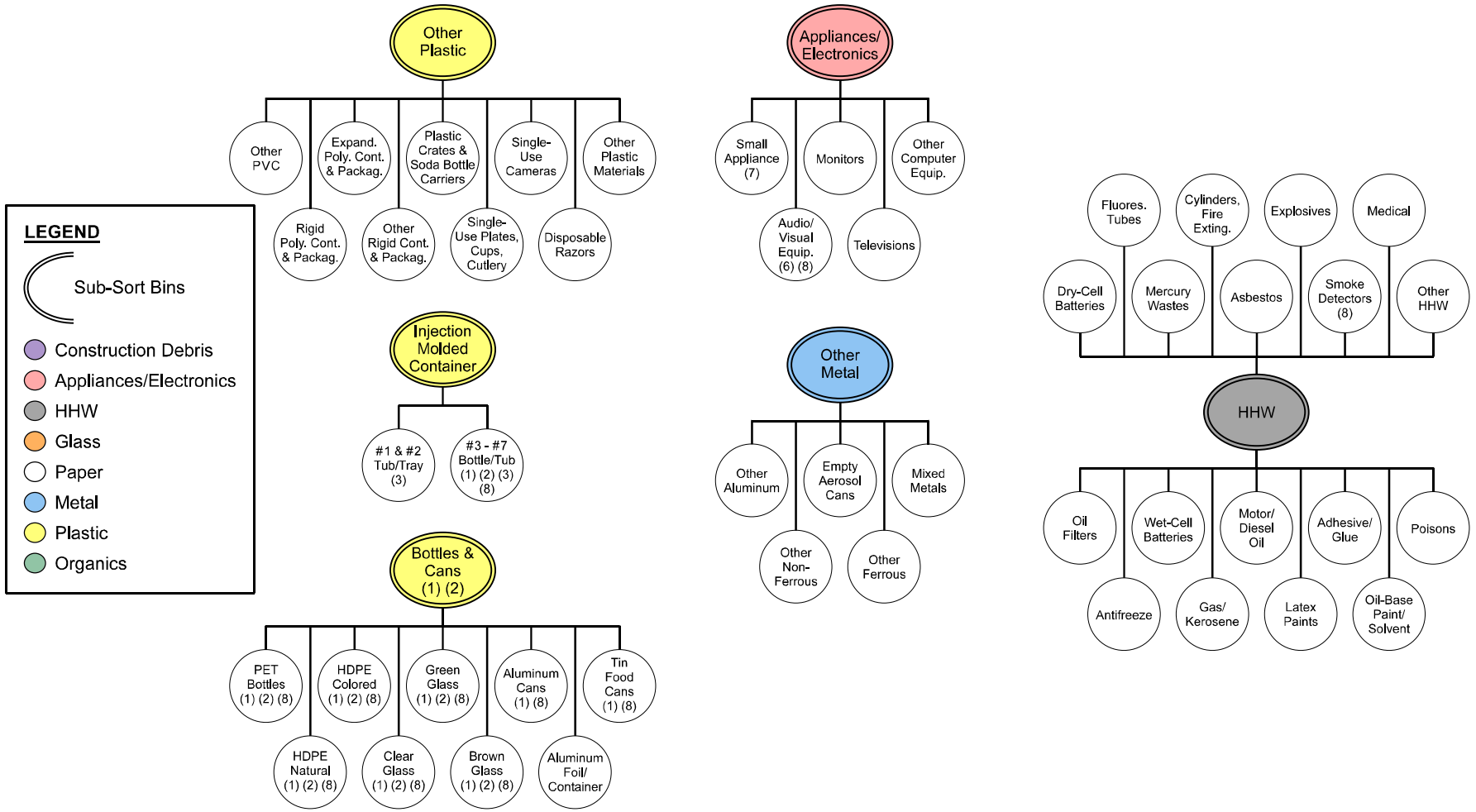
Initial Sort



NOTES

(1) Sub-sorted to Deposit, Non-Deposit, and Maybe as applicable.
(2) Sub-sorted to Single-Serve, Multi-Serve, and Non-Beverage as applicable.
(3) Sub-sorted to stated categories.
(4) Sub-sorted to Blue, Red, or Yellow Bottles and Non-Recyclable Glass.
(5) Sub-sorted to Rubber, Leather, and Other.
(6) Sub-sorted Cell Phones.
(7) Sub-sorted to Metal and Plastic.
(8) Counted as applicable.

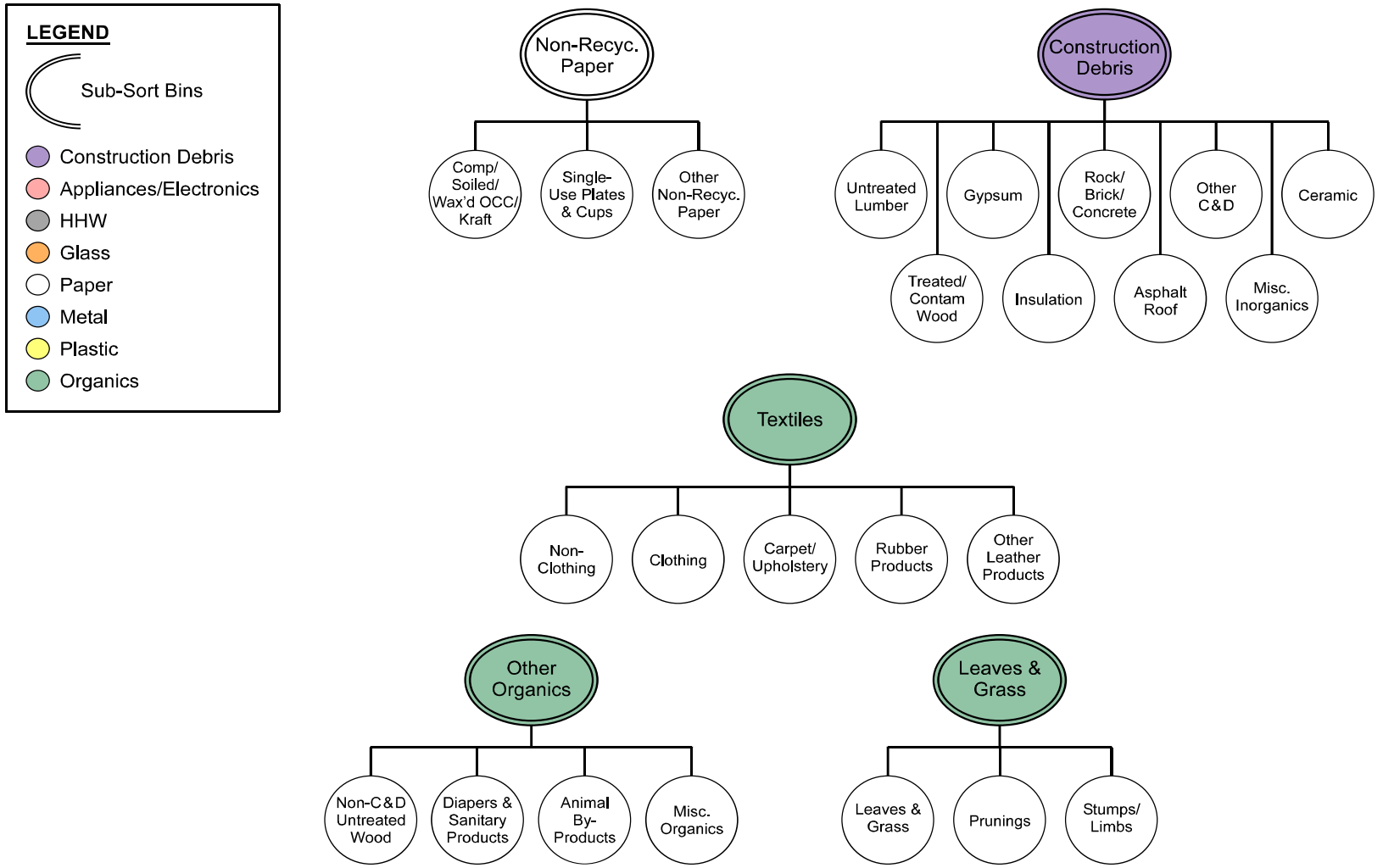
Sub-Sort: Appliances/Electronics, Other Plastic, Other Metal, HHW, Injection Molded Container, Bottles & Cans



NOTES

(1) Sub-sorted to Deposit, Non-Deposit, and Maybe as applicable.
(2) Sub-sorted to Single-Serve, Multi-Serve, and Non-Beverage as applicable.
(3) Sub-sorted to stated categories.
(4) Sub-sorted to Blue, Red, or Yellow Bottles and Non-Recyclable Glass.
(5) Sub-sorted to Rubber, Leather, and Other.
(6) Sub-sorted Cell Phones.
(7) Sub-sorted to Metal and Plastic.
(8) Counted as applicable.

Sub-Sort: Non-Recyclable Paper, Construction Debris, Textiles, Other Organics, Leaves & Grass

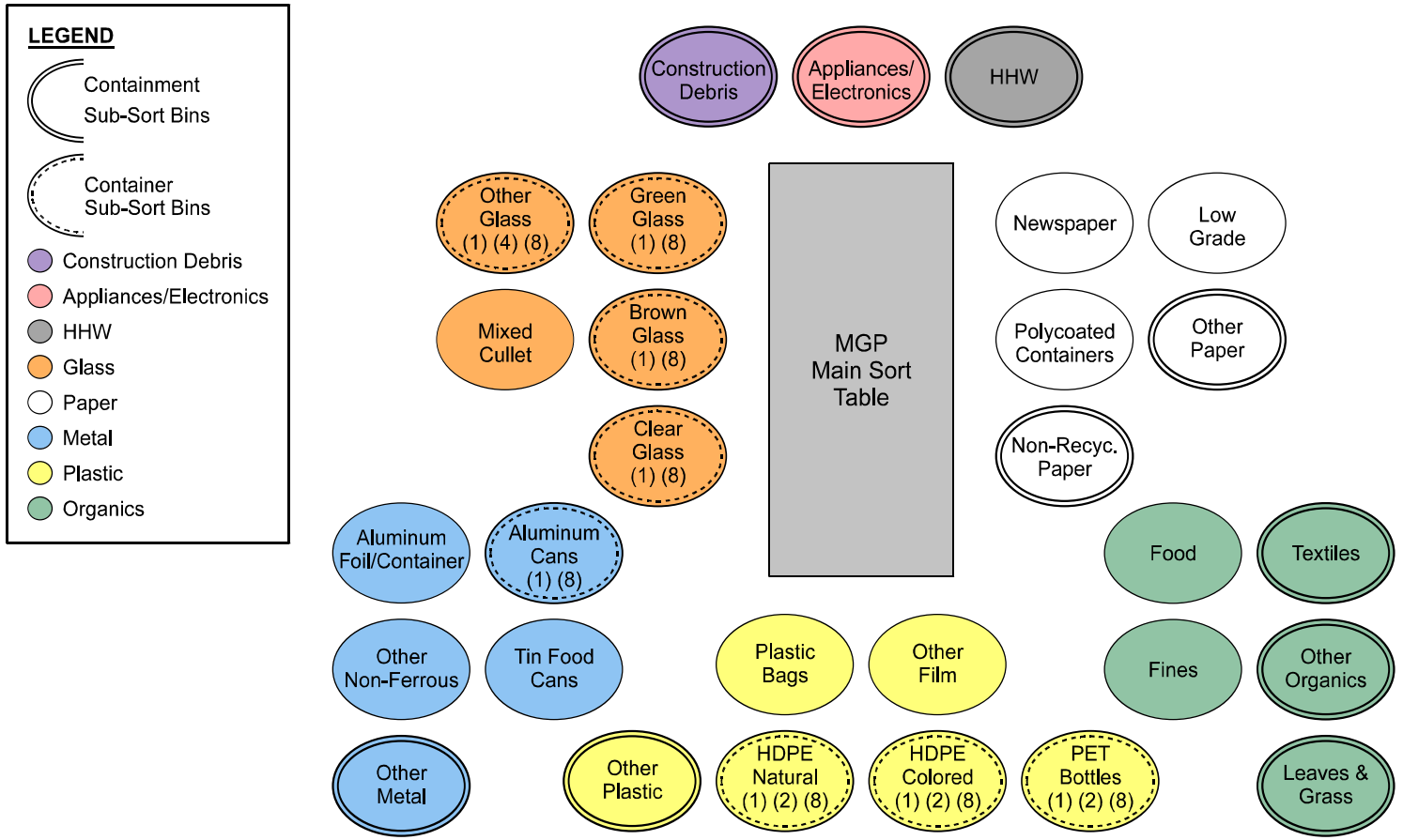


NOTES

(1) Sub-sorted to Deposit, Non-Deposit, and Maybe as applicable.
(2) Sub-sorted to Single-Serve, Multi-Serve, and Non-Beverage as applicable.
(3) Sub-sorted to stated categories.
(4) Sub-sorted to Blue, Red, or Yellow Bottles and Non-Recyclable Glass.
(5) Sub-sorted to Rubber, Leather, and Other.
(6) Sub-sorted Cell Phones.
(7) Sub-sorted to Metal and Plastic.
(8) Counted as applicable.

Appendix M
MGP Sorting Procedure

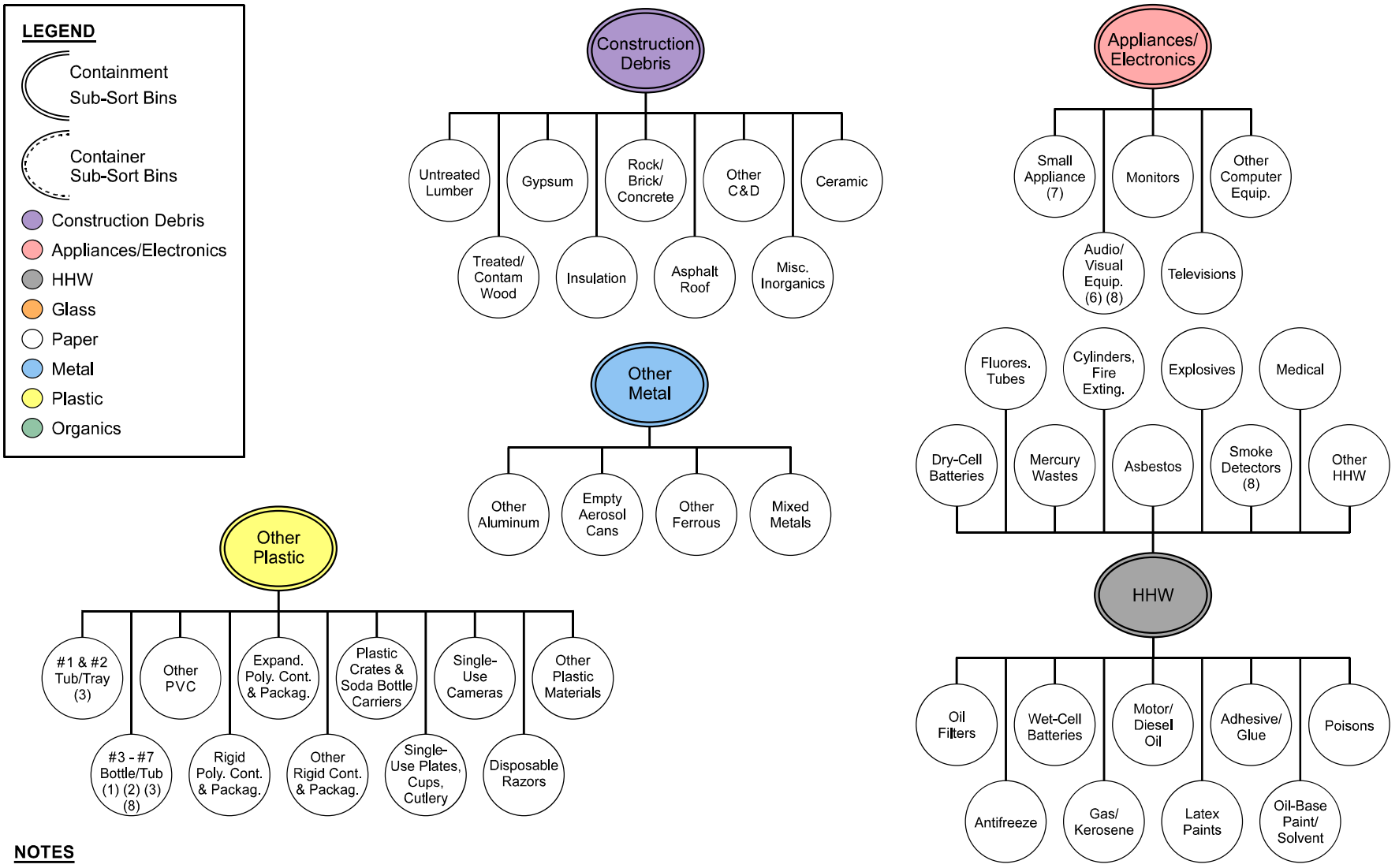
Initial Sort



NOTES

(1) Sub-sorted to Deposit, Non-Deposit, and Maybe as applicable.
(2) Sub-sorted to Single-Serve, Multi-Serve, and Non-Beverage as applicable.
(3) Sub-sorted to stated categories.
(4) Sub-sorted to Blue, Red, or Yellow Bottles and Non-Recyclable Glass.
(5) Sub-sorted to Rubber, Leather, and Other.
(6) Sub-sorted Cell Phones.
(7) Sub-sorted to Metal and Plastic.
(8) Counted as applicable.

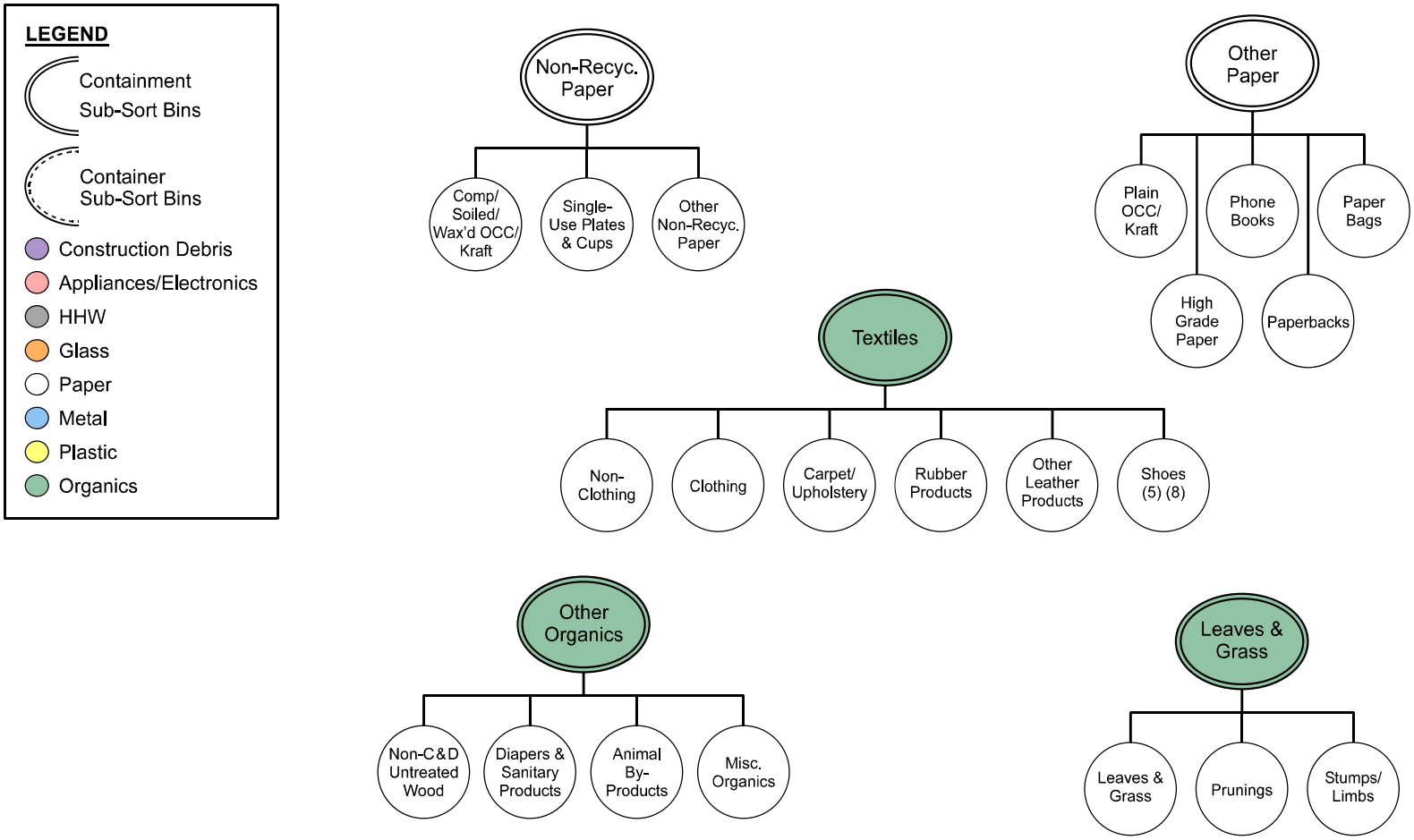
Sub-Sort Table 1: Appliances/Electronics, Construction Debris, Other Plastic, Other Metal, HHW



NOTES

(1) Sub-sorted to Deposit, Non-Deposit, and Maybe as applicable.
(2) Sub-sorted to Single-Serve, Multi-Serve, and Non-Beverage as applicable.
(3) Sub-sorted to stated categories.
(4) Sub-sorted to Blue, Red, or Yellow Bottles and Non-Recyclable Glass.
(5) Sub-sorted to Rubber, Leather, and Other.
(6) Sub-sorted Cell Phones.
(7) Sub-sorted to Metal and Plastic.
(8) Counted as applicable.

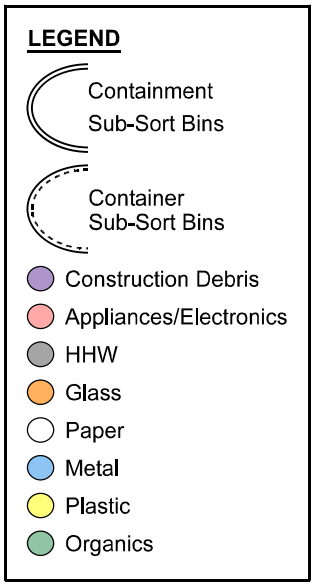
Sub-Sort Table 1: Non-Recyclable Paper, Other Paper, Textiles, Other Organics, Leaves & Grass

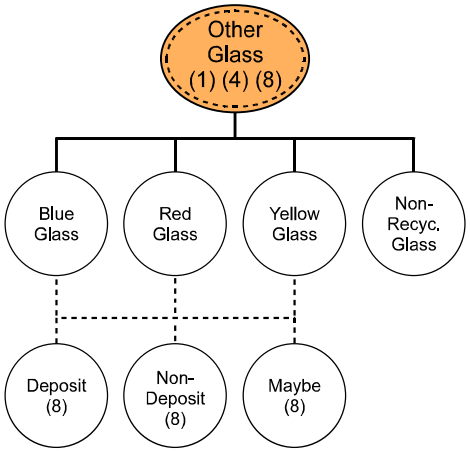


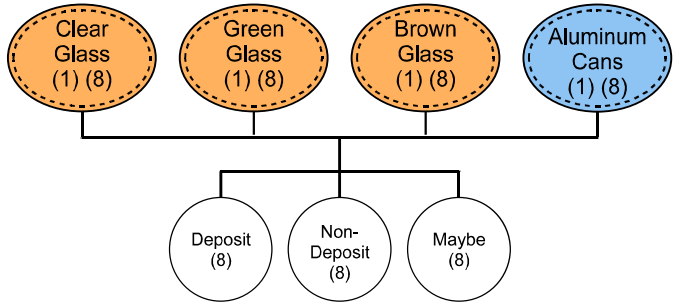
NOTES

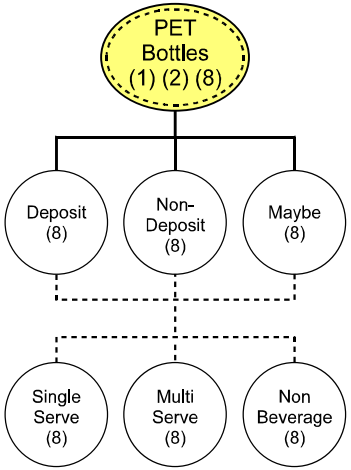
(1) Sub-sorted to Deposit, Non-Deposit, and Maybe as applicable.
(2) Sub-sorted to Single-Serve, Multi-Serve, and Non-Beverage as applicable.
(3) Sub-sorted to stated categories.
(4) Sub-sorted to Blue, Red, or Yellow Bottles and Non-Recyclable Glass.
(5) Sub-sorted to Rubber, Leather, and Other.
(6) Sub-sorted Cell Phones.
(7) Sub-sorted to Metal and Plastic.
(8) Counted as applicable.

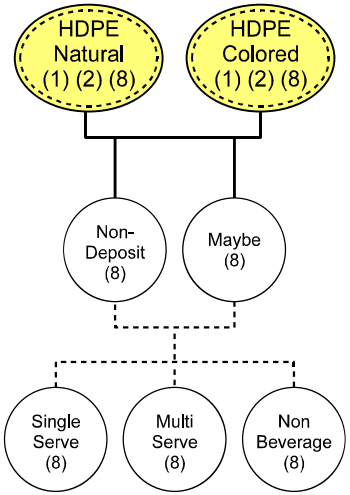
Sub-Sort Table 2: Recyclable Plastic, Glass and Aluminum Containers











NOTES

(1) Sub-sorted to Deposit, Non-Deposit, and Maybe as applicable.
(2) Sub-sorted to Single-Serve, Multi-Serve, and Non-Beverage as applicable.
(3) Sub-sorted to stated categories.
(4) Sub-sorted to Blue, Red, or Yellow Bottles and Non-Recyclable Glass.
(5) Sub-sorted to Rubber, Leather, and Other.
(6) Sub-sorted Cell Phones.
(7) Sub-sorted to Metal and Plastic.
(8) Counted as applicable.

Appendix N
Refuse Sort Data Form

NYC Waste Characterization Study

Sample # 2 - 25CW-143 **Date Sorted:** 5/17/04 **Crew Chief:** Rory

		Material Categories	Weight(s) (Circle net if weight)		Moisture/ Contamination Test
Paper	1	NEWSPAPER	**B 13.75**		
	2	PLAIN OCC/KRAFT PAPER	**B 10.60**		
	3	HIGH GRADE PAPER	**B 8.90**		
	4	MIXED LOW GRADE PAPER	**B 33.05 R 11.15**		
	5	PHONE BOOKS			
	6	PAPERBACKS			
	7	PAPER BAGS	**B 8.4**		
	8	POLYCOATED CONTAINERS	**B 7.55**		
	9	COMPOSTABLE/SOILED/ WAXED OCC	**B 18.15**		
	10	SINGLE USE PLATES, CUPS	**B 7.55**		
	11	OTHER NONRECYC PAPER	**B 7.60**		
Plastic	12	PET BOTTLES	Deposit **N .20**	Non-Dep **B 7.2**	
			Count: **17**		
	13	HDPE NATURAL BOTTLES			
	14	HDPE COLORED BOTTLES			
	15	#1-#2 TUBS/TRAYS	#1 PET	#2 HDPE	
	16	#3-#7 CONTAINERS	#3 PVC	#4 LDPE	
			#5 PP **N .70**	#7 Other **N .10**	
	17	OTHER PVC			
	18	RIGID POLYSTYRENE	**B 7.70**		
	19	EXPANDED POLYSTYRENE	**B 7.35**		
	20	OTHER RIGID CONTAINERS/PACKAGING	**N .20**		
	21	PLASTIC BAGS	**B 9.95**		
	22	OTHER FILM:	**B 18.80**		
	23	PLASTIC CRATES AND SODA BOTTLE CARRIERS			
	24	SINGLE-USE FOOD SVC	**B 6.75**		
	25	SINGLE USE CAMERAS	Count:		
	26	DISPOSABLE RAZORS	Count:		
	27	OTHER PLASTICS MATERIALS	**B 9.60**		
Glass	28	CLEAR GLASS	Deposit	Non-Dep	
			Count:		
	29	GREEN GLASS	Deposit	Non-Dep **B 11.10**	
			Count:		
	30	BROWN GLASS	Deposit	Non-Dep	
			Count:		
	31	MIXED CULLET	**B 6.35**		
	32	OTHER GLASS			
Metal	33	ALUM. CANS	Deposit **B 6.25**	Non-Dep	
			Count: **9**		
	34	ALUMINUM FOIL/TINS	**B 9.10**		
	35	OTHER ALUMINUM			
	36	OTHER NONFERROUS			
	37	TIN FOOD CANS	**B 8.80**		
	38	EMPTY AEROSOL CANS			
	39	OTHER FERROUS	**B 13.00**		
	40	MIXED MATERIALS			
Organic	41	LEAVES AND GRASS			
	42	PRUNINGS			
	43	STUMPS/LIMBS			
	44	FOOD	**B 23.95**		
	45	NON-C&D, UNTREATED WOOD	**B 6.05**		
	46	NONCLOTHING TEXTILES	**B 7.25**		
	47	CLOTHING TEXTILES	**B 8.45**		
	48	CARPET/UPHOLSTERY	**B 18.60**		

		Material Categories	Weight(s) (Circle net if weight)	Moisture/ Contamination Test
Organic (cont.)	49	DISP. DIAPERS/SAN PROD.	**B 11.35**	
	50	ANIMAL BY-PRODUCTS		
	51	RUBBER PRODUCTS	**B 11.15**	
	52	SHOES	Rubber |Leather |Other	
		Count of each subsort	_____ |_____ |_____	
	53	OTHER LEATHER PRODUCTS		
	54	FINES	**B 20.02**	
	55	MISCELLANEOUS ORGANICS	**B 8.25**	
Appliance & Electronics	56	SMALL APPLIANCES		
	57	AUDIO/VISUAL EQUIPMENT	**N 1.90**	
		cell phones	Weight | Count: _____	
	58	COMPUTER MONITORS		
	59	TELEVISIONS		
	60	OTHER COMPUTER EQUIP		
Construction Debris	61	UNTREATED DIMENSION LUMBER, PALLETS, CRATES	**R 13.95**	
	62	TREATED/CONTAM WOOD	**R 12.85**	
	63	GYPSUM SCRAP	**R 31.70**	
	64	FIBERGLASS INSULATION		
	65	ROCK/CONCRETE/BRICKS		
	66	ASPHALTIC ROOFING		
	67	OTHER C&D DEBRIS	**R 14.05**	
Misc.	68	MISC. INORGANICS		
	69	CERAMICS		

HHW SUBSORTS

HHW Bin Number	Bin Description	Count	Category	Weight(s) (Circle net if weight)
HHW-1	Automotive-related Producs	70	OIL FILTERS	
		71	ANTIFREEZE	
		72	WET-CELL BATTERIES	
		73	GASOLINE/KEROSENE	
		74	MOTOR OIL/DIESEL OIL	
HHW-2	HHW Contained in Cans/Bottles/ Tubs	75	LATEX PAINTS	
		76	WATER AND SOLVENT-BASED ADHESIVES/GLUES	
		77	OIL-BASED PAINT/SOLVENT	
		78	PESTICIDES/HERBICIDES/ RODENTICIDES	
HHW-3	Dry-cell Batteries	79	DRY-CELL BATTERIES	**N .15**
HHW-4	Other HHW	80	FLUORESCENT TUBES	
		81	MERCURY-LADEN WASTES	
		82	COMPRESSED GAS CYLINDERS, FIRE EXTINGUISHERS	
		83	ASBESTOS	
		84	EXPLOSIVES	
		85	SMOKE DETECTORS	Count: _____
		86	HOME MEDICAL PRODUCTS	**N .01 1 syringe**
		87	OTHER POTENTIALLY HARMFUL WASTES:	

Appendix O
Recycling Sort Data Form (Paper and MGP)

NYC Waste Characterization Study

Sample # BK-15-2-2 **Date Sorted:** 6/10/04 **Crew Chief:** Amity

			Material Categories	Weight(s) (Circle net if weight)		Moisture Sample
Paper	1	P-1	NEWSPAPER	**L 6.10**		
	2	P-2	PLAIN OCC/KRAFT PAPER			
	3	P-3	HIGH GRADE PAPER			
	4	P-4	MIXED LOW GRADE PAPER	**L 6.65**		
	5	P-5	PHONE BOOKS			
	6	P-6	PAPERBACKS			
	7	P-7	PAPER BAGS			
	8	P-8	POLYCOATED CONTAINERS	**L 8.45**		
		C-1	NON-RECYCLABLE PAPER	9) Compostable/Soiled **L 5.95**		
				10) Plates/Cups		
				11) Other Non-Recyc **L 6.00 L 6.05**		
Plastic	21	C-2	PLASTIC BAGS	**L 7.10** moist samp		
	22	C-3	OTHER FILM	**L 9.50** moist samp		
		C-4	INJECT'N MOLDED CONTAINERS	15a) #1 PET Tubs/Trays	16) #4 Tub	
				15b) #2 HDPE Tub/Tray	16) #5 Tub **M 2.40**	
				16) #3 Tub	16) #7 Tub	
		C-5	OTHER PLASTIC	18) Rigid PS **M 2.00** moist samp		
				19) Exp PS **S 1.00** moist samp		
				20) Oth Rig Contain moist samp		
				24) Food Svc moist samp		
				17) Oth PVC	25) Cameras	
				19) Exp PS	26) Razors	
				20) Oth Rig Contain **M 3.70 N .01**	27) Oth Plas **L 16.20**	
				23) Crates/Soda Bottle Carriers		
Other Glass	31	C-6	MIXED CULLET	**L 31.00 L 17.25**		
	32a	C-7	NON-RECYC GLASS			
	69	C-8	CERAMICS	**L 6.50**		
Other Metal		C-9	OTHER METAL	35) Other Alum	39) Oth Fer. **N 3.0 L 12.5**	
				36) Other Non-fer **N 9.55**	40) Mix Metal	
				38) Aerosol **N 1.25**		
Organic		C-10	LEAVES AND GRASS	41) Lvs/Grass	43) Stumps/Limbs	
				42) Prunings		
	44	C-11	FOOD			
		C-12	TEXTILE/RUBBER/LEATHER	46) Non-Clothing moist samp		
				47) Clothing moist samp		
				48) Carpet/Upholstery	53) Leather	
				51) Rubber		
	52	C-13	SHOES Weight	Rubber |Leather |Other		
			Count	Rubber |Leather |Other		
		C-14	OTHER ORGANICS	45) Non C&D Wood	50) Animal Prods	
				49) Diapers	55) Misc Orgs **L 6.25**	
	54	C-15	FINES	**S 1.30**		
Appliance & Electronics		C-16	APPLIANCES & ELECTRONICS	56) Small Appl.	58) Monitors	
				57a) Audio/vis Equip	59) TVs	
				57b) Cell phones Count ____	60) Oth Comp	
Constr. Debris		C-17	CONSTRUCTION DEBRIS	61) Untreated Lumber	65) Rock/Brick	
				62) Treated/Cont Wood	66) Asph Roof	
				63) Gypsum	67) Other C&D	
				64) Insulation	68) Misc Inorg	

HHW C-18	70	OIL FILTERS		76	ADHESIVES/GLUES		82	CYLNDRS, FIRE EXT	
	71	ANTIFREEZE		77	OIL-BASE PNT/SOLVNT		83	ASBESTOS	
	72	LEAD ACID BATT		78	POISONS		84	EXPLOSIVES	
	73	GAS/KEROSENE		79	DRY-CELL BATTERIES		85	SMK DETECTORS	
	74	MOTOR OIL		80	FLUOR TUBES		86	MEDICAL	
	75	LATEX PAINTS		81	MERCURY WASTES		87	OTHER HHW	

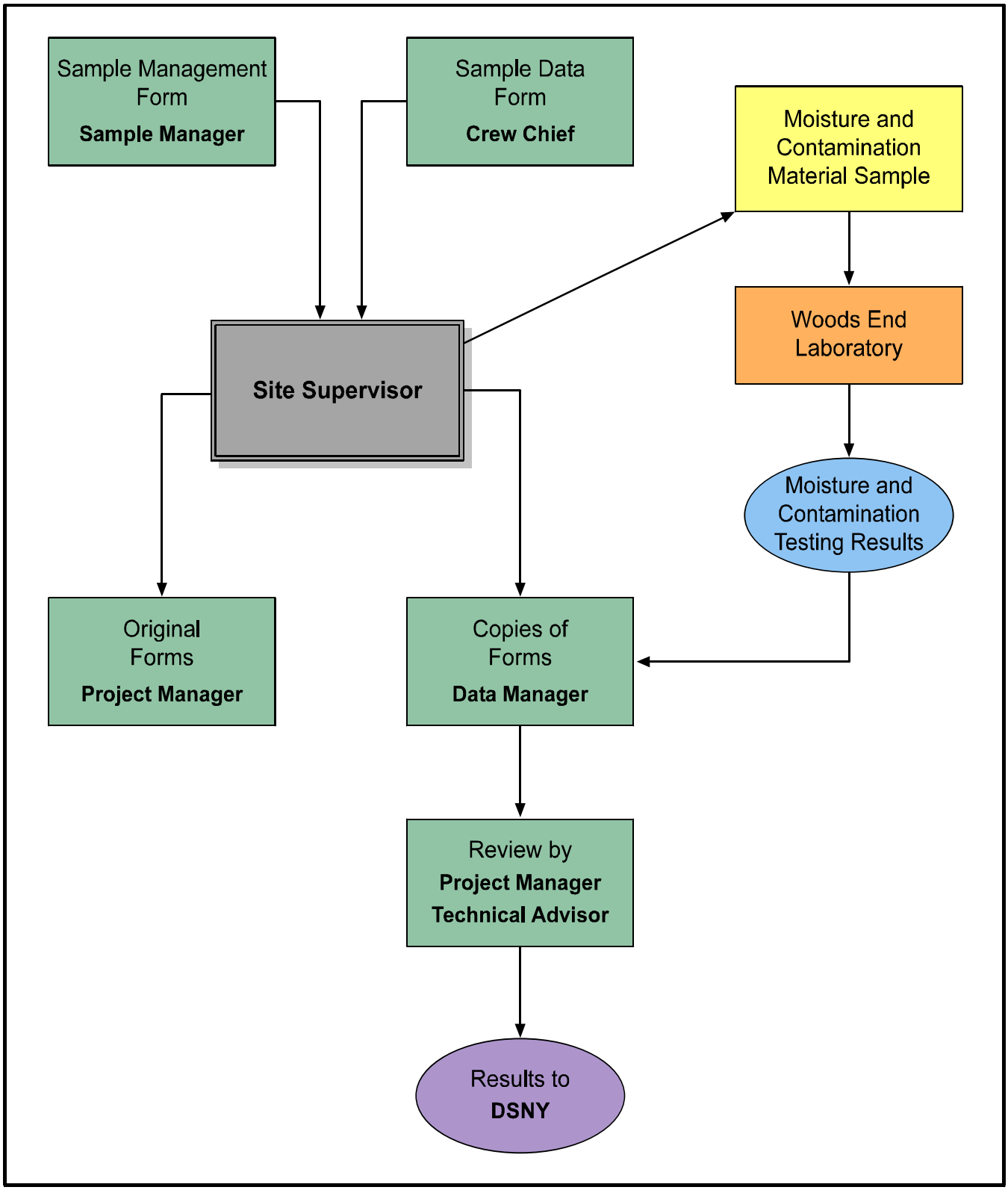
Count of Smoke Detectors _____

NYC Recyclables Characterization Study

Sample #: 114 **Date Sorted:** 6/10/04 **Crew Chief:** Amity

				Subsort by Deposit						Subsort by Size/Type				Moisture Sample
				Deposit	Non-Deposit			Maybe		Single Serve Beverage	Multi-serve Beverage	Non-Beverage		
PLASTIC	MGP-1	12	PET BOTTLES	L 6.60	N .05	N .15	M 2.8	N .80	L 8.15	L 8.15	L 7.45	N .05	N .15	
			Count	5	1	2	8	3	21	21	7	1	2	
	MGP-2	13	HDPE NATURAL BOTTLES		L 7.15									
			Count		9									
	MGP-3	14	HDPE PIGMENT BOTTLES		M 2.5	L 6.5	N .10				N .20	M .5	L 6.3	N .10
			Count		3	3	1				1	3	2	1
	MGP-4	15c	#3 BOTTLES											
			Count											
	MGP-5	15d	#4 BOTTLES											
			Count											
	MGP-6	15e	#5 BOTTLES		S .90									
			Count		3									
	MGP-7	15f	#7 BOTTLES					N .35			N .35			
			Count					1			1			
GLASS	MGP-8	28	CLEAR GLASS		L 9.05									
			Count		7									
	MGP-9	29	GREEN GLASS	N .55										
			Count	1										
	MGP-10	30	BROWN GLASS	L 7.45										
			Count	2										
	MGP-11	32b	BLUE/RED/YELLOW											
			Count											
METAL	MGP-12	33	ALUM. CANS	L 6.3	N .15	L 5.95		S 1.7						
			Count	13	1	4		1						
	MGP-14	34	ALUM FOIL/TINS	L 6.90										
	MGP-13	37	TIN FOOD CANS	L 14.60										

Appendix P
Document Chain of Custody


Sample Management Form
Sample Manager
Sample Data Form
Crew Chief
Moisture and Contamination Material Sample
Site Supervisor
Woods End Laboratory
Moisture and Contamination Testing Results
Original Forms
Project Manager
Copies of Forms
Data Manager
Review by
Project Manager
Technical Advisor
Results to
DSNY

Appendix Q
Refuse Sort Staffing

Refuse Sort Staffing

Staffing

In both the PWCS Work Plan (see Appendix A) and the PWCS Operations Plan (see Appendix B), the R. W. Beck Project Team proposed to use two sorting crews for the Refuse Sort. However, after two days of sorting, it became clear to the professional staff that it would take more than two sorting crews to sort and weigh the 200 refuse samples into 87 categories. Therefore, arrangements were made to add a third sorting crew. These arrangements included hiring additional temporary workers, bringing in additional Professional Staff person, and constructing an additional sub-sorting table. The third sorting crew was assembled and working by Thursday, May 20, 2004, the fourth day of the refuse sort.

Professional Staff

The R. W. Beck Project Team had ten professionals present on May 17, 2004, which was designated as a training day. Four of these professionals, Jonathan Burgiel, John Culbertson, Charlie Scott, and Mack Rugg were present for the training, but were not expected to remain on site for the duration of the Refuse Sort.

Job Descriptions

The PWCS Refuse Sort included the following professional positions:

- **Project Manager** – The Project Manager has overall responsibility for the conduct of the sort and was the primary liaison between the R. W. Beck Project Team and the DSNY. The specific responsibilities of the Project Manager included the selection and monitoring of the professional staff, budget oversight, interactions with the DSNY and other City agencies, and setting policies and procedures for sampling and sorting.
- **Field Supervisor** – The Field Supervisor has responsibility for all activities at the Greenpoint MTS, including record-keeping, the functioning of the sorting crews, preparing moisture samples, and providing equipment and supplies to the sorting crews, as needed. For questions regarding the classification of materials, the Field Supervisor had the final word regarding material categorization.
- **Crew Chief** – The Crew Chief had responsibility for his/her sorting crew, including seeing that safe sorting procedures were used, workers were sorting efficiently, that sorting was done in accordance with agreed upon protocols, and making sure that the crew's sorting area was clean and neat.
- **Sample Manager** – The Sample Manager was responsible for acquiring refuse samples from the WMI transfer stations, transporting them to the MTS, and staging them for the sorting crews. The Sample Manager's responsibilities included working cooperatively with the WMI transfer station staff and the DSNY staff at the transfer station, selecting random refuse samples of at least 200 pounds, and operating the sampling trucks with care.

Personnel

A total of 12 members of the professional staff were present for some part of the Refuse Sort. Four of those people were scheduled to be present only for the training day and, in two cases, the second day of the sorting period. The individuals working on the PWCS Refuse Sort included:

- Jonathan Burgiel, R. W. Beck, Principal-in-Charge: On site for two days
- Tom Jones, R. W. Beck, Project Manager: On site for duration of the Refuse Sort
- John Culbertson, Technical Advisor: On site for two days
- Mack Rugg, CDM, Technical Advisor: On site for one day
- Charlie Scott, Cascadia, Technical Advisor: On site for one day
- Tanya Tarnecki, Cascadia, Field Supervisor: On site for duration of the Refuse Sort
- Rory Tipton, R. W. Beck, Crew Chief: On site for duration of the Refuse Sort
- John Buri, R. W. Beck, Crew Chief/Sample Manager: On site for duration of the Refuse Sort
- Sean Perera, R. W. Beck, Crew Chief/Sample Manager: On site for duration of the Refuse Sort
- Susan Jorash, R. W. Beck, Crew Chief: On site for duration of the Refuse Sort
- Randy Bowen, R. W. Beck, Crew Chief: On site for duration of the Refuse Sort
- Brian Scott, R. W. Beck, Sample Manager: On site for duration of the Refuse Sort

The specific days worked by each of the professional staff are shown in the attendance lists which are presented in Appendix R.

Temporary Workers

The R. W. Beck Project Team obtained temporary workers from the Active Personnel Agency located at 41 West 33rd, New York, New York. An average of 19 temporary laborers per day worked on the Refuse Sort and an accounting of the specific days worked by each temporary worker is shown in the attendance lists in Appendix S.

It should be noted that the quality of the temporary workers was exemplary. The workers were punctual, hard-working, and very quick to understand and implement the sorting procedures. The growth in productivity during the refuse sorting period, as shown in Table 3, was indicative of these positive attributes.

Table 3
Refuse Samples Collected and Sorted

	Samples Collected	Samples Sorted
May 17	42 (1)	5
May 18	21	13
May 19	21	20

May 20	21	22
May 21	21	22
May 22	22	22
May 24	18	28
May 25	20	28
May 26	20	29
May 27	1	11
Total	**209** (2)	**200**

(1) 21 samples were collected on May 15 and 21 samples were collected on May 17.
(2) Nine surplus samples were collected in anticipation of truck break-downs.

Sorting productivity increased on May 19th when a third sorting crew was added and on May 24th when an additional professional staff member, Randy Bowen, joined the R.W. Beck Project Team.

Staff Training

As noted above, staff training took place on May 17, 2004. John Culbertson, R. W. Beck's Technical Advisor, conducted the training which consisted of the following topics under three headings:

- Introduction
  - An introduction of R. W. Beck and the professional staff,
  - An overview of the Preliminary Waste Characterization Study,
  - An explanation of what a "sample" was and the purpose of the study,
- Health and Safety
  - A discussion of proper protective clothing to be used during the sort,
  - A lecture and demonstration of safe sorting practices,
  - An explanation of what to do in case of an injury or illness
- Sorting procedures
  - An explanation of the major material groups – paper, plastics, metals, etc. – and where they are placed on the sorting table,
  - A detailed discussion of the 87 material categories,
  - An explanation of sorting and sub-sorting procedures.

After these topics were discussed, the first sample was placed on a sorting table and a group of sorters were selected to begin sorting a refuse sample while the other temporary workers watched. This was a practical demonstration of sorting, emphasizing both the safety aspects and the procedures. After the first sample was sorted, John Culbertson discussed the contents of each of the material bins to emphasize the important of quality sorting, i.e. getting the material in the proper bin.

The training gradually merged into sorting with the professional staff and temporary workers divided into sorting crews and sorting samples under the supervision of the Crew Chiefs and the Technical Advisors. Because of the time needed to explain the sorting procedures to the temporary works and organize the workers into effective crew teams, only five samples of refuse were sorted on the first day of the Refuse Sort. As Table 3 shows, productivity increased dramatically thereafter.

Accommodations and Transportation

During the PWCS Refuse Sort, the professional staff resided at the Super 8 Motel in Long Island City. Although the staff was very cooperative the motel lacked a high-speed internet connection which made communication by e-mail and the exchange of data files cumbersome during the Refuse Sort.

The R.W. Beck Project Team leased five vehicles. Three cars were rented to transport the professional staff and obtain needed supplies during the sorting period. In addition, two trucks with automated lift gates were leased to transport refuse samples from the transfer stations to the MTS.

Appendix R
Recyclables Sort Staffing

Recyclables Sort Staffing

Staffing

Based on the experience in the Refuse Sort, and based on the anticipated level of complexity of the Paper and MGP subsorts, the R.W. Beck Project Team planned to use three sorting crews for the Recycables Sort. This configuration proved to be highly successful, with one crew specializing in the Paper sorts, and two crews specializing in the MGP sorts.

Professional Staff

The R.W. Beck Project Team had ten professionals present on June 7th, which was designated as a training day. One professional, John Culbertson, was present for the training, but did not remain on site for the duration of the Recyclables Sort.

Job Descriptions

The PWCS Recycables Sort included the same professional positions that were used in the Refuse Sort:

- **Project Manager** – The Project Manager has overall responsibility for the conduct of the sort and was the primary liaison between the R.W. Beck Project Team and the DSNY. The specific responsibilities of the Project Manager included the selection and monitoring of the professional staff, budget oversight, interactions with the DSNY and other City agencies, and setting policies and procedures for sampling and sorting.
- **Field Supervisor** – The Field Supervisor has responsibility for all activities at the Greenpoint MTS, including record-keeping, the functioning of the sorting crews, preparing moisture samples, and providing equipment and supplies to the sorting crews, as needed. For questions regarding the classification of materials, the Field Supervisor had the final word regarding material categorization.
- **Crew Chief** – The Crew Chief has responsibility for his/her sorting crew, including seeing that safe sorting procedures were used, workers were sorting efficiently, that sorting was done in accordance with agreed upon protocols, and making sure that the crew's sorting area was clean and neat.
- **Sample Manager** – The Sample Manager was responsible for acquiring refuse samples from the private processing centers, transporting them to the MTS, and staging them for the sorting crews. The Sample Manager's responsibilities included working cooperatively with the staff of the processing centers and the DSNY staff at these facilities, selecting random samples of paper and MGP of at least 100 pounds, and operating the sampling trucks with care.

Personnel

A total of 10 members of the professional staff were present for some part of the Refuse Sort. Four of those people were scheduled to be present only for the training day and, in two cases, the second day of the sorting period. The individuals working on the PWCS Refuse Sort included:

- Jonathan Burgiel, R.W. Beck, Principal-in-Charge: On site for one day
- Tom Jones, R.W. Beck, Project Manager: On site for duration of the Recyclables Sort
- John Culbertson, R.W. Beck, Technical Advisor: On site for two days
- Sean Perera, R.W. Beck, Field Supervisor: On site for duration of the Recyclables Sort
- Amity Lumper, Cascadia, Crew Chief: On site for the duration of the Recyclables Sort
- Tim Buwalda, R.W. Beck, Crew Chief: On site for the duration of the Recyclables Sort
- Whitney Rusert, R.W. Beck, Crew Chief: On site for the duration of the Recyclables Sort
- Randy Bowen, R.W. Beck, Crew Chief/Sample Manager: On site for the duration of the Recyclables Sort
- John Hermann, R.W. Beck, Sample Manager: On site for three days of the Recyclables Sort
- Craig Shepherd, R.W. Beck, Sample Manager: On site for the duration of the Recyclables Sort

The specific days worked by each of the professional staff are shown in the attendance lists which are presented in Appendix T.

Temporary Workers

The R.W. Beck Project Team obtained temporary workers for the Recyclables Sort from the Active Personnel Agency, the same agency that had provided workers for the Refuse Sort. Approximately 18 temporary laborers worked on the Recyclables Sort each day and an accounting of the specific days worked by each temporary worker is shown in the attendance lists in Appendix S.

Again, the quality of the temporary workers was excellent. The productivity during the recyclables sorting period, as shown in Table 16, reflects their continuous improvement in productivity and efficiency.

Table 16
Recyclable Samples Collected and Sorted

	Samples Collected		Samples Sorted	
	MGP	**Paper**	**MGP[1]**	**Paper[2]**
June 7	17	16	8	13
June 8	20	17	20	20
June 9	16	17	20	17
June 10	17	15	20	15
June 11	17	17	19	17
June 12	17	17	17	17
Total	**104**	**99**	**104**	**99**

(1) Number of samples sorted by two crews on each day.
(2) One crew only.

Staff Training

As noted above, staff training took place on June 7, 2004. To maintain consistency with the Refuse Sort, John Culbertson, R. W. Beck's Technical Advisor, again conducted the training which consisted of an introduction of the project, an overview of health and safety considerations, and detailed instruction on the sorting procedures. Additional details about training are provided in Section 3.

In general, the project introduction and health and safety portions of the training were similar to the Refuse Sort. Many of the temporary laborers had previously participated in the Refuse Sort, and this information was already familiar to these individuals.

Because of the new sorting procedures, extra time was spent to "re-train" Refuse Sort veterans on the new Recycables Sort procedures. Temporary laborers with Refuse Sort experience were quick to adapt to the new procedures, which minimized lost time during the training process.

To update all temporary laborers on the new Recyclables Sort procedures, a paper sample was placed on a sorting table and a group of sorters were selected to begin sorting the sample while the other temporary workers watched. This was a practical demonstration of sorting, emphasizing both the safety aspects and the procedures. After the paper sample was sorted, John Culbertson discussed the contents of each of the material bins to emphasize the important of quality sorting, i.e. getting the material in the proper bin. This process was repeated for MGP.

The training rapidly merged into sorting with the professional staff and temporary workers divided into sorting crews and sorting samples under the supervision of the Crew Chiefs and the Technical Advisor. Because of the time needed to explain the sorting procedures to the temporary works and organize the workers into effective crews, only 13 paper samples and 9 MGP samples were sorted on the first day of the Recyclables Sort. As Table 16 shows, productivity increased to full capacity by the second day, and remained high throughout the sort.

Accommodations and Transportation

During the PWCS Recyclables Sort, the professional staff resided at the Comfort Inn in Long Island City. Although the motel had a high-speed internet connection, there were various problems with faxes which made communication by fax difficult.

The R. W. Beck Project Team leased five vehicles. Three cars were rented to transport the professional staff and obtain needed supplies during the sorting period. In addition, two trucks with automated lift gates were leased to transport recyclable samples from the processing centers to the MTS.

Appendix S
Refuse Sort Attendance List

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List

Date: May 17, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Jonathan Burgiel	Professional	Principal in Charge	Day	Greenpoint MTS
John Culbertson	Professional	Technical Advisor	Day	Greenpoint MTS
Charlie Scott	Professional	Technical Advisor	Day	Greenpoint MTS
Debbie McDonough	Professional	Data Manager	Day	Greenpoint MTS
Tanya Tarnecki	Professional	Site Supervisor	Day	Greenpoint MTS
Brian Scott	Professional	Sample Manager	10am - 6pm	HRY
Sean Perera	Professional	Sample Manager	12am - 6am	Varick
John Buri	Professional	Crew Chief	Day	Greenpoint MTS
Susan Jorash	Professional	Crew Chief	Day	Greenpoint MTS
Rory Tipton	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 6am	Varick
John Berry	Temp. Worker	Sampling Helper	10am - 6pm	HRY
Carlos Sostre	Temp. Worker	Sorter	Day	Greenpoint MTS
Keith McCurdy	Temp. Worker	Sorter	Day	Greenpoint MTS
John Berry	Temp. Worker	Sorter	Day	Greenpoint MTS
Demond Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Eugene Escott	Temp. Worker	Sorter	Day	Greenpoint MTS
Ernest Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Jose Marias	Temp. Worker	Sorter	Day	Greenpoint MTS
Winston Peteross	Temp. Worker	Sorter	Day	Greenpoint MTS
Raymond Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
George Alomar	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darryll Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Michael Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Jefferson Coral	Temp. Worker	Sorter	Day	Greenpoint MTS
Colin Grant	Temp. Worker	Sorter	Day	Greenpoint MTS
Ricky McCollum	Temp. Worker	Sorter	Day	Greenpoint MTS
Eliel Santiago	Temp. Worker	Sorter	Day	Greenpoint MTS
Herbet Bartholomew	Temp. Worker	Sorter	Day	Greenpoint MTS

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List

Date: May 18, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Tanya Tarnecki	Professional	Site Supervisor	Day	Greenpoint MTS
Brian Scott	Professional	Sample Manager	10am - 6pm	HRY
Sean Perera	Professional	Sample Manager	12am - 6am	Varick
John Buri	Professional	Crew Chief	Day	Greenpoint MTS
Susan Jorash	Professional	Crew Chief	Day	Greenpoint MTS
Rory Tipton	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 6am	Varick
Christopher Clennon	Temp. Worker	Sampling Helper	10am - 6pm	HRY
Noel Correa	Temp. Worker	Sorter	Day	Greenpoint MTS
Eugene Escott	Temp. Worker	Sorter	Day	Greenpoint MTS
Ernest Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Winston Peteross	Temp. Worker	Sorter	Day	Greenpoint MTS
Raymond Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
George Alomar	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darryll Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Michael Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List

Date: May 19, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Tanya Tarnecki	Professional	Site Supervisor	Day	Greenpoint MTS
Brian Scott	Professional	Sample Manager	10am - 6pm	HRY
Sean Perera	Professional	Sample Manager	12am - 6am	Varick
John Buri	Professional	Crew Chief	Day	Greenpoint MTS
Susan Jorash	Professional	Crew Chief	Day	Greenpoint MTS
Rory Tipton	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 6am	Varick
John Berry	Temp. Worker	Sampling Helper	10am - 6pm	HRY
Keith McCurdy	Temp. Worker	Sorter	Day	Greenpoint MTS
Noel Correa	Temp. Worker	Sorter	Day	Greenpoint MTS
Harold Heyward	Temp. Worker	Sorter	Day	Greenpoint MTS
Shakir Campbell	Temp. Worker	Sorter	Day	Greenpoint MTS
Demond Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Gregory Smoot	Temp. Worker	Sorter	Day	Greenpoint MTS
Eugene Escott	Temp. Worker	Sorter	Day	Greenpoint MTS
Ernest Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Jose Marias	Temp. Worker	Sorter	Day	Greenpoint MTS
Winston Peteross	Temp. Worker	Sorter	Day	Greenpoint MTS
Raymond Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
George Alomar	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darryll Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Michael Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Jefferson Coral	Temp. Worker	Sorter	Day	Greenpoint MTS

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List

Date: May 20, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Tanya Tarnecki	Professional	Site Supervisor	Day	Greenpoint MTS
Brian Scott	Professional	Sample Manager	10am - 6pm	HRY
Sean Perera	Professional	Sample Manager	12am - 6am	Varick
John Buri	Professional	Crew Chief	Day	Greenpoint MTS
Susan Jorash	Professional	Crew Chief	Day	Greenpoint MTS
Rory Tipton	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 6am	Varick
John Berry	Temp. Worker	Sampling Helper	10am - 6pm	HRY
Carlos Sostre	Temp. Worker	Sorter	Day	Greenpoint MTS
Keith McCurdy	Temp. Worker	Sorter	Day	Greenpoint MTS
Demond Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Noel Correa				
Eugene Escott	Temp. Worker	Sorter	Day	Greenpoint MTS
Ernest Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Jose Marias	Temp. Worker	Sorter	Day	Greenpoint MTS
Eli Norris				
Winston Peteross	Temp. Worker	Sorter	Day	Greenpoint MTS
Raymond Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
George Alomar	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darryll Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Jefferson Coral	Temp. Worker	Sorter	Day	Greenpoint MTS

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List

Date: May 21, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Tanya Tarnecki	Professional	Site Supervisor	Day	Greenpoint MTS
Brian Scott	Professional	Sample Manager	10am - 6pm	HRY
Sean Perera	Professional	Sample Manager	12am - 6am	Varick
John Buri	Professional	Crew Chief	Day	Greenpoint MTS
Susan Jorash	Professional	Crew Chief	Day	Greenpoint MTS
Rory Tipton	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 6am	Varick
John Berry	Temp. Worker	Sampling Helper	10am - 6pm	HRY
Carlos Sostre	Temp. Worker	Sorter	Day	Greenpoint MTS
Keith McCurdy	Temp. Worker	Sorter	Day	Greenpoint MTS
Noel Correa	Temp. Worker	Sorter	Day	Greenpoint MTS
Eli Norris	Temp. Worker	Sorter	Day	Greenpoint MTS
Demond Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Eugene Escott	Temp. Worker	Sorter	Day	Greenpoint MTS
Ernest Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Jose Marias	Temp. Worker	Sorter	Day	Greenpoint MTS
Winston Peteross	Temp. Worker	Sorter	Day	Greenpoint MTS
Raymond Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
George Alomar	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darryll Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Michael Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Jefferson Coral	Temp. Worker	Sorter	Day	Greenpoint MTS
Colin Grant	Temp. Worker	Sorter	Day	Greenpoint MTS
Ricky McCollum	Temp. Worker	Sorter	Day	Greenpoint MTS
Eliel Santiago	Temp. Worker	Sorter	Day	Greenpoint MTS
Herbet Bartholomew	Temp. Worker	Sorter	Day	Greenpoint MTS

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List

Date: May 22, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Tanya Tarnecki	Professional	Site Supervisor	Day	Greenpoint MTS
Brian Scott	Professional	Sample Manager	12am - 6am	HRY
Sean Perera	Professional	Sample Manager	12am - 6am	HRY
John Buri	Professional	Sample Manager	12am - 6am	Varick
Susan Jorash	Professional	Crew Chief	Day	Greenpoint MTS
Rory Tipton	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 6am	Varick
John Berry	Temp. Worker	Sampling Helper	10am - 6pm	HRY
Carlos Sostre	Temp. Worker	Sorter	Day	Greenpoint MTS
Keith McCurdy	Temp. Worker	Sorter	Day	Greenpoint MTS
John Berry	Temp. Worker	Sorter	Day	Greenpoint MTS
Demond Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Eugene Escott	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Jose Marias	Temp. Worker	Sorter	Day	Greenpoint MTS
Winston Peteross	Temp. Worker	Sorter	Day	Greenpoint MTS
Raymond Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
George Alomar	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darryll Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Michael Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Jefferson Coral	Temp. Worker	Sorter	Day	Greenpoint MTS
Colin Grant	Temp. Worker	Sorter	Day	Greenpoint MTS
Eli Norris	Temp. Worker	Sorter	Day	Greenpoint MTS

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List

Date: May 24, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Tanya Tarnecki	Professional	Site Supervisor	Day	Greenpoint MTS
Brian Scott	Professional	Sample Manager	12am - 6am	HRY
Sean Perera	Professional	Sample Manager	12am - 6am	HRY
John Buri	Professional	Sample Manager	12am - 6am	Varick
Susan Jorash	Professional	Crew Chief	Day	Greenpoint MTS
Randy Bowen	Professional	Crew Chief	Day	Greenpoint MTS
Rory Tipton	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 6am	Varick
Carlos Sostre	Temp. Worker	Sorter	Day	Greenpoint MTS
Keith McCurdy	Temp. Worker	Sorter	Day	Greenpoint MTS
Demond Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Eugene Escott	Temp. Worker	Sorter	Day	Greenpoint MTS
Ernest Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Jose Marias	Temp. Worker	Sorter	Day	Greenpoint MTS
Winston Peteross	Temp. Worker	Sorter	Day	Greenpoint MTS
Raymond Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
George Alomar	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darryll Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Michael Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Jefferson Coral	Temp. Worker	Sorter	Day	Greenpoint MTS
Colin Grant	Temp. Worker	Sorter	Day	Greenpoint MTS
Herbet Bartholomew	Temp. Worker	Sorter	Day	Greenpoint MTS
Noel Correa	Temp. Worker	Sorter	Day	Greenpoint MTS
Abdur-Rahin Rahman	Temp. Worker	Sorter	Day	Greenpoint MTS
Romel Monpoint	Temp. Worker	Sorter	Day	Greenpoint MTS

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List

Date: May 25, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Tanya Tarnecki	Professional	Site Supervisor	Day	Greenpoint MTS
Brian Scott	Professional	Sample Manager	12am - 6am	HRY
Sean Perera	Professional	Sample Manager	12am - 6am	HRY
Susan Jorash	Professional	Crew Chief	Day	Greenpoint MTS
Randy Bowen	Professional	Crew Chief	Day	Greenpoint MTS
Rory Tipton	Professional	Crew Chief	Day	Greenpoint MTS
John Buri	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 6am	HRY
Carlos Sostre	Temp. Worker	Sorter	Day	Greenpoint MTS
Keith McCurdy	Temp. Worker	Sorter	Day	Greenpoint MTS
Demond Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Ernest Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Jose Marias	Temp. Worker	Sorter	Day	Greenpoint MTS
Winston Peteross	Temp. Worker	Sorter	Day	Greenpoint MTS
Raymond Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
George Alomar	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darryll Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Michael Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Jefferson Coral	Temp. Worker	Sorter	Day	Greenpoint MTS
Colin Grant	Temp. Worker	Sorter	Day	Greenpoint MTS
Herbet Bartholomew	Temp. Worker	Sorter	Day	Greenpoint MTS
Noel Correa	Temp. Worker	Sorter	Day	Greenpoint MTS
Abdur-Rahin Rahman	Temp. Worker	Sorter	Day	Greenpoint MTS
Romel Monpoint	Temp. Worker	Sorter	Day	Greenpoint MTS
Eli Norris	Temp. Worker	Sorter	Day	Greenpoint MTS

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List

Date: May 26, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Tanya Tarnecki	Professional	Site Supervisor	Day	Greenpoint MTS
Brian Scott	Professional	Sample Manager	12am - 6am	HRY
Sean Perera	Professional	Sample Manager	12am - 6am	Varick
Susan Jorash	Professional	Crew Chief	Day	Greenpoint MTS
Randy Bowen	Professional	Crew Chief	Day	Greenpoint MTS
Rory Tipton	Professional	Crew Chief	Day	Greenpoint MTS
John Buri	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 6am	Varick
Kevin Reese	Temp. Worker	Sampling Helper	12am - 6am	HRY
Carlos Sostre	Temp. Worker	Sorter	Day	Greenpoint MTS
Keith McCurdy	Temp. Worker	Sorter	Day	Greenpoint MTS
Demond Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Jose Marias	Temp. Worker	Sorter	Day	Greenpoint MTS
Winston Peteross	Temp. Worker	Sorter	Day	Greenpoint MTS
Ramon Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
George Alomar	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darryll Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Michael Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Jefferson Coral	Temp. Worker	Sorter	Day	Greenpoint MTS
Colin Grant	Temp. Worker	Sorter	Day	Greenpoint MTS
Herbet Bartholomew	Temp. Worker	Sorter	Day	Greenpoint MTS
Noel Correa	Temp. Worker	Sorter	Day	Greenpoint MTS
Abdur-Rahin Rahman	Temp. Worker	Sorter	Day	Greenpoint MTS
Eli Norris	Temp. Worker	Sorter	Day	Greenpoint MTS
Eliel Santiago	Temp. Worker	Sorter	Day	Greenpoint MTS
Eugene Escott	Temp. Worker	Sorter	Day	Greenpoint MTS

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List

Date: May 27, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Tanya Tarnecki	Professional	Site Supervisor	Day	Greenpoint MTS
Sean Perera	Professional	Sample Manager	12am - 6am	HRY
Susan Jorash	Professional	Crew Chief	Day	Greenpoint MTS
Randy Bowen	Professional	Crew Chief	Day	Greenpoint MTS
Rory Tipton	Professional	Crew Chief	Day	Greenpoint MTS
John Buri	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 6am	Varick
Carlos Sostre	Temp. Worker	Sorter	Day	Greenpoint MTS
Keith McCurdy	Temp. Worker	Sorter	Day	Greenpoint MTS
Demond Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Jose Marias	Temp. Worker	Sorter	Day	Greenpoint MTS
Winston Peteross	Temp. Worker	Sorter	Day	Greenpoint MTS
Ramon Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
George Alomar	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darryll Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Michael Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Jefferson Coral	Temp. Worker	Sorter	Day	Greenpoint MTS
Colin Grant	Temp. Worker	Sorter	Day	Greenpoint MTS
Herbet Bartholomew	Temp. Worker	Sorter	Day	Greenpoint MTS
Noel Correa	Temp. Worker	Sorter	Day	Greenpoint MTS
Abdur-Rahin Rahman	Temp. Worker	Sorter	Day	Greenpoint MTS
Eli Norris	Temp. Worker	Sorter	Day	Greenpoint MTS
Eliel Santiago	Temp. Worker	Sorter	Day	Greenpoint MTS
Eugene Escott	Temp. Worker	Sorter	Day	Greenpoint MTS
Romel Monpoint	Temp. Worker	Sorter	Day	Greenpoint MTS
Ernest Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS

Appendix T
Recycling Sort Attendance List

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List
Recycling Sort

Date: June 7, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Sean Perera	Professional	Site Supervisor	Day	Greenpoint MTS
Craig Shepherd	Professional	Sample Manager	12am - 8am	Hugo Neu
John Hermann	Professional	Sample Manager	12am - 8am	Metropolitan
Randy Bowen	Professional	Crew Chief	Day	Greenpoint MTS
Michael Giampetro	Professional	Crew Chief	Day	Greenpoint MTS
Amity Lumper	Professional	Crew Chief	Day	Greenpoint MTS
Tim Buwalda	Professional	Crew Chief	Day	Greenpoint MTS
John Culbertson	Professional	Technical Advisor	Day	Greenpoint MTS
Whitney Rusert	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 8am	Hugo Neu
Kevin Reese	Temp. Worker	Sampling Helper	12am - 8am	Metropolitan
Carlos Sostre	Temp. Worker	Sorter	Day	Greenpoint MTS
Keith McCurdy	Temp. Worker	Sorter	Day	Greenpoint MTS
Demond Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Ramon Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
George Alomar	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darrell Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Noel Correa	Temp. Worker	Sorter	Day	Greenpoint MTS
Abdur-Rahin Rahman	Temp. Worker	Sorter	Day	Greenpoint MTS
Eugene Escott	Temp. Worker	Sorter	Day	Greenpoint MTS
Ernest Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Richard Vergara	Temp. Worker	Sorter	Day	Greenpoint MTS
Deshawn Johnson	Temp. Worker	Sorter	Day	Greenpoint MTS
Lawrence Hall	Temp. Worker	Sorter	Day	Greenpoint MTS
Rashard Pitt	Temp. Worker	Sorter	Day	Greenpoint MTS
William Harris	Temp. Worker	Sorter	Day	Greenpoint MTS

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List
Recycling Sort

Date: June 8, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Sean Perera	Professional	Site Supervisor	Day	Greenpoint MTS
Craig Shepherd	Professional	Sample Manager	12am - 8am	Hugo Neu
John Hermann	Professional	Sample Manager	12am - 8am	Metropolitan
Randy Bowen	Professional	Crew Chief	Day	Greenpoint MTS
Michael Giampetro	Professional	Crew Chief	Day	Greenpoint MTS
Amity Lumper	Professional	Crew Chief	Day	Greenpoint MTS
Tim Buwalda	Professional	Crew Chief	Day	Greenpoint MTS
John Culbertson	Professional	Technical Advisor	Day	Greenpoint MTS
Whitney Rusert	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 8am	Hugo Neu
Kevin Reese	Temp. Worker	Sampling Helper	12am - 8am	Metropolitan
Carlos Sostre	Temp. Worker	Sorter	Day	Greenpoint MTS
Keith McCurdy	Temp. Worker	Sorter	Day	Greenpoint MTS
Demond Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Ramon Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
George Alomar	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darrell Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Noel Correa	Temp. Worker	Sorter	Day	Greenpoint MTS
Abdur-Rahin Rahman	Temp. Worker	Sorter	Day	Greenpoint MTS
Ernest Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Richard Vergara	Temp. Worker	Sorter	Day	Greenpoint MTS
Deshawn Johnson	Temp. Worker	Sorter	Day	Greenpoint MTS
Lawrence Hall	Temp. Worker	Sorter	Day	Greenpoint MTS
Rashard Pitt	Temp. Worker	Sorter	Day	Greenpoint MTS
William Harris	Temp. Worker	Sorter	Day	Greenpoint MTS

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List
Recycling Sort

Date: June 9, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Sean Perera	Professional	Site Supervisor	Day	Greenpoint MTS
Craig Shepherd	Professional	Sample Manager	12am - 8am	Hugo Neu
John Hermann	Professional	Sample Manager	12am - 8am	Metropolitan
Randy Bowen	Professional	Crew Chief	Day	Greenpoint MTS
Michael Giampetro	Professional	Crew Chief	Day	Greenpoint MTS
Amity Lumper	Professional	Crew Chief	Day	Greenpoint MTS
Tim Buwalda	Professional	Crew Chief	Day	Greenpoint MTS
Whitney Rusert	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 8am	Hugo Neu
Kevin Reese	Temp. Worker	Sampling Helper	12am - 8am	Metropolitan
Carlos Sostre	Temp. Worker	Sorter	Day	Greenpoint MTS
Keith McCurdy	Temp. Worker	Sorter	Day	Greenpoint MTS
Demond Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Ramon Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
George Alomar	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darrell Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Noel Correa	Temp. Worker	Sorter	Day	Greenpoint MTS
Abdur-Rahin Rahman	Temp. Worker	Sorter	Day	Greenpoint MTS
Ernest Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Richard Vergara	Temp. Worker	Sorter	Day	Greenpoint MTS
Deshawn Johnson	Temp. Worker	Sorter	Day	Greenpoint MTS
Lawrence Hall	Temp. Worker	Sorter	Day	Greenpoint MTS
Eugene Escott	Temp. Worker	Sorter	Day	Greenpoint MTS

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List
Recycling Sort

Date: June 10, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Sean Perera	Professional	Site Supervisor	Day	Greenpoint MTS
Craig Shepherd	Professional	Sample Manager	12am - 8am	Hugo Neu
John Hermann	Professional	Sample Manager	12am - 8am	Metropolitan
Randy Bowen	Professional	Crew Chief	Day	Greenpoint MTS
Michael Giampetro	Professional	Crew Chief	Day	Greenpoint MTS
Amity Lumper	Professional	Crew Chief	Day	Greenpoint MTS
Tim Buwalda	Professional	Crew Chief	Day	Greenpoint MTS
Whitney Rusert	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 8am	Hugo Neu
Kevin Reese	Temp. Worker	Sampling Helper	12am - 8am	Metropolitan
Carlos Sostre	Temp. Worker	Sorter	Day	Greenpoint MTS
Keith McCurdy	Temp. Worker	Sorter	Day	Greenpoint MTS
Demond Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Ramon Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
George Alomar	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darrell Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Noel Correa	Temp. Worker	Sorter	Day	Greenpoint MTS
Abdur-Rahin Rahman	Temp. Worker	Sorter	Day	Greenpoint MTS
Ernest Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Richard Vergara	Temp. Worker	Sorter	Day	Greenpoint MTS
Deshawn Johnson	Temp. Worker	Sorter	Day	Greenpoint MTS
Lawrence Hall	Temp. Worker	Sorter	Day	Greenpoint MTS
Eugene Escott	Temp. Worker	Sorter	Day	Greenpoint MTS

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List
Recycling Sort

Date: June 11, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Sean Perera	Professional	Site Supervisor	Day	Greenpoint MTS
Craig Shepherd	Professional	Sample Manager	12am - 8am	Hugo Neu
Randy Bowen	Professional	Sample Manager	12am - 8am	Metropolitan
Michael Giampetro	Professional	Crew Chief	Day	Greenpoint MTS
Amity Lumper	Professional	Crew Chief	Day	Greenpoint MTS
Tim Buwalda	Professional	Crew Chief	Day	Greenpoint MTS
Whitney Rusert	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 8am	Hugo Neu
Ian Stewart	Temp. Worker	Sampling Helper	12am - 8am	Metropolitan
Carlos Sostre	Temp. Worker	Sorter	Day	Greenpoint MTS
Keith McCurdy	Temp. Worker	Sorter	Day	Greenpoint MTS
Demond Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Ramon Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
George Alomar	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darrell Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Noel Correa	Temp. Worker	Sorter	Day	Greenpoint MTS
Abdur-Rahin Rahman	Temp. Worker	Sorter	Day	Greenpoint MTS
Ernest Robinson	Temp. Worker	Sorter	Day	Greenpoint MTS
Richard Vergara	Temp. Worker	Sorter	Day	Greenpoint MTS
Deshawn Johnson	Temp. Worker	Sorter	Day	Greenpoint MTS
Lawrence Hall	Temp. Worker	Sorter	Day	Greenpoint MTS
Eugene Escott	Temp. Worker	Sorter	Day	Greenpoint MTS

New York Department of Sanitation
PRELIMINARY WASTE CHARACTERIZATION STUDY
Professional/Temporary Worker Attendance List
Recycling Sort

Date: June 12, 2004

Name	Professional or Temp.	Role	Shift	Site
Tom Jones	Professional	Project Manager	Day	Greenpoint MTS
Sean Perera	Professional	Site Supervisor	Day	Greenpoint MTS
Craig Shepherd	Professional	Sample Manager	12am - 8am	Hugo Neu
Randy Bowen	Professional	Sample Manager	12am - 8am	Metropolitan
Michael Giampetro	Professional	Crew Chief	Day	Greenpoint MTS
Amity Lumper	Professional	Crew Chief	Day	Greenpoint MTS
Tim Buwalda	Professional	Crew Chief	Day	Greenpoint MTS
Whitney Rusert	Professional	Crew Chief	Day	Greenpoint MTS
Dennis Brown	Temp. Worker	Sampling Helper	12am - 8am	Hugo Neu
Ian Stewart	Temp. Worker	Sampling Helper	12am - 8am	Metropolitan
Keith McCurdy	Temp. Worker	Sorter	Day	Greenpoint MTS
Raul Aurena	Temp. Worker	Sorter	Day	Greenpoint MTS
Ramon Romero	Temp. Worker	Sorter	Day	Greenpoint MTS
David Strickland	Temp. Worker	Sorter	Day	Greenpoint MTS
Darrell Brimmage	Temp. Worker	Sorter	Day	Greenpoint MTS
Abdur-Rahin Rahman	Temp. Worker	Sorter	Day	Greenpoint MTS
Richard Vergara	Temp. Worker	Sorter	Day	Greenpoint MTS
Deshawn Johnson	Temp. Worker	Sorter	Day	Greenpoint MTS
Lawrence Hall	Temp. Worker	Sorter	Day	Greenpoint MTS
Eugene Escott	Temp. Worker	Sorter	Day	Greenpoint MTS

Appendix U
PWCS Results Without Bulk Items

PWCS Results Without Bulk Items

The protocol for the PWCS included the collection of any bulk waste that was part of a randomly collected sample of refuse and recycling materials. Bulk waste was defined as any item too large to fit into a 96-gallon toter. When a bulk item was part of a sample, it was weighed and the weight and a description of the item was recorded by the Sample Manager on the Sample Management Form (see Appendix N).

In compiling the results of the PWCS, the Data Manager assigned the weight of the bulk item(s) recorded on the Sample Management Form to one of the existing material categories. For example, the weight of a mattress recorded as a bulk item in a refuse sample would be included in "Other Textiles." The weight of an air conditioner recorded as a bulk item in an MGP sample would be included in "Small Appliances and Other Electronics."

Of the 403 samples sorted for the PWCS, 93 included bulk items with a total weight of 2,158.60 pounds. Table AU-1 lists the bulk items included in the PWCS results, their weight, and the material category to which they were assigned.

Table AU-1
Bulk Items

Bulk Item	Total Bulk Weight	Category
Mattress	76.00	Non-Clothing Textiles
Fiberglass Insulation	11.00	Fiberglass Insulation
C&D Wood	3.50	Untreated Dimension Lumber, Pallets, Crates
Plywood	43.00	Other C&D Debris
Tree Limb	25.70	Stumps/Limbs
Leather Suitcase	13.70	Other Leather Products
C&D Wood - Treated	18.00	Treated/Contaminated Wood
Film Plastic - Tarp	10.00	Other Film
Baby Stroller	19.00	Mixed Metals
Vacuum Cleaner	13.50	Small Appliances
Baby Stroller - Metal	11.10	Other Ferrous
Metal Chair - Ferrous	6.00	Other Ferrous
Mattress	19.45	Non-Clothing Textiles
Wood - C&D	17.50	Other C&D Debris
Plastic Fan	3.70	Other Plastics Materials
Plastic Broom Handle	9.10	Other Plastics Materials
Foam Pad (Egg Type)	2.80	Miscellaneous Inorganics
C&D - Wood	11.00	Untreated Dimension Lumber, Pallets, Crates
Prunings	23.00	Prunings
Contaminated Wood	20.00	Treated/Contaminated Wood
HDPE Colored Container	7.40	HDPE Colored Bottles

Table AU-1
Bulk Items

Bulk Item	Total Bulk Weight	Category
Child Car Seat	9.40	Other Plastics Materials
Computer	21.10	Other Computer Equip.
Plastic Broom/Mop Handles	7.00	Other Plastics Materials
C&D Wood	12.60	Untreated Dimension Lumber, Pallets, Crates
Mattress	42.40	Non-Clothing Textiles
Vacuum Cleaner Part - Plastic	3.60	Other Plastics Materials
Spring Mattress (Cloth Covered)	38.50	Non-Clothing Textiles
Cloth Covered Sofa Seat Pads (Foam Core)	8.90	Non-clothing Textiles
Wood Paneling (Non C&D)	4.30	Miscellaneous Organics
Wood C&D	4.00	Other C&D Debris
C&D Wood	9.80	Treated/Contaminated Wood
C&D Wood	16.80	Untreated Dimension Lumber, Pallets, Crates
Treated Wood - C&D	33.40	Treated/Contaminated Wood
Steel Hand-Cart	11.00	Other Ferrous
Lawn Mower	10.10	Mixed Metals
C&D Wood	5.40	Untreated Dimension Lumber, Pallets, Crates
HDPE Container	22.60	HDPE Colored Bottles
C&D Wood	19.20	Other C&D Debris
Tree Stumps	13.70	Stumps/Limbs
Tree Branches	30.30	Stumps/Limbs
Carpet	16.40	Carpet/Upholstery
Metal Bed Frame	4.00	Other Ferrous
Wood, Non C&D	30.00	Non-C&D, Untreated Wood
Carpet	34.30	Carpet/Upholstery
Tree Cuttings	11.40	Prunings
Carpet	12.20	Carpet/Upholstery
Radio Speaker	18.30	Mixed Metals
OCC	15.60	Plain OCC/Kraft paper
C&D Wood	8.80	Untreated Dimension Lumber, Pallets, Crates
Wood, Non C&D	11.10	Non-C&D, Untreated Wood
Radio	13.65	Audio/Visual Equipment
Foam Couch Cushion	5.60	Non-Clothing Textiles
Wood, Non C&D	11.60	Non-C&D, Untreated Wood
Wood, Non C&D	12.60	Non-C&D, Untreated Wood
Wood, Non C&D	38.40	Non-C&D, Untreated Wood
VCR	8.50	Audio/Visual Equipment
Tubular Metal Chair	12.00	Mixed Metals
Wood, Non C&D	10.20	Non-C&D, Untreated Wood
Refuse Subtotal	**963.20**	

Table AU-1
Bulk Items

Bulk Item	Total Bulk Weight	Category
Metal Range Hood	10.00	Other Ferrous
Metal Cart, Plastic Wheels	9.00	Other Ferrous
Microwave Oven	16.00	Small Appliances
Metal Folding Chair	10.00	Other Ferrous
Electric Fan (15")	8.00	Small Appliances
Metal Bed Frame	21.00	Other Ferrous
Bicycle Wheels	8.00	Rubber
Metal Cabinet	23.00	Other Ferrous
Metal + Plastic Chair	16.00	Other Ferrous
Microwave	26.00	Small Appliances
Metal Office Chair	20.00	Other Ferrous
Metal Bar	8.00	Mixed Metal
Metal Pipes	22.00	Other Ferrous
Metal Frame	12.00	Other Ferrous
Metal Frame	44.00	Other Ferrous
Heater	14.00	Small Appliances
Stove	96.10	Small Appliances
Metal Bars	15.00	Mixed Metal
Metal Frame	9.00	Mixed Metal
Air Conditioner	25.00	Small Appliances
Metal Chair Piece	9.00	Other Ferrous
Metal Bed Frame	18.20	Other Ferrous
Metal Chair	6.30	Other Ferrous
Metal Cabinet	22.30	Other Ferrous
Metal Baby Stroller	12.00	Other Ferrous
Metal Cabinet	5.50	Other Ferrous
Metal Baby Stroller	10.00	Other Ferrous
Metal Stove Top	12.00	Other Ferrous
Metal Bed Frame	10.00	Other Ferrous
Metal Pipe	6.00	Other Ferrous
Metal Bed Frame	19.00	Other Ferrous
Air Conditioner	35.00	Small Appliances
2 Metal Bed Frames	20.00	Other Ferrous
Plastic Vacuum Cleaner	10.00	Small Appliances
Metal Curtain Rod	8.00	Other Ferrous
Metal Bed Frame	10.00	Other Ferrous
Metal Stove Top	9.00	Other Ferrous
Metal Stove Top	7.00	Other Ferrous
Refrigerator Door	22.00	Other Ferrous

Table AU-1
Bulk Items

Bulk Item	Total Bulk Weight	Category
Metal Chair	12.00	Other Ferrous
Metal Shelf	12.00	Other Ferrous
Plastic Vacuum Cleaner Bottom	8.00	Small Appliances
Air Conditioner	66.00	Small Appliances
Washing Machine (Part)	80.00	Small Appliances
Metal Appliance Cover	5.00	Other Ferrous
Air Conditioner	48.00	Small Appliances
Metal Container	10.00	Other Ferrous
Metal Bed Frame	7.50	Other Ferrous
Metal Pan	5.50	Other Ferrous
Metal Chair	7.00	Other Ferrous
Metal Ceiling Fan - Parts	14.00	Other Ferrous
Metal Container	12.00	Other Ferrous
Dishwasher Or Similar Appliance	71.00	Small Appliances
Refrigerator Door	10.00	Other Ferrous
Metal Cabinet	13.00	Other Ferrous
Child's Bicycle	28.00	Other Ferrous
Canister Vacuum - Plastic + Metal	12.00	Small Appliances
Microwave Oven	31.50	Small Appliances
Metal Frame	4.50	Other Ferrous
Freezer Door (Part)	17.00	Other Ferrous
Freezer Door (Part)	21.00	Other Ferrous
Metal File Drawer	15.00	Other Ferrous
Steel Pipes	22.00	Other Ferrous
MGP Subtotal	**1,195.40**	
Grand Total	**2,158.60**	

Bulk items accounted for 2.06 percent of the Refuse Sort and 10.77 percent of the MGP Sort. There were no bulk items in the Paper Samples.

The detailed results of the PWCS Refuse Sort without bulk items are shown in Table AU-2. The 59 bulk items in the Refuse Sort weighed a total of 983.2 pounds. The detailed results of the PWCS Refuse Sort including bulk items are presented in Table 6-2 of the PWCS Report.

Table AU-2
Detailed Results of the PWCS Refuse Sort without Bulk

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Refuse Stream	Weekly Tonnage in Refuse Stream (1)	Recycling Indicator	Recycling Subindicator
Paper	ONP	Newspaper		3.77%	2,200.83	R	R Paper
Paper	OCC	Plain OCC/Kraft paper		1.34%	782.81	R	R Paper
Paper	Mixed Paper	High Grade Paper		0.69%	405.55	R	R Paper
Paper	Mixed Paper	Mixed Low Grade Paper		7.48%	4,366.02	R	R Paper
Paper	Mixed Paper	Phone Books		0.23%	135.75	R	R Paper
Paper	Mixed Paper	Paperbacks		0.19%	110.56	R	R Paper
Paper	Mixed Paper	Paper Bags		0.61%	356.74	R	R Paper
Paper	Bev Cartons	Polycoated Containers		0.47%	277.37	R	R Bev Cartons
Paper	Compostable Paper	Compostable/Soiled/ Waxed OCC		7.63%	4,456.14	NR	NR_Paper
Paper	Compostable Paper	Single Use Plates, Cups		0.52%	304.71	NR	NR_Paper
Paper	Other Paper	Other Nonrecyclable Paper		0.66%	387.59	NR	NR_Paper
Plastic	PET Bottles	PET Bottles	Deposit	0.34%	198.50	R	R Plastics
Plastic	PET Bottles	PET Bottles	Non-Deposit	0.66%	384.72	R	R Plastics
Plastic	HDPE Bottles	HDPE Natural Bottles		0.31%	182.59	R	R Plastics
Plastic	HDPE Bottles	HDPE Colored Bottles		0.39%	226.54	R	R Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#1 Pet	0.03%	15.88	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#2 HDPE	0.08%	47.94	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#3 PVC	0.01%	7.88	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#4 LDPE	0.01%	8.39	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#5 PP	0.23%	132.29	PR	PR_Plastics
Plastic	Containers/Packaging	#3-#7 Containers	#7 Other	0.07%	40.86	PR	PR_Plastics
Plastic	Other Plastic Products	Other PVC		0.07%	41.93	NR	NR_Plastics
Plastic	Other Rigid Containers/Packaging	Rigid Polystyrene		0.16%	95.01	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Expanded Polystyrene		0.71%	413.31	PR	PR_Plastics
Plastic	Containers/Packaging	Other Rigid Containers/Packaging		0.62%	361.88	PR	PR_Plastics
Plastic	Film	Plastic Bags		2.85%	1,663.76	PR	PR_Plastics
Plastic	Film	Other Film		5.29%	3,087.73	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Plastic Crates and Soda Bottle Carriers		0.06%	35.86	PR	PR_Plastics
Plastic	Other Plastic Products	Single-Use Food Svc		0.79%	462.44	NR	NR_Plastics
Plastic	Other Plastic Products	Single Use Cameras		0.00%	0.00	NR	NR_Plastics

Table AU-2
Detailed Results of the PWCS Refuse Sort without Bulk

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Refuse Stream	Weekly Tonnage in Refuse Stream (1)	Recycling Indicator	Recycling Subindicator
Plastic	Other Plastic Products	Disposable Razors		0.01%	4.22	NR	NR_Plastics
Plastic	Other Plastic Products	Other Plastics Materials		1.62%	948.00	NR	NR_Plastics
Glass	Container Glass	Clear Glass	Deposit	0.29%	168.20	R	R Glass
Glass	Container Glass	Clear Glass	Non-Deposit	1.02%	595.05	R	R Glass
Glass	Container Glass	Green Glass	Deposit	0.15%	88.78	R	R Glass
Glass	Container Glass	Green Glass	Non-Deposit	0.17%	96.41	R	R Glass
Glass	Container Glass	Brown Glass	Deposit	0.27%	156.69	R	R Glass
Glass	Container Glass	Brown Glass	Non-Deposit	0.06%	34.25	R	R Glass
Glass	Mixed Cullet	Mixed Cullet		0.51%	298.50	R	R Glass
Glass	Other Glass	Other Glass		0.20%	119.31	PR	PR_Glass
Metal	Aluminum	Aluminum Cans	Deposit	0.17%	102.10	R	R Metal
Metal	Aluminum	Aluminum Cans	Non-Deposit	0.03%	15.99	R	R Metal
Metal	Aluminum	Aluminum Foil/Tins		0.61%	356.46	R	R Metal
Metal	Aluminum	Other Aluminum		0.05%	27.84	R	R Metal
Metal	Other Metal	Other Non-Ferrous		0.06%	37.94	R	R Metal
Metal	Ferrous	Tin Food Cans		0.93%	543.04	R	R Metal
Metal	Ferrous	Empty Aerosol Cans		0.13%	73.23	R	R Metal
Metal	Ferrous	Other Ferrous		0.98%	574.45	R	R Metal
Metal	Other Metal	Mixed Metals		0.42%	247.96	R	R Metal
Organic	Yard	Leaves and Grass		6.39%	3,730.62	NR	NR_Other
Organic	Yard	Prunings		3.03%	1,769.47	NR	NR_Other
Organic	Wood	Stumps/Limbs		0.55%	320.35	NR	NR_Other
Organic	Food	Food		16.28%	9,506.00	NR	NR_Other
Organic	Wood	Non-C&D, Untreated Wood		0.14%	83.05	NR	NR_Other
Organic	Textiles	Non-Clothing Textiles		1.73%	1,008.48	NR	NR_Other
Organic	Textiles	Clothing Textiles		3.76%	2,196.80	NR	NR_Other
Organic	Textiles	Carpet/Upholstery		1.14%	665.22	NR	NR_Other
Organic	Diapers/Hygiene	Disposable Diapers/Sanitary Products		3.89%	2,268.61	NR	NR_Other
Organic	Misc. Organic	Animal By-Products		1.27%	740.54	NR	NR_Other
Organic	Misc. Organic	Rubber Products		0.32%	187.18	NR	NR_Other
Organic	Textiles	Shoes	Leather	0.39%	228.50	NR	NR_Other
Organic	Textiles	Shoes	Other	0.10%	55.96	NR	NR_Other
Organic	Textiles	Shoes	Rubber	0.21%	119.74	NR	NR_Other
Organic	Textiles	Other Leather Products		0.02%	12.95	NR	NR_Other
Organic	Misc. Organic	Fines		4.29%	2,503.93	NR	NR_Other
Organic	Misc. Organic	Miscellaneous Organics		4.03%	2,353.11	NR	NR_Other
App. & Elec.	Household Appliance	Small Appliances		0.25%	147.06	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Other	0.20%	114.06	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Cell Phones	0.00%	2.63	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Computer Monitors		0.05%	28.44	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Televisions		0.10%	59.18	NR	NR_Other

Table AU-2
Detailed Results of the PWCS Refuse Sort without Bulk

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Refuse Stream	Weekly Tonnage in Refuse Stream (1)	Recycling Indicator	Recycling Subindicator
App. & Elec.	Electronic.AV/Computer	Other Computer Equip.		0.15%	89.75	NR	NR_Other
Const. Debris	Wood	Untreated Dimension Lumber, Pallets, Crates		0.33%	193.60	NR	NR_Other
Const. Debris	Wood	Treated/Contaminated Wood		2.88%	1,684.39	NR	NR_Other
Const. Debris	Inorganic C&D	Gypsum Scrap		1.18%	688.69	NR	NR_Other
Const. Debris	Inorganic C&D	Fiberglass Insulation		0.04%	20.72	NR	NR_Other
Const. Debris	Inorganic C&D	Rock/Concrete/Bricks		0.60%	351.44	NR	NR_Other
Const. Debris	Inorganic C&D	Asphaltic Roofing		0.02%	11.89	NR	NR_Other
Const. Debris	Inorganic C&D	Other C&D Debris		1.60%	935.69	NR	NR_Other
Misc.	Misc. Inorganic	Misc. Inorganics		0.24%	138.82	NR	NR_Other
Misc.	Misc. Inorganic	Ceramics		0.39%	229.44	NR	NR_Other
HHW	HHW	Oil Filters		0.00%	0.00	NR	NR_Other
HHW	HHW	Antifreeze		0.00%	0.00	NR	NR_Other
HHW	HHW	Wet-Cell Batteries		0.07%	42.86	NR	NR_Other
HHW	HHW	Gasoline/Kerosene		0.00%	0.54	NR	NR_Other
HHW	HHW	Motor Oil/Diesel Oil		0.00%	0.00	NR	NR_Other
HHW	HHW	Latex Paints		0.05%	28.85	NR	NR_Other
HHW	HHW	Water and Solvent-Based Adhesives/glues		0.06%	37.17	NR	NR_Other
HHW	HHW	Oil-Based Paint/Solvent		0.07%	38.88	NR	NR_Other
HHW	HHW	Pesticides/Herbicides/Rodenticides		0.00%	0.81	NR	NR_Other
HHW	HHW	DRY-CELL Batteries		0.07%	40.31	NR	NR_Other
HHW	HHW	Fluorescent Tubes		0.00%	2.59	NR	NR_Other
HHW	HHW	Mercury-Laden waste		0.00%	0.07	NR	NR_Other
HHW	HHW	Compressed Gas Cylinders/Fire Extinguishers		0.00%	0.00	NR	NR_Other
HHW	HHW	Asbestos		0.00%	0.00	NR	NR_Other
HHW	HHW	Explosives		0.00%	0.00	NR	NR_Other
HHW	HHW	Smoke Detectors		0.00%	1.41	NR	NR_Other
HHW	HHW	Home Medical Products		0.04%	23.83	NR	NR_Other
HHW	HHW	Other Potentially Harmful Wastes		0.09%	49.73	NR	NR_Other
TOTAL				100.00%	58,393.32		

NR = Nonrecyclable under DSNY's current Curbside Recycling Program
PR = Potentially Designated for Recycling Under future DSNY programs
R = Recyclable under DSNY's current Curbside Recycling Program
(1) Tonnage values are based on 59,618.80 tons which is the average weekly tonnage of refuse that was collected during May and June 2004, as provided by DSNY, less 2.06% of the refuse stream that was bulk. This equates to 58,393.32 tons.

The detailed results of the PWCS Paper Sort without bulk items are shown in Table AU-3. Because there were no bulk items in the Paper Sort, these results are identical to the results in Table 7-3A of the PWCS Report and are included here only to provide a complete picture of the results without bulk waste.

Table AU-3
Detailed Results of the PWCS Recyclables Sort without Bulk- Paper

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Paper Stream	Weekly Tonnage in Paper Stream (1)	Recycling Indicator	Recycling Subindicator
Paper	ONP	Newspaper		39.84%	2,908.87	R	R Paper
Paper	OCC	Plain OCC/Kraft paper		20.64%	1,506.76	R	R Paper
Paper	Mixed Paper	High Grade Paper		4.22%	307.98	R	R Paper
Paper	Mixed Paper	Mixed Low Grade Paper		25.04%	1,828.22	R	R Paper
Paper	Mixed Paper	Phone Books		3.19%	232.74	R	R Paper
Paper	Mixed Paper	Paperbacks		1.33%	97.00	R	R Paper
Paper	Mixed Paper	Paper Bags		0.53%	38.53	R	R Paper
Paper	Bev Cartons	Polycoated Containers		0.27%	19.92	R	R Bev Cartons
Paper	Compostable Paper	Compostable/Soiled/ Waxed OCC		0.13%	9.58	NR	NR_Paper
Paper	Compostable Paper	Single Use Plates, Cups		0.01%	0.57	NR	NR_Paper
Paper	Other Paper	Other Nonrecyclable Paper		1.36%	99.33	NR	NR_Paper
Plastic	PET Bottles	PET Bottles	Deposit	0.01%	1.00	R	R Plastics
Plastic	PET Bottles	PET Bottles	Non-Deposit	0.05%	3.42	R	R Plastics
Plastic	HDPE Bottles	HDPE Natural Bottles		0.02%	1.55	R	R Plastics
Plastic	HDPE Bottles	HDPE Colored Bottles		0.03%	1.86	R	R Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#1 Pet	0.00%	0.00	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#2 HDPE	0.00%	0.03	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#3 PVC	0.00%	0.00	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#4 LDPE	0.00%	0.01	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#5 PP	0.00%	0.32	PR	PR_Plastics
Plastic	Containers/Packaging	#3-#7 Containers	#7 Other	0.01%	0.40	PR	PR_Plastics
Plastic	Other Plastic Products	Other PVC		0.00%	0.01	NR	NR_Plastics
Plastic	Other Rigid Containers/Packaging	Rigid Polystyrene		0.00%	0.16	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Expanded Polystyrene		0.05%	3.38	PR	PR_Plastics
Plastic	Containers/Packaging	Other Rigid Containers/Packaging		0.01%	0.55	PR	PR_Plastics
Plastic	Film	Plastic Bags		0.22%	16.35	PR	PR_Plastics
Plastic	Film	Other Film		0.86%	62.93	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Plastic Crates and Soda Bottle Carriers		0.00%	0.00	PR	PR_Plastics
Plastic	Other Plastic Products	Single-Use Food Svc		0.01%	0.79	NR	NR_Plastics
Plastic	Other Plastic Products	Single Use Cameras		0.00%	0.00	NR	NR_Plastics

Table AU-3
Detailed Results of the PWCS Recyclables Sort without Bulk- Paper

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Paper Stream	Weekly Tonnage in Paper Stream (1)	Recycling Indicator	Recycling Subindicator
Plastic	Other Plastic Products	Disposable Razors		0.00%	0.04	NR	NR_Plastics
Plastic	Other Plastic Products	Other Plastics Materials		0.31%	22.49	NR	NR_Plastics
Glass	Container Glass	Clear Glass	Deposit	0.03%	1.95	R	R Glass
Glass	Container Glass	Clear Glass	Non-Deposit	0.06%	4.03	R	R Glass
Glass	Container Glass	Green Glass	Deposit	0.00%	0.00	R	R Glass
Glass	Container Glass	Green Glass	Non-Deposit	0.00%	0.00	R	R Glass
Glass	Container Glass	Brown Glass	Deposit	0.00%	0.00	R	R Glass
Glass	Container Glass	Brown Glass	Non-Deposit	0.00%	0.32	R	R Glass
Glass	Mixed Cullet	Mixed Cullet		0.04%	3.24	R	R Glass
Glass	Other Glass	Other Glass		0.00%	0.10	PR	PR_Glass
Metal	Aluminum	Aluminum Cans	Deposit	0.01%	0.47	R	R Metal
Metal	Aluminum	Aluminum Cans	Non-Deposit	0.00%	0.17	R	R Metal
Metal	Aluminum	Aluminum Foil/Tins		0.02%	1.56	R	R Metal
Metal	Aluminum	Other Aluminum		0.01%	1.01	R	R Metal
Metal	Other Metal	Other Non-Ferrous		0.00%	0.22	R	R Metal
Metal	Ferrous	Tin Food Cans		0.04%	3.06	R	R Metal
Metal	Ferrous	Empty Aerosol Cans		0.00%	0.06	R	R Metal
Metal	Ferrous	Other Ferrous		0.04%	3.05	R	R Metal
Metal	Other Metal	Mixed Metals		0.09%	6.79	R	R Metal
Organic	Yard	Leaves and Grass		0.00%	0.01	NR	NR_Other
Organic	Yard	Prunings		0.00%	0.01	NR	NR_Other
Organic	Wood	Stumps/Limbs		0.00%	0.00	NR	NR_Other
Organic	Food	Food		0.40%	29.45	NR	NR_Other
Organic	Wood	Non-C&D, Untreated Wood		0.00%	0.22	NR	NR_Other
Organic	Textiles	Non-Clothing Textiles		0.18%	13.19	NR	NR_Other
Organic	Textiles	Clothing Textiles		0.12%	8.53	NR	NR_Other
Organic	Textiles	Carpet/Upholstery		0.01%	0.82	NR	NR_Other
Organic	Diapers/Hygiene	Disposable Diapers/Sanitary Products		0.07%	5.29	NR	NR_Other
Organic	Misc. Organic	Animal By-Products		0.02%	1.79	NR	NR_Other
Organic	Misc. Organic	Rubber Products		0.01%	0.98	NR	NR_Other
Organic	Textiles	Shoes	Leather	0.00%	0.00	NR	NR_Other
Organic	Textiles	Shoes	Other	0.00%	0.00	NR	NR_Other
Organic	Textiles	Shoes	Rubber	0.02%	1.36	NR	NR_Other
Organic	Textiles	Other Leather Products		0.00%	0.23	NR	NR_Other
Organic	Misc. Organic	Fines		0.38%	27.47	NR	NR_Other
Organic	Misc. Organic	Miscellaneous Organics		0.01%	0.47	NR	NR_Other
App. & Elec.	Household Appliance	Small Appliances		0.06%	4.28	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Other	0.00%	0.00	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Cell Phones	0.00%	0.21	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Computer Monitors		0.00%	0.00	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Televisions		0.00%	0.00	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Other Computer Equip.		0.00%	0.00	NR	NR_Other

Table AU-3
Detailed Results of the PWCS Recyclables Sort without Bulk- Paper

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Paper Stream	Weekly Tonnage in Paper Stream (1)	Recycling Indicator	Recycling Subindicator
Const. Debris	Wood	Untreated Dimension Lumber, Pallets, Crates		0.06%	4.02	NR	NR_Other
Const. Debris	Wood	Treated/Contaminated Wood		0.02%	1.23	NR	NR_Other
Const. Debris	Inorganic C&D	Gypsum Scrap		0.01%	0.82	NR	NR_Other
Const. Debris	Inorganic C&D	Fiberglass Insulation		0.00%	0.00	NR	NR_Other
Const. Debris	Inorganic C&D	Rock/Concrete/Bricks		0.00%	0.00	NR	NR_Other
Const. Debris	Inorganic C&D	Asphaltic Roofing		0.00%	0.00	NR	NR_Other
Const. Debris	Inorganic C&D	Other C&D Debris		0.11%	8.17	NR	NR_Other
Misc.	Misc. Inorganic	Misc. Inorganics		0.01%	0.78	NR	NR_Other
Misc.	Misc. Inorganic	Ceramics		0.01%	0.76	NR	NR_Other
HHW	HHW	Oil Filters		0.00%	0.07	NR	NR_Other
HHW	HHW	Antifreeze		0.00%	0.00	NR	NR_Other
HHW	HHW	Wet-Cell Batteries		0.00%	0.00	NR	NR_Other
HHW	HHW	Gasoline/Kerosene		0.00%	0.00	NR	NR_Other
HHW	HHW	Motor Oil/Diesel Oil		0.00%	0.00	NR	NR_Other
HHW	HHW	Latex Paints		0.00%	0.00	NR	NR_Other
HHW	HHW	Water and Solvent-Based Adhesives/glues		0.00%	0.00	NR	NR_Other
HHW	HHW	Oil-Based Paint/Solvent		0.00%	0.00	NR	NR_Other
HHW	HHW	Pesticides/Herbicides/Rodenticides		0.00%	0.00	NR	NR_Other
HHW	HHW	DRY-CELL Batteries		0.00%	0.14	NR	NR_Other
HHW	HHW	Fluorescent Tubes		0.00%	0.00	NR	NR_Other
HHW	HHW	Mercury-Laden waste		0.00%	0.00	NR	NR_Other
HHW	HHW	Compressed Gas Cylinders/Fire Extinguishers		0.00%	0.00	NR	NR_Other
HHW	HHW	Asbestos		0.00%	0.00	NR	NR_Other
HHW	HHW	Explosives		0.00%	0.00	NR	NR_Other
HHW	HHW	Smoke Detectors		0.00%	0.00	NR	NR_Other
HHW	HHW	Home Medical Products		0.00%	0.28	NR	NR_Other
HHW	HHW	Other Potentially Harmful Wastes		0.00%	0.00	NR	NR_Other
TOTAL				**100.00%**	**7,301.40**		

NR = Nonrecyclable under DSNY's current Curbside Recycling Program
PR = Potentially Designated for Recycling Under future DSNY programs
R = Recyclable under DSNY's current Curbside Recycling Program
(1) Tonnage values are based on 7,301.40 tons which is the average weekly tonnage of paper recycling that was collected during May and June 2004, as provided by DSNY.

The detailed results of the PWCS MGP Sort without bulk items are shown in Table AU-4. The 63 bulk items in the MGP Sort weighed a total of 1,195.40 pounds. The detailed results are of the PWCS MGP Sort including bulk items are presented in Table 7-3B of the PWCS Report. In addition, a more detailed discussion of bulk items in the MGP Sort is presented in Appendix W.

Table AU-4
Detailed Results of the PWCS Recyclables Sort without Bulk - MGP

Material Group	Material Subgroup	Material Category	Material Subcategory	% of MGP Stream	Weekly Tonnage in MGP Stream [1]	Recycling Indicator	Recycling Subindicator
Paper	ONP	Newspaper		0.69%	30.00	R	R Paper
Paper	OCC	Plain OCC/Kraft paper		0.28%	12.21	R	R Paper
Paper	Mixed Paper	High Grade Paper		0.09%	4.06	R	R Paper
Paper	Mixed Paper	Mixed Low Grade Paper		1.15%	50.10	R	R Paper
Paper	Mixed Paper	Phone Books		0.04%	1.64	R	R Paper
Paper	Mixed Paper	Paperbacks		0.01%	0.54	R	R Paper
Paper	Mixed Paper	Paper Bags		0.06%	2.43	R	R Paper
Paper	Bev Cartons	Polycoated Containers		1.81%	79.06	R	R Bev Cartons
Paper	Compostable Paper	Compostable/Soiled/ Waxed OCC		0.36%	15.82	NR	NR_Paper
Paper	Compostable Paper	Single Use Plates, Cups		0.02%	0.97	NR	NR_Paper
Paper	Other Paper	Other Nonrecyclable Paper		0.73%	31.69	NR	NR_Paper
Plastic	PET Bottles	PET Bottles	Deposit	1.33%	57.98	R	R Plastics
Plastic	PET Bottles	PET Bottles	Non-Deposit	5.20%	226.62	R	R Plastics
Plastic	HDPE Bottles	HDPE Natural Bottles		2.92%	127.11	R	R Plastics
Plastic	HDPE Bottles	HDPE Colored Bottles		2.94%	128.17	R	R Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#1 Pet	0.00%	0.09	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#2 HDPE	0.13%	5.63	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#3 PVC	0.06%	2.77	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#4 LDPE	0.01%	0.65	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#5 PP	0.69%	30.15	PR	PR_Plastics
Plastic	Containers/Packaging	#3-#7 Containers	#7 Other	0.18%	7.73	PR	PR_Plastics
Plastic	Other Plastic Products	Other PVC		0.08%	3.64	NR	NR_Plastics
Plastic	Other Rigid Containers/Packaging	Rigid Polystyrene		0.45%	19.79	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Expanded Polystyrene		0.11%	4.91	PR	PR_Plastics
Plastic	Containers/Packaging	Other Rigid Containers/Packaging		1.72%	74.75	PR	PR_Plastics
Plastic	Film	Plastic Bags		0.81%	35.50	PR	PR_Plastics
Plastic	Film	Other Film		2.65%	115.44	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Plastic Crates and Soda Bottle Carriers		0.17%	7.47	PR	PR_Plastics
Plastic	Other Plastic Products	Single-Use Food Svc		0.19%	8.11	NR	NR_Plastics
Plastic	Other Plastic Products	Single Use Cameras		0.00%	0.00	NR	NR_Plastics

Table AU-4
Detailed Results of the PWCS Recyclables Sort without Bulk - MGP

Material Group	Material Subgroup	Material Category	Material Subcategory	% of MGP Stream	Weekly Tonnage in MGP Stream (1)	Recycling Indicator	Recycling Subindicator
Plastic	Other Plastic Products	Disposable Razors		0.10%	4.50	NR	NR_Plastics
Plastic	Other Plastic Products	Other Plastics Materials		3.78%	164.82	NR	NR_Plastics
Glass	Container Glass	Clear Glass	Deposit	1.08%	46.97	R	R Glass
Glass	Container Glass	Clear Glass	Non-Deposit	6.80%	296.30	R	R Glass
Glass	Container Glass	Green Glass	Deposit	1.16%	50.52	R	R Glass
Glass	Container Glass	Green Glass	Non-Deposit	2.94%	128.01	R	R Glass
Glass	Container Glass	Brown Glass	Deposit	1.20%	52.38	R	R Glass
Glass	Container Glass	Brown Glass	Non-Deposit	0.32%	13.77	R	R Glass
Glass	Mixed Cullet	Mixed Cullet		23.33%	1,016.24	R	R Glass
Glass	Other Glass	Other Glass		0.68%	29.52	PR	PR_Glass
Metal	Aluminum	Aluminum Cans	Deposit	0.44%	19.36	R	R Metal
Metal	Aluminum	Aluminum Cans	Non-Deposit	0.42%	18.19	R	R Metal
Metal	Aluminum	Aluminum Foil/Tins		1.05%	45.74	R	R Metal
Metal	Aluminum	Other Aluminum		0.25%	11.00	R	R Metal
Metal	Other Metal	Other Non-Ferrous		0.30%	13.21	R	R Metal
Metal	Ferrous	Tin Food Cans		7.66%	333.86	R	R Metal
Metal	Ferrous	Empty Aerosol Cans		0.69%	30.01	R	R Metal
Metal	Ferrous	Other Ferrous		14.39%	626.95	R	R Metal
Metal	Other Metal	Mixed Metals		0.64%	27.69	R	R Metal
Organic	Yard	Leaves and Grass		0.03%	1.13	NR	NR_Other
Organic	Yard	Prunings		0.03%	1.19	NR	NR_Other
Organic	Wood	Stumps/Limbs		0.00%	0.01	NR	NR_Other
Organic	Food	Food		1.29%	56.01	NR	NR_Other
Organic	Wood	Non-C&D, Untreated Wood		0.08%	3.32	NR	NR_Other
Organic	Textiles	Non-Clothing Textiles		0.18%	7.93	NR	NR_Other
Organic	Textiles	Clothing Textiles		0.06%	2.65	NR	NR_Other
Organic	Textiles	Carpet/Upholstery		0.00%	0.00	NR	NR_Other
Organic	Diapers/Hygiene	Disposable Diapers/Sanitary Products		0.09%	3.95	NR	NR_Other
Organic	Misc. Organic	Animal By-Products		0.01%	0.61	NR	NR_Other
Organic	Misc. Organic	Rubber Products		0.10%	4.24	NR	NR_Other
Organic	Textiles	Shoes	Leather	0.00%	0.00	NR	NR_Other
Organic	Textiles	Shoes	Other	0.00%	0.19	NR	NR_Other
Organic	Textiles	Shoes	Rubber	0.06%	2.70	NR	NR_Other
Organic	Textiles	Other Leather Products		0.02%	0.77	NR	NR_Other
Organic	Misc. Organic	Fines		1.31%	56.91	NR	NR_Other
Organic	Misc. Organic	Miscellaneous Organics		0.22%	9.49	NR	NR_Other
App. & Elec.	Household Appliance	Small Appliances		1.39%	60.42	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Other	0.80%	34.84	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Cell Phones	0.00%	0.16	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Computer Monitors		0.00%	0.00	NR	NR_Other

Table AU-4
Detailed Results of the PWCS Recyclables Sort without Bulk - MGP

Material Group	Material Subgroup	Material Category	Material Subcategory	% of MGP Stream	Weekly Tonnage in MGP Stream (1)	Recycling Indicator	Recycling Subindicator
App. & Elec.	Electronic.AV/Computer	Televisions		0.00%	0.00	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Other Computer Equip.		0.87%	37.74	NR	NR_Other
Const. Debris	Wood	Untreated Dimension Lumber, Pallets, Crates		0.14%	6.12	NR	NR_Other
Const. Debris	Wood	Treated/Contaminated Wood		0.09%	3.73	NR	NR_Other
Const. Debris	Inorganic C&D	Gypsum Scrap		0.00%	0.00	NR	NR_Other
Const. Debris	Inorganic C&D	Fiberglass Insulation		0.00%	0.04	NR	NR_Other
Const. Debris	Inorganic C&D	Rock/Concrete/Bricks		0.06%	2.66	NR	NR_Other
Const. Debris	Inorganic C&D	Asphaltic Roofing		0.00%	0.00	NR	NR_Other
Const. Debris	Inorganic C&D	Other C&D Debris		0.01%	0.40	NR	NR_Other
Misc.	Misc. Inorganic	Misc. Inorganics		0.41%	18.00	NR	NR_Other
Misc.	Misc. Inorganic	Ceramics		0.48%	21.00	NR	NR_Other
HHW	HHW	Oil Filters		0.00%	0.00	NR	NR_Other
HHW	HHW	Antifreeze		0.00%	0.00	NR	NR_Other
HHW	HHW	Wet-Cell Batteries		0.00%	0.00	NR	NR_Other
HHW	HHW	Gasoline/Kerosene		0.00%	0.00	NR	NR_Other
HHW	HHW	Motor Oil/Diesel Oil		0.00%	0.00	NR	NR_Other
HHW	HHW	Latex Paints		0.00%	0.00	NR	NR_Other
HHW	HHW	Water and Solvent-Based Adhesives/glues		0.01%	0.44	NR	NR_Other
HHW	HHW	Oil-Based Paint/Solvent		0.07%	3.05	NR	NR_Other
HHW	HHW	Pesticides/Herbicides/Rodenticides		0.00%	0.00	NR	NR_Other
HHW	HHW	DRY-CELL Batteries		0.04%	1.87	NR	NR_Other
HHW	HHW	Fluorescent Tubes		0.00%	0.07	NR	NR_Other
HHW	HHW	Mercury-Laden waste		0.00%	0.00	NR	NR_Other
HHW	HHW	Compressed Gas Cylinders/Fire Extinguishers		0.01%	0.55	NR	NR_Other
HHW	HHW	Asbestos		0.00%	0.00	NR	NR_Other
HHW	HHW	Explosives		0.00%	0.00	NR	NR_Other
HHW	HHW	Smoke Detectors		0.00%	0.04	NR	NR_Other
HHW	HHW	Home Medical Products		0.00%	0.00	NR	NR_Other
HHW	HHW	Other Potentially Harmful Wastes		0.00%	0.00	NR	NR_Other
TOTAL				100.00%	4,356.31		

NR = Nonrecyclable under DSNY's current Curbside Recycling Program
PR = Potentially Designated for Recycling Under future DSNY programs
R = Recyclable under DSNY's current Curbside Recycling Program
(1) Tonnage values are based on 4,882.00 tons which is the average weekly tonnage of MGP recycling that was collected during May and June 2004, as provided by DSNY, less 10.77% of the MGP stream that was bulk. This equates to 4,356.31 tons.

The detailed results of the PWCS Waste Sort, which combines the results of the Refuse Sort and the Recycling Sort without bulk items are shown in Table AU-5. A total of 121 bulk items weighing 2,158.6 pounds were part of the combined sorts. The results of the combined sorts including bulk items are shown in Table 8-2 of the PWCS Report.

Table AU-5
Detailed Results of the PWCS Waste Sort without Bulk [1]

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Waste Stream	Weekly Tonnage in Waste Stream [2]	Recycling Indicator	Recycling Subindicator
Paper	ONP	Newspaper		7.34%	5,139.71	R	R Paper
Paper	OCC	Plain OCC/Kraft paper		3.29%	2,301.78	R	R Paper
Paper	Mixed Paper	High Grade Paper		1.02%	717.58	R	R Paper
Paper	Mixed Paper	Mixed Low Grade Paper		8.91%	6,244.33	R	R Paper
Paper	Mixed Paper	Phone Books		0.53%	370.13	R	R Paper
Paper	Mixed Paper	Paperbacks		0.30%	208.11	R	R Paper
Paper	Mixed Paper	Paper Bags		0.57%	397.70	R	R Paper
Paper	Bev Cartons	Polycoated Containers		0.54%	376.35	R	R Bev Cartons
Paper	Compostable Paper	Compostable/Soiled/ Waxed OCC		6.40%	4,481.54	NR	NR_Paper
Paper	Compostable Paper	Single Use Plates, Cups		0.44%	306.25	NR	NR_Paper
Paper	Other Paper	Other Nonrecyclable Paper		0.74%	518.60	NR	NR_Paper
Plastic	PET Bottles	PET Bottles	Deposit	0.37%	257.48	R	R Plastics
Plastic	PET Bottles	PET Bottles	Non-Deposit	0.88%	614.76	R	R Plastics
Plastic	HDPE Bottles	HDPE Natural Bottles		0.44%	311.24	R	R Plastics
Plastic	HDPE Bottles	HDPE Colored Bottles		0.51%	356.58	R	R Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#1 Pet	0.02%	15.97	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#2 HDPE	0.08%	53.60	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#3 PVC	0.02%	10.64	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#4 LDPE	0.01%	9.05	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#5 PP	0.23%	162.76	PR	PR_Plastics
Plastic	Containers/Packaging	#3-#7 Containers	#7 Other	0.07%	48.98	PR	PR_Plastics
Plastic	Other Plastic Products	Other PVC		0.07%	45.57	NR	NR_Plastics
Plastic	Other Rigid Containers/Packaging	Rigid Polystyrene		0.16%	114.96	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Expanded Polystyrene		0.60%	421.59	PR	PR_Plastics
Plastic	Containers/Packaging	Other Rigid Containers/Packaging		0.62%	437.19	PR	PR_Plastics
Plastic	Film	Plastic Bags		2.45%	1,715.60	PR	PR_Plastics
Plastic	Film	Other Film		4.66%	3,266.10	PR	PR_Plastics
Plastic	Other Rigid Containers/Packaging	Plastic Crates and Soda Bottle Carriers		0.06%	43.33	PR	PR_Plastics

Table AU-5
Detailed Results of the PWCS Waste Sort without Bulk [1]

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Waste Stream	Weekly Tonnage in Waste Stream [2]	Recycling Indicator	Recycling Subindicator
Plastic	Other Plastic Products	Single-Use Food Svc		0.67%	471.34	NR	NR_Plastics
Plastic	Other Plastic Products	Single Use Cameras		0.00%	0.00	NR	NR_Plastics
Plastic	Other Plastic Products	Disposable Razors		0.01%	8.77	NR	NR_Plastics
Plastic	Other Plastic Products	Other Plastics Materials		1.62%	1,135.31	NR	NR_Plastics
Glass	Container Glass	Clear Glass	Deposit	0.31%	217.13	R	R Glass
Glass	Container Glass	Clear Glass	Non-Deposit	1.28%	895.37	R	R Glass
Glass	Container Glass	Green Glass	Deposit	0.20%	139.30	R	R Glass
Glass	Container Glass	Green Glass	Non-Deposit	0.32%	224.42	R	R Glass
Glass	Container Glass	Brown Glass	Deposit	0.30%	209.07	R	R Glass
Glass	Container Glass	Brown Glass	Non-Deposit	0.07%	48.34	R	R Glass
Glass	Mixed Cullet	Mixed Cullet		1.88%	1,317.98	R	R Glass
Glass	Other Glass	Other Glass		0.21%	148.94	PR	PR_Glass
Metal	Aluminum	Aluminum Cans	Deposit	0.17%	121.93	R	R Metal
Metal	Aluminum	Aluminum Cans	Non-Deposit	0.05%	34.35	R	R Metal
Metal	Aluminum	Aluminum Foil/Tins		0.58%	403.76	R	R Metal
Metal	Aluminum	Other Aluminum		0.06%	39.84	R	R Metal
Metal	Other Metal	Other Non-Ferrous		0.07%	51.36	R	R Metal
Metal	Ferrous	Tin Food Cans		1.26%	879.96	R	R Metal
Metal	Ferrous	Empty Aerosol Cans		0.15%	103.30	R	R Metal
Metal	Ferrous	Other Ferrous		1.72%	1,204.45	R	R Metal
Metal	Other Metal	Mixed Metals		0.40%	282.43	R	R Metal
Organic	Yard	Leaves and Grass		5.33%	3,731.76	NR	NR_Other
Organic	Yard	Prunings		2.53%	1,770.67	NR	NR_Other
Organic	Wood	Stumps/Limbs		0.46%	320.36	NR	NR_Other
Organic	Food	Food		13.69%	9,591.47	NR	NR_Other
Organic	Wood	Non-C&D, Untreated Wood		0.12%	86.60	NR	NR_Other
Organic	Textiles	Non-Clothing Textiles		1.47%	1,029.59	NR	NR_Other
Organic	Textiles	Clothing Textiles		3.15%	2,207.98	NR	NR_Other
Organic	Textiles	Carpet/Upholstery		0.95%	666.04	NR	NR_Other
Organic	Diapers/Hygiene	Disposable Diapers/Sanitary Products		3.25%	2,277.86	NR	NR_Other
Organic	Misc. Organic	Animal By-Products		1.06%	742.94	NR	NR_Other
Organic	Misc. Organic	Rubber Products		0.27%	192.40	NR	NR_Other
Organic	Textiles	Shoes	Leather	0.33%	228.50	NR	NR_Other
Organic	Textiles	Shoes	Other	0.08%	56.15	NR	NR_Other
Organic	Textiles	Shoes	Rubber	0.18%	123.79	NR	NR_Other
Organic	Textiles	Other Leather Products		0.02%	13.96	NR	NR_Other
Organic	Misc. Organic	Fines		3.69%	2,588.31	NR	NR_Other
Organic	Misc. Organic	Miscellaneous Organics		3.37%	2,363.08	NR	NR_Other
App. & Elec.	Household Appliance	Small Appliances		0.30%	211.76	NR	NR_Other

Table AU-5
Detailed Results of the PWCS Waste Sort without Bulk [1]

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Waste Stream	Weekly Tonnage in Waste Stream [2]	Recycling Indicator	Recycling Subindicator
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Other	0.21%	148.90	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Cell Phones	0.00%	2.99	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Computer Monitors		0.04%	28.44	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Televisions		0.08%	59.18	NR	NR_Other
App. & Elec.	Electronic.AV/Computer	Other Computer Equip.		0.18%	127.49	NR	NR_Other
Const. Debris	Wood	Untreated Dimension Lumber, Pallets, Crates		0.29%	203.75	NR	NR_Other
Const. Debris	Wood	Treated/Contaminated Wood		2.41%	1,689.35	NR	NR_Other
Const. Debris	Inorganic C&D	Gypsum Scrap		0.98%	689.51	NR	NR_Other
Const. Debris	Inorganic C&D	Fiberglass Insulation		0.03%	20.75	NR	NR_Other
Const. Debris	Inorganic C&D	Rock/Concrete/Bricks		0.51%	354.09	NR	NR_Other
Const. Debris	Inorganic C&D	Asphaltic Roofing		0.02%	11.89	NR	NR_Other
Const. Debris	Inorganic C&D	Other C&D Debris		1.35%	944.27	NR	NR_Other
Misc.	Misc. Inorganic	Misc. Inorganics		0.22%	157.60	NR	NR_Other
Misc.	Misc. Inorganic	Ceramics		0.36%	251.20	NR	NR_Other
HHW	HHW	Oil Filters		0.00%	0.07	NR	NR_Other
HHW	HHW	Antifreeze		0.00%	0.00	NR	NR_Other
HHW	HHW	Wet-Cell Batteries		0.06%	42.86	NR	NR_Other
HHW	HHW	Gasoline/Kerosene		0.00%	0.54	NR	NR_Other
HHW	HHW	Motor Oil/Diesel Oil		0.00%	0.00	NR	NR_Other
HHW	HHW	Latex Paints		0.04%	28.85	NR	NR_Other
HHW	HHW	Water and Solvent-Based Adhesives/glues		0.05%	37.61	NR	NR_Other
HHW	HHW	Oil-Based Paint/Solvent		0.06%	41.93	NR	NR_Other
HHW	HHW	Pesticides/Herbicides/Rodenticides		0.00%	0.81	NR	NR_Other
HHW	HHW	DRY-CELL Batteries		0.06%	42.32	NR	NR_Other
HHW	HHW	Fluorescent Tubes		0.00%	2.66	NR	NR_Other
HHW	HHW	Mercury-Laden waste		0.00%	0.07	NR	NR_Other
HHW	HHW	Compressed Gas Cylinders/Fire Extinguishers		0.00%	0.55	NR	NR_Other
HHW	HHW	Asbestos		0.00%	0.00	NR	NR_Other
HHW	HHW	Explosives		0.00%	0.00	NR	NR_Other
HHW	HHW	Smoke Detectors		0.00%	1.45	NR	NR_Other
HHW	HHW	Home Medical Products		0.03%	24.11	NR	NR_Other
HHW	HHW	Other Potentially Harmful Wastes		0.07%	49.73	NR	NR_Other
TOTAL				100.00%	70,051.03		

Table AU-5
Detailed Results of the PWCS Waste Sort without Bulk (1)

Material Group	Material Subgroup	Material Category	Material Subcategory	% of Waste Stream	Weekly Tonnage in Waste Stream (2)	Recycling Indicator	Recycling Subindicator

NR = Nonrecyclable under DSNY's current Curbside Recycling Program
PR = Potentially Designated for Recycling Under future DSNY programs
R = Recyclable under DSNY's current Curbside Recycling Program

(1) Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50% metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

(2) Tonnage values are based on 71,802.25 tons which is the average weekly tonnage of waste that was collected during May and June 2004, as provided by DSNY, less 2.44 % of the waste stream that was bulk. This equates to 70,051.03 tons.

As the results in Table AU-5 shows, bulk items made up 2.44 percent of the waste sampled during the PWCS.

Appendix V
PWCS Results Adjusted for Moisture and Particulates

PWCS Results Adjusted for Moisture and Particulates

A primary objective of assessing the composition of New York City's curbside waste stream is to provide defensible, accurate data to assist planners in formulating future program changes. The PWCS Report describes the detailed composition of the refuse, recycling, and aggregated waste streams. These data represent an excellent starting point. However, as discussed in the body of the PWCS Report, individual materials in the refuse and recycling streams absorb moisture and embedded particulate matter during the collection and compaction process. Unless the transfer of moisture and foreign particulate matter is adjusted for, the results of a composition study can be misleading.

For example, the results of the PWCS showed that 3.71 percent of the refuse stream was newspaper, a material designated for recycling by the DSNY. When this percentage is applied to the average weekly tonnage in May and June of 2004, this suggests that 2,210.19 tons of newspaper could theoretically been recycled. However, the results of the moisture and particulate testing indicate that a significant fraction of the newspaper in the refuse was actually moisture and particulate matter. To evaluate more precisely the amount of newspaper being disposed, an adjustment should be made for moisture and particulate matter. For this reason, Appendix V presents the adjusted results of the Refuse Sort and the Aggregated Waste Stream.

Moisture and particulate testing were conducted on 25 materials in the Refuse Stream and 27 materials in the Recycling Stream. These materials were selected because it was felt that these materials were most susceptible to the migration of moisture and foreign particulates. A total of 41 random samples from the Refuse and Recycling Sort were selected for moisture and particulate testing. Each of the materials occurring in the selected samples were tested. Some samples contained only some of the materials to be tested. In all 641 tests were conducted on the 41 samples. Table AV-1, AV-2, and AV-3 summarize the moisture and particulate tests that were conducted for the PWCS.

Table AV-1
Summary of Moisture and Particulate Testing for the Refuse Sort

Sample ID	Borough	Category																										Total Categories Tested From Each Composition Sample
		Aluminum Cans	Aluminum foil/tins	Clothing Textiles	Compostable/Soiled/ Waxed OCC	Expanded Polystyrene	HDPE Colored Bottles	HDPE Natural Bottles	High Grade Paper	Mixed Low Grade Paper	Newspaper	Non-Clothing Textiles	Other Film	Other nonrecyclable paper	Other rigid containers/packaging	Paper Bags	Paperbacks	PET bottles	Phone books	Plain OCC/Kraft Paper	Plastic Bags	Polycoated Containers	Rigid polystyrene	Single Use Plates	Single-Use Food Svc	Tin Food Cans	
20040515-M62-1-25CN-566	Manhattan	●		●	●	●	●	●	●	●	●	●	●	●		●				●	●	●		●	●	●	19
20040517-BK31-4-25CW-017	Brooklyn			●	●	●		●			●	●	●	●	●			●		●		●		●	●		14
20040517-BK72-2-25CN-686	Brooklyn	●	●	●	●	●		●	●	●	●	●		●	●	●		●		●	●	●		●	●	●	20
20040518-BX123-2-25CN-746	Bronx	●		●	●	●	●		●	●	●	●		●		●		●	●	●	●	●	●	●	●	●	20
20040518-BX21-1-25CN-636	Bronx	●	●	●	●	●	●	●	●	●		●		●	●	●		●	●	●	●	●	●	●		●	21
20040518-BX92-2-25CU-186	Bronx	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●		●	●		●	21
20040519-BK102-1-25CU-010	Brooklyn		●	●	●	●	●	●		●	●	●		●	●	●		s			●	●		●	●	●	17
20040519-BK175-2-25CU-127	Brooklyn	●	●	●	●	●	●	●	●	●				●	●	●		●		●	●	●	●	●	●	●	20
20040519-M101-1-25CW-098	Manhattan	●	●	●	●	●		●	●	●	●	●	×	●	●	●		●				●	●	●	●	●	19
20040519-M34-1-25CW-160	Manhattan	●	●	●	●	●				●	●	●		●		●		●		●	●	●	●	●	●	●	18
20040520-BK185-1-25CW-096	Brooklyn	●			●	●	●	●			●		●	●	●			●					●	●	●	●	14
20040520-BX61-6-25CW-006	Bronx	●	●	●	●	●	●	●	●	●	●	●		●	●	●		●		●	●	●	●	●	●	●	22
20040521-BK113-1-25CN-763	Brooklyn	●		●	●	●	●	●	●	●	●	●	●	●		●		●		●		●	●	●	●	●	20
20040521-BX11-3-25CN-725	Bronx	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●	●	●	●	22
20040522-Q136-2-25CW-517	Queens	●	●	●	●	●	●	●	●	●	●	●		●	●	●		●		●	●	●	●	●	●	●	22
20040522-Q72-1-25CW-527	Queens		●	×	●	●	●		●	●	●	●	×	●	●	●		●		●		●		●	●	●	17
20040522-SI38-2-25CW-142	Staten Island	●	●	●	●	●	●		●	●	●			●	●	●	●	●		●		●	●	●	●	●	21
20040525-Q13-25CW-547	Queens		●	●		●	●	●	●	●	●		●	●	●	●		●		●	●	●	●	●		●	18
20040525-Q13-25CW-552	Queens	●	●	●	●	●	●	●		●		●		●	●	●		●			●		●	●	●	●	18
20040525-Q84-4-25CN-104	Queens	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●	●	●	●	22
Total Tested from Each Category		16	14	18	19	19	16	17	15	18	17	16	8	20	16	18	2	18	2	16	12	17	15	20	17	19	**385**

● Composition sample categories tested by the lab.
× Composition sample categories not tested by the lab due to human waste contamination. Not counted in "Total" values.
s Composition samples categories not tested by the lab due to spillage of sample. Not counted in "Total" values.

Table AV-2
Summary of Moisture and Particulate Testing for the Paper Sort

Sample ID	Borough	Category																												Total Categories Tested From Each Composition Sample
		Aluminum Cans	Aluminum Foil/Tins	HDPE Natural Bottles	HDPE Pigment Bottles	High Grade paper	Inject'n Molded Containers: #5 Tub	Mixed Low Grade Paper	Newspaper	Nonrecyclable Paper: Compostable/Soiled	Nonrecyclable Paper: Other Non-Recyc	Nonrecyclable Paper: Plates/Cups	Other Film	Other Plastic: Exp PS	Other Plastic: Food Svc	Other Plastic: Other Plastic	Other Plastic: Other Rigid Containers	Other Plastic: Rigid PS	Paper Bags	Paperbacks	PET Bottles	Phone Books	Plain OCC/Kraft paper	Plastic Bags	Polycoated Containers	Textile/Rubber/Leather: Clothing Textiles	Textile/Rubber/Leather: Non-Clothing Textile	Tin Food Cans	
20040515-BK-11-3-1-25CM-167-P	Brooklyn	•				•		•	•				•	•					•	•		•	•	•					11
20040515-BK-15-2-2-25CM-269-P	Brooklyn			•		•		•	•	•	•		•	•					•	•		•	•	•		•	•		15
20040515-BK-16-1-2-25CW-059-P	Brooklyn					•		•	•	•	•		•						•	•			•	•	•		•		12
20040515-BK-18-5-2-25CM-012-P	Brooklyn					•		•	•		•		•						•				•	•	•				9
20040515-BK-6-5-2-25CN-616-P	Brooklyn					•		•	•	•	•		•						•	•			•	•	•				11
20040515-BK-7-3-1-25CN-487-P	Brooklyn					•		•	•		•		•						•	•		•	•	•	•		•		12
20040515-BK-8-1-2-25CN-557-P	Brooklyn					•		•	•	•	•		•							•			•	•	•	•			11
20040515-M-6-1-4-25CN-808-P	Manhattan					•		•	•		•		•										•	•					7
20040515-M-6-2-4-25CU-145-P	Manhattan					•		•	•				•						•				•	•	•		•		9
20040515-Q-10-1-1-25CM-071-P	Queens					•		•	•				•	•					•	•		•	•	•	•				11
20040515-Q-9-4-1-25CM-059-P	Queens					•		•	•				•						•	•			•	•					8
Total Tested from Each Category		1	0	1	0	11	0	11	11	4	7	0	11	3	0	0	0	0	9	8	0	4	11	11	7	2	4	0	**116**

Table AV-3
Summary of Moisture and Particulate Testing for the MGP Sort

SampleID	Borough	Category																													Total Categories Tested From Each Composition Sample
		Aluminum Cans	Aluminum Foil/Tins	HDPE Natural Bottles	HDPE Pigment Bottles	High Grade paper	Inject'n Molded Containers: #5 Tub	Mixed Low Grade Paper	Newspaper	Nonrecyclable Paper: Compostable/Soiled	Nonrecyclable Paper: Other Non-Recyc	Nonrecyclable Paper: Plates/Cups	Other Film	Other Plastic: Exp PS	Other Plastic: Food Svc	Other Plastic: Other Plastic	Other Plastic: Other Rigid Containers	Other Plastic: Rigid PS	Paper Bags	Paperbacks	PET Bottles	Phone Books	Plain OCC/Kraft paper	Plastic Bags	Polycoated Containers	Textile/Rubber/Leather: Clothing Textiles	Textile/Rubber/Leather: Non-Clothing Textile	Tin Food Cans	
20040515-BK-12-2-1-25CM-055-M	Brooklyn	•	•	•	•				•	•	•		•								•		•	•	•				•	13
20040515-BK-18-5-2-25CM-012-M	Brooklyn	•	•	•	•		•		•	•	•		•	•	•			•			•		•	•	•				•	17
20040515-BK-18-7-1-25CM-184-M	Brooklyn	•	•	•	•			•	•		•	•	•					•			•			•	•				•	14
20040515-BK-9-3-2-25CU-268-M	Brooklyn			•	•			•			•		•	•							•			•	•			•	•	11
20040515-BX-11-1-2-25CN-454-M	Bronx	•	•	•	•			•		•	•	•	•	•				•			•			•	•				•	15
20040515-BX-4-3-1-25CU-018-M	Bronx	•		•	•			•	•								•				•		•			•			•	10
20040515-BX-7-3-2-25CF-203-M	Bronx	•	•	•	•			•			•		•		•			•			•			•	•				•	13
20040515-BX-8-1-1-25CU-017-M	Bronx	•	•	•	•					•	•	•	•			•	•				•			•	•				•	14
20040515-Q-12-1-1-25CM-157-M	Queens	•	•	•	•			•	•	•	•		•	•	•			•			•		•	•	•			•	•	18
20040515-Q-5-5-2-25CM-008-M	Queens	•	•	•	•			•			•		•	•	•			•		•	•			•	•				•	15
Total Tested from Each Category		9	8	10	10	0	1	7	5	5	9	3	9	5	4	1	2	6	0	1	10	0	4	9	9	1	2	10	140

Table AV-4 presents the results of the moisture and particulate tests that were performed on the refuse samples showing, and Table AV-5 presents the results of the tests performed on the recycling samples.

Table AV-4
Refuse Moisture and Particulate Analysis Results

Material	Component	Average	Standard Deviation
Aluminum Cans: Deposit	Material	77.67%	18.09%
Aluminum Cans: Deposit	Moisture	17.02%	14.61%
Aluminum Cans: Deposit	Particulates	5.32%	13.77%
Aluminum Cans: Non-deposit	Material	77.67%	18.09%
Aluminum Cans: Non-deposit	Moisture	17.02%	14.61%
Aluminum Cans: Non-deposit	Particulates	5.32%	13.77%
Aluminum Foil/Tins	Material	60.87%	18.09%
Aluminum Foil/Tins	Moisture	26.93%	12.01%
Aluminum Foil/Tins	Particulates	12.21%	12.28%
Clothing Textiles	Material	84.45%	12.86%
Clothing Textiles	Moisture	14.02%	11.27%
Clothing Textiles	Particulates	1.53%	2.82%
Compostable/Soiled/ Waxed OCC	Material	48.88%	8.24%
Compostable/Soiled/ Waxed OCC	Moisture	42.72%	12.55%
Compostable/Soiled/ Waxed OCC	Particulates	8.40%	8.19%
Expanded Polystyrene	Material	57.32%	22.34%
Expanded Polystyrene	Moisture	27.00%	12.13%
Expanded Polystyrene	Particulates	15.69%	14.82%
HDPE Colored Bottles	Material	92.56%	7.84%
HDPE Colored Bottles	Moisture	6.85%	7.36%
HDPE Colored Bottles	Particulates	0.59%	1.60%
HDPE Natural Bottles	Material	91.07%	9.78%
HDPE Natural Bottles	Moisture	7.26%	9.33%
HDPE Natural Bottles	Particulates	1.67%	3.25%
High Grade Paper	Material	84.94%	11.49%
High Grade Paper	Moisture	13.41%	11.27%
High Grade Paper	Particulates	1.64%	4.66%
Mixed Low Grade Paper	Material	69.08%	12.13%
Mixed Low Grade Paper	Moisture	25.61%	10.44%
Mixed Low Grade Paper	Particulates	5.31%	6.05%

Table AV-4
Refuse Moisture and Particulate Analysis Results

Material	Component	Average	Standard Deviation
Newspaper	Material	66.04%	17.87%
Newspaper	Moisture	28.59%	13.14%
Newspaper	Particulates	5.36%	14.71%
Non-Clothing Textiles	Material	67.23%	20.87%
Non-Clothing Textiles	Moisture	19.69%	13.09%
Non-Clothing Textiles	Particulates	13.08%	24.48%
Other Nonrecyclable Paper	Material	70.15%	13.80%
Other Nonrecyclable Paper	Moisture	24.43%	9.47%
Other Nonrecyclable Paper	Particulates	5.43%	9.13%
Other Film	Material	55.20%	16.91%
Other Film	Moisture	35.29%	17.82%
Other Film	Particulates	9.50%	6.14%
Other Rigid Containers/Packaging	Material	79.85%	11.74%
Other Rigid Containers/Packaging	Moisture	12.23%	8.30%
Other Rigid Containers/Packaging	Particulates	7.93%	6.37%
Paper Bags	Material	61.14%	19.11%
Paper Bags	Moisture	29.38%	14.82%
Paper Bags	Particulates	9.48%	13.02%
Paperbacks	Material	90.83%	1.95%
Paperbacks	Moisture	7.97%	3.65%
Paperbacks	Particulates	1.20%	1.69%
PET bottles: Deposit	Material	86.82%	11.42%
PET bottles: Deposit	Moisture	11.83%	11.03%
PET bottles: Deposit	Particulates	1.36%	2.53%
PET bottles: Non-deposit	Material	86.82%	11.42%
PET bottles: Non-deposit	Moisture	11.83%	11.03%
PET bottles: Non-deposit	Particulates	1.36%	2.53%
Phone books	Material	90.73%	1.93%
Phone books	Moisture	7.14%	1.08%
Phone books	Particulates	2.13%	3.01%
Plain OCC/Kraft Paper	Material	66.28%	20.02%
Plain OCC/Kraft Paper	Moisture	31.32%	20.38%
Plain OCC/Kraft Paper	Particulates	2.39%	4.95%

Table AV-4
Refuse Moisture and Particulate Analysis Results

Material	Component	Average	Standard Deviation
Plastic Bags	Material	49.62%	10.15%
Plastic Bags	Moisture	34.91%	9.73%
Plastic Bags	Particulates	15.47%	9.32%
Polycoated Containers	Material	75.05%	10.44%
Polycoated Containers	Moisture	22.24%	9.31%
Polycoated Containers	Particulates	2.70%	4.15%
Rigid polystyrene	Material	79.38%	14.46%
Rigid polystyrene	Moisture	14.00%	11.58%
Rigid polystyrene	Particulates	6.63%	10.52%
Single Use Plates	Material	60.95%	18.22%
Single Use Plates	Moisture	34.16%	15.69%
Single Use Plates	Particulates	4.89%	8.41%
Single-Use Food Svc	Material	70.26%	13.95%
Single-Use Food Svc	Moisture	17.89%	9.16%
Single-Use Food Svc	Particulates	11.85%	9.96%
Tin Food Cans	Material	86.62%	9.99%
Tin Food Cans	Moisture	10.12%	7.28%
Tin Food Cans	Particulates	3.27%	4.36%

Table AV-5
Recycling Moisture and Particulate Analysis Results

Material	Component	Average	Standard Deviation
Aluminum Cans: Deposit	Material	96.28%	5.85%
Aluminum Cans: Deposit	Moisture	3.28%	5.00%
Aluminum Cans: Deposit	Particulates	0.44%	0.97%
Aluminum Cans: Non-Deposit	Material	96.28%	5.85%
Aluminum Cans: Non-Deposit	Moisture	3.28%	5.00%
Aluminum Cans: Non-Deposit	Particulates	0.44%	0.97%
Aluminum Foil/Tins	Material	85.91%	8.24%
Aluminum Foil/Tins	Moisture	9.84%	5.01%
Aluminum Foil/Tins	Particulates	4.25%	4.66%
HDPE Natural Bottles	Material	92.07%	15.61%
HDPE Natural Bottles	Moisture	7.35%	15.35%
HDPE Natural Bottles	Particulates	0.58%	1.09%
HDPE Colored Bottles	Material	96.55%	3.31%
HDPE Colored Bottles	Moisture	2.64%	2.48%
HDPE Colored Bottles	Particulates	0.80%	1.48%
High Grade Paper	Material	93.78%	2.30%
High Grade Paper	Moisture	5.94%	1.99%
High Grade Paper	Particulates	0.27%	0.91%
#3-#7 Containers: #5 PP	Material	100.00%	NA
#3-#7 Containers: #5 PP	Moisture	0.00%	NA
#3-#7 Containers: #5 PP	Particulates	0.00%	NA
Mixed Low Grade Paper	Material	83.04%	14.44%
Mixed Low Grade Paper	Moisture	15.04%	14.60%
Mixed Low Grade Paper	Particulates	1.93%	4.08%
Newspaper	Material	79.91%	18.71%
Newspaper	Moisture	17.69%	18.29%
Newspaper	Particulates	2.40%	4.66%
Compostable/Soiled/ Waxed OCC	Material	65.57%	24.71%
Compostable/Soiled/ Waxed OCC	Moisture	30.35%	25.81%
Compostable/Soiled/ Waxed OCC	Particulates	4.08%	4.16%

Table AV-5
Recycling Moisture and Particulate Analysis Results

Material	Component	Average	Standard Deviation
Other Nonrecyclable Paper	Material	79.97%	15.56%
Other Nonrecyclable Paper	Moisture	15.79%	12.86%
Other Nonrecyclable Paper	Particulates	4.23%	6.71%
Single Use Plates, Cups	Material	94.07%	5.76%
Single Use Plates, Cups	Moisture	5.93%	5.76%
Single Use Plates, Cups	Particulates	0.00%	0.00%
Other Film	Material	79.24%	19.33%
Other Film	Moisture	9.58%	10.27%
Other Film	Particulates	11.17%	12.36%
Expanded Polystyrene	Material	91.05%	21.67%
Expanded Polystyrene	Moisture	6.12%	13.75%
Expanded Polystyrene	Particulates	2.83%	8.00%
Single-Use Food Svc	Material	92.91%	12.21%
Single-Use Food Svc	Moisture	4.39%	6.23%
Single-Use Food Svc	Particulates	2.69%	6.02%
Other Plastics Materials	Material	100.00%	NA
Other Plastics Materials	Moisture	0.00%	NA
Other Plastics Materials	Particulates	0.00%	NA
Other Rigid Containers/Packaging	Material	97.50%	1.85%
Other Rigid Containers/Packaging	Moisture	2.50%	1.85%
Other Rigid Containers/Packaging	Particulates	0.00%	0.00%
Rigid Polystyrene	Material	94.94%	5.38%
Rigid Polystyrene	Moisture	2.90%	2.52%
Rigid Polystyrene	Particulates	2.16%	5.29%
Paper Bags	Material	73.91%	26.38%
Paper Bags	Moisture	6.70%	3.67%
Paper Bags	Particulates	19.39%	23.88%
Paperbacks	Material	92.03%	7.63%
Paperbacks	Moisture	7.97%	7.63%
Paperbacks	Particulates	0.00%	0.00%

Table AV-5
Recycling Moisture and Particulate Analysis Results

Material	Component	Average	Standard Deviation
PET Bottles	Material	94.45%	5.20%
PET Bottles	Moisture	5.34%	5.30%
PET Bottles	Particulates	0.21%	0.65%
Phone Books	Material	92.42%	3.31%
Phone Books	Moisture	7.58%	3.31%
Phone Books	Particulates	0.00%	0.00%
Plain OCC/Kraft paper	Material	81.86%	16.66%
Plain OCC/Kraft paper	Moisture	14.25%	13.42%
Plain OCC/Kraft paper	Particulates	3.89%	12.01%
Plastic Bags	Material	74.25%	27.44%
Plastic Bags	Moisture	13.53%	16.38%
Plastic Bags	Particulates	12.21%	15.56%
Polycoated Containers	Material	86.26%	6.39%
Polycoated Containers	Moisture	13.55%	6.48%
Polycoated Containers	Particulates	0.20%	0.78%
Clothing Textiles	Material	69.89%	19.11%
Clothing Textiles	Moisture	29.57%	19.45%
Clothing Textiles	Particulates	0.54%	0.93%
Non-Clothing Textiles	Material	90.24%	10.41%
Non-Clothing Textiles	Moisture	9.76%	10.41%
Non-Clothing Textiles	Particulates	0.00%	0.00%
Tin Food Cans	Material	91.54%	8.83%
Tin Food Cans	Moisture	4.88%	3.58%
Tin Food Cans	Particulates	3.58%	8.26%

To make the moisture and particulate adjustments to the results of the PWCS, we must first take into account that not all moisture in newspaper, or any other material, is due to the migration of moisture from other sources during collection. Even newly manufactured newspaper has a certain level of moisture. To account for this, the moisture and particulate adjustment has been made by assuming that, had the newspaper (or other material) in the refuse actually been recycled, it would have had proportionately the same level of moisture and particulate matter as the recycled newspaper (or other material). In other words, the moisture and particulate levels in the recycled material has been used as the baseline moisture and particulate levels.

Therefore, the moisture and particulate adjustment to each material consisted of applying the difference between the moisture and particulate levels found in the refuse samples and the moisture and particulate levels found in the recycling samples.

Table AV-6 compares the results of the Refuse Sort and the results of the Refuse Sort adjusted for moisture and particulate testing.

Table AV-6
Comparison of the Results of the Refuse Sort Before and After Moisture and Particulate Adjustments

Material Group	Material Subgroup	Material Category	Material Subcategory	Unadjusted % of Waste Stream	Adjusted % of Waste Stream(1)	Weekly Unadjusted Tonnage in Waste Stream(2)	Weekly Adjusted Tonnage in Waste Stream(1)(2)
Paper	ONP	Newspaper		3.71%	3.19%	2,210.19	1,903.62
Paper	OCC	Plain OCC/Kraft paper		1.35%	1.14%	804.52	679.19
Paper	Mixed Paper	High Grade Paper		0.67%	0.61%	399.96	364.61
Paper	Mixed Paper	Mixed Low Grade Paper		7.34%	6.31%	4,373.54	3,763.01
Paper	Mixed Paper	Phone Books		0.23%	0.22%	135.54	133.24
Paper	Mixed Paper	Paperbacks		0.18%	0.18%	109.68	108.36
Paper	Mixed Paper	Paper Bags		0.60%	0.52%	357.61	311.96
Paper	Bev Cartons	Polycoated Containers		0.47%	0.41%	278.40	247.21
Paper	Compostable Paper	Compostable/Soiled/ Waxed OCC		7.49%	6.24%	4,463.58	3,718.73
Paper	Compostable Paper	Single Use Plates, Cups		0.51%	0.34%	305.84	204.52
Paper	Other Paper	Other Nonrecyclable Paper		0.65%	0.59%	388.28	350.11
Plastic	PET Bottles	PET Bottles	Deposit	0.33%	0.31%	197.92	182.81
Plastic	PET Bottles	PET Bottles	Non-Deposit	0.64%	0.59%	383.61	354.31
Plastic	HDPE Bottles	HDPE Natural Bottles		0.31%	0.30%	182.74	180.90
Plastic	HDPE Bottles	HDPE Colored Bottles		0.45%	0.43%	268.56	257.85
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#1 Pet	0.03%	0.03%	15.66	15.66
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#2 HDPE	0.08%	0.08%	45.02	45.02
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#3 PVC	0.01%	0.01%	7.83	7.83
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#4 LDPE	0.01%	0.01%	8.48	8.48
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#5 PP	0.22%	0.22%	132.60	132.60
Plastic	Containers/Packaging	#3-#7 Containers	#7 Other	0.07%	0.07%	41.18	41.18
Plastic	Other Plastic Products	Other PVC		0.07%	0.07%	42.72	42.72
Plastic	Other Rigid Containers/Packaging	Rigid Polystyrene		0.16%	0.14%	95.34	80.50
Plastic	Other Rigid Containers/Packaging	Expanded Polystyrene		0.69%	0.46%	411.62	272.77

Table AV-6
Comparison of the Results of the Refuse Sort Before and After Moisture and Particulate Adjustments

Material Group	Material Subgroup	Material Category	Material Subcategory	Unadjusted % of Waste Stream	Adjusted % of Waste Stream(1)	Weekly Unadjusted Tonnage in Waste Stream(2)	Weekly Adjusted Tonnage in Waste Stream(1)(2)
Plastic	Other Rigid Containers/Packaging	Other Rigid Containers/Packaging		0.61%	0.50%	362.88	298.82
Plastic	Film	Plastic Bags		2.79%	2.10%	1,664.19	1,254.23
Plastic	Film	Other Film		5.21%	3.95%	3,103.20	2,357.17
Plastic	Other Rigid Containers/Packaging	Plastic Crates and Soda Bottle Carriers		0.06%	0.06%	35.80	35.80
Plastic	Other Plastic Products	Single-Use Food Svc		0.78%	0.60%	465.09	359.73
Plastic	Other Plastic Products	Single Use Cameras		0.00%	0.00%	0.00	0.00
Plastic	Other Plastic Products	Disposable Razors		0.01%	0.01%	4.26	4.26
Plastic	Other Plastic Products	Other Plastics Materials		1.67%	1.67%	994.00	994.00
Glass	Container Glass	Clear Glass	Deposit	0.28%	0.28%	167.38	167.38
Glass	Container Glass	Clear Glass	Non-Deposit	1.00%	1.00%	594.78	594.78
Glass	Container Glass	Green Glass	Deposit	0.15%	0.15%	88.59	88.59
Glass	Container Glass	Green Glass	Non-Deposit	0.16%	0.16%	96.59	96.59
Glass	Container Glass	Brown Glass	Deposit	0.25%	0.25%	151.43	151.43
Glass	Container Glass	Brown Glass	Non-Deposit	0.06%	0.06%	34.43	34.43
Glass	Mixed Cullet	Mixed Cullet		0.50%	0.50%	300.38	300.38
Glass	Other Glass	Other Glass		0.20%	0.20%	119.28	119.28
Metal	Aluminum	Aluminum Cans	Deposit	0.17%	0.14%	101.86	82.90
Metal	Aluminum	Aluminum Cans	Non-Deposit	0.03%	0.02%	16.11	13.11
Metal	Aluminum	Aluminum Foil/Tins		0.60%	0.45%	356.92	267.53
Metal	Aluminum	Other Aluminum		0.05%	0.05%	28.21	28.21
Metal	Other Metal	Other Non-Ferrous		0.06%	0.06%	37.49	37.49
Metal	Ferrous	Tin Food Cans		0.91%	0.87%	544.72	517.90
Metal	Ferrous	Empty Aerosol Cans		0.12%	0.12%	73.65	73.65
Metal	Ferrous	Other Ferrous		1.03%	1.03%	614.61	614.61
Metal	Other Metal	Mixed Metals		0.56%	0.56%	335.45	335.45
Organic	Yard	Leaves and Grass		6.23%	6.23%	3,712.61	3,712.61
Organic	Yard	Prunings		3.04%	3.04%	1,815.19	1,815.19
Organic	Wood	Stumps/Limbs		0.67%	0.67%	402.35	402.35
Organic	Food	Food		15.93%	15.93%	9,498.60	9,498.60
Organic	Wood	Non-C&D, Untreated Wood		0.38%	0.38%	224.39	224.39
Organic	Textiles	Non-Clothing Textiles		2.07%	1.59%	1,234.32	950.29
Organic	Textiles	Clothing Textiles		3.70%	3.70%	2,205.01	2,205.01
Organic	Textiles	Carpet/Upholstery		1.27%	1.27%	754.66	754.66

Table AV-6
Comparison of the Results of the Refuse Sort Before and After Moisture and Particulate Adjustments

Material Group	Material Subgroup	Material Category	Material Subcategory	Unadjusted % of Waste Stream	Adjusted % of Waste Stream(1)	Weekly Unadjusted Tonnage in Waste Stream(2)	Weekly Adjusted Tonnage in Waste Stream(1)(2)
Organic	Diapers/Hygiene	Disposable Diapers/Sanitary Products		3.81%	3.81%	2,269.39	2,269.39
Organic	Misc. Organic	Animal By-Products		1.25%	1.25%	743.58	743.58
Organic	Misc. Organic	Rubber Products		0.32%	0.32%	189.07	189.07
Organic	Textiles	Shoes	Leather	0.37%	0.37%	222.30	222.30
Organic	Textiles	Shoes	Other	0.09%	0.09%	55.81	55.81
Organic	Textiles	Shoes	Rubber	0.20%	0.20%	119.97	119.97
Organic	Textiles	Other Leather Products		0.05%	0.05%	32.47	32.47
Organic	Misc. Organic	Fines		4.20%	4.20%	2,504.07	2,504.07
Organic	Misc. Organic	Miscellaneous Organics		3.98%	3.98%	2,370.43	2,370.43
App. & Elec.	Household Appliance	Small Appliances		0.27%	0.27%	162.46	162.46
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Other	0.24%	0.24%	142.13	142.13
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Cell Phones	0.00%	0.00%	2.67	2.67
App. & Elec.	Electronic.AV/Computer	Computer Monitors		0.05%	0.05%	28.92	28.92
App. & Elec.	Electronic.AV/Computer	Televisions		0.10%	0.10%	60.42	60.42
App. & Elec.	Electronic.AV/Computer	Other Computer Equip.		0.19%	0.19%	115.01	115.01
Const. Debris	Wood	Untreated Dimension Lumber, Pallets, Crates		0.45%	0.45%	267.55	267.55
Const. Debris	Wood	Treated/Contaminated Wood		2.99%	2.99%	1,784.14	1,784.14
Const. Debris	Inorganic C&D	Gypsum Scrap		1.16%	1.16%	693.64	693.64
Const. Debris	Inorganic C&D	Fiberglass Insulation		0.06%	0.06%	34.48	34.48
Const. Debris	Inorganic C&D	Rock/Concrete/Bricks		0.58%	0.58%	348.15	348.15
Const. Debris	Inorganic C&D	Asphaltic Roofing		0.02%	0.02%	12.14	12.14
Const. Debris	Inorganic C&D	Other C&D Debris		1.74%	1.74%	1,036.63	1,036.63
Misc.	Misc. Inorganic	Misc. Inorganics		0.23%	0.23%	139.58	139.58
Misc.	Misc. Inorganic	Ceramics		0.36%	0.36%	214.93	214.93
HHW	HHW	Oil Filters		0.00%	0.00%	0.00	0.00
HHW	HHW	Antifreeze		0.00%	0.00%	0.00	0.00
HHW	HHW	Wet-Cell Batteries		0.07%	0.07%	43.76	43.76
HHW	HHW	Gasoline/Kerosene		0.00%	0.00%	0.55	0.55
HHW	HHW	Motor Oil/Diesel Oil		0.00%	0.00%	0.00	0.00
HHW	HHW	Latex Paints		0.05%	0.05%	29.45	29.45
HHW	HHW	Water and Solvent-Based Adhesives/glues		0.06%	0.06%	37.57	37.57
HHW	HHW	Oil-Based Paint/Solvent		0.07%	0.07%	39.56	39.56

Table AV-6
Comparison of the Results of the Refuse Sort Before and After Moisture and Particulate Adjustments

Material Group	Material Subgroup	Material Category	Material Subcategory	Unadjusted % of Waste Stream	Adjusted % of Waste Stream(1)	Weekly Unadjusted Tonnage in Waste Stream(2)	Weekly Adjusted Tonnage in Waste Stream(1)(2)
HHW	HHW	Pesticides/Herbicides/Rodenticides		0.00%	0.00%	0.81	0.81
HHW	HHW	DRY-CELL Batteries		0.07%	0.07%	40.02	40.02
HHW	HHW	Fluorescent Tubes		0.00%	0.00%	2.65	2.65
HHW	HHW	Mercury-Laden waste		0.00%	0.00%	0.07	0.07
HHW	HHW	Compressed Gas Cylinders/Fire Extinguishers		0.00%	0.00%	0.00	0.00
HHW	HHW	Asbestos		0.00%	0.00%	0.00	0.00
HHW	HHW	Explosives		0.00%	0.00%	0.00	0.00
HHW	HHW	Smoke Detectors		0.00%	0.00%	1.40	1.40
HHW	HHW	Home Medical Products		0.04%	0.04%	23.43	23.43
HHW	HHW	Other Potentially Harmful Wastes		0.09%	0.09%	50.74	50.74
Moisture	Moisture	Moisture		NA	4.43%	NA	2,643.51
Particulates	Particulates	Particulates		NA	2.28%	NA	1,357.32
TOTAL				100.00%	100.00%	59,618.80	59,618.80

(1) The adjusted results were developed after moisture and particulate adjustment results were applied to the unadjusted composition study results. Moisture and particulate testing was performed on only a subset of categories. The other categories were assumed to have insufficient moisture and particulates to warrant testing.

(2) Tonnage values are based on 59,618.80 tons which is the average weekly tonnage of refuse that was collected during May and June 2004, as provided by DSNY.

It is not possible to determine the source of the moisture and particulates in each material. Moisture may have come from food waste, grass clippings, or ambient precipitation. Particulate matter might be glass, food waste, or some other material.

Because the moisture and particulate levels in the recycled materials are used as the baseline, no adjustment has been made to these results, so they have not been repeated here (see the PWCS Report, Section 7 for the results of the Recycling Sort).

Table AV-7 presents the comparison of the Aggregated Waste stream before and after for moisture and particulate adjustments.

Table AV-7
Comparison of Results of the Aggregated Waste Before and After Moisture and Particulate Adjustments[1]

Material Group	Material Subgroup	Material Category	Material Subcategory	Unadjusted % of Waste Stream	Adjusted % of Waste Stream[2]	Weekly Adjusted Tonnage in Waste Stream[3]	Weekly Adjusted Tonnage in Waste Stream[2][3]
Paper	ONP	Newspaper		7.17%	5.73%	5,150.99	4,116.31
Paper	OCC	Plain OCC/Kraft paper		3.24%	2.65%	2,323.31	1,901.88
Paper	Mixed Paper	High Grade Paper		0.99%	0.93%	711.69	667.44
Paper	Mixed Paper	Mixed Low Grade Paper		8.71%	7.23%	6,253.87	5,192.92
Paper	Mixed Paper	Phone Books		0.52%	0.48%	370.04	342.01
Paper	Mixed Paper	Paperbacks		0.29%	0.27%	207.29	190.78
Paper	Mixed Paper	Paper Bags		0.56%	0.41%	398.87	294.80
Paper	Bev Cartons	Polycoated Containers		0.53%	0.46%	379.81	327.60
Paper	Compostable Paper	Compostable/Soiled/ Waxed OCC		6.25%	4.10%	4,489.32	2,943.70
Paper	Compostable Paper	Single Use Plates, Cups		0.43%	0.40%	307.45	289.24
Paper	Other Paper	Other Nonrecyclable Paper		0.72%	0.58%	518.51	414.68
Plastic	PET Bottles	PET Bottles	Deposit	0.36%	0.34%	257.94	243.63
Plastic	PET Bottles	PET Bottles	Non-Deposit	0.86%	0.81%	617.90	583.62
Plastic	HDPE Bottles	HDPE Natural Bottles		0.44%	0.40%	315.75	290.72
Plastic	HDPE Bottles	HDPE Colored Bottles		0.56%	0.54%	401.31	387.49
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#1 Pet	0.02%	0.02%	15.76	15.76
Plastic	Other Rigid Containers/Packaging	#1-#2 Tubs/Trays	#2 HDPE	0.07%	0.07%	50.58	50.58
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#3 PVC	0.02%	0.02%	10.81	10.81
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#4 LDPE	0.01%	0.01%	9.21	9.21
Plastic	Other Rigid Containers/Packaging	#3-#7 Containers	#5 PP	0.23%	0.23%	164.97	164.97
Plastic	Containers/Packaging	#3-#7 Containers	#7 Other	0.07%	0.07%	49.79	49.79
Plastic	Other Plastic Products	Other PVC		0.06%	0.06%	46.59	46.59
Plastic	Other Rigid Containers/Packaging	Rigid Polystyrene		0.16%	0.15%	115.17	109.35
Plastic	Other Rigid Containers/Packaging	Expanded Polystyrene		0.59%	0.53%	420.25	382.64
Plastic	Other Rigid Containers/Packaging	Other Rigid Containers/Packaging		0.61%	0.60%	438.18	427.23
Plastic	Film	Plastic Bags		2.39%	1.78%	1,717.49	1,275.31

Table AV-7
Comparison of Results of the Aggregated Waste Before and After Moisture and Particulate Adjustments[1]

Material Group	Material Subgroup	Material Category	Material Subcategory	Unadjusted % of Waste Stream	Adjusted % of Waste Stream[2]	Weekly Adjusted Tonnage in Waste Stream[3]	Weekly Adjusted Tonnage in Waste Stream[2][3]
Plastic	Film	Other Film		4.58%	3.63%	3,286.42	2,604.30
Plastic	Other Rigid Containers/Packaging	Plastic Crates and Soda Bottle Carriers		0.06%	0.06%	42.37	42.37
Plastic	Other Plastic Products	Single-Use Food Svc		0.66%	0.61%	473.81	440.23
Plastic	Other Plastic Products	Single Use Cameras		0.00%	0.00%	0.00	0.00
Plastic	Other Plastic Products	Disposable Razors		0.01%	0.01%	7.87	7.87
Plastic	Other Plastic Products	Other Plastics Materials		1.65%	1.65%	1,186.74	1,186.74
Glass	Container Glass	Clear Glass	Deposit	0.30%	0.30%	218.77	218.77
Glass	Container Glass	Clear Glass	Non-Deposit	1.25%	1.25%	897.66	897.66
Glass	Container Glass	Green Glass	Deposit	0.20%	0.20%	141.84	141.84
Glass	Container Glass	Green Glass	Non-Deposit	0.31%	0.31%	224.65	224.65
Glass	Container Glass	Brown Glass	Deposit	0.29%	0.29%	204.67	204.67
Glass	Container Glass	Brown Glass	Non-Deposit	0.07%	0.07%	49.74	49.74
Glass	Mixed Cullet	Mixed Cullet		1.94%	1.94%	1,389.51	1,389.51
Glass	Other Glass	Other Glass		0.21%	0.21%	149.65	149.65
Metal	Aluminum	Aluminum Cans	Deposit	0.17%	0.16%	121.89	117.36
Metal	Aluminum	Aluminum Cans	Non-Deposit	0.05%	0.05%	35.16	33.85
Metal	Aluminum	Aluminum Foil/Tins		0.57%	0.49%	405.77	348.60
Metal	Aluminum	Other Aluminum		0.05%	0.05%	38.74	38.74
Metal	Other Metal	Other Non-Ferrous		0.07%	0.07%	50.94	50.94
Metal	Ferrous	Tin Food Cans		1.25%	1.14%	895.46	819.69
Metal	Ferrous	Empty Aerosol Cans		0.15%	0.15%	104.90	104.90
Metal	Ferrous	Other Ferrous		2.23%	2.23%	1,603.63	1,603.63
Metal	Other Metal	Mixed Metals		0.54%	0.54%	386.11	386.11
Organic	Yard	Leaves and Grass		5.17%	5.17%	3,713.88	3,713.88
Organic	Yard	Prunings		2.53%	2.53%	1,816.54	1,816.54
Organic	Wood	Stumps/Limbs		0.56%	0.56%	402.35	402.35
Organic	Food	Food		13.35%	13.35%	9,586.48	9,586.48
Organic	Wood	Non-C&D, Untreated Wood		0.32%	0.32%	228.16	228.16
Organic	Textiles	Non-Clothing Textiles		1.75%	1.58%	1,255.18	1,132.70
Organic	Textiles	Clothing Textiles		3.09%	2.16%	2,216.17	1,548.94
Organic	Textiles	Carpet/Upholstery		1.05%	1.05%	755.47	755.47
Organic	Diapers/Hygiene	Disposable Diapers/Sanitary Products		3.17%	3.17%	2,278.81	2,278.81
Organic	Misc. Organic	Animal By-Products		1.04%	1.04%	746.05	746.05
Organic	Misc. Organic	Rubber Products		0.28%	0.28%	198.34	198.34
Organic	Textiles	Shoes	Leather	0.31%	0.31%	222.30	222.30
Organic	Textiles	Shoes	Other	0.08%	0.08%	56.00	56.00

Table AV-7
Comparison of Results of the Aggregated Waste Before and After Moisture and Particulate Adjustments[1]

Material Group	Material Subgroup	Material Category	Material Subcategory	Unadjusted % of Waste Stream	Adjusted % of Waste Stream[2]	Weekly Adjusted Tonnage in Waste Stream[3]	Weekly Adjusted Tonnage in Waste Stream[2][3]
Organic	Textiles	Shoes	Rubber	0.17%	0.17%	124.34	124.34
Organic	Textiles	Other Leather Products		0.05%	0.05%	33.52	33.52
Organic	Misc. Organic	Fines		3.61%	3.61%	2,592.14	2,592.14
Organic	Misc. Organic	Miscellaneous Organics		3.31%	3.31%	2,380.15	2,380.15
App. & Elec.	Household Appliance	Small Appliances		0.37%	0.37%	268.99	268.99
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Other	0.20%	0.20%	142.13	142.13
App. & Elec.	Electronic.AV/Computer	Audio/Visual Equipment	Cell Phones	0.00%	0.00%	3.05	3.05
App. & Elec.	Electronic.AV/Computer	Computer Monitors		0.04%	0.04%	28.92	28.92
App. & Elec.	Electronic.AV/Computer	Televisions		0.08%	0.08%	60.42	60.42
App. & Elec.	Electronic.AV/Computer	Other Computer Equip.		0.22%	0.22%	154.78	154.78
Const. Debris	Wood	Untreated Dimension Lumber, Pallets, Crates		0.39%	0.39%	278.15	278.15
Const. Debris	Wood	Treated/Contaminated Wood		2.49%	2.49%	1,789.10	1,789.10
Const. Debris	Inorganic C&D	Gypsum Scrap		0.97%	0.97%	694.46	694.46
Const. Debris	Inorganic C&D	Fiberglass Insulation		0.05%	0.05%	34.52	34.52
Const. Debris	Inorganic C&D	Rock/Concrete/Bricks		0.49%	0.49%	350.92	350.92
Const. Debris	Inorganic C&D	Asphaltic Roofing		0.02%	0.02%	12.14	12.14
Const. Debris	Inorganic C&D	Other C&D Debris		1.46%	1.46%	1,045.26	1,045.26
Misc.	Misc. Inorganic	Misc. Inorganics		0.22%	0.22%	160.42	160.42
Misc.	Misc. Inorganic	Ceramics		0.33%	0.33%	237.49	237.49
HHW	HHW	Oil Filters		0.00%	0.00%	0.07	0.07
HHW	HHW	Antifreeze		0.00%	0.00%	0.00	0.00
HHW	HHW	Wet-Cell Batteries		0.06%	0.06%	43.76	43.76
HHW	HHW	Gasoline/Kerosene		0.00%	0.00%	0.55	0.55
HHW	HHW	Motor Oil/Diesel Oil		0.00%	0.00%	0.00	0.00
HHW	HHW	Latex Paints		0.04%	0.04%	29.45	29.45
HHW	HHW	Water and Solvent-Based Adhesives/glues		0.05%	0.05%	38.00	38.00
HHW	HHW	Oil-Based Paint/Solvent		0.06%	0.06%	42.33	42.33
HHW	HHW	Pesticides/Herbicides/Rodenticides		0.00%	0.00%	0.81	0.81
HHW	HHW	DRY-CELL Batteries		0.06%	0.06%	42.20	42.20
HHW	HHW	Fluorescent Tubes		0.00%	0.00%	2.71	2.71
HHW	HHW	Mercury-Laden waste		0.00%	0.00%	0.07	0.07
HHW	HHW	Compressed Gas Cylinders/Fire Extinguishers		0.00%	0.00%	0.58	0.58
HHW	HHW	Asbestos		0.00%	0.00%	0.00	0.00
HHW	HHW	Explosives		0.00%	0.00%	0.00	0.00

Table AV-7
Comparison of Results of the Aggregated Waste Before and After Moisture and Particulate Adjustments[1]

Material Group	Material Subgroup	Material Category	Material Subcategory	Unadjusted % of Waste Stream	Adjusted % of Waste Stream[2]	Weekly Adjusted Tonnage in Waste Stream[3]	Weekly Adjusted Tonnage in Waste Stream[2][3]
HHW	HHW	Smoke Detectors		0.00%	0.00%	1.45	1.45
HHW	HHW	Home Medical Products		0.03%	0.03%	23.71	23.71
HHW	HHW	Other Potentially Harmful Wastes		0.07%	0.07%	50.74	50.74
Moisture	Moisture	Moisture		NA	7.13%	NA	5,118.86
Particulates	Particulates	Particulates		NA	2.14%	NA	1,539.15
TOTAL				**100.00%**	**100.00%**	**71,802.25**	**71,802.25**

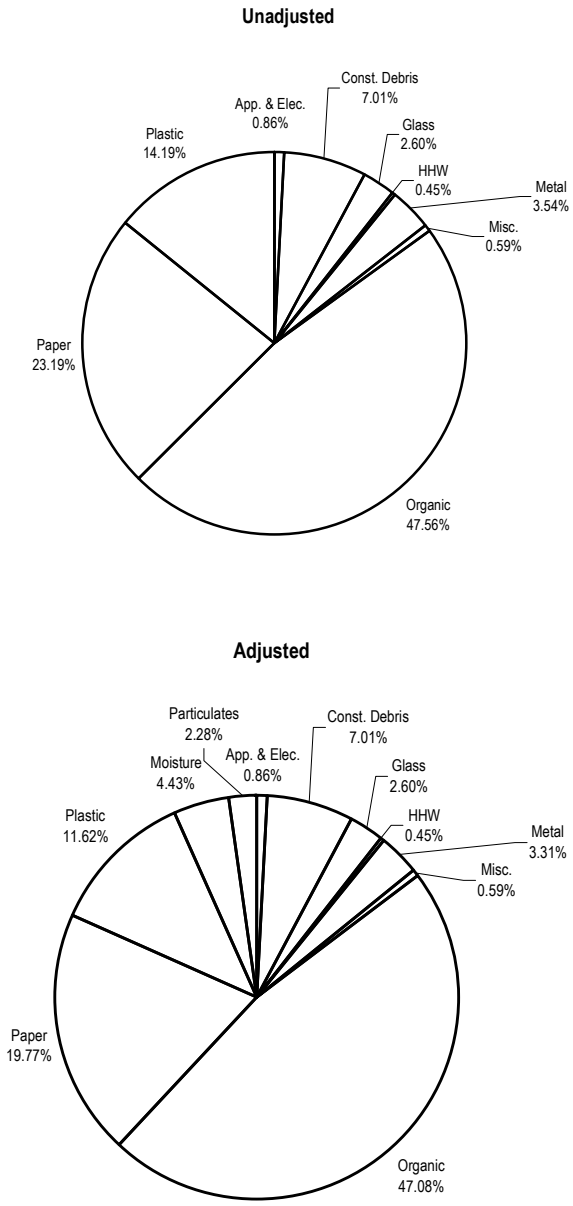
(1) Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50% metal. All other small appliances in the recycling stream were included in the "Other Ferrous" category.

(2) The adjusted results were developed after moisture and particulate analysis results were applied to the unadjusted composition study results. Moisture and particulate testing was performed on only a subset of categories. The other categories were assumed to have insufficient moisture and particulates to warrant analysis.

(3) Tonnage values are based on 71,802.25 tons which is the average weekly tonnage of waste that was collected during May and June 2004, as provided by DSNY.

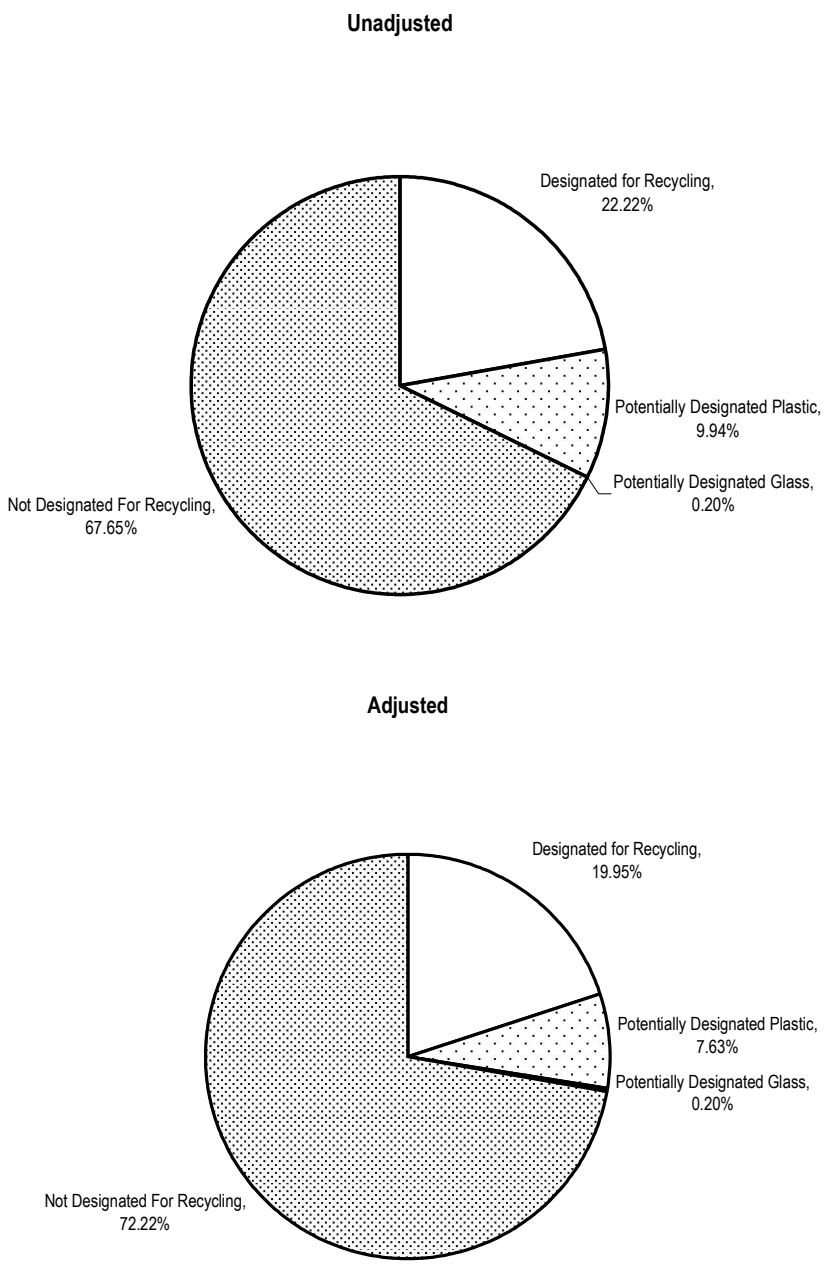
The results of the Refuse Sort showing the percentages of the nine major material groups and the percentages adjusted for moisture and particulate testing are presented graphically in Figure AV-1

Figure 1 PWCS Refuse Composition by Material Group



As noted in the PWCS Report, the materials designated for recycling by DSNY in the Refuse Sort represented 22 percent of all materials. As Figure AV-2 shows, when the results are adjusted for moisture and particulates, the percentage drops to 20 percent.

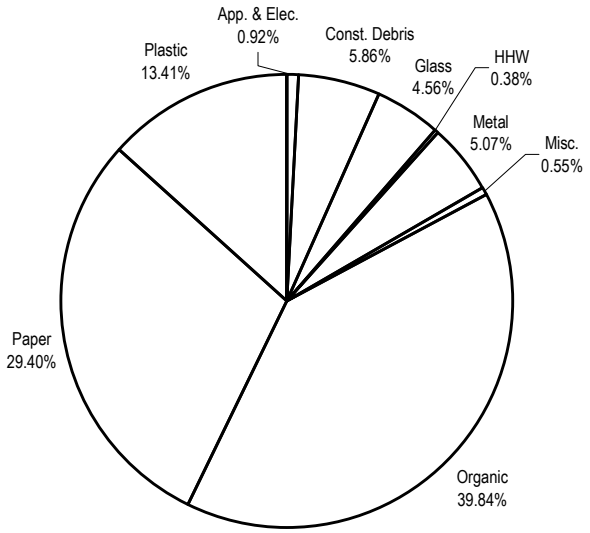
Figure 2 Summary of Materials Designated for Recycling in the PWSC Refuse Sort



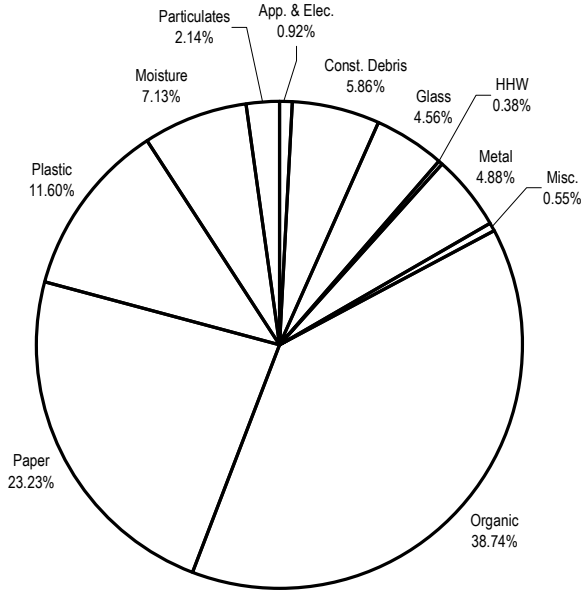
The results of the Aggregated Waste Stream showing the percentages of the nine major material groups and the percentages adjusted for moisture and particulate testing are presented graphically in Figure AV-3

Figure 3 PWCS Waste Composition by Material Group

Unadjusted



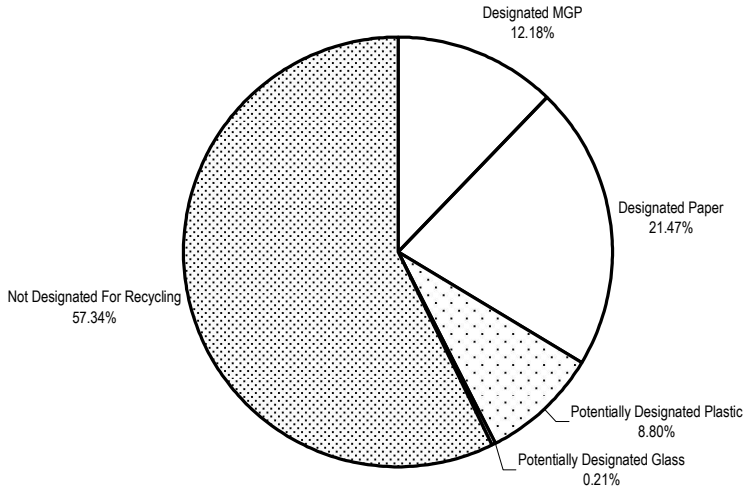
Adjusted



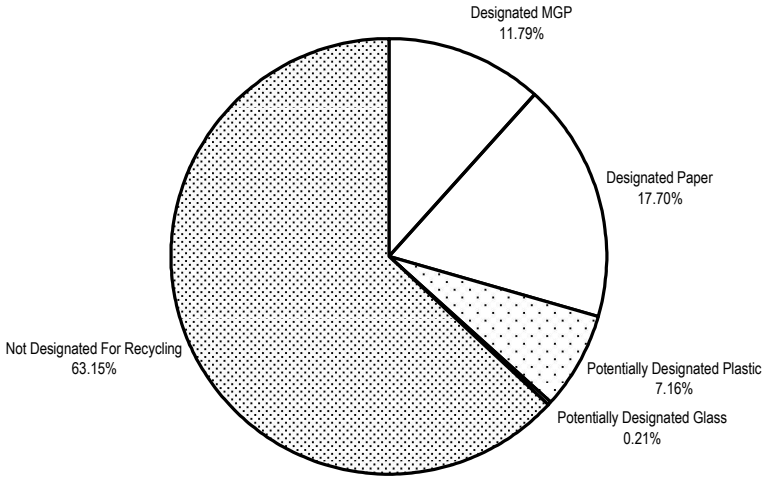
The materials designated for recycling by DSNY in the Aggregated Waste Stream represented 33 percent of all materials. As Figure AV-4 shows, when the results are adjusted for moisture and particulates, the percentage drops to 32 percent.

Figure 4 Summary of Materials Designated for Recycling in the PWSC Waste Sort

Unadjusted



Adjusted



Appendix W
Bulk Metal in the MGP Stream

Bulk Metal in the MGP Stream

MGP Sample Acquisition

As noted in Section 3.4.2 of the PWCS Report, the protocol for Metal, Glass, and Plastic ("MGP") sample acquisition was modified during the course of the PWCS MGP sort in order to more accurately reflect the amount of bulk metal items present in the MGP stream. Appendix W discusses the sampling methodology initially used during the MGP sort, the modified sample acquisition approach, and the reasoning behind the change in sampling methodology.

Development of Initial MGP Sampling Protocol

On May 7, 2004, a field visit was made to the Hugo Neu Schnitzer processing facility located in Brooklyn. The purpose of the site visit was to observe the MGP collected by DSNY collection vehicles and determine the best approach to removing the 100 to 125 pound samples from the collected MGP loads.

Based on the on-site review, we determined that a bobcat front-end loader equipped with a ½ cubic yard bucket with a grab-arm would be suitable for taking a sample from the tipped MGP loads. The random selection of a portion of the tipped load in which to "grab" the sample would be made by the Sample Manager prior to the dumping of the load. The bobcat operator would then grab a bucket-load from that section of the load. The bucket would be lowered so that the Sample Manager could pull material from the bucket into a 96-gallon toter.

After each toter had been weighed, it was marked with the date, sample number, a sample code, and the truck number. Once the MGP sample's weight had been confirmed, the remainder of the tipped load was managed as it normally would be. In addition, the Sample Manager completed a Sample Management Form for each sample. An example of completed Sample Management Form is shown in Appendix E.

After all the MGP samples were weighed and labeled, they were loaded on an R. W. Beck truck and transported to the Greenpoint Marine Transfer Station ("MTS") where they were unloaded and positioned for sorting.

This methodology has been successfully used by R. W. Beck Project Team staff in prior studies for other local and state government and private sector clients for the purposes of sampling commingled recycling containers. Based on the review of the MGP loads on the day of the site visit, we believed that this methodology would also prove suitable for MGP sampling at the Hugo Neu Schnitzer processing facility.

Modification of MGP Sampling Protocol

Sampling of the MGP at the Hugo Neu Schnitzer facility began on Monday, June 7th and was completed on Saturday, June 12th. Sampling was initiated using the protocol developed in conjunction with the May site visit.

MGP sampling proceeded as planned over the initial three days of the MGP sort. During these three days, a number of over-sized metal bulky items were observed in the MGP loads delivered to the Hugo Neu Schnitzer facility by the DSNY collection vehicles. However, relatively few of

the items were located in the random section of the loads selected for sampling. In cases where an item was too large to fit inside the 96-gallon toter, (e.g., a bed frame or metal cabinet), the item was weighed separately on-site, the weight recorded on the MGP Sampling Form, and the item returned to the tipped load for normal processing.

As the MGP sort progressed, the number and size of metal bulk items present in the incoming loads of MGP called into question the sampling protocol. Many of these items were too large to handle using the bobcat loader. Due to the physical dimensions of many of these bulk metal items (including durable products such as ranges, water heaters, air conditioner units, bed frames, refrigerators, bicycles, etc.), we were concerned that such items were not being appropriately sampled from the MGP stream. In many instances, bulk items in the area from which the MGP sample was taken did not get captured by the bobcat loader due to their large dimension. On one occasion, for example, the area from which the MGP sample was to be taken in the load consisted of a twisted pile of metal bed frames and bikes, which the loader was unable to grab. The sampling protocol used during the early part of the week required that a bulk item be included in a sample if the bulk item was scooped up by the bobcat loader. If the bulk item either remained in the bucket of the loader or fell out of the bucket as it pulled away from the load from which the MGP sample was being taken, it was included in the sample.

To ensure that over-size bulk materials were appropriately included in the sampling process, it was decided to make two modifications to the MGP sampling protocol. First, due to the significant size of many of these large bulky metal items, the bobcat front end loader was replaced with a much larger front end loader, with a 5 cubic yard bucket. Second, a procedural change was made in the MGP sampling protocol to allow the Sample Manager to include any bulk items in the sample, if the Sample Manager believed the items would have been selected for sampling except for the fact that the item's dimensions precluded it from being grabbed by the front end loader for sampling.

As before, bulk items included in the sample were weighed by the Sample Manager and the weight recorded directly on the Sample Management Form. The bulk items were then discarded at the facility for processing, and were not transported to the MTS for further sorting. After pre-weighing the bulky item(s) and subtracting the weight of the bulk item(s) from the 100 to 125 pound target sample size, the Sample Manager sampled from the remainder of the grab sample until the total weight fell within the targeted range. By pre-weighing the bulk items during the sample acquisition process, the remaining quantity of material requiring physical sorting at the MTS was reduced for some samples. The R. W. Beck Project Team believes this methodology most accurately captures representative samples that include both bulk and non-bulk items in the MGP stream.

These methodological changes were implemented beginning on the morning of Thursday, June 10th. As a consequence, the results of the MGP sampling reflected in the PWCS Report probably under-estimated the amount of bulk metal items in the MGP samples taken during the week-long study period, primarily as a result of potentially under-reporting bulk metal items early in the week. However, for purposes of remaining conservative (i.e. under-reporting metal content), the full-week results have been reported. The revised methodology will be used during the Phase I Study for MGP sampling.

A listing of the bulky metal items separated from the MGP loads, along with the weight of each item, the date the item was sampled, the borough of origin, a description of each item, and the material category into which the items was recorded is provided in Table AW-1.

Table AW-1
Bulk Items in MGP Sort

Date Sampled	Borough	Bulk Item	Category	Total Bulk Weight
6/7/2004	Manhattan	Metal Range Hood	Other Ferrous	10
6/7/2004	Queens	Metal cart, plastic wheels	Other Ferrous	9
6/8/2004	Queens	Microwave Oven	Small Appliances	16
6/9/2004	Brooklyn	Metal Folding Chair	Other Ferrous	10
6/9/2004	Brooklyn	Electric Fan (15")	Small Appliances	8
6/10/2004	Brooklyn	Metal Bed Frame	Other Ferrous	21
6/10/2004	Brooklyn	Bicycle Wheels	Rubber	8
6/10/2004	Brooklyn	Metal Cabinet	Other Ferrous	23
6/10/2004	Brooklyn	Metal + Plastic Chair	Other Ferrous	16
6/10/2004	Brooklyn	Microwave	Small Appliances	26
6/10/2004	Brooklyn	Metal Office Chair	Other Ferrous	20
6/10/2004	Brooklyn	Metal Bar	Mixed Metal	8
6/10/2004	Brooklyn	Metal Pipes	Other Ferrous	22
6/10/2004	Brooklyn	Metal Frame	Other Ferrous	12
6/10/2004	Brooklyn	Metal Frame	Other Ferrous	44
6/10/2004	Queens	Heater	Small Appliances	14
6/10/2004	Queens	Stove	Small Appliances	96.1
6/10/2004	Queens	Metal Bars	Mixed Metal	15
6/10/2004	Queens	Metal Frame	Mixed Metal	9
6/10/2004	Queens	Air Conditioner	Small Appliances	25
6/11/2004	Bronx	Metal Chair Piece	Other Ferrous	9
6/11/2004	Bronx	Metal Bed Frame	Other Ferrous	18.2
6/11/2004	Bronx	Metal Chair	Other Ferrous	6.3
6/11/2004	Bronx	Metal Cabinet	Other Ferrous	22.3
6/11/2004	Bronx	Metal Baby Stroller	Other Ferrous	12
6/11/2004	Bronx	Metal Cabinet	Other Ferrous	5.5
6/11/2004	Bronx	Metal Baby Stroller	Other Ferrous	10
6/11/2004	Bronx	Metal Stove Top	Other Ferrous	12
6/11/2004	Bronx	Metal Bed Frame	Other Ferrous	10
6/11/2004	Bronx	Metal Pipe	Other Ferrous	6
6/11/2004	Manhattan	Metal Bed Frame	Other Ferrous	19
6/11/2004	Manhattan	Air Conditioner	Small Appliances	35
6/11/2004	Manhattan	Plastic Vacuum Cleaner	Small Appliances	10
6/11/2004	Manhattan	2 Metal Bed Frames	Other Ferrous	20

Table AW-1
Bulk Items in MGP Sort

Date Sampled	Borough	Bulk Item	Category	Total Bulk Weight
6/11/2004	Manhattan	Metal Curtain Rod	Other Ferrous	8
6/11/2004	Manhattan	Metal Bed Frame	Other Ferrous	10
6/11/2004	Manhattan	Metal Stove Top	Other Ferrous	9
6/11/2004	Manhattan	Metal Stove Top	Other Ferrous	7
6/11/2004	Manhattan	Refrigerator Door	Other Ferrous	22
6/11/2004	Manhattan	Metal Chair	Other Ferrous	12
6/11/2004	Manhattan	Metal Shelf	Other Ferrous	12
6/12/2004	Brooklyn	Plastic Vacuum Cleaner Bottom	Small Appliances	8
6/12/2004	Brooklyn	Air Conditioner	Small Appliances	66
6/12/2004	Brooklyn	Washing Machine (part)	Small Appliances	80
6/12/2004	Brooklyn	Air Conditioner	Small Appliances	48
6/12/2004	Brooklyn	Metal Appliance Cover	Other Ferrous	5
6/12/2004	Brooklyn	Metal Container	Other Ferrous	10
6/12/2004	Brooklyn	Metal Bed Frame	Other Ferrous	7.5
6/12/2004	Brooklyn	Metal Pan	Other Ferrous	5.5
6/12/2004	Brooklyn	Metal Chair	Other Ferrous	7
6/12/2004	Brooklyn	Metal Ceiling Fan - Parts	Other Ferrous	14
6/12/2004	Brooklyn	Metal Container	Other Ferrous	12
6/12/2004	Brooklyn	Dishwasher or similar appliance	Small Appliances	71
6/12/2004	Brooklyn	Refrigerator Door	Other Ferrous	10
6/12/2004	Brooklyn	Metal Cabinet	Other Ferrous	13
6/12/2004	Staten Island	Canister Vacuum - Plastic + Metal	Small Appliances	12
6/12/2004	Staten Island	Child's Bicycle	Other Ferrous	28
6/12/2004	Staten Island	Microwave Oven	Small Appliances	31.5
6/12/2004	Staten Island	Metal Frame	Other Ferrous	4.5
6/12/2004	Staten Island	Freezer Door (Part)	Other Ferrous	17
6/12/2004	Staten Island	Freezer Door (Part)	Other Ferrous	21
6/12/2004	Staten Island	Metal File Drawer	Other Ferrous	15
6/12/2004	Staten Island	Steel Pipes	Other Ferrous	22
			Total	**1195.4**

Results of Methodological Changes

As a result of the methodological change in MGP Sampling, we expected to obtain greater percentages of metals, from both appliances and other bulk items that had been inappropriately excluded by the original sampling protocol. The results, as shown in Table AW-2, confirm this.

Table AW-2
Comparison of Material Group Results for First Half and Second Half of MGP Sort

	First Half			Second Half		
Material	**Average**	**Lower Boundary**	**Upper Boundary**	**Average**	**Lower Boundary**	**Upper Boundary**
Paper	5.10%	4.35%	5.91%	4.30%	3.50%	5.19%
Plastic	21.90%	20.04%	23.81%	19.79%	18.02%	21.61%
Glass	39.93%	35.46%	44.48%	27.86%	24.24%	31.63%
Metal	25.47%	22.67%	28.27%	38.63%	34.21%	43.05%
Organic	3.91%	2.79%	5.20%	2.26%	1.70%	2.89%
App. & Elec.	2.13%	1.35%	2.91%	6.30%	4.14%	8.46%
Const. Debris	0.27%	0.15%	0.41%	0.28%	0.15%	0.45%
Misc.	1.22%	0.75%	1.80%	0.43%	0.27%	0.64%
HHW	0.08%	0.04%	0.12%	0.16%	0.09%	0.26%
Total	**100.00%**			**100.00%**		

The results shown in Table AW-2 show that Appliances & Electrical Material rose from two percent to six percent, and Metal Material rose from 25 percent to 39 percent. Glass Material was the primary group that was significantly reduced as a consequence of changing the bulk metal sampling protocol, falling from 40 percent to 28 percent.

The results for individual materials show that within the Appliance & Electrical Group, Small Appliances changed from 0.88 percent to 4.56 percent. Within the Metal Group, Other Ferrous increased from 14.08 percent to 29.01 percent. In the Glass Group, Mixed Cullet decreased from 27 percent to 16 percent.

Given the nature of the protocol modifications, these are precisely the material categories and groups in which we would expect to see significant changes. Table AW-3 contains results for material sub-categories of the three groups highlighted in Table AW-2.

Table AW-3
Comparison of Material Category Results for First Half and Second Half of MGP Sort

	First Half			Second Half		
Material	**Average**	**Lower Boundary**	**Upper Boundary**	**Average**	**Lower Boundary**	**Upper Boundary**
Aluminum Cans: Deposit	0.36%	0.29%	0.44%	0.42%	0.31%	0.54%
Aluminum Cans: Non-Deposit	0.41%	0.29%	0.55%	0.33%	0.25%	0.41%
Aluminum Foil/Tins	1.17%	0.87%	1.51%	0.71%	0.56%	0.87%
Empty Aerosol Cans	0.69%	0.53%	0.86%	0.55%	0.42%	0.69%
Mixed Metals	0.81%	0.44%	1.27%	0.93%	0.50%	1.49%
Other Aluminum	0.14%	0.08%	0.22%	0.24%	0.13%	0.39%
Other Ferrous	14.08%	11.98%	16.18%	29.01%	25.13%	32.89%
Other Non-Ferrous	0.23%	0.12%	0.36%	0.31%	0.17%	0.50%
Tin Food Cans	7.59%	6.78%	8.43%	6.13%	5.36%	6.94%
Total Metal	**25.47%**	**22.67%**	**28.27%**	**38.63%**	**34.21%**	**43.05%**
Brown Glass: Deposit	1.16%	0.80%	1.59%	0.97%	0.66%	1.35%
Brown Glass: Non-Deposit	0.44%	0.28%	0.64%	0.14%	0.08%	0.23%
Clear Glass: Deposit	1.07%	0.73%	1.48%	0.87%	0.59%	1.20%
Clear Glass: Non-Deposit	6.11%	5.02%	7.30%	5.78%	4.74%	6.91%
Green Glass: Deposit	1.05%	0.72%	1.45%	0.99%	0.66%	1.38%
Green Glass: Non-Deposit	2.65%	1.82%	3.63%	2.34%	1.47%	3.40%
Mixed Cullet	26.74%	22.77%	30.91%	16.29%	13.11%	19.73%
Other Glass	0.70%	0.43%	1.04%	0.49%	0.31%	0.71%
Total Glass	**39.93%**	**35.46%**	**44.48%**	**27.86%**	**24.24%**	**31.63%**
Audio/Visual Equipment: Cell Phones	0.01%	0.00%	0.01%	0.00%	0.00%	0.00%
Audio/Visual Equipment: Other	0.25%	0.13%	0.40%	1.12%	0.58%	1.84%
Computer Monitors	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other Computer Equip.	1.00%	0.58%	1.52%	0.61%	0.32%	1.00%
Small Appliances	0.88%	0.51%	1.25%	4.56%	2.85%	6.28%
Televisions	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total App. & Elec.	**2.13%**	**1.35%**	**2.91%**	**6.30%**	**4.14%**	**8.46%**

Conclusions

Based on the results of the PWCS, we believe that the original protocol for acquiring MGP samples was inappropriate in terms of accounting for bulk items. The bobcat front end loader was too small to handle the over-sized items found in the NYC recyclables stream. However, overall protocol and QA/QC procedures highlighted this issue relatively early in the sampling period. Our managers took quick and appropriate actions to modify the sampling protocol to accurately reflect the character of the MGP stream.

Our statistical analysis of the samples obtained both before and after the change in MGP sampling protocol supports our conclusions regarding the potential under-reporting of bulk metal items. The use of larger front-end loaders in conjunction with an improved protocol with respect to over-size items will help to ensure that such items are appropriately included in the sampling results.

The statistical analysis contained in this report may reflect an under-reporting of the metals contained in the MGP stream, since we have based our results on the entire week's sampling. But given the nature of a preliminary study and the *a priori* skepticism that would meet relatively high metal percentages in the MGP stream, we believe it is better to err on the side of under-reporting metals.

Appendix X
Capture Rates

Capture Rates

1.1 Introduction

One metric used to assess New York City's recycling program is the "Capture Rate." This term refers to the amount of a specific material, such as paper designated for recycling, that is collected divided by the total amount of that material in both the refuse and recycling streams. For example, if 50 tons of designated paper is collected for recycling and the total amount of designated paper in the refuse and recycling streams is 100 tons, the capture rate for designated paper is 50 percent. Essentially, the capture rate measures how much of a material is being recycled out of all of that same material that is "out there".

Appendix X presents calculations for capture rates for the PWCS. Three capture rates have been calculated:

1. A capture rate for Paper, MGP, and combined recycling materials before any adjustment for moisture and particulate testing.
2. A capture rate for Paper, MGP, and combined recycling materials after adjustments for moisture and particulate testing.
3. A capture rate for Paper, MGP, and combined recycling materials, adjusted for moisture and particulate testing and accounting for the 64 percent of appliances in MGP with 50 percent or more metal.

In addition, a survey of thirty of the largest municipal recycling programs in the United States was conducted to gauge the use of capture rates in these cities. Twenty of the 30 programs contacted responded to the survey. The purpose of the survey was to determine how many municipalities use capture rates for measuring the effectiveness of their recycling programs.

1.1.1 PWCS Capture Rates

Tables AX-1, AX-2, and AX-3 present the three capture rates for the PWCS.

Table AX-1 presents the PWCS capture rates before any adjustments for moisture and particulate testing. It shows the amount of paper and metal, glass and plastic ("MGP") collected for recycling as a percentage of the total amount of designated paper and MGP collected in the combined refuse and recycling materials.

Table AX-1
PWCS Capture Rates Before Moisture and Particulate Adjustments

	Tonnage	
Recycling Stream		
Designated Paper	7,301.44 (1)	
Designated MGP	4,882.01 (1)	
Total Designated Paper and MGP	10,577.90 (1)	
Total Recycling Stream	**12,183.45**	
Waste Stream	**Tonnage**	**% of Waste Stream**
Designated Paper	15,415.94	21.47%
Designated MGP	8,566.01	11.93%
Total Designated Paper and MGP	23,981.95	33.40%
Total Waste Stream	**71,802.26 (1)**	
Capture Rate for Paper Recycling (2)	7,301.44 / 15,415.94 = 47.36%	
Capture Rate for MGP Recycling (2)	4,882.01 / 8,566.01 = 56.99%	
Total Capture Rate (2)	12,183.45 / 23,981.95 = 50.80%	

(1) Tonnage values are based on the average weekly tonnage that was collected during May and June 2004, as provided by DSNY.
(2) Capture rate assessed by weight of collected material over weight of designated material in the waste stream.

In the PWCS Refuse Sort, a series of moisture and particulate tests were conducted for selected materials to determine how much moisture and foreign matter migrated from the collected waste to the selected materials. The results of these tests are described in more detail in Appendix V. Table AX-2 presents the capture rates after the adjustments for moisture and particulate testing.

Table AX-2
PWCS Capture Rates After Moisture and Particulate Adjustments

	Tonnage	
Recycling Stream		
Designated Paper	7,301.44 (1)	
Designated MGP	4,882.01 (1)	
Total Recycling Stream	**12,183.45** (1)	
Waste Stream	**Tonnage**	**% of Waste Stream**
Designated Paper	14,289.03	19.90%
Designated MGP	8,337.30	11.61%
Total Designated Paper and MGP	22,626.33	31.51%
Total Waste Stream	**71,802.26** (1)	
Capture Rates for Paper Recycling (2)	7,3014.44 / 14,289.03 = 51.10%	
Capture Rates for MGP Recycling (2)	4,882.01 / 8,337.30 = 58.56%	
Total Capture Rate (2)	12,183.45 / 22,626.33 = 53.85%	

(1) Tonnage values are based on the average weekly tonnage that was collected during May and June 2004, as provided by DSNY.
(2) Capture rate assessed by weight of collected material over weight of designated material in the waste stream.

During the PWCS Refuse Sort, all small appliances in the refuse stream were designated as non-recyclable. However, during the Recycling Sort, a subsort was conducted which separated small appliances into those made of 50 percent or more of metal and those made of less than 50 percent metal. The small appliances made of 50 percent or more of metal were designated as recyclable. The values in Table AX-3 represents the capture rates in the event that all possible metal was extracted and deemed recyclable from all small appliances as they entered the waste stream. In addition, Table AX-3 shows results after adjustments for moisture and particulate testing.

Table AX-3
PWCS Capture Rates After Accounting for Small Appliances and Moisture and Particulate Adjustments

	Tonnage	
Recycling Stream		
Designated Paper	7,301.44 (1)	
Designated MGP	4,882.01 (1)	
Total Recycling Stream	**12,183.45** (1)	
Waste Stream	**Tonnage**	**% of Waste Stream**
Designated Paper	12,706.12	17.70%
Designated MGP	8,463.74	11.79%
Total Designated Paper and MGP	21,169.86	29.48%
Total Waste Stream	**71,802.26** (1)	
Capture Rates for Paper Recycling (2)	7,301.44 / 12,706.12 = 57.46%	
Capture Rates for MGP Recycling (3)	4,882.01 / 8,463.74 = 57.68%	
Total Capture Rate (2)	12,183.45 / 21,169.86 = 57.55%	

(1) Tonnage values are based on the average weekly tonnage that was collected during May and June 2004, as provided by DSNY.
(2) Capture rate assessed by weight of collected material over weight of designated material in the waste stream.

1.1.2 Municipal Survey

To determine how widely capture rates are used to measure the success of municipal recycling programs, a telephone survey of 30 of the largest municipal recycling programs in the United States was conducted. Of the 30 municipal programs contacted, 20 responded.

The contact person in each city's recycling program was asked if the term "capture rate" was used and, if so, how was it calculated. If the answer to both questions was affirmative, then the person was asked to provide the most current estimate of the capture rate. Table AX-4 presents the results of the telephone survey.

Table AX-4
NYC Waste Composition Study
Results of Capture Rate Telephone Research

	Houston	San Antonio	Detroit	Washington D.C.	Memphis	Portland	Tucson
Contact	Ed Kim	Steven Davies	Angela (would not give last name)	William B. Easley, Jr.	Andy Ashford	Bruce Walker	Don Gibson
Title	Recycling Supervisor	Manager	Program Supervisor	Recycling Program Officer	Administrator, Recycling & Composting	Solid Waste Director	Recycling Coordinator
Summary of Capture Rate Discussion	Houston does not make a distinction between what they "capture" and what they recycle. Their capture rate is identical to their recycling rate. When posed with NYC's method, they responded that they do not use such a metric at all. According to Mr. Kim, everybody (and hence every program) has their own interpretations with respect to terminology.	San Antonio does not use this term at all. San Antonio conjectured that the majority of Texas does not use this term. In fact, the contact had never heard of this term, and does not perform a calculation similar to NYC.	Detroit does not report a recycling or capture rate (this is in accord with WasteNews.com). They specialize in Waste to Energy and Glass and plastic recycling, and produce a quarterly report for Wayne County. The contact offered to investigate the term further, but as far as she knows no one uses the term capture rate (it was new to the contact). Detroit does not perform a calculation similar to NYC.	Washington defines a capture rate in the identical fashion to NYC, but currently does not calculate one. The program is seriously considering implementing this calculation in the near future. The reason they have not done so is that they have yet to "get a handle on recycling/diversion rates" and "who is doing what". The contact is of the opinion that the level of specificity provided by capture rates is extremely useful and is hopeful that D.C. will implement calculations sooner rather than later.	Mr. Ashford has been in the recycling industry for 25+ years, and had never heard of a capture rate. The city of Memphis focuses on an aggregate recycling rate (as we have defined). Organic waste recycling is a big focus in Memphis from a revenue standpoint, and in the opinion of Mr. Ashford any computation that attempts to estimate the amount of designated recyclables in the total waste stream is too conjectural and too specific.	Portland defines capture rate in the same fashion as NYC. However, they do not report a capture rate, nor do they compute one for tracking purposes. Specifically, a capture rate for Portland would be "the amount of commodity x recycled/ estimated total amount of x available in the overall waste stream".	Tucson does not use a capture rate, nor do they perform any calculations based on estimates whatsoever. When the program was initiated, the University of Arizona Garbology Project Statistical estimate of 32% was the number for recycling rates estimated, given that 100% of people recycled 100% of what they could (this was deemed unrealistic). An adjusted initial estimate was used for program approval, at roughly 19%. Since February of 2003, the city has implemented a new tracking system whereby they track total tonnage of waste collected in each of the city's 12 zones, as well as the total tonnage of recyclables collected, to produce a "true zonal diversion rate" (this is the same as a recycling rate by definition in Tucson).

Table AX-4
NYC Waste Composition Study
Results of Capture Rate Telephone Research
(continued)

	Denver	Chicago	Philadelphia	Fort Worth	Oklahoma City	Baltimore	Dallas
Contact	Charlotte Pitt	Chris Sauve	David Robinson	Ed Shumpert	Charles Lombardy	Valentina Yukoma	John A. Barlow IV
Title	Recycling Coordinator	Recycling Coordinator	Recycling Coordinator	Recycling Coordinator	Recycling Coordinator	Recycling Analyst	Waste Diversion Manager
Summary of Capture Rate Discussion	Denver is quote "not that sophisticated". They do not use, nor calculate a capture rate, although the contact was aware of the term (not the specific definition used by NYC, however.) Denver is only concerned with an aggregate recycling rate. The state of Colorado has no goals/standards for municipal recycling data, so any calculations made for the program are for internal purposes only.	Chicago does not know what a capture rate means. The contact intimated that there may be a similar calculation done to NYC's but that that would require more investigation on his part. However, he was certain that the term "capture rate" is not used (this is validated by a thorough review of their detailed recycling report.)	Philadelphia does not use the term "capture rate". The contact was not aware of the term at all in any defined form. Philadelphia is primarily concerned with a recycling rate.	Fort Worth does not use a capture rate, and does not compute a capture rate as defined by NYC. Fort Worth is primarily concerned with an aggregate recycling/diversion rate.	Oklahoma City does not use, nor have they heard of, the term capture rate. They also do not perform a calculation similar to NYC's calculation. The city is primarily concerned with an aggregate recycling/diversion rate.	Baltimore had not heard of the term capture rate. When posed with the capture rate calculation as defined by NYC, the contact was certain that such a calculation was not performed. Baltimore is primarily concerned with an aggregate diversion rate.	The city of Dallas does not use the term capture rate. The only calculation other than a recycling rate that is done is performed by Dallas' contractor. The contractor that provides Dallas with an Annual Report provides values for each particular recyclable as a percent of the total recycling stream for the year, in addition to an aggregate recycling rate.

Table AX-4
NYC Waste Composition Study
Results of Capture Rate Telephone Research
(continued)

	Seattle	Milwaukee	Nashville	Jacksonville	Austin	San Francisco
Contact	Hans Van Dusen	Mary Bengsch	Shelly Sloan	John Sherhorn	Bob Fernandez	Kevin Drew
Title	Solid Waste Contracts Manager	Recycling Specialist	Operations Manager	Manager	Manager	SFEnvironment Representative
Summary of Capture Rate Discussion	The city of Seattle is aware of the term capture rate as defined by NYC. They do not track these rates regularly, but only on a "case-by-case", or "as needed" basis. Only aggregate recycling/diversion rates are tracked regularly.	Milwaukee, when posed the question regarding capture rates, immediately assumed the term was synonymous with recycling rate. When told of the calculation as performed by NYC, the contact was certain that such a calculation is not performed, and that the term capture rate is not used. Milwaukee is concerned only with an aggregate recycling rate.	According to the contact, the city of Nashville does not use the term capture rate (it was new to the contact). However, the contact made a referral to the operation manager who is in charge of all statistical analysis related to the program so as to be certain that she was giving a valid response. It appears that Nashville does compute a capture rate as defined by NYC, but may not call this calculation by that name. A message has been sent out to the referral contact to make certain that Nashville has provided accurate information.	The city of Jacksonville is currently at a "crossroads", as the responsibilities of program outreach have been combined with recycling oversight in the recent past. Jacksonville has recycling contracts for residential recycling, yard waste, and tires. They track volume that goes into landfills (the Jacksonville landfill). As far as "capture rate" is concerned, they define it as how much of each recyclable is "captured" out of the total waste stream. The contact intimated that the Florida Department of Environmental Protection has a model that is used to estimate capture percentages for smaller counties, and referred R. W. Beck to another contact at FDEP for further inquiry if necessary. Karen Moore from the FDEP stated that capture rates are not tracked as defined by NYC for Florida, and that FDEP currently uses the waste composition model produced by R. W. Beck, that provides percent of total values which are extrapolated from field data collection.	The city of Austin does not use the term capture rate, nor do they compute a capture rate as defined by NYC under another name. The contact was very interested in knowing whether other recycling programs in Beck's research were found to be using a "capture rate". Austin's main calculation is its recycling rate, which compares the amount of recyclables recovered vs. amount of material collected. However, the contact warned that since the city does not collect all of the waste in Austin (for example, multi-family homes are excluded), the recycling rate is somewhat skewed. Another calculation offered by the contact compares recovered recyclable material that is outbound (sold) vs. unsold (defined to be residue).	San Francisco does not use the term capture rate. Every year, after the completion of their diversion study, waste characterization/allocation study values from studies performed in 1990 and 1996 are used to "extrapolate or interpolate" exactly how much waste is being extracted. These results are presented graphically, and there is no general terminology used to describe them. The contact acknowledged the fact that the numbers from 1990 and/or 1996 are fairly old, which may make the results less representative than desired to some extent.

As Table AX-4 shows, most cities were unfamiliar with the term “Capture Rate,” as defined by New York City, and none of the respondents use capture rates to measure the success of their recycling program.