

Final Report

**Preliminary Waste Characterization
Study**

New York City Department of Sanitation

September 2004



R. W. BECK
Preliminary Waste Characterization Study

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This report has been prepared for the use of the client for the specific purposes identified in the report. The conclusions, observations and recommendations contained herein attributed to R. W. Beck, Inc. (R. W. Beck) constitute the opinions of R. W. Beck. To the extent that statements, information and opinions provided by the client or others have been used in the preparation of this report, R. W. Beck has relied upon the same to be accurate, and for which no assurances are intended and no representations or warranties are made. R. W. Beck makes no certification and gives no assurances except as explicitly set forth in this report.

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

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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 totes, 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.

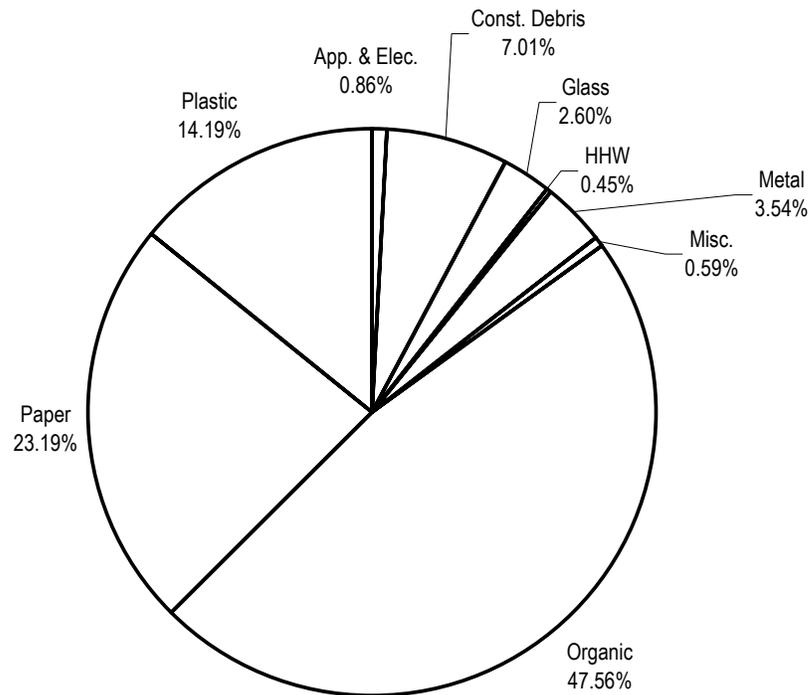
Data Recording and Analysis

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.

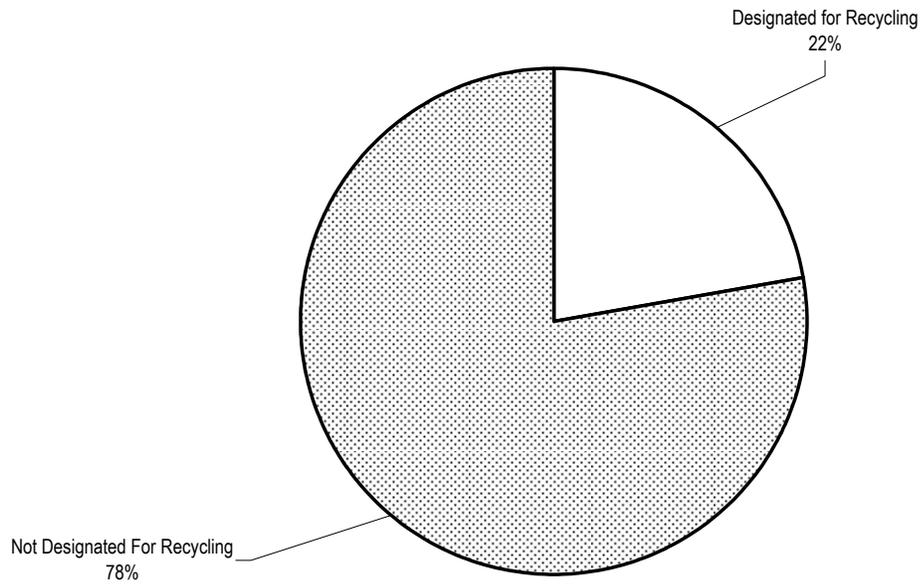
Figure ES-1
PWCS Refuse Composition by Material Group



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

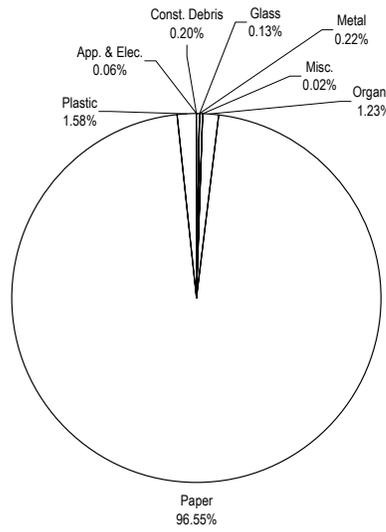


Figure ES-4 MGP Material Composition by Material Group

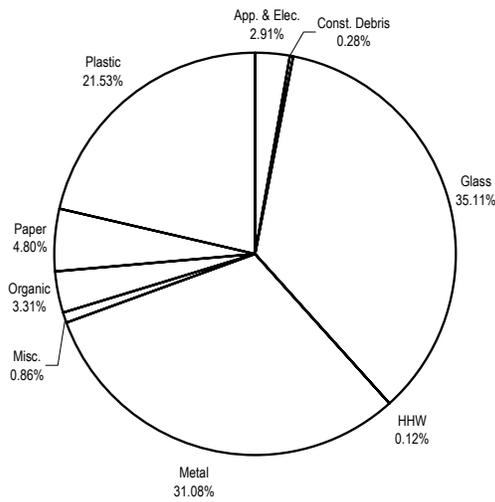
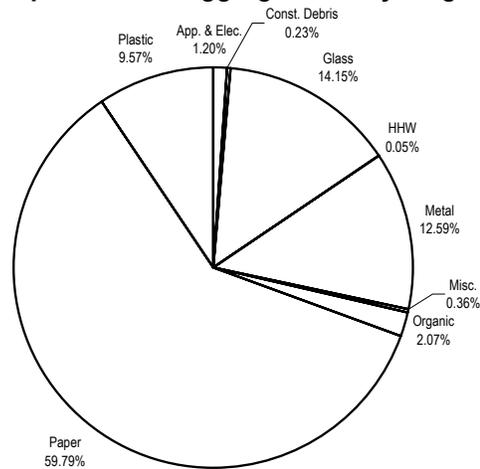


Figure ES-5 Material Composition for Aggregated Recycling by Material Group



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

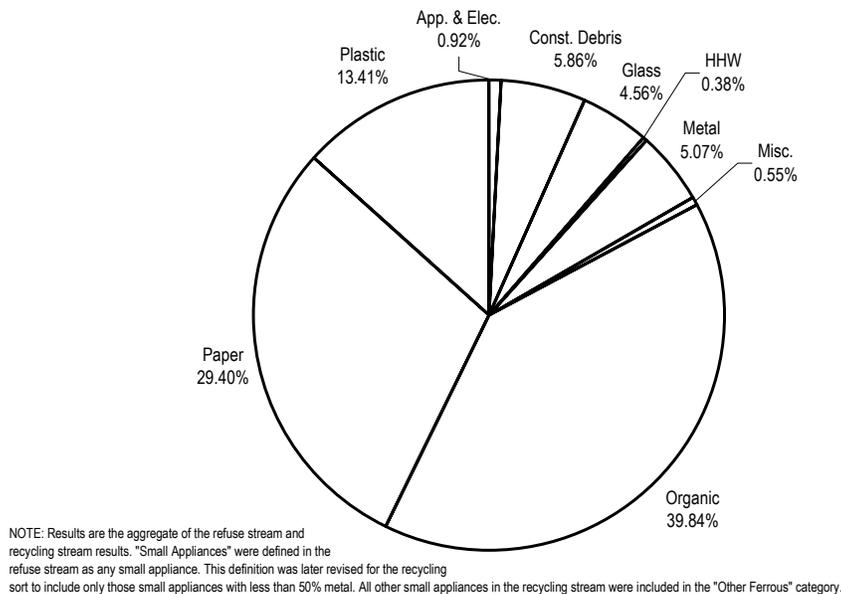
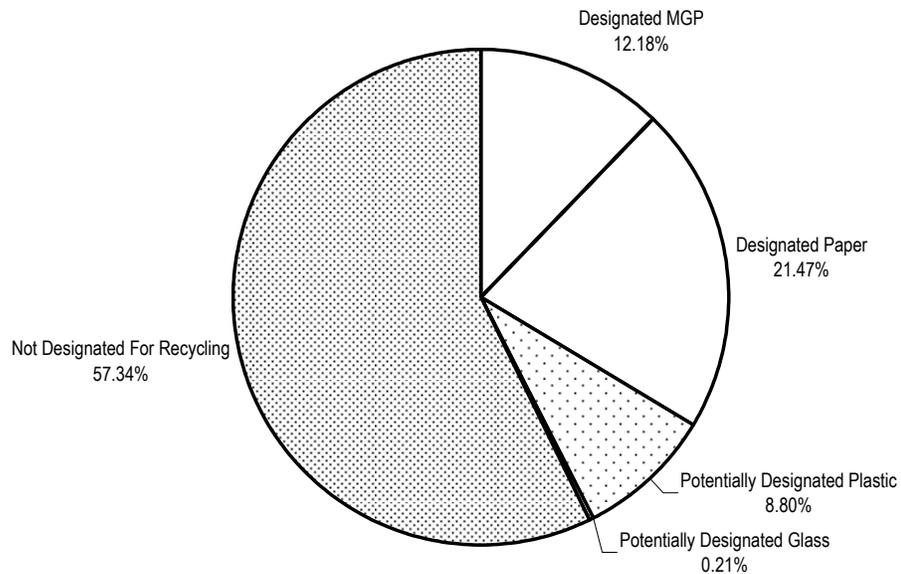


Figure ES-6 shows that organics, paper and plastics make up more than 82 percent of the City's waste stream. Food waste (13.35 percent), Mixed Low Grade Paper (8.71 percent), Newspaper (7.17 percent), and Leaves and Grass (5.17 percent) are the four largest material categories.

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

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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 streams, 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.

Section 2

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

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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	<u>100</u>
	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

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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	<u>4,328</u>	<u>7</u>	<u>16</u>
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

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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	<u>9</u>	<u>7</u>
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	<u>728.09</u>	<u>9.78</u>	<u>10</u>	<u>364.15</u>	<u>8.31</u>	<u>8</u>
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 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 62°C 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.

Section 5

**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	•	•	•	•	•	•	•	•	•	•	•	x	•	•	•	•	•	•	•	•	•	•	•	•	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	•	•	x	•	•	•	•	•	•	•	•	x	•	•	•	•	•	•	•	•	•	•	•	•	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.
- x 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.

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

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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%

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**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.

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**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

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**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/Hygiene	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

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**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 Tonnes (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/Hygiene	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.

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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

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**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

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**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.

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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

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**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

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**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 Tonnes (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 Tonnes (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.

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**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

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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%

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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%

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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%

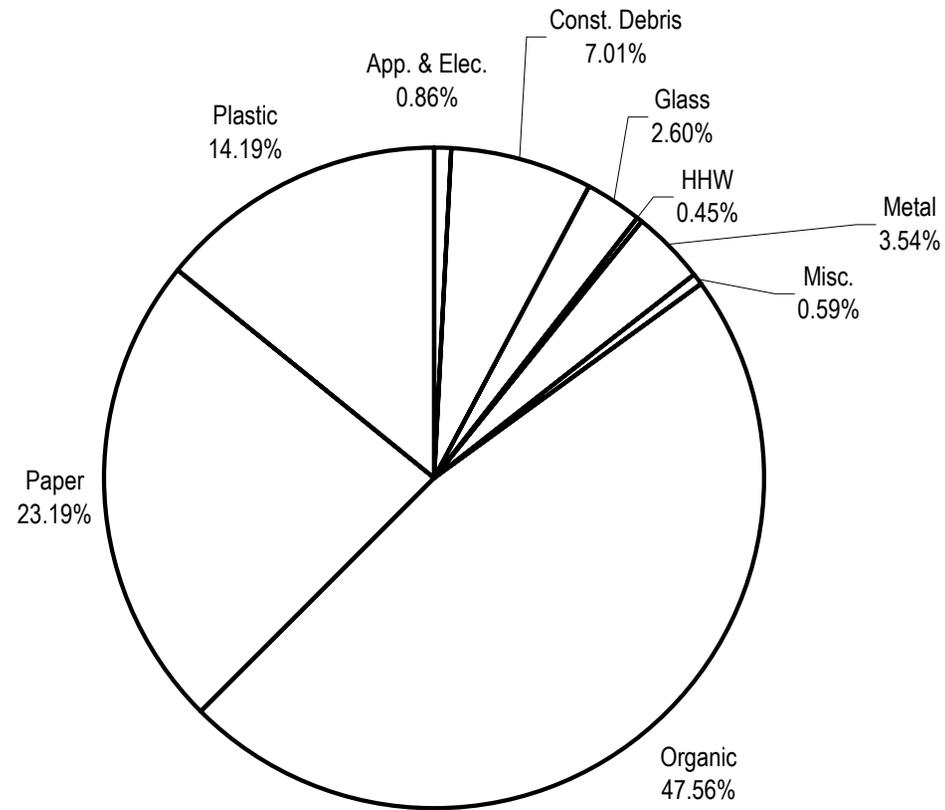
Table 6-11
Comparison of Material Composition by Borough ⁽¹⁾

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.

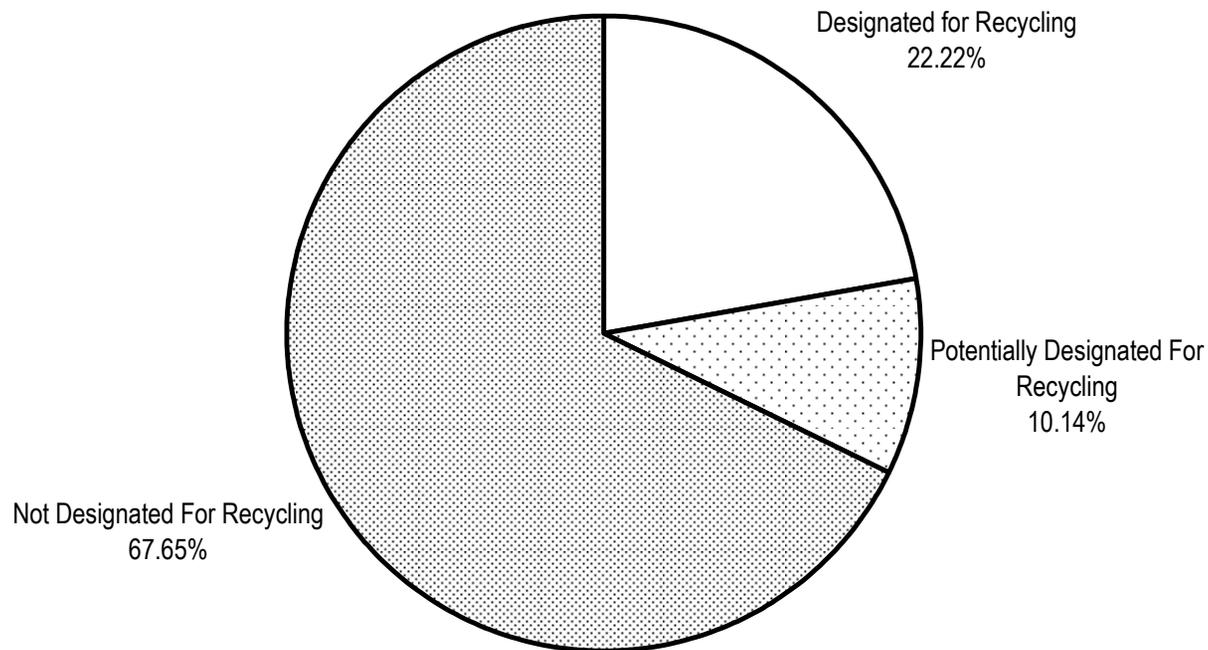
Figure 6-1 presents a pie chart showing the fraction of the refuse stream represented by each of the major material groups.

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.

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**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%

RECYCLING RESULTS

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%

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**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).

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**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%

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**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%

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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.

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**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

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**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

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**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.

Section 7

**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

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**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/Hygiene	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

Section 7

**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

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**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

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**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.

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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.

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**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

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**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

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**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

Section 7

**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

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**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

Section 7

**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.

Section 7

**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

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**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

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**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

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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.

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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 stream was properly designated materials, and 11.97 percent were not properly designated materials.

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**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).

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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).

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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.

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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	
	Audio/Visual				
App. & Elec.	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.

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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%

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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%

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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.

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**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%

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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%

Section 7

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%

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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%

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**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.

RECYCLING RESULTS

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%

RECYCLING RESULTS

**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.

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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 streams, respectively.

Figure 7-1A Paper Composition by Material Group

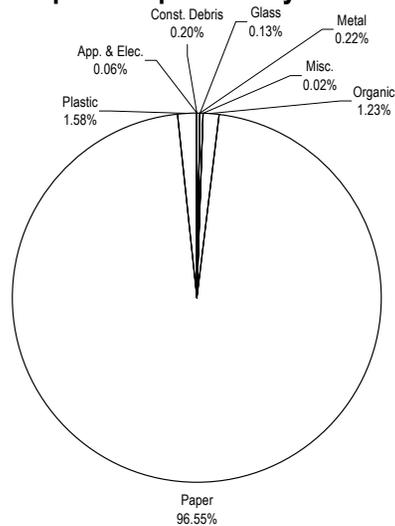


Figure 7-1B MGP Composition by Material Group

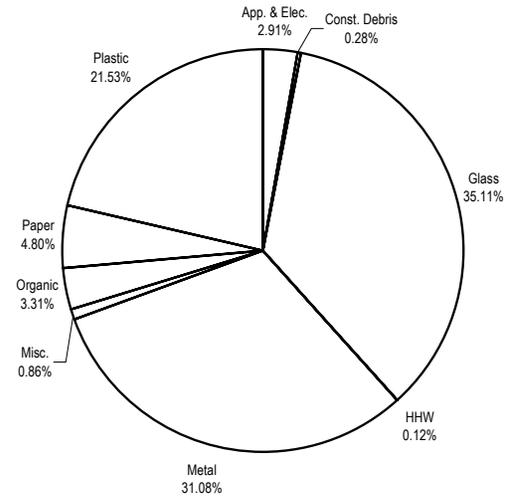
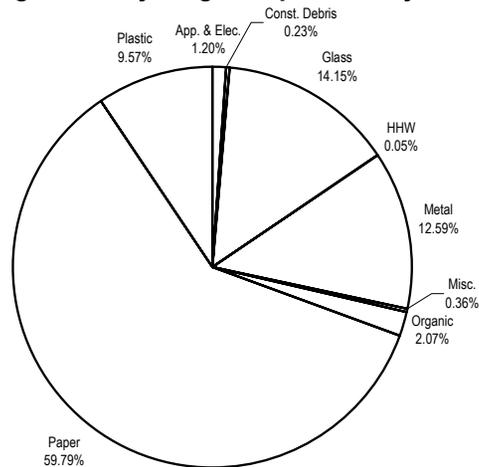


Figure 7-1C Aggregated Recycling Composition by Material Group



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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⁾

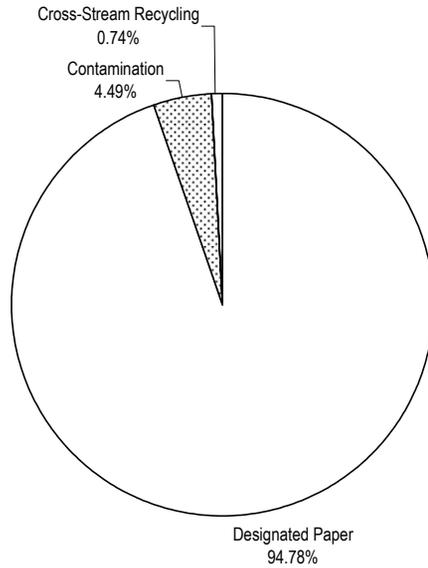
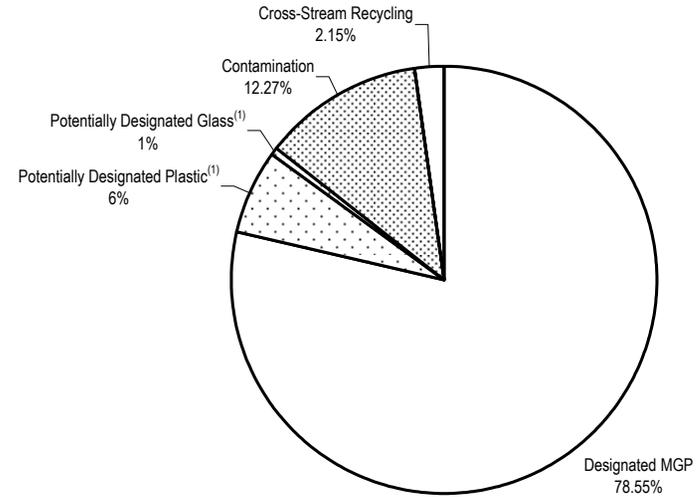
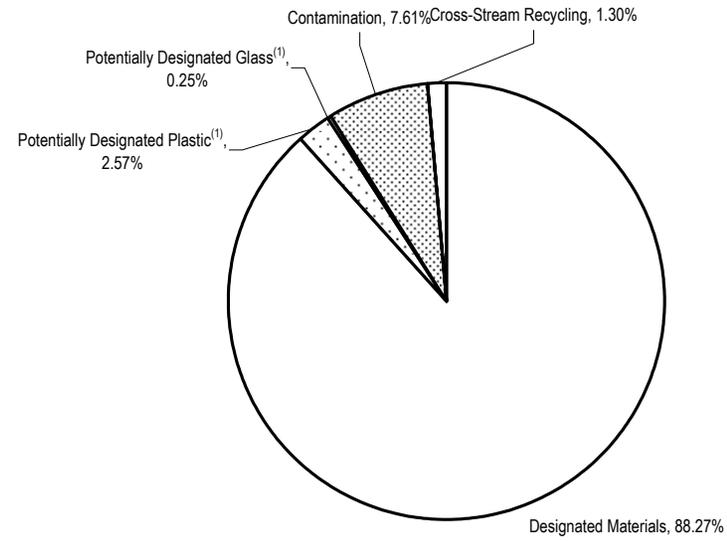


Figure 7-2B MGP Recycling Stream Contamination ⁽¹⁾



⁽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%



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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%

AGGREGATED WASTE COMPOSITION RESULTS

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%

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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%

AGGREGATED WASTE COMPOSITION RESULTS

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.

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**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

AGGREGATED WASTE COMPOSITION RESULTS

**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

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**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/Hygiene	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

AGGREGATED WASTE COMPOSITION RESULTS

**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

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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

AGGREGATED WASTE COMPOSITION RESULTS

**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.

AGGREGATED WASTE COMPOSITION RESULTS

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

AGGREGATED WASTE COMPOSITION RESULTS

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

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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

AGGREGATED WASTE COMPOSITION RESULTS

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

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**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.

AGGREGATED WASTE COMPOSITION RESULTS

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

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**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

AGGREGATED WASTE COMPOSITION RESULTS

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.

AGGREGATED WASTE COMPOSITION RESULTS

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.

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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.

AGGREGATED WASTE COMPOSITION RESULTS

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.

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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%

AGGREGATED WASTE COMPOSITION RESULTS

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%

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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%

AGGREGATED WASTE COMPOSITION RESULTS

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

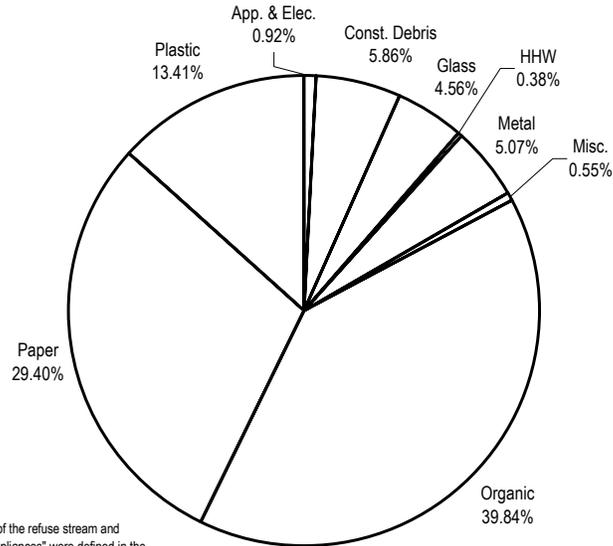
Material	Bronx	Brooklyn	Manhattan	Queens	Staten Island
DRY-CELL Batteries	0.04%	0.04%	0.11%	0.05%	0.07%
Fluorescent Tubes	0.00%	0.00%	0.02%	0.00%	0.00%
Mercury-Laden waste	0.00%	0.00%	0.00%	0.00%	0.00%
Compressed Gas Cylinders/Fire Extinguishers	0.00%	0.00%	0.00%	0.00%	0.00%
Asbestos	0.00%	0.00%	0.00%	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

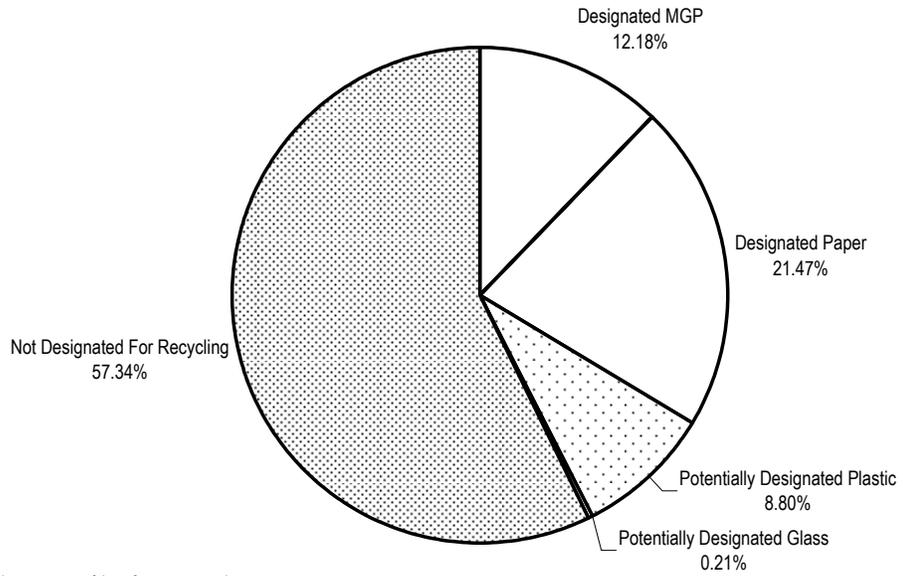


NOTE: Results are the aggregate of the refuse stream and recycling stream results. "Small Appliances" were defined in the refuse stream as any small appliance. This definition was later revised for the recycling sort to include only those small appliances with less than 50% metal. All other small appliances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

AGGREGATED WASTE COMPOSITION RESULTS

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.