



# ORANGE COUNTY WASTE COMPOSITION STUDY

June 2017



Prepared for: **Orange County Solid Waste Management**  
PO Box 17177  
Chapel Hill, NC 27516

Submitted by: **Kessler Consulting, Inc.**  
*innovative waste solutions*  
14620 N. Nebraska Ave., Bldg. D  
Tampa, FL 33613



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# Section 1

## Introduction

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### 1.1 Study Objectives

Orange County (County) contracted Kessler Consulting, Inc. (KCI) to conduct a waste composition study (WCS) to characterize the municipal solid waste (MSW) generated within the County for disposal. The purpose of the WCS was to provide useful information regarding the types and percentages of various materials, including recyclable materials, currently being disposed to compare with previous study data and to assist in developing future solid waste and resource management programs. The results of this WCS were compared to previous WCSs to evaluate the change in waste composition over time.

### 1.2 Background

Orange County, located in the Research Triangle region of North Carolina, had an estimated population of 141,796 in 2016.<sup>1</sup> The County includes three municipalities: the towns of Chapel Hill, Carrboro, and Hillsborough. Approximately 62 percent of the County's population lives in these municipalities; Chapel Hill itself has 42 percent of the population.

Education and health services are the major industries in the County. The County is home to the University of North Carolina – Chapel Hill (UNC), which has a student body of 29,469 undergraduate, graduate, and professional students.<sup>2</sup> UNC is also the top employer in the County, followed by the UNC Health Care System, Chapel Hill-Carrboro City Schools, and Orange County Schools<sup>3</sup>. Because of this, UNC is a major source of MSW in the County.

MSW generated in the County is collected by a combination of the Orange County Solid Waste Department, the individual municipalities, and various private haulers. The County owns and operates five convenience centers for use by County residents for collecting residential MSW, recyclables, bulky waste, and other materials. The County also operates a commercial collection vehicle that collects MSW from County schools and County offices. All other single-family residential, multi-family residential, and commercial MSW in the unincorporated areas of the County is collected by private haulers, the largest of which are Waste Management, Republic, and Waste Industries. Chapel Hill and Carrboro provide residential and some commercial collection within their municipalities. Hillsborough collects single-family residential MSW and contracts with Waste Industries to collect commercial MSW. Remaining non-residential waste is collected by private haulers in open market. Towns provide some free collection for multifamily housing. UNC provides its own contracted collection for all MSW generated on campus.

The County estimates, based on NC State Government Reports, 56,778 tons of MSW were generated in FY 2014-15. Over 70 percent of this MSW was disposed at Waste Industries' transfer station in Durham, and much of the rest was disposed at the City of Durham's transfer station.

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<sup>1</sup> <https://www.census.gov/quickfacts/table/PST045216/37135>

<sup>2</sup> <http://uncnews.unc.edu/facts-about-carolina/facts-figures/>

<sup>3</sup> <http://d4.nccommerce.com/QCEWLargestEmployers.aspx>

## 1.3 Acknowledgements

KCI would like to acknowledge and thank the County staff members who assisted with the planning and logistics of this two-season study. KCI specifically thanks Blair Pollock for his assistance and support throughout this project. The cooperation and positive attitudes of all team members were essential to the success of the study.

KCI would also like to extend our thanks the haulers who worked with us to identify and coordinate the loads from which samples were taken: the towns of Chapel Hill, Carrboro, and Hillsborough; Waste Management; Waste Industries; Republic; and UNC.

KCI would like to especially thank the City of Durham for allowing us to use their transfer station for both sorts and for providing staff to assist with sampling and other logistical concerns. Finally, we thank Hilco Transport, Inc., the transfer station operator, for working with us throughout both studies by allowing us space in the transfer station for tipping samples and for using their front-end loader staff for sampling assistance.

# Section 2

## Methodology

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### 2.1 Generator Sectors and Sorting Events

The WCS focused on MSW generated within the County for disposal. The three primary generator sectors evaluated were as follows:

- Single-family residential, which includes County Convenience Centers.
- Multi-family residential.
- Commercial, which includes schools and UNC.

The WCS included two sorting events, one in the fall and one in the spring, to account for seasonal variability. The first sorting event occurred during the week of October 24-28, 2016. The second sorting event occurred the week of April 3-7, 2017.

### 2.2 Material Categories

MSW was sorted into the 42 material categories defined in Appendix A. To develop and define these material categories, KCI reviewed previous WCSs conducted by the County and ensured these categories aligned with the categories used previously so that data could be compared to previous data.

### 2.3 Location, Equipment and Labor

All sampling and sorting occurred at the City of Durham's transfer station located on East Club Boulevard. While the majority of the County's waste is delivered to Waste Industries' transfer station, the City of Durham's facility was chosen for the sort location due to availability of the old transfer station building. This alleviated many of the safety and space concerns faced at the Waste Industries' facility.

KCI provided all sorting equipment; safety gear; scale calibrated to 0.02 pounds (and backup scale calibrated to 0.05 pounds); and two to three staff people to oversee all sampling, sorting, weighing, and data recording. The City of Durham provided a loader and operator to gather samples and to remove waste upon completion of sorting activities in the fall sort. For the spring sort, the County provided a dump bed truck to transport samples pulled by Hilco's loader and operator. All sorting labor was provided or contracted by KCI.

KCI prepared and County staff reviewed and approved a site safety plan that was followed throughout the sorting events. KCI worked closely with City of Durham and County staff to coordinate and set up a sort location that would ensure worker safety. Each morning of the events, sorters were given thorough safety instructions by one of KCI's Supervisors to ensure worker safety and proper sorting. No injuries occurred during the sorting events.

## 2.4 Sampling and Sorting Procedures

Sample selection was organized by generator sector to ensure a sufficient number of samples would be sorted for each generator sector and jurisdiction to achieve statistically valid results. KCI reviewed waste tonnage data and set target sample numbers for each generator sector and jurisdiction. KCI coordinated with the major public and private haulers who collect residential and/or commercial waste in the County in order to identify specific loads of waste for sampling. All haulers were asked to select routes that encompassed a cross-section of their service areas and to identify routes containing waste generated within the County. County and KCI staff then worked together to coordinate the direct hauling of selected loads of waste to the City of Durham’s facility for inclusion in the WCS.

Route-specific placards were sent to each hauler detailing the selected routes and collection days requested for delivery during the sort week. The placards were distributed by each hauler on specific days of the event, which helped scale house and KCI staff identify selected routes as they entered the transfer station.

Table 2-1 provides the number of samples pulled and sorted for each generator sector and jurisdiction during the fall and spring sorting events, respectively. During the two sorting events, representative samples were taken from 101 loads of solid waste (51 in the fall sorting event and 50 in the spring sorting event).

**Table 2-1: Sampling Schedule for Fall (October 2016) and Spring (April 2017) Sorting Events**

Hauler/Generator	Single-Family Residential			Multi-Family Residential			Commercial		
	% of Tons	# of Samples		% of Tons	# of Samples		% of Tons	# of Samples	
		Fall	Spring		Fall	Spring		Fall	Spring
Chapel Hill <sup>1</sup>	32.3%	6	5	63.3%	5	5	15.3%	5	4
Carrboro <sup>2</sup>	12.1%	2	2	33.5%	1	0	7.8%	2	2
Hillsborough	6.3%	2	2	3.2%	0	0	7.3%	2	2
UNC	n/a	n/a	n/a	n/a	n/a	n/a	27.5%	5	5
Unincorporated County (County Hauled) <sup>3</sup>	26.8%	6	4	n/a	n/a	n/a	4.5%	2	2
Private Haulers <sup>4</sup>	26.4%	5	5	n/a	1	3	37.6%	7	9
<b>Totals</b>	<b>100%</b>	<b>21</b>	<b>18</b>	<b>100%</b>	<b>7</b>	<b>8</b>	<b>100%</b>	<b>23</b>	<b>24</b>

1 – Two (2) multi-family residential samples from Chapel Hill in each sort were collected by private haulers.

2 – During the Fall sorting event, additional samples of Carrboro single-family residential waste were sorted as part of the Town’s Residential Solid Waste study. These samples were aggregated into the two samples included in this report.

3 – County hauled waste is from convenience centers (residential) and County schools and County offices (commercial).

4 – Private haulers for single and multi-family are from unincorporated County. Commercial private haulers are from the whole County.

To obtain a representative sample from a selected load of MSW, the vehicle driver was directed to the designated area to tip. The load was visually divided into six sections and, based on a die roll, one of the six sections was selected. A representative sample of at least 200 pounds was pulled, placed on a tarp at the sorting area, labeled, and stored until sorted.



All samples were hand-sorted into the previously defined material categories. After the entire sample was sorted, one of the KCI supervisors weighed and recorded the net weights of each material category on a data recording form.

The same protocol was followed for both sorting events.

## 2.5 Analytical Procedures

After fieldwork was completed, KCI calculated the two-season combined, weighted average of each material category for each generator sector and each jurisdiction. Data analysis followed industry-accepted standards for statistical sampling, as outlined in the *ASTM Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste (D5231-92; reapproved 2008)*. Where appropriate, 90 percent confidence intervals were calculated, using a standard statistical t-test, for each material category.

Utilizing data provided by the County, KCI was able to determine amount of MSW generated from each of the generator sectors in the County. Based on this data, KCI determined that approximately 46 percent of the annual waste stream is from the single-family residential sector, while 14 and 40 percent are from the multi-family residential and commercial sectors, respectively.

To determine annual composition for each generator sector and each jurisdiction, the individual samples from each sorting event were averaged together, weighted by sample size.

The aggregated countywide data was calculated by multiplying the average composition of each sector by the percent of total generated tonnage estimated for each sector. The aggregated countywide data is hereafter referred to as the Aggregate MSW stream.

# Section 3

## Results

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### 3.1 Introduction to Results

Unless otherwise stated, all results presented in this section are expressed in percentage by weight. The percentages included in the tables and figures are the mean values for each material category. Where appropriate, the tables also provide the 90 percent confidence intervals for each material category. The confidence interval indicates that with a 90 percent level of confidence the actual arithmetic mean is within the upper and lower limits shown.<sup>4</sup> This provides an understanding of how much variation occurred in the quantity of that material category found in the samples sorted. Generally, the more homogeneous the waste stream and the greater the number of samples sorted, the higher the level of accuracy achieved and the narrower the margin between the upper and lower bounds of the confidence interval.

For the purposes of discussion and analysis, materials were grouped into 4 broad categories:

- Program recyclables: These are materials that are accepted in the County’s recycling program.
- Potential recyclables/reusables: These are materials that could be diverted through other means than the County’s single stream recycling program such as hazardous waste collection programs, clothing donations, scrap metal recycling, etc.
- Compostables: These materials could potentially be composted through a food scraps/organic composting program. This includes packaged food waste, which would require some processing to de-package the material and remove the non-compostable components. For the purpose of this discussion, the weight of the package is considered minimal compared to the weight of the food waste.
- All Other Waste: The materials are one for which recycling, recovery, or reuse options are not readily feasible for the County.

### 3.2 Aggregate MSW

Figure 3-1 depicts the annual composition for countywide Aggregate MSW. Table 3-1 shows the Aggregate MSW composition for the fall and spring sorts and the annual composition. Table 3-2 shows the annual data by sector.

Key findings from the aggregate data include:

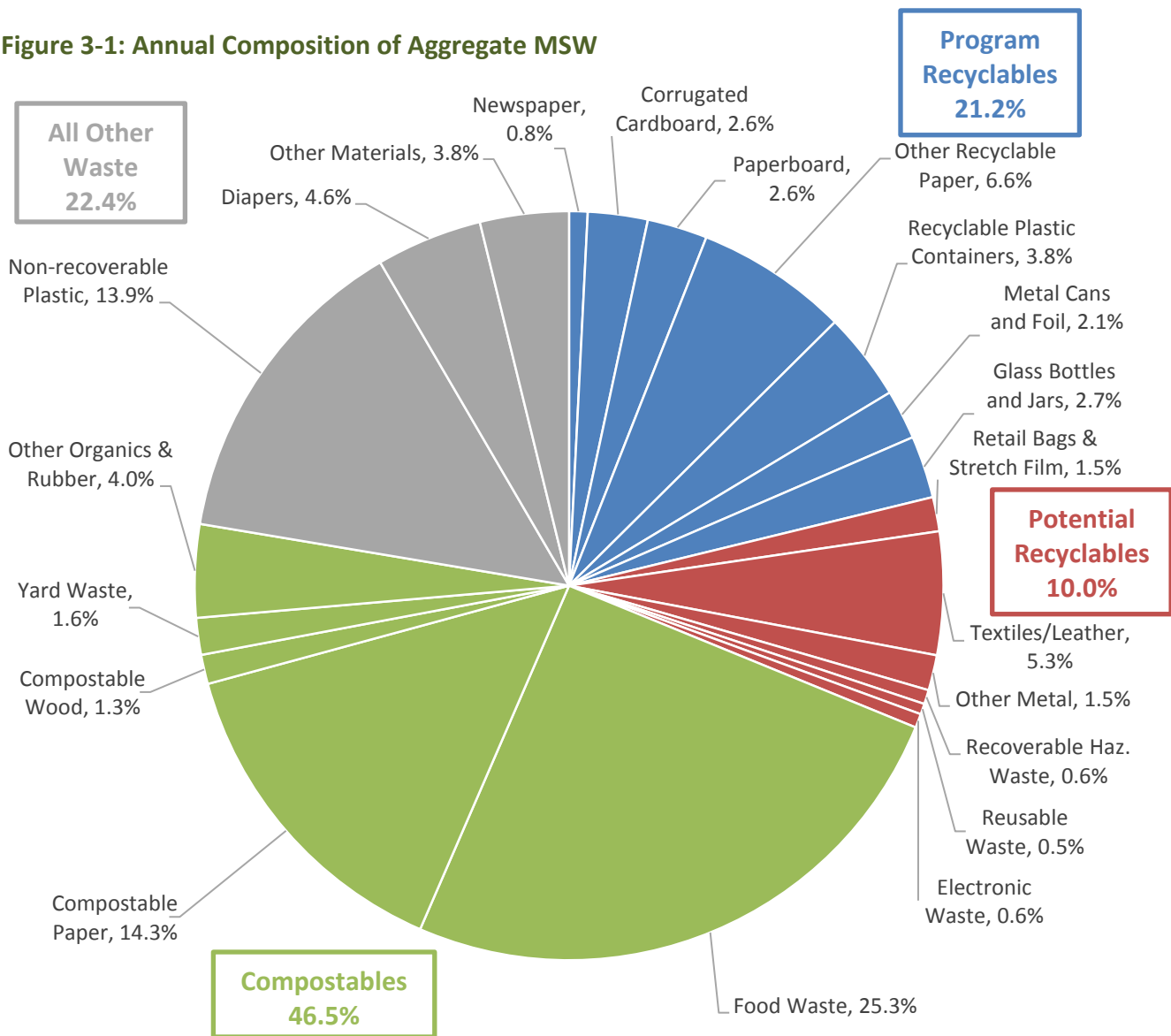
- Over 20 percent of Aggregate MSW consisted of program recyclables. The multi-family sector had a greater percentage of program recyclables than the other two sectors. The fall MSW stream had a higher percentage of program recyclables than the spring MSW stream, which was consistent for nearly all types of program recyclables.

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<sup>4</sup> Because this is a statistical analysis, the lower end of the confidence interval may be a negative number.

- Approximately 10 percent of Aggregate MSW consisted of potentially recyclable materials. The largest single category of this was Textiles and Leather in all sectors and both seasons.
- Compostables comprised nearly half of the Aggregate MSW in all sectors and both seasons. Over half of the compostables was Food Waste, followed by Low-Grade Paper. Single-family MSW had a higher percentage of compostable materials than the other sectors.
- Less than 25 percent of MSW was other waste, most of which was non-recyclable Plastic Film, All Other Plastics, and Diapers most of which is typically non-recoverable in current markets.

**Figure 3-1: Annual Composition of Aggregate MSW**



Note: For the purpose of this figure, the following categories have been combined:

- Other Recyclable Paper includes the categories of Magazines, Phone Books, Other Books, White Ledger, Mixed Recyclable Paper, and Aseptic Containers.
- Recyclable Plastic Containers includes the categories of All Plastic Bottles and Dairy Plastic Containers.
- Metal Cans and Foil includes the categories of Steel/Tin Cans, Aluminum Cans, Aerosol Cans, and Aluminum Foil.
- Other Metals includes the categories of Other Ferrous Metals and Other Non-Ferrous Metals.
- Recoverable Hazardous Waste includes the categories of Lead Acid Batteries, Dry Cell Batteries, Oil Filters, and Other Hazardous Wastes.
- Compostable Paper includes the categories of Waxy Cardboard and Low Grade Paper.
- Compostable Wood includes the categories of Wood Pallets, Wood Lumber, and Stumps/Branches.
- Non-recoverable Plastic includes the categories of Plastic Film, Mixed Plastic Containers, and All Other Plastics.
- Other Materials includes the categories of Other Glass, Painted/Treated Wood, Brick/Concrete/Dirt, and Infectious Waste.

**Table 3-1: Composition of Aggregate MSW by Season**

Material Categories		Fall (n=51)	Spring (n=50)	Annual (n=101)
1	Newspaper	1.0%	0.5%	0.8%
2	Glossy Magazines	1.0%	0.8%	0.9%
3	Corrugated Cardboard	2.9%	2.3%	2.6%
5	Phone Books	0.1%	0.0%	0.0%
6	Paperboard	3.1%	2.1%	2.6%
7	Other Books	0.4%	0.1%	0.3%
8	White Ledger	1.7%	0.8%	1.2%
9	Mixed Recyclable Paper	4.3%	2.9%	3.6%
40	Aseptic Containers	0.7%	0.5%	0.6%
11	All Plastic Bottles	3.5%	2.3%	2.9%
13A	Dairy Plastic Containers	1.2%	0.6%	0.9%
19	Tin/Steel Cans	0.9%	0.7%	0.8%
20	Aerosol Cans	0.4%	0.2%	0.3%
22	Aluminum Cans	0.7%	0.6%	0.6%
23	Aluminum Foil	0.4%	0.4%	0.4%
25	Glass Bottles and Jars	3.0%	2.4%	2.7%
	<b>Total Program Recyclables</b>	<b>25.2%</b>	<b>17.2%</b>	<b>21.2%</b>
12B	Retail Plastic Bags & Stretch Film	1.6%	1.3%	1.5%
16	Textiles/Leather	5.1%	5.7%	5.3%
21	Other Ferrous	0.6%	1.6%	1.1%
24	Other Non-Ferrous	0.4%	0.5%	0.4%
33	Lead Acid Batteries	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.1%	0.4%	0.2%
35	Oil Filters	0.0%	0.0%	0.0%
36	Other Hazardous Waste	0.0%	0.7%	0.4%
38	Reusable Waste	0.6%	0.3%	0.5%
39	Electronic Waste	0.6%	0.6%	0.6%
	<b>Other Potential Recyclables/Reusables</b>	<b>9.1%</b>	<b>11.0%</b>	<b>10.0%</b>
4	Waxy Cardboard	0.1%	0.3%	0.2%
15	Food Waste	22.6%	27.9%	25.3%
10	Low-Grade Paper	14.2%	13.9%	14.1%
18	Other Organics & Rubber	3.3%	4.7%	4.0%
27	Wood Pallets	0.5%	0.4%	0.4%
28	Wood Lumber	0.8%	0.8%	0.8%
30	Stumps/Branches	0.0%	0.0%	0.0%
32	Yard Waste	2.0%	1.1%	1.6%
	<b>Total Compostables</b>	<b>43.6%</b>	<b>49.1%</b>	<b>46.5%</b>
12A	Plastic Film	6.8%	7.0%	6.9%
13B	Mixed Plastic Containers	0.5%	1.0%	0.7%
14	All Other Plastics	6.7%	5.9%	6.3%
17	Diapers	5.1%	4.1%	4.6%
26	Other Glass	0.5%	1.0%	0.7%
29	Painted/Treated Wood	1.2%	1.7%	1.4%
31	Brick/Concrete/Dirt	0.4%	1.9%	1.2%
37	Infectious Waste	0.9%	0.1%	0.5%
	<b>All Other Waste</b>	<b>22.1%</b>	<b>22.6%</b>	<b>22.4%</b>
	<b>TOTALS</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Note: Columns may not appear to calculate correctly due to rounding.

**Table 3-2: Composition of Annual MSW by Sector**

Material Categories		Single-Family (n=39)	Multi-Family (n=15)	Commercial (n=47)	Aggregate (n=101)
1	Newspaper	0.7%	1.4%	0.7%	0.8%
2	Glossy Magazines	1.1%	1.2%	0.6%	0.9%
3	Corrugated Cardboard	1.6%	2.3%	3.6%	2.6%
5	Phone Books	0.0%	0.0%	0.1%	0.0%
6	Paperboard	2.5%	3.8%	2.4%	2.6%
7	Other Books	0.2%	0.8%	0.2%	0.3%
8	White Ledger	1.1%	1.1%	1.4%	1.2%
9	Mixed Recyclable Paper	3.9%	3.6%	3.3%	3.6%
40	Aseptic Containers	0.3%	0.4%	0.9%	0.6%
11	All Plastic Bottles	2.4%	3.2%	3.2%	2.9%
13A	Dairy Plastic Containers	1.0%	0.8%	0.9%	0.9%
19	Tin/Steel Cans	0.9%	0.8%	0.7%	0.8%
20	Aerosol Cans	0.4%	0.3%	0.2%	0.3%
22	Aluminum Cans	0.6%	0.9%	0.7%	0.6%
23	Aluminum Foil	0.4%	0.5%	0.4%	0.4%
25	Glass Bottles and Jars	2.5%	4.9%	2.2%	2.7%
	<b>Total Program Recyclables</b>	<b>19.6%</b>	<b>26.2%</b>	<b>21.3%</b>	<b>21.2%</b>
12B	Retail Plastic Bags & Stretch Film	1.6%	1.7%	1.2%	1.5%
16	Textiles/Leather	6.7%	4.0%	4.3%	5.3%
21	Other Ferrous	1.5%	0.8%	0.8%	1.1%
24	Other Non-Ferrous	0.5%	0.1%	0.4%	0.4%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.5%	0.1%	0.1%	0.2%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%
36	Other Hazardous Waste	0.3%	0.0%	0.5%	0.4%
38	Reusable Waste	0.3%	0.9%	0.5%	0.5%
39	Electronic Waste	0.7%	0.8%	0.4%	0.6%
	<b>Other Potential Recyclables/Reusables</b>	<b>12.2%</b>	<b>8.4%</b>	<b>8.3%</b>	<b>10.0%</b>
4	Waxy Cardboard	0.0%	0.0%	0.5%	0.2%
15	Food Waste	25.5%	26.2%	24.9%	25.3%
10	Low-Grade Paper	13.7%	11.7%	15.1%	14.1%
18	Other Organics & Rubber	4.1%	5.2%	3.6%	4.0%
27	Wood Pallets	0.1%	0.0%	0.8%	0.4%
28	Wood Lumber	0.6%	0.8%	1.0%	0.8%
30	Stumps/Branches	0.0%	0.0%	0.0%	0.0%
32	Yard Waste	2.4%	1.3%	0.9%	1.6%
	<b>Total Compostables</b>	<b>46.4%</b>	<b>45.2%</b>	<b>46.8%</b>	<b>46.5%</b>
12A	Plastic Film	6.3%	5.1%	8.1%	6.9%
13B	Mixed Plastic Containers	0.7%	0.6%	0.7%	0.7%
14	All Other Plastics	6.3%	5.6%	6.5%	6.3%
17	Diapers	6.0%	5.1%	3.1%	4.6%
26	Other Glass	0.6%	0.7%	0.9%	0.7%
29	Painted/Treated Wood	0.5%	2.1%	2.2%	1.4%
31	Brick/Concrete/Dirt	1.3%	1.0%	1.1%	1.2%
37	Infectious Waste	0.1%	0.0%	1.0%	0.5%
	<b>All Other Waste</b>	<b>21.8%</b>	<b>20.2%</b>	<b>23.5%</b>	<b>22.4%</b>
	<b>TOTALS</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Note: Columns may not appear to calculate correctly due to rounding.

### 3.3 Single-Family Residential MSW

Figure 3-2 depicts the annual composition for single-family residential MSW. Table 3-3 shows the composition of single-family residential MSW by season, including 90% confidence intervals. Table 3-4 compares the annual single-family residential MSW composition in the present WCS to previous WCS results. Individual single-family residential sample results are provided in Appendix B.

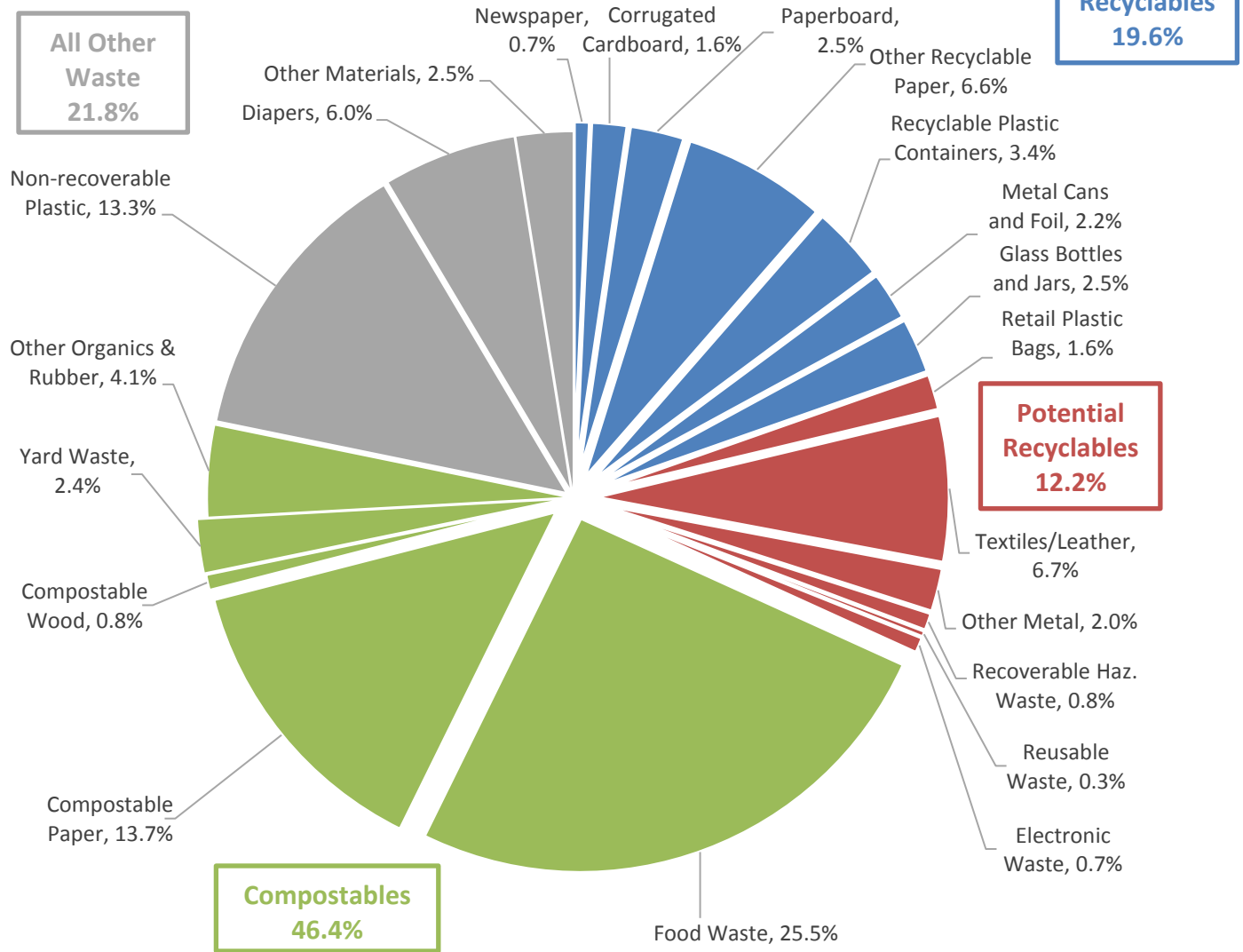
Key findings from the single-family residential data include:

- Nearly 20 percent of single-family residential MSW consisted of program recyclables. More program recyclables were present in the fall MSW stream.
- Over 25 percent of single-family residential MSW was Food Waste. Total potentially compostable materials comprised 46 percent of the single-family residential MSW.
- The composition of single-family residential MSW has changed over time:
  - The percentages of most program recyclables have decreased over time.
  - Nearly all categories of paper have decreased except Low-Grade Paper and Mixed Recyclable Paper.<sup>5</sup>
  - Plastic film and all other plastics have increased over time. Total plastics are at the same level as in 2010.
  - Total organics, especially food waste, have increased substantially.

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<sup>5</sup> The distinction between Mixed Recyclable Paper and Low-Grade Paper may have been different in 1995 compared to subsequent years, as evidenced by the high percentage of Low-Grade Paper and low percentage of Mixed Recyclable Paper in that year. As noted in the County's previous WCS report, phone books, paperboard, and other books were not classified as recyclable in 1995.

**Figure 3-2: Annual Composition of Single-Family Residential MSW**



Note: For the purpose of this figure, the following categories have been combined:

- Other Recyclable Paper includes the categories of Magazines, Phone Books, Other Books, White Ledger, Mixed Recyclable Paper, and Aseptic Containers.
- Recyclable Plastic Containers includes the categories of All Plastic Bottles and Dairy Plastic Containers.
- Metal Cans and Foil includes the categories of Steel/Tin Cans, Aluminum Cans, Aerosol Cans, and Aluminum Foil.
- Other Metals includes the categories of Other Ferrous Metals and Other Non-Ferrous Metals.
- Recoverable Hazardous Waste includes the categories of Lead Acid Batteries, Dry Cell Batteries, Oil Filters, and Other Hazardous Wastes.
- Compostable Paper includes the categories of Waxy Cardboard and Low Grade Paper.
- Compostable Wood includes the categories of Wood Pallets, Wood Lumber, and Stumps/Branches.
- Non-recoverable Plastic includes the categories of Plastic Film, Mixed Plastic Containers, and All Other Plastics.
- Other Materials includes the categories of Other Glass, Painted/Treated Wood, Brick/Concrete/Dirt, and Infectious Waste.



**Table 3-3: Composition of Single-Family Residential MSW by Season**

Material Categories		Fall (n=21)			Spring (n=18)			Annual (n=39)		
		Weighted Average	90% Confidence		Weighted Average	90% Confidence		Weighted Average	90% Confidence	
			Lower	Upper		Lower	Upper		Lower	Upper
1	Newspaper	1.1%	0.4%	1.8%	0.3%	0.1%	0.5%	0.7%	0.3%	1.1%
2	Magazines (Glossy)	1.3%	1.0%	1.7%	0.9%	0.5%	1.3%	1.1%	0.9%	1.3%
3	Corrugated Cardboard	1.8%	1.1%	2.5%	1.4%	0.8%	2.0%	1.6%	1.2%	2.1%
5	Phone Books	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6	Paperboard	2.9%	2.4%	3.3%	2.0%	1.7%	2.4%	2.5%	2.2%	2.8%
7	Other Books	0.2%	0.1%	0.4%	0.1%	0.1%	0.2%	0.2%	0.1%	0.3%
8	White Ledger	1.5%	1.1%	1.8%	0.7%	0.4%	1.0%	1.1%	0.8%	1.3%
9	Mixed Recyclable Paper	4.3%	3.5%	5.0%	3.5%	2.5%	4.4%	3.9%	3.3%	4.5%
40	Aseptic Containers	0.3%	0.2%	0.4%	0.3%	0.2%	0.4%	0.3%	0.2%	0.4%
11	All Plastic Bottles	2.7%	2.2%	3.2%	2.1%	1.7%	2.6%	2.4%	2.1%	2.8%
13A	Dairy Plastic Containers	1.5%	0.4%	2.7%	0.5%	0.4%	0.6%	1.0%	0.4%	1.7%
19	Tin/Steel Cans	1.0%	0.7%	1.4%	0.7%	0.5%	0.9%	0.9%	0.7%	1.1%
20	Aerosol Cans	0.5%	0.3%	0.6%	0.3%	0.2%	0.3%	0.4%	0.3%	0.5%
22	Aluminum Cans	0.5%	0.4%	0.7%	0.6%	0.4%	0.8%	0.6%	0.4%	0.7%
23	Aluminum Foil	0.5%	0.4%	0.6%	0.4%	0.3%	0.5%	0.4%	0.4%	0.5%
25	Glass Bottles and Jars	2.7%	2.1%	3.3%	2.4%	1.8%	2.9%	2.5%	2.1%	3.0%
	<b>Total Program Recyclables</b>	<b>22.7%</b>			<b>16.1%</b>			<b>19.6%</b>		
12B	Retail Plastic Bags & Stretch Film	1.7%	1.5%	2.0%	1.6%	1.3%	1.8%	1.6%	1.5%	1.8%
16	Textiles/Leather	5.4%	3.8%	7.0%	8.1%	6.3%	10.0%	6.7%	5.4%	7.9%
21	Other Ferrous	1.0%	0.7%	1.4%	2.1%	0.4%	3.8%	1.5%	0.7%	2.3%
24	Other Non-Ferrous	0.4%	0.2%	0.7%	0.6%	0.2%	0.9%	0.5%	0.3%	0.7%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.1%	0.1%	0.2%	0.9%	-0.2%	1.9%	0.5%	0.4%	0.5%
35	Oil Filters	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
36	Other Hazardous Waste	0.1%	0.0%	0.2%	0.6%	0.1%	1.1%	0.3%	0.1%	0.5%
38	Reusable Waste	0.4%	0.0%	0.9%	0.1%	0.0%	0.3%	0.3%	0.0%	0.6%
39	Electronic Waste	0.6%	0.2%	1.0%	0.9%	0.5%	1.3%	0.7%	0.4%	1.0%
	<b>Other Potential Recyc/Reusable</b>	<b>9.8%</b>			<b>14.8%</b>			<b>12.2%</b>		
4	Waxy Cardboard	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
15	Food Waste	25.1%	22.9%	27.3%	25.9%	23.6%	28.3%	25.5%	23.9%	27.1%
10	Low-Grade Paper	13.8%	12.4%	15.3%	13.6%	12.3%	14.9%	13.7%	12.8%	14.6%
18	Other Organics & Rubber	3.2%	2.0%	4.4%	5.1%	3.5%	6.6%	4.1%	3.1%	5.1%
27	Wood Pallets	0.2%	0.0%	0.5%	0.0%	0.0%	0.0%	0.1%	0.0%	0.3%
28	Wood Lumber	0.8%	0.3%	1.2%	0.4%	-0.2%	0.9%	0.6%	0.2%	0.9%
30	Stumps/Branches	0.1%	-0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
32	Yard Waste	2.7%	0.8%	4.7%	1.9%	0.2%	3.6%	2.4%	1.0%	3.7%
	<b>Total Compostables</b>	<b>46.0%</b>			<b>46.9%</b>			<b>46.4%</b>		
12A	Plastic Film	6.0%	5.3%	6.7%	6.5%	5.9%	7.2%	6.3%	5.8%	6.7%
13B	Mixed Plastic Containers	0.5%	0.4%	0.6%	1.0%	0.9%	1.2%	0.7%	0.6%	0.9%
14	All Other Plastics	6.9%	5.7%	8.0%	5.6%	4.5%	6.6%	6.3%	5.6%	7.0%
17	Diapers	6.3%	4.8%	7.7%	5.7%	4.3%	7.0%	6.0%	5.0%	7.0%
26	Other Glass	0.4%	0.2%	0.6%	0.8%	0.5%	1.2%	0.6%	0.4%	0.8%
29	Painted/Treated Wood	0.6%	0.3%	0.8%	0.4%	0.1%	0.7%	0.5%	0.3%	0.7%
31	Brick/Concrete/Dirt	0.6%	0.2%	1.1%	2.1%	0.9%	3.3%	1.3%	0.8%	1.9%
37	Infectious Waste	0.2%	0.0%	0.4%	0.1%	0.0%	0.2%	0.1%	0.0%	0.2%
	<b>All Other Waste</b>	<b>21.4%</b>			<b>22.2%</b>			<b>21.8%</b>		
	<b>TOTALS</b>	<b>100.0%</b>			<b>100.0%</b>			<b>100.0%</b>		

Note: Columns may not appear to calculate correctly due to rounding.

**Table 3-4: Comparison of Single-Family Residential MSW to Previous WCS Results**

Material Components	1995	2000	2005	2010	Present Study
Newspaper	5.3%	4.8%	4.9%	1.4%	0.7%
Glossy Magazines	6.1%	4.4%	4.7%	1.7%	1.1%
Corrugated Cardboard	4.5%	4.7%	2.4%	1.8%	1.6%
Waxy Cardboard	N/A	1.2%	0.7%	0.3%	0.0%
Phone Books	N/A	0.3%	0.2%	0.2%	0.0%
Paperboard	N/A	5.1%	3.6%	2.8%	2.5%
Other Books	N/A	0.4%	<0.1%	0.3%	0.2%
White Ledger	N/A	2.0%	1.9%	0.8%	1.1%
Mixed Recyclable Paper	1.7%	4.5%	3.3%	4.0%	3.9%
Low-Grade Paper	24.6%	9.0%	13.1%	9.2%	13.7%
Aseptic Containers	N/A	N/A	N/A	N/A	0.3%
<b>Total Paper</b>	<b>42.2%</b>	<b>36.5%</b>	<b>34.9%</b>	<b>22.4%</b>	<b>25.1%</b>
All Plastic Bottles	2.6%	2.9%	2.4%	2.2%	2.4%
Plastic Film	4.3%	5.7%	5.6%	7.9%	7.9%
All Cups & Tubs	0.7%	2.7%	1.0%	2.6%	1.8%
All Other Plastics	4.4%	4.6%	5.9%	5.6%	6.3%
<b>Total Plastics</b>	<b>12.0%</b>	<b>15.9%</b>	<b>14.9%</b>	<b>18.3%</b>	<b>18.3%</b>
Food Waste	11.2%	17.8%	22.2%	20.9%	25.5%
Textiles/Leather	3.3%	5.4%	5.1%	6.3%	6.7%
Diapers	3.5%	3.5%	4.4%	5.2%	6.0%
Other Organics & Rubber	8.3%	4.6%	1.3%	4.7%	4.1%
<b>Total Organics</b>	<b>26.3%</b>	<b>31.3%</b>	<b>33.0%</b>	<b>37.1%</b>	<b>42.3%</b>
Tin/Steel Cans	2.7%	1.8%	1.4%	1.1%	0.9%
Aerosol Cans	N/A	0.4%	0.4%	0.5%	0.4%
Other Ferrous	2.9%	2.0%	1.3%	2.0%	1.5%
<b>Total Ferrous Metal</b>	<b>5.6%</b>	<b>4.2%</b>	<b>3.1%</b>	<b>3.5%</b>	<b>2.8%</b>
Aluminum Cans	0.8%	1.0%	0.7%	0.7%	0.6%
Aluminum Foil	N/A	0.9%	0.7%	0.7%	0.4%
Other Non-Ferrous	N/A	0.2%	<0.1%	0.7%	0.5%
<b>Total Non-Ferrous Metal</b>	<b>0.8%</b>	<b>2.1%</b>	<b>1.4%</b>	<b>2.1%</b>	<b>1.5%</b>
Glass Bottles and Jars	5.8%	4.3%	4.3%	3.4%	2.5%
Other Glass	0.5%	0.8%	0.2%	0.2%	0.6%
<b>Total Glass</b>	<b>6.3%</b>	<b>5.1%</b>	<b>4.5%</b>	<b>3.7%</b>	<b>3.1%</b>
Wood Pallets	N/A	0.2%	<0.1%	<0.1%	0.1%
Wood Lumber	1.9%	1.3%	2.3%	2.8%	0.6%
Painted/Treated Wood	1.1%	<0.1%	<0.1%	2.7%	0.5%
Stumps/Branches	N/A	<0.1%	<0.1%	<0.1%	0.0%
<b>Total Wood</b>	<b>3.0%</b>	<b>1.5%</b>	<b>2.4%</b>	<b>5.5%</b>	<b>1.2%</b>
Brick/Concrete/Dirt	2.6%	0.7%	2.2%	3.0%	1.3%
Yard Waste	<b>1.0%</b>	<b>0.9%</b>	<b>1.8%</b>	<b>2.6%</b>	<b>2.4%</b>
Lead Acid Batteries	N/A	<0.1%	<0.1%	<0.1%	0.0%
Dry Cell Batteries	N/A	0.2%	0.2%	<0.1%	0.5%
Oil Filters	N/A	<0.1%	<0.1%	<0.1%	0.0%
Other Hazardous Waste	0.3%	0.6%	0.4%	<0.1%	0.3%
Infectious Waste	<0.1%	N/A	<0.1%	0.4%	0.1%
Reusable Waste	N/A	<0.1%	<0.1%	<0.1%	0.3%
<b>Total Special Waste</b>	<b>0.3%</b>	<b>0.9%</b>	<b>0.6%</b>	<b>0.4%</b>	<b>1.2%</b>
Electronic Waste	N/A	<b>0.9%</b>	<b>1.4%</b>	<b>1.4%</b>	<b>0.7%</b>
<b>TOTALS</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Note: Columns may not appear to calculate correctly due to rounding. Plastic film includes Plastic Film and Retail Bags & Stretch Film. All Cups & Tubs includes Mixed Plastic Containers and Dairy Plastic Containers.

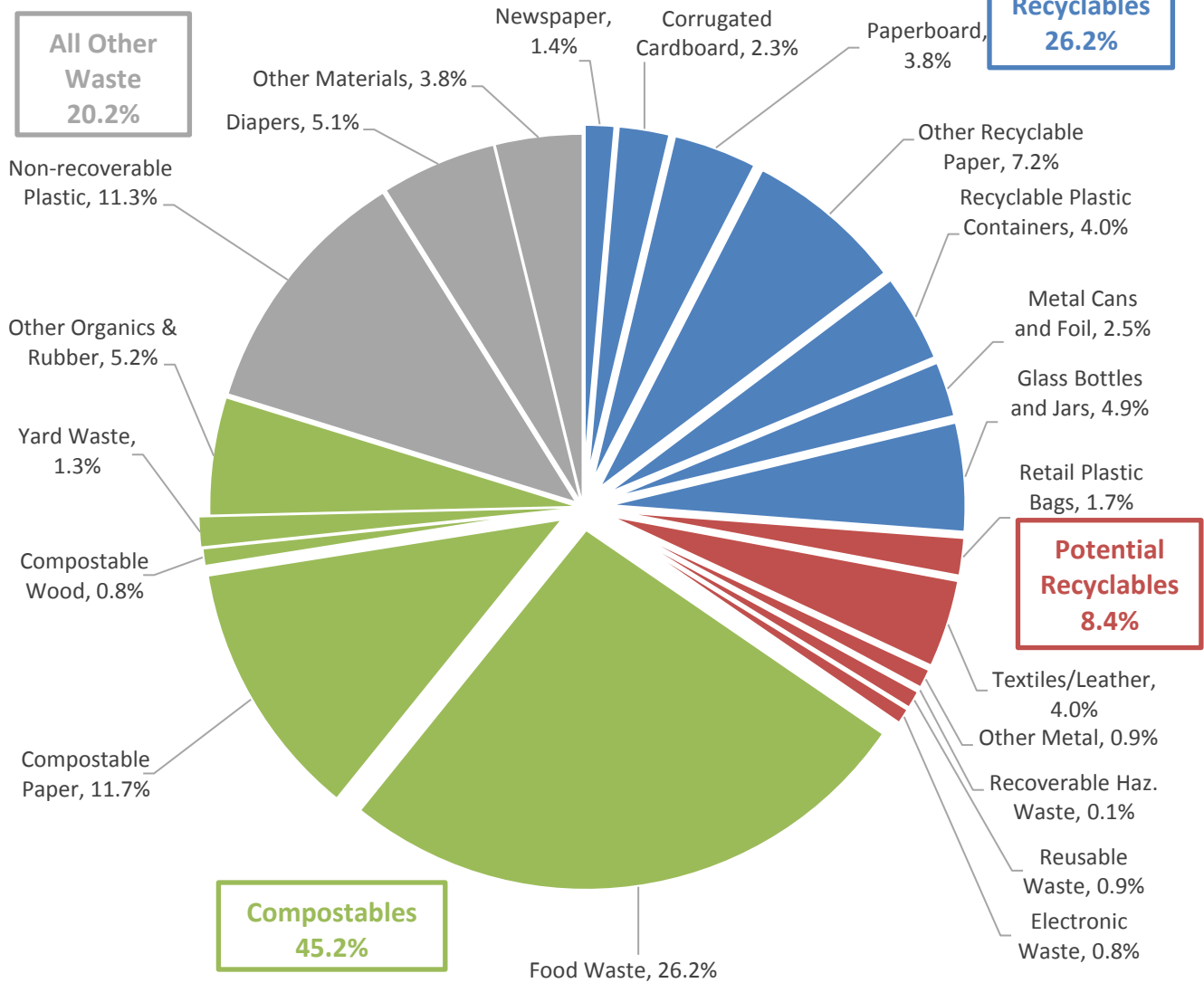
## 3.4 Multi-Family Residential MSW

Figure 3-3 depicts the annual composition for multi-family residential MSW. Table 3-5 shows the composition of multi-family residential MSW by season, including 90 percent confidence intervals. Table 3-6 compares the annual multi-family residential MSW composition in the present WCS to previous WCS results. Individual multi-family residential sample results are provided in Appendix C.

Key findings from the multi-family residential data include:

- Approximately 26 percent of multi-family residential MSW consisted of program recyclables. As with single-family residential waste, more recyclables were present in the fall MSW stream than in the spring.
- About 45 percent of multi-family residential MSW was potentially compostable, mostly Food Waste.
- Multi-family residential MSW showed similar overall historical trends as single-family residential MSW: less paper and more plastic and organics.

**Figure 3-3: Annual Composition of Multi-Family Residential MSW**



Note: For the purpose of this figure, the following categories have been combined:

- Other Recyclable Paper includes the categories of Magazines, Phone Books, Other Books, White Ledger, Mixed Recyclable Paper, and Aseptic Containers.
- Recyclable Plastic Containers includes the categories of All Plastic Bottles and Dairy Plastic Containers.
- Metal Cans and Foil includes the categories of Steel/Tin Cans, Aluminum Cans, Aerosol Cans, and Aluminum Foil.
- Other Metals includes the categories of Other Ferrous Metals and Other Non-Ferrous Metals.
- Recoverable Hazardous Waste includes the categories of Lead Acid Batteries, Dry Cell Batteries, Oil Filters, and Other Hazardous Wastes.
- Compostable Paper includes the categories of Waxy Cardboard and Low Grade Paper.
- Compostable Wood includes the categories of Wood Pallets, Wood Lumber, and Stumps/Branches.
- Non-recoverable Plastic includes the categories of Plastic Film, Mixed Plastic Containers, and All Other Plastics.
- Other Materials includes the categories of Other Glass, Painted/Treated Wood, Brick/Concrete/Dirt, and Infectious Waste.

**Table 3-5: Composition of Multi-Family Residential MSW by Season**

Material Categories		Fall (n=7)			Spring (n=8)			Annual (n=15)		
		Weighted Average	90% Confidence		Weighted Average	90% Confidence		Weighted Average	90% Confidence	
			Lower	Upper		Lower	Upper		Lower	Upper
1	Newspaper	1.6%	0.3%	3.0%	1.2%	0.5%	1.8%	1.4%	0.7%	2.0%
2	Magazines (Glossy)	1.4%	0.7%	2.2%	1.0%	0.1%	1.9%	1.2%	0.7%	1.8%
3	Corrugated Cardboard	3.0%	1.4%	4.5%	1.8%	1.1%	2.5%	2.3%	1.5%	3.2%
5	Phone Books	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6	Paperboard	4.4%	3.1%	5.7%	3.3%	2.4%	4.3%	3.8%	3.2%	4.4%
7	Other Books	1.7%	0.3%	3.0%	0.1%	-0.1%	0.3%	0.8%	0.1%	1.5%
8	White Ledger	1.4%	0.3%	2.5%	0.9%	-0.2%	2.0%	1.1%	0.5%	1.7%
9	Mixed Recyclable Paper	4.2%	2.7%	5.7%	3.1%	2.0%	4.1%	3.6%	2.7%	4.5%
40	Aseptic Containers	0.4%	0.2%	0.6%	0.4%	0.2%	0.6%	0.4%	0.3%	0.5%
11	All Plastic Bottles	3.2%	2.3%	4.1%	3.1%	1.9%	4.4%	3.2%	2.7%	3.7%
13A	Dairy Plastic Containers	0.7%	0.3%	1.1%	0.9%	0.6%	1.2%	0.8%	0.6%	1.1%
19	Tin/Steel Cans	0.9%	0.5%	1.3%	0.7%	0.5%	1.0%	0.8%	0.6%	1.0%
20	Aerosol Cans	0.4%	0.2%	0.6%	0.2%	0.1%	0.3%	0.3%	0.2%	0.4%
22	Aluminum Cans	1.1%	0.8%	1.4%	0.7%	0.4%	1.0%	0.9%	0.7%	1.1%
23	Aluminum Foil	0.4%	0.2%	0.5%	0.7%	0.3%	1.2%	0.5%	0.3%	0.8%
25	Glass Bottles and Jars	5.7%	2.3%	9.2%	4.2%	1.4%	7.1%	4.9%	3.3%	6.6%
	<b>Total Program Recyclables</b>	<b>30.6%</b>			<b>22.3%</b>			<b>26.2%</b>		
12B	Retail Plastic Bags & Stretch Film	1.9%	1.3%	2.5%	1.6%	1.1%	2.1%	1.7%	1.4%	2.1%
16	Textiles/Leather	5.0%	2.2%	7.7%	3.1%	1.4%	4.8%	4.0%	2.0%	6.0%
21	Other Ferrous	0.7%	0.2%	1.1%	0.9%	-0.5%	2.3%	0.8%	0.0%	1.6%
24	Other Non-Ferrous	0.1%	-0.1%	0.3%	0.1%	0.0%	0.3%	0.1%	0.0%	0.2%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.1%	0.0%	0.2%	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
36	Other Hazardous Waste	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
38	Reusable Waste	1.3%	-0.4%	3.0%	0.5%	-0.1%	1.0%	0.9%	0.1%	1.7%
39	Electronic Waste	0.3%	0.0%	0.5%	1.2%	0.3%	2.1%	0.8%	0.3%	1.2%
	<b>Other Potential Recoverables</b>	<b>9.5%</b>			<b>7.4%</b>			<b>8.4%</b>		
4	Waxy Cardboard	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
15	Food Waste	20.6%	14.8%	26.3%	31.2%	26.2%	36.3%	26.2%	22.7%	29.8%
10	Low-Grade Paper	12.4%	7.9%	16.9%	11.1%	9.0%	13.1%	11.7%	9.6%	13.8%
18	Other Organics & Rubber	4.8%	1.7%	7.9%	5.5%	1.7%	9.4%	5.2%	2.9%	7.4%
27	Wood Pallets	0.1%	-0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
28	Wood Lumber	0.3%	0.0%	0.7%	1.1%	-0.5%	2.8%	0.8%	-0.1%	1.7%
30	Stumps/Branches	0.0%	0.0%	0.0%	0.1%	-0.1%	0.2%	0.0%	0.0%	0.1%
32	Yard Waste	1.4%	-0.4%	3.2%	1.1%	-0.2%	2.5%	1.3%	0.2%	2.3%
	<b>Total Compostables</b>	<b>39.6%</b>			<b>50.2%</b>			<b>45.2%</b>		
12A	Plastic Film	4.9%	3.7%	6.0%	5.3%	4.5%	6.1%	5.1%	4.5%	5.7%
13B	Mixed Plastic Containers	0.5%	0.2%	0.7%	0.8%	0.4%	1.1%	0.6%	0.4%	0.8%
14	All Other Plastics	5.9%	4.2%	7.6%	5.3%	3.8%	6.9%	5.6%	4.6%	6.6%
17	Diapers	5.4%	2.5%	8.3%	4.8%	2.2%	7.3%	5.1%	3.5%	6.7%
26	Other Glass	0.2%	0.0%	0.4%	1.1%	-0.2%	2.4%	0.7%	-0.1%	1.4%
29	Painted/Treated Wood	3.2%	-1.5%	7.9%	1.2%	-0.1%	2.4%	2.1%	0.0%	4.2%
31	Brick/Concrete/Dirt	0.3%	-0.1%	0.8%	1.6%	-1.0%	4.2%	1.0%	-0.4%	2.4%
37	Infectious Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	<b>All Other Waste</b>	<b>20.4%</b>			<b>20.0%</b>			<b>20.2%</b>		
	<b>TOTALS</b>	<b>100.0%</b>			<b>100.0%</b>			<b>100.0%</b>		

Note: Columns may not appear to calculate correctly due to rounding.

**Table 3-6: Comparison of Multi-Family Residential MSW to Previous WCS Results**

Material Components	1995	2000	2005	2010	Present Study
Newspaper	7.3%	5.6%	2.9%	2.5%	1.4%
Glossy Magazines	5.0%	4.1%	3.8%	1.0%	1.2%
Corrugated Cardboard	7.2%	2.8%	1.6%	1.6%	2.3%
Waxy Cardboard	N/A	2.0%	0.9%	0.4%	0.0%
Phone Books	N/A	0.5%	0.4%	0.1%	0.0%
Paperboard	N/A	4.6%	3.7%	3.0%	3.8%
Other Books	N/A	0.4%	0.7%	<0.1%	0.8%
White Ledger	N/A	3.8%	2.7%	0.8%	1.1%
Mixed Recyclable Paper	1.3%	5.5%	5.2%	2.4%	3.6%
Low-Grade Paper	23.6%	6.8%	10.4%	8.8%	11.7%
Aseptic Containers	N/A	N/A	N/A	N/A	0.4%
<b>Total Paper</b>	<b>44.4%</b>	<b>36.2%</b>	<b>32.3%</b>	<b>20.5%</b>	<b>26.4%</b>
All Plastic Bottles	2.6%	4.3%	3.1%	2.9%	3.2%
Plastic Film	5.5%	4.8%	5.7%	6.6%	6.8%
All Cups & Tubs	1.0%	1.9%	1.0%	1.9%	1.4%
All Other Plastics	4.5%	4.0%	3.5%	5.6%	5.6%
<b>Total Plastics</b>	<b>13.6%</b>	<b>15.1%</b>	<b>13.3%</b>	<b>17.1%</b>	<b>17.1%</b>
Food Waste	9.7%	21.2%	24.5%	22.5%	26.2%
Textiles/Leather	3.3%	4.9%	8.8%	7.6%	4.0%
Diapers	2.8%	2.5%	2.2%	5.3%	5.1%
Other Organics & Rubber	7.8%	2.2%	0.3%	3.9%	5.2%
<b>Total Organics</b>	<b>23.6%</b>	<b>30.8%</b>	<b>35.7%</b>	<b>39.2%</b>	<b>40.5%</b>
Tin/Steel Cans	2.6%	2.0%	1.2%	0.8%	0.8%
Aerosol Cans	N/A	<0.1%	0.1%	0.4%	0.3%
Other Ferrous	1.9%	2.0%	0.3%	0.8%	0.8%
<b>Total Ferrous Metal</b>	<b>4.5%</b>	<b>4.1%</b>	<b>1.6%</b>	<b>2.0%</b>	<b>1.9%</b>
Aluminum Cans	1.0%	1.3%	0.7%	1.6%	0.9%
Aluminum Foil	N/A	0.7%	0.6%	0.3%	0.5%
Other Non-Ferrous	N/A	0.4%	0.4%	1.3%	0.1%
<b>Total Non-Ferrous Metal</b>	<b>1.0%</b>	<b>2.4%</b>	<b>1.8%</b>	<b>3.3%</b>	<b>1.6%</b>
Glass Bottles and Jars	5.8%	6.9%	8.2%	6.7%	4.9%
Other Glass	<0.1%	1.2%	0.4%	<0.1%	0.7%
<b>Total Glass</b>	<b>5.8%</b>	<b>8.1%</b>	<b>8.6%</b>	<b>6.7%</b>	<b>5.6%</b>
Wood Pallets	N/A	0.2%	<0.1%	<0.1%	0.0%
Wood Lumber	0.6%	1.2%	0.2%	1.9%	0.8%
Painted/Treated Wood	0.8%	<0.1%	<0.1%	0.8%	2.1%
Stumps/Branches	N/A	<0.1%	<0.1%	<0.1%	0.0%
<b>Total Wood</b>	<b>1.4%</b>	<b>1.4%</b>	<b>0.2%</b>	<b>2.7%</b>	<b>3.0%</b>
Brick/Concrete/Dirt	3.2%	0.5%	2.2%	2.1%	1.0%
Yard Waste	<b>2.2%</b>	<b>0.3%</b>	<b>2.3%</b>	<b>3.9%</b>	<b>1.3%</b>
Lead Acid Batteries	N/A	<0.1%	<0.1%	<0.1%	0.0%
Dry Cell Batteries	N/A	0.3%	<0.1%	<0.1%	0.1%
Oil Filters	N/A	<0.1%	<0.1%	<0.1%	0.0%
Other Hazardous Waste	0.1%	<0.1%	1.0%	<0.1%	0.0%
Infectious Waste	<0.1%	N/A	<0.1%	<0.1%	0.0%
Reusable Waste	N/A	<0.1%	<0.1%	0.4%	0.9%
<b>Total Special Waste</b>	<b>0.1%</b>	<b>0.4%</b>	<b>1.1%</b>	<b>0.5%</b>	<b>1.0%</b>
Electronic Waste	N/A	<b>0.8%</b>	<b>0.8%</b>	<b>2.1%</b>	<b>0.8%</b>
<b>TOTALS</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Note: Columns may not appear to calculate correctly due to rounding. Plastic film includes Plastic Film and Retail Bags & Stretch Film. All Cups & Tubs includes Mixed Plastic Containers and Dairy Plastic Containers.

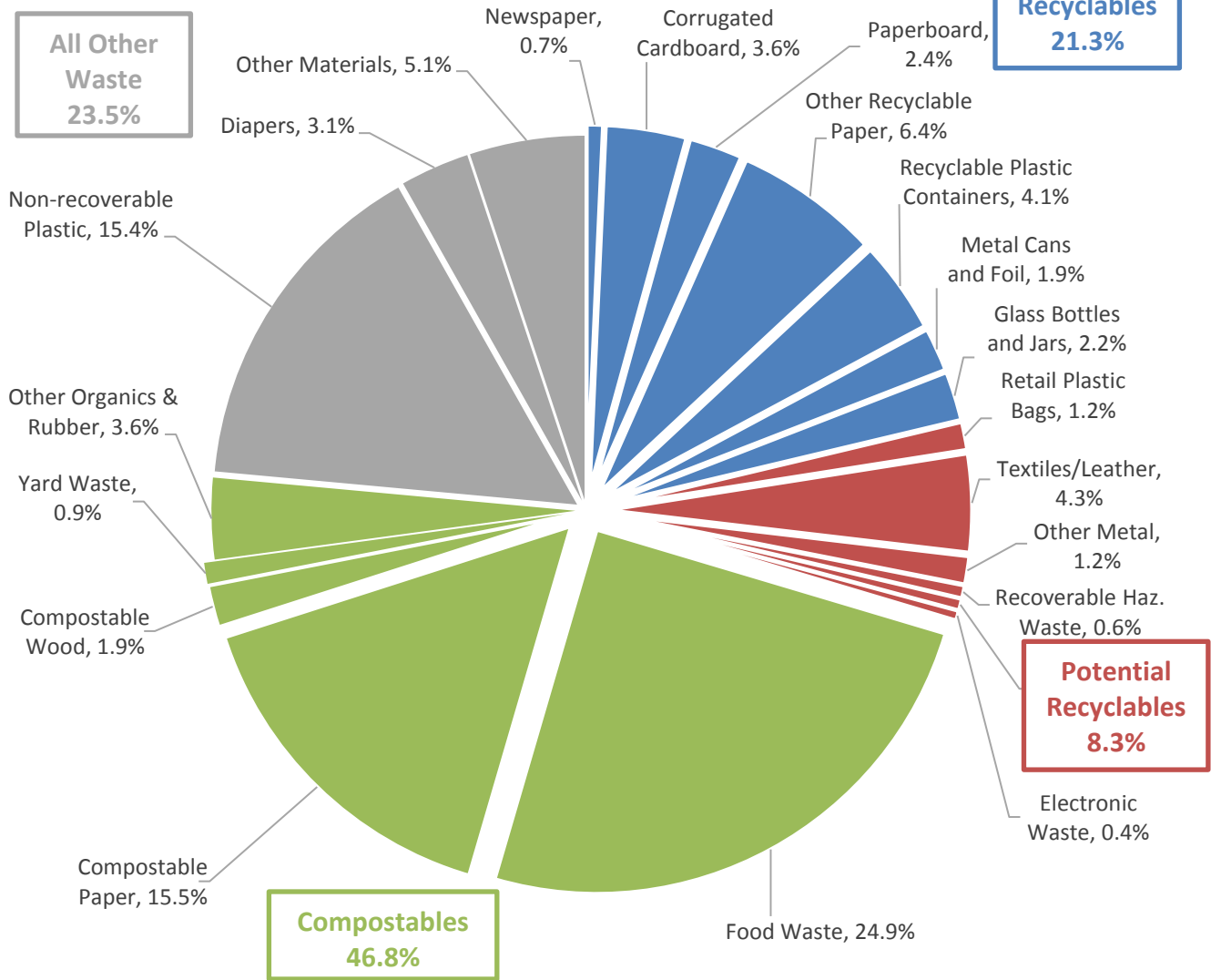
## 3.5 Commercial MSW

Figure 3-4 depicts the annual composition for commercial MSW. Table 3-7 provides the composition of commercial MSW by season, including 90 percent confidence intervals. Table 3-8 compares the annual commercial MSW composition in the present WCS to previous WCS results. Individual commercial sample results are provided in Appendix D.

Key findings from the commercial data include:

- Approximately 21 percent of commercial MSW consisted of program recyclables. As with residential MSW, the fall commercial MSW stream had a higher percentage of program recyclables than in the spring.
- Nearly 47 percent of commercial MSW consisted of compostable materials, more than half of which was Food Waste.
- Commercial MSW showed similar historical trends as residential waste in that total paper decreased whereas total plastics and total organics increased.

**Figure 3-4: Annual Composition of Commercial MSW**



Note: For the purpose of this figure, the following categories have been combined:

- Other Recyclable Paper includes the categories of Magazines, Phone Books, Other Books, White Ledger, Mixed Recyclable Paper, and Aseptic Containers.
- Recyclable Plastic Containers includes the categories of All Plastic Bottles and Dairy Plastic Containers.
- Metal Cans and Foil includes the categories of Steel/Tin Cans, Aluminum Cans, Aerosol Cans, and Aluminum Foil.
- Other Metals includes the categories of Other Ferrous Metals and Other Non-Ferrous Metals.
- Recoverable Hazardous Waste includes the categories of Lead Acid Batteries, Dry Cell Batteries, Oil Filters, and Other Hazardous Wastes.
- Compostable Paper includes the categories of Waxy Cardboard and Low Grade Paper.
- Compostable Wood includes the categories of Wood Pallets, Wood Lumber, and Stumps/Branches.
- Non-recoverable Plastic includes the categories of Plastic Film, Mixed Plastic Containers, and All Other Plastics.
- Other Materials includes the categories of Other Glass, Painted/Treated Wood, Brick/Concrete/Dirt, and Infectious Waste.



**Table 3-7: Composition of Commercial MSW by Season**

Material Categories		Fall (n=23)			Spring (n=24)			Annual (n=47)		
		Weighted Average	90% Confidence		Weighted Average	90% Confidence		Weighted Average	90% Confidence	
			Lower	Upper		Lower	Upper		Lower	Upper
1	Newspaper	0.9%	0.7%	1.0%	0.6%	0.3%	0.8%	0.7%	0.5%	1.0%
2	Magazines (Glossy)	0.6%	0.4%	0.7%	0.6%	0.3%	0.8%	0.6%	0.4%	0.7%
3	Corrugated Cardboard	3.8%	2.2%	5.5%	3.3%	2.3%	4.4%	3.6%	2.6%	4.6%
5	Phone Books	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%	-0.1%	0.2%
6	Paperboard	3.0%	2.2%	3.7%	1.8%	1.3%	2.3%	2.4%	1.9%	2.8%
7	Other Books	0.3%	0.2%	0.4%	0.1%	0.0%	0.2%	0.2%	0.0%	0.3%
8	White Ledger	2.0%	1.4%	2.6%	0.8%	0.4%	1.3%	1.4%	0.9%	1.9%
9	Mixed Recyclable Paper	4.4%	3.6%	5.2%	2.4%	1.5%	3.2%	3.3%	2.6%	4.1%
40	Aseptic Containers	1.1%	0.8%	1.3%	0.7%	0.1%	1.4%	0.9%	0.4%	1.4%
11	All Plastic Bottles	4.4%	3.7%	5.1%	2.2%	1.6%	2.7%	3.2%	2.7%	3.8%
13A	Dairy Plastic Containers	1.0%	0.8%	1.3%	0.7%	0.5%	0.9%	0.9%	0.7%	1.1%
19	Tin/Steel Cans	0.7%	0.4%	0.9%	0.7%	0.4%	1.1%	0.7%	0.6%	0.9%
20	Aerosol Cans	0.3%	0.2%	0.4%	0.1%	0.0%	0.2%	0.2%	0.2%	0.2%
22	Aluminum Cans	0.7%	0.6%	0.9%	0.6%	0.4%	0.8%	0.7%	0.6%	0.8%
23	Aluminum Foil	0.3%	0.2%	0.4%	0.4%	0.3%	0.5%	0.4%	0.3%	0.4%
25	Glass Bottles and Jars	2.6%	1.3%	3.8%	1.8%	1.2%	2.4%	2.2%	1.7%	2.6%
	<b>Total Program Recyclables</b>	<b>26.0%</b>			<b>16.8%</b>			<b>21.3%</b>		
12B	Retail Plastic Bags & Stretch Film	1.4%	1.1%	1.7%	1.1%	0.8%	1.4%	1.2%	1.0%	1.4%
16	Textiles/Leather	4.7%	2.5%	7.0%	4.0%	2.0%	6.0%	4.3%	2.8%	5.9%
21	Other Ferrous	0.3%	0.2%	0.3%	1.3%	0.3%	2.3%	0.8%	0.5%	1.1%
24	Other Non-Ferrous	0.4%	0.0%	0.7%	0.5%	0.0%	1.0%	0.4%	0.2%	0.7%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%
35	Oil Filters	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
36	Other Hazardous Waste	0.0%	0.0%	0.0%	0.9%	0.1%	1.8%	0.5%	0.2%	0.8%
38	Reusable Waste	0.7%	0.2%	1.2%	0.4%	-0.1%	0.8%	0.5%	0.0%	1.0%
39	Electronic Waste	0.6%	0.4%	0.9%	0.2%	0.0%	0.5%	0.4%	-0.1%	0.9%
	<b>Other Potential Recyc/Reusable</b>	<b>8.2%</b>			<b>8.4%</b>			<b>8.3%</b>		
4	Waxy Cardboard	0.3%	0.3%	0.3%	0.6%	0.1%	1.2%	0.5%	0.2%	0.7%
15	Food Waste	20.7%	18.0%	23.5%	28.9%	24.5%	33.2%	24.9%	22.6%	27.3%
10	Low-Grade Paper	15.1%	12.1%	18.1%	15.0%	12.9%	17.2%	15.1%	13.7%	16.4%
18	Other Organics & Rubber	3.0%	2.2%	3.7%	4.2%	1.6%	6.8%	3.6%	2.3%	4.9%
27	Wood Pallets	0.9%	0.3%	1.4%	0.8%	-0.6%	2.2%	0.8%	0.2%	1.4%
28	Wood Lumber	1.0%	0.4%	1.7%	1.0%	0.2%	1.9%	1.0%	0.4%	1.7%
30	Stumps/Branches	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
32	Yard Waste	1.5%	0.1%	3.0%	0.4%	0.0%	0.7%	0.9%	0.4%	1.4%
	<b>Total Compostables</b>	<b>42.5%</b>			<b>51.0%</b>			<b>46.8%</b>		
12A	Plastic Film	8.1%	6.8%	9.5%	8.0%	6.8%	9.3%	8.1%	7.2%	9.0%
13B	Mixed Plastic Containers	0.6%	0.4%	0.7%	0.9%	0.6%	1.3%	0.7%	0.6%	0.9%
14	All Other Plastics	6.7%	4.5%	8.9%	6.3%	4.6%	8.1%	6.5%	5.3%	7.7%
17	Diapers	3.9%	1.9%	5.8%	2.3%	1.2%	3.4%	3.1%	2.2%	4.0%
26	Other Glass	0.7%	-0.1%	1.4%	1.1%	0.3%	1.9%	0.9%	0.3%	1.4%
29	Painted/Treated Wood	1.2%	0.1%	2.4%	3.1%	0.9%	5.2%	2.2%	0.9%	3.5%
31	Brick/Concrete/Dirt	0.3%	0.0%	0.6%	1.8%	0.1%	3.4%	1.1%	-0.1%	2.2%
37	Infectious Waste	1.8%	0.3%	3.4%	0.2%	-0.1%	0.5%	1.0%	0.1%	1.9%
	<b>All Other Waste</b>	<b>23.3%</b>			<b>23.8%</b>			<b>23.5%</b>		
	<b>TOTALS</b>	<b>100.0%</b>			<b>100.0%</b>			<b>100.0%</b>		

Note: Columns may not appear to calculate correctly due to rounding.

**Table 3-8: Comparison of Commercial MSW to Previous WCS Results**

Material Components	1995	2000	2005	2010	Present Study
Newspaper	6.1%	4.7%	3.4%	3.0%	0.7%
Glossy Magazines	2.8%	2.5%	2.4%	0.8%	0.6%
Corrugated Cardboard	10.7%	3.5%	3.1%	2.6%	3.6%
Waxy Cardboard	N/A	1.8%	1.8%	0.4%	0.5%
Phone Books	N/A	<0.1%	<0.1%	<0.1%	0.1%
Paperboard	N/A	3.5%	2.2%	2.2%	2.4%
Other Books	N/A	1.9%	<0.1%	0.4%	0.2%
White Ledger	N/A	2.6%	4.2%	1.6%	1.4%
Mixed Recyclable Paper	3.3%	3.2%	2.8%	2.2%	3.3%
Low-Grade Paper	25.1%	9.5%	13.0%	14.5%	15.1%
Aseptic Containers	N/A	N/A	N/A	N/A	0.9%
<b>Total Paper</b>	<b>48.0%</b>	<b>33.5%</b>	<b>33.0%</b>	<b>27.6%</b>	<b>28.6%</b>
All Plastic Bottles	2.2%	3.4%	3.4%	3.2%	3.2%
Plastic Film	4.8%	7.8%	6.0%	9.5%	9.3%
All Cups & Tubs	0.8%	2.9%	1.9%	2.2%	1.6%
All Other Plastics	6.2%	4.4%	8.8%	5.8%	6.5%
<b>Total Plastics</b>	<b>14.0%</b>	<b>18.5%</b>	<b>20.2%</b>	<b>20.8%</b>	<b>20.7%</b>
Food Waste	12.2%	20.4%	23.7%	25.5%	24.9%
Textiles/Leather	2.7%	5.0%	3.5%	3.5%	4.3%
Diapers	1.4%	2.1%	1.1%	2.3%	3.1%
Other Organics & Rubber	4.5%	4.1%	2.4%	3.5%	3.6%
<b>Total Organics</b>	<b>20.8%</b>	<b>31.6%</b>	<b>30.7%</b>	<b>34.7%</b>	<b>35.9%</b>
Tin/Steel Cans	1.6%	1.2%	1.7%	0.8%	0.7%
Aerosol Cans	N/A	0.5%	0.3%	0.2%	0.2%
Other Ferrous	3.2%	1.6%	2.1%	0.6%	0.8%
<b>Total Ferrous Metal</b>	<b>4.8%</b>	<b>3.3%</b>	<b>4.1%</b>	<b>1.5%</b>	<b>1.7%</b>
Aluminum Cans	0.7%	1.2%	0.7%	0.8%	0.7%
Aluminum Foil	N/A	0.8%	1.0%	0.8%	0.4%
Other Non-Ferrous	N/A	0.2%	0.5%	0.4%	0.4%
<b>Total Non-Ferrous Metal</b>	<b>0.7%</b>	<b>2.3%</b>	<b>2.1%</b>	<b>2.0%</b>	<b>1.4%</b>
Glass Bottles and Jars	4.0%	3.8%	3.5%	3.4%	2.2%
Other Glass	0.4%	0.8%	1.0%	0.2%	0.9%
<b>Total Glass</b>	<b>4.4%</b>	<b>4.6%</b>	<b>4.5%</b>	<b>3.6%</b>	<b>3.1%</b>
Wood Pallets	N/A	0.5%	<0.1%	<0.1%	0.8%
Wood Lumber	1.6%	1.7%	1.1%	1.1%	1.0%
Painted/Treated Wood	1.2%	0.3%	<0.1%	0.3%	2.2%
Stumps/Branches	N/A	<0.1%	<0.1%	<0.1%	0.0%
<b>Total Wood</b>	<b>2.8%</b>	<b>2.5%</b>	<b>1.1%</b>	<b>1.5%</b>	<b>4.0%</b>
Brick/Concrete/Dirt	1.4%	1.5%	1.0%	2.2%	1.1%
Yard Waste	<b>0.8%</b>	<b>1.3%</b>	<b>0.4%</b>	<b>2.7%</b>	<b>0.9%</b>
Lead Acid Batteries	N/A	<0.1%	<0.1%	<0.1%	0.0%
Dry Cell Batteries	N/A	0.2%	<0.1%	<0.1%	0.1%
Oil Filters	N/A	<0.1%	<0.1%	<0.1%	0.0%
Other Hazardous Waste	1.5%	<0.1%	<0.1%	<0.1%	0.5%
Infectious Waste	0.7%	NA	1.8%	2.0%	1.0%
Reusable Waste	N/A	<0.1%	<0.1%	0.3%	0.5%
<b>Total Special Waste</b>	<b>2.2%</b>	<b>0.3%</b>	<b>2.0%</b>	<b>2.4%</b>	<b>2.1%</b>
Electronic Waste	<b>N/A</b>	<b>0.6%</b>	<b>1.1%</b>	<b>1.1%</b>	<b>0.4%</b>
<b>TOTALS</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Note: Columns may not appear to calculate correctly due to rounding. Plastic film includes Plastic Film and Retail Bags & Stretch Film. All Cups & Tubs includes Mixed Plastic Containers and Dairy Plastic Containers.

## 3.6 Composition by Jurisdiction

Table 3-9 depicts the annual composition of MSW generated by each jurisdiction.

Key findings from this table include:

- All three municipalities showed relatively similar compositions, when considering the confidence interval of each material.
- MSW generated in the unincorporated County had slightly higher composition of certain program recyclables: Mixed Paper, All Plastic Bottles, and Tin/Steel Containers. This may indicate higher degree of recycling in the municipalities.
- UNC, being a university had a different MSW composition than the rest of the County in a number of areas:
  - Newspaper was lower.
  - All Plastic Bottles was slightly higher.
  - Low Grade Paper was fairly high. In fact, Low-Grade Paper and Food Waste (both potentially compostable) were nearly half of UNC's MSW stream.

**Table 3-9: MSW Composition by Jurisdiction**

Material Categories		Chapel Hill (n=36)			Carrboro (n=10)			Hillsborough(n=14)		
		Weighted Average	90% Confidence		Weighted Average	90% Confidence		Weighted Average	90% Confidence	
			Lower	Upper		Lower	Upper		Lower	Upper
1	Newspaper	0.8%	0.6%	1.1%	1.0%	0.2%	1.8%	0.6%	0.4%	0.9%
2	Magazines (Glossy)	0.8%	0.6%	1.1%	0.6%	0.2%	1.1%	0.9%	0.5%	1.3%
3	Corrugated Cardboard	2.5%	1.8%	3.2%	2.7%	0.9%	4.4%	4.1%	1.9%	6.2%
5	Phone Books	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	-0.2%	0.6%
6	Paperboard	2.6%	2.2%	3.0%	1.9%	1.3%	2.4%	2.5%	1.6%	3.4%
7	Other Books	0.4%	0.2%	0.7%	0.0%	0.0%	0.0%	0.1%	-0.1%	0.4%
8	White Ledger	1.2%	0.8%	1.5%	0.8%	0.5%	1.2%	1.5%	0.2%	2.8%
9	Mixed Recyclable Paper	3.6%	2.9%	4.3%	3.1%	1.7%	4.4%	3.2%	2.1%	4.4%
40	Aseptic Containers	0.4%	0.3%	0.6%	0.3%	0.1%	0.5%	0.2%	0.1%	0.3%
11	All Plastic Bottles	2.5%	2.0%	3.0%	1.6%	1.2%	2.0%	3.0%	2.1%	4.0%
13A	Dairy Plastic Containers	1.2%	0.5%	1.9%	0.5%	0.3%	0.6%	0.6%	0.3%	0.8%
19	Tin/Steel Cans	0.7%	0.5%	0.9%	0.4%	0.2%	0.6%	0.7%	0.4%	0.9%
20	Aerosol Cans	0.2%	0.2%	0.3%	0.4%	0.3%	0.5%	0.2%	0.1%	0.4%
22	Aluminum Cans	0.6%	0.5%	0.8%	0.7%	0.4%	1.0%	0.6%	0.4%	0.7%
23	Aluminum Foil	0.5%	0.4%	0.6%	0.5%	0.3%	0.7%	0.2%	0.1%	0.3%
25	Glass Bottles and Jars	2.9%	2.3%	3.6%	2.3%	1.5%	3.0%	2.3%	1.4%	3.1%
	<b>Total Program Recyclables</b>	<b>21.1%</b>			<b>16.8%</b>			<b>20.9%</b>		
12B	Retail Plastic Bags & Stretch Film	1.4%	1.2%	1.6%	1.5%	1.1%	2.0%	1.4%	1.0%	1.9%
16	Textiles/Leather	4.6%	3.1%	6.2%	6.1%	3.2%	9.0%	5.9%	3.0%	8.8%
21	Other Ferrous	1.1%	0.5%	1.6%	2.8%	0.1%	5.6%	1.4%	1.0%	1.8%
24	Other Non-Ferrous	0.4%	0.2%	0.7%	0.5%	0.0%	0.9%	0.6%	0.4%	0.9%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
36	Other Hazardous Waste	0.4%	-0.1%	0.8%	0.0%	0.0%	0.0%	0.6%	-0.2%	1.3%
38	Reusable Waste	0.5%	0.1%	0.8%	0.9%	-0.5%	2.4%	0.6%	-0.1%	1.3%
39	Electronic Waste	0.9%	0.4%	1.3%	1.0%	0.1%	1.8%	0.2%	0.0%	0.3%
	<b>Other Potential Recyc/Reusable</b>	<b>9.3%</b>			<b>12.8%</b>			<b>10.8%</b>		
4	Waxy Cardboard	0.2%	0.0%	0.4%	0.5%	-0.2%	1.2%	0.6%	0.4%	0.8%
15	Food Waste	27.3%	24.9%	29.7%	23.3%	17.7%	28.8%	21.7%	17.9%	25.5%
10	Low-Grade Paper	13.6%	12.3%	14.9%	13.4%	12.4%	14.4%	11.1%	9.6%	12.6%
18	Other Organics & Rubber	4.4%	3.1%	5.8%	10.1%	3.6%	16.5%	2.2%	0.9%	3.5%
27	Wood Pallets	0.1%	0.0%	0.1%	0.4%	-0.1%	0.9%	1.1%	-0.5%	2.7%
28	Wood Lumber	0.7%	0.3%	1.1%	1.4%	0.0%	2.8%	1.4%	0.0%	2.9%
30	Stumps/Branches	0.0%	0.0%	0.0%	0.2%	-0.2%	0.6%	0.0%	0.0%	0.0%
32	Yard Waste	1.6%	0.5%	2.6%	2.5%	0.8%	4.1%	1.8%	-0.3%	4.0%
	<b>Total Compostables</b>	<b>47.9%</b>			<b>51.8%</b>			<b>40.0%</b>		
12A	Plastic Film	6.8%	6.0%	7.6%	6.6%	5.4%	7.9%	6.3%	5.4%	7.3%
13B	Mixed Plastic Containers	0.6%	0.5%	0.7%	0.7%	0.5%	1.0%	0.5%	0.3%	0.8%
14	All Other Plastics	5.5%	4.7%	6.3%	5.6%	4.4%	6.8%	8.6%	5.6%	11.7%
17	Diapers	4.7%	3.6%	5.9%	3.0%	2.2%	3.8%	5.4%	3.3%	7.5%
26	Other Glass	0.8%	0.3%	1.4%	0.2%	0.1%	0.4%	1.3%	0.1%	2.4%
29	Painted/Treated Wood	1.6%	0.7%	2.5%	2.4%	-1.1%	5.8%	3.1%	-0.2%	6.3%
31	Brick/Concrete/Dirt	0.8%	0.3%	1.4%	0.0%	0.0%	0.1%	3.0%	-0.1%	6.1%
37	Infectious Waste	0.8%	-0.1%	1.7%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
	<b>All Other Waste</b>	<b>21.7%</b>			<b>18.6%</b>			<b>28.3%</b>		
	<b>TOTALS</b>	<b>100.0%</b>			<b>100.0%</b>			<b>100.0%</b>		

Note: Columns may not appear to calculate correctly due to rounding.

**Table 3-9 (continued): MSW Composition by Jurisdiction**

Material Categories		UNC (n=10)			Unincorporated County (n=31)		
		Weighted Average	90% Confidence		Weighted Average	90% Confidence	
			Lower	Upper		Lower	Upper
1	Newspaper	0.3%	0.2%	0.5%	1.0%	0.5%	1.5%
2	Magazines (Glossy)	0.5%	0.2%	0.7%	1.1%	0.8%	1.4%
3	Corrugated Cardboard	2.5%	0.5%	4.5%	2.1%	1.4%	2.8%
5	Phone Books	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6	Paperboard	3.2%	2.0%	4.3%	2.8%	2.4%	3.2%
7	Other Books	0.1%	-0.1%	0.2%	0.3%	0.1%	0.4%
8	White Ledger	1.5%	0.6%	2.4%	1.2%	0.9%	1.6%
9	Mixed Recyclable Paper	2.3%	1.0%	3.6%	4.4%	3.7%	5.1%
40	Aseptic Containers	0.4%	0.1%	0.8%	1.1%	0.4%	1.8%
11	All Plastic Bottles	3.9%	3.2%	4.5%	3.5%	2.9%	4.1%
13A	Dairy Plastic Containers	1.1%	0.8%	1.4%	0.8%	0.7%	1.0%
19	Tin/Steel Cans	0.5%	0.3%	0.8%	1.2%	0.9%	1.5%
20	Aerosol Cans	0.2%	0.1%	0.3%	0.4%	0.3%	0.5%
22	Aluminum Cans	0.5%	0.4%	0.7%	0.7%	0.6%	0.9%
23	Aluminum Foil	0.4%	0.2%	0.6%	0.4%	0.3%	0.4%
25	Glass Bottles and Jars	2.6%	-0.5%	5.6%	2.9%	1.9%	3.9%
	<b>Total Program Recyclables</b>	<b>20.1%</b>			<b>23.9%</b>		
12B	Retail Plastic Bags & Stretch Film	1.5%	1.1%	1.8%	1.5%	1.3%	1.7%
16	Textiles/Leather	3.4%	2.0%	4.9%	5.8%	4.3%	7.3%
21	Other Ferrous	0.1%	0.0%	0.2%	0.7%	0.4%	1.1%
24	Other Non-Ferrous	0.3%	-0.5%	1.1%	0.3%	0.1%	0.4%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.0%	0.0%	0.0%	0.6%	0.0%	1.1%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
36	Other Hazardous Waste	0.6%	0.6%	0.7%	0.2%	0.1%	0.4%
38	Reusable Waste	0.1%	-0.1%	0.4%	0.4%	0.1%	0.7%
39	Electronic Waste	0.1%	0.0%	0.1%	0.6%	0.3%	0.8%
	<b>Other Potential Recyc/Reusable</b>	<b>6.2%</b>			<b>10.1%</b>		
4	Waxy Cardboard	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
15	Food Waste	26.3%	19.9%	32.6%	25.1%	22.4%	27.8%
10	Low-Grade Paper	22.7%	18.2%	27.2%	13.3%	11.9%	14.6%
18	Other Organics & Rubber	1.4%	0.8%	2.0%	3.3%	2.3%	4.3%
27	Wood Pallets	0.0%	0.0%	0.0%	0.7%	-0.3%	1.8%
28	Wood Lumber	0.2%	0.1%	0.2%	0.7%	0.3%	1.1%
30	Stumps/Branches	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
32	Yard Waste	1.3%	-2.4%	5.0%	1.1%	0.3%	1.9%
	<b>Total Compostables</b>	<b>51.9%</b>			<b>44.3%</b>		
12A	Plastic Film	9.1%	7.8%	10.4%	6.8%	5.9%	7.6%
13B	Mixed Plastic Containers	1.4%	1.2%	1.6%	0.7%	0.6%	0.9%
14	All Other Plastics	6.7%	4.5%	9.0%	6.2%	5.3%	7.0%
17	Diapers	1.6%	0.5%	2.6%	5.3%	4.0%	6.6%
26	Other Glass	0.3%	0.0%	0.5%	0.7%	0.5%	0.9%
29	Painted/Treated Wood	0.9%	0.9%	0.9%	0.6%	0.3%	0.9%
31	Brick/Concrete/Dirt	0.3%	0.0%	0.6%	1.3%	0.6%	2.0%
37	Infectious Waste	1.7%	-1.8%	5.2%	0.2%	0.0%	0.3%
	<b>All Other Waste</b>	<b>21.9%</b>			<b>21.7%</b>		
	<b>TOTALS</b>	<b>100.0%</b>			<b>100.0%</b>		

Note: Columns may not appear to calculate correctly due to rounding.



# Section 4

## Findings

Table 4-1 presents the overall percentage of recyclable material in the MSW disposed of by each generator sector compared to previous WCS data. Below are some overall trends in the recyclable composition of the County's MSW.

- As previously discussed, recyclable paper has decreased significantly. This could be due to both the success of the County's recycling program and the overall, diminished use of recyclable paper products, such as newspaper, magazines, and telephone books. However, compounding this may be the types of paper considered recyclable in 1995 versus today.
- While total plastics have increased in the waste stream, plastic bottles in MSW appear to have remained relatively constant. It is difficult to draw any conclusions about this because of several trends in the plastics industry, which include the increased use of plastic containers to displace other materials and the light weighting of some plastic containers.
- Recyclable metals and glass bottles in the MSW stream have decreased in all generator sectors, which may be attributed to recycling, light-weighting, or diminished use of these materials.
- Overall, there has been a significant decrease in recyclables present in the MSW stream. As recyclables percentage has decreased, the percentage of waste that is potentially compostable has increased, especially food waste. Implementing programs to divert this food waste is the greatest single opportunity for waste diversion.

**Table 4-1 Recyclable Components of MSW: 1995 to 2017**

Material Components	1995	2000	2005	2010	2017
<b>Recyclable Paper</b>					
Commercial	22.9%	22.1%	18.1%	12.6%	12.2%
Single Family Residential	17.6%	26.3%	21.0%	12.9%	11.1%
Multi-Family Residential	20.8%	27.4%	21.1%	11.4%	14.3%
<b>Plastic Bottles</b>					
Commercial	2.2%	3.4%	3.4%	3.2%	3.2%
Single Family Residential	2.6%	2.9%	2.4%	2.2%	2.4%
Multi-Family Residential	2.6%	4.3%	3.1%	2.9%	3.2%
<b>Metals - Cans and Foil</b>					
Commercial	2.3%	3.3%	3.3%	2.4%	1.7%
Single Family Residential	3.5%	3.7%	2.8%	2.4%	1.9%
Multi-Family Residential	3.6%	4.1%	2.5%	2.8%	2.3%
<b>Glass Bottles and Jars</b>					
Commercial	4.0%	3.8%	3.5%	3.4%	2.2%
Single Family Residential	5.8%	4.3%	4.3%	3.4%	2.5%
Multi-Family Residential	5.8%	6.9%	8.2%	6.7%	4.9%
<b>Total Recyclables</b>					
<b>Commercial</b>	<b>31.4%</b>	<b>32.6%</b>	<b>28.3%</b>	<b>21.6%</b>	<b>19.3%</b>
<b>Single Family Residential</b>	<b>29.5%</b>	<b>37.2%</b>	<b>30.5%</b>	<b>20.9%</b>	<b>17.9%</b>

<b>Multi-Family Residential</b>	<b>32.8%</b>	<b>42.7%</b>	<b>34.9%</b>	<b>23.8%</b>	<b>24.7%</b>
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Note: Columns may not appear to calculate correctly due to rounding. Other recyclable plastic (i.e. Dairy Plastic Containers) are not included in this table because they were not separated in previous WCSs.



**Appendix A:  
Waste Composition Study  
Material Categories**

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**Table A: Waste Composition Study Material Categories**

#	Material Categories	DEFINITIONS
1	Newspaper	Newspaper (loose or tied) including other paper normally distributed inside newspaper such as ads, flyers, etc. Newspaper found inside plastic sleeve will be removed from plastic and sorted accordingly.
2	Glossy Magazines	Periodicals, journals
3	Corrugated Cardboard	Brown “cardboard” boxes (OCC) with a wavy core (no plastic liners or packaging Styrofoam®). Does not include small pieces of OCC within shrink wrap plastic such as that from a case of bottled water.
4	Waxy Cardboard	Wax-coated cardboard.
5	Phone Books	Phone books
6	Paperboard	Paperboard and chipboard such as cereal boxes, shoe boxes, and 12-pack carrier stock.
7	Other Books	Paperback novels, manuals
8	White Ledger	Copy paper, computer printouts
9	Mixed Recyclable Paper	Recyclable paper not identified above such as junk mail, colored paper, etc.
10	Low-Grade Paper	Non-recyclable paper such as tissues, paper towels, hardback books, paper cups, plates, and containers, cigarette packs, and heavily soiled paper.
11	All Plastic Bottles	All narrow-neck bottles irrespective of resin code (meaning neck smaller than base).
12A	Plastic Film	Loose and bagged plastic bags, garbage bags, re-sealable bags, floral wrap (generally) potato chip bags and other multi-laminates. Includes Mylar® bags and balloons.
12B	Retail Bags & Stretch Film	Retail and grocery bags, point-of-sale bags, newspaper bags, toilet paper overwrap, dry cleaning bags, air pillows and bubble wrap, Ziploc® bags, and plastic stretch film.
13A	Dairy Plastic Containers (SPI #2, 4, and 5)	Also includes wide-mouthed tubs and containers labeled HDPE #2, LDPE #4 or PP #5, including lids. Examples include yogurt cups, margarine tubs, Cool Whip® tubs, and other non-bottle HDPE items. ALL DAIRY PRODUCTS.
13B	Mixed Plastic Containers	Clear and colored plastic items labeled PET #1 such as clamshell containers, frozen food trays, disposable cups, and other items labeled PET #1. All other plastic cups and containers, irrespective of resin type, not categorized above.
14	All Other Plastic	Consists of non-container rigid plastic items such as plastic drums, crates, buckets, baskets, toys, refuse totes, lawn furniture, laundry baskets, and other large plastic items. <i>Does not include electronic toys.</i> Container and non-container Styrofoam® such as clam-shell containers, packaging peanuts, foam sheeting, and other packaging. Any plastic materials not categorized above, such as straws, utensils, deodorant cases, toothpaste tubes, tooth brushes, broom heads, etc.
15	Food Waste	Meat, vegetable, and bread waste (includes coffee grinds and tea bags).
16	Textiles/Leather	Clothing apparel, rags, leather, blankets, curtains, shoes, wallets, purses, belts, and scrap leather.
17	Diapers	All child and adult diapers and incontinence aids. Feminine hygiene products.

**Table A: Waste Composition Study Material Categories (continued)**

#	Material Categories	DEFINITIONS
18	<b>Other Organics &amp; Rubber</b>	Organics such as hair, pet waste, and rubber.
19	<b>Tin/Steel Cans</b>	Tin and steel cans such as canned food and pet food cans.
20	<b>Aerosol Cans</b>	Aerosol spray cans such as cooking spray, paint cans, and air fresheners.
21	<b>Other Ferrous</b>	Household appliances such as refrigerators, stoves, and salvageable items such as machinery. Steel, clothes hangers, sheet metal products, pipes, miscellaneous metal scraps, and other magnetic metal items.
22	<b>Aluminum Cans</b>	Aluminum soft drink, beer, and some pet food cans (i.e., cat food).
23	<b>Aluminum Foil</b>	Aluminum foil and catering trays.
24	<b>Other Non-Ferrous</b>	Scrap aluminum, aluminum foil, catering trays, and other non-magnetic metal, copper wiring and tubing, and brass fixtures.
25	<b>Glass Bottles and Jars</b>	Clear, brown, and green glass bottles and containers.
26	<b>Other Glass</b>	Window panes, mirrors, ceramics, and drinking glasses.
27	<b>Wood Pallets</b>	Forklift pallets.
28	<b>Wood Lumber</b>	Dimensional lumber such as plywood sections, 2x4s, particle board, and other clean wood waste.
29	<b>Painted/Treated Wood</b>	Treated and/or painted lumber, pallets, and dimensional lumber. Also includes treated/painted wood furniture including chairs, cabinets, dressers, etc.
30	<b>Stumps/Heavy Sections</b>	Large yard waste such as tree stumps and large limbs/branches.
31	<b>Brick/Concrete/Dirt</b>	Construction and demolition debris that includes concrete, carpet, drywall, insulation, and roofing materials.
32	<b>Yard Waste</b>	Shrub and brush prunings, household bedding plants, weeds, leaves, grass clippings, and other landscaping and gardening wastes.
33	<b>Lead Acid Batteries</b>	Car, motorcycle, boat, and other deep cell batteries.
34	<b>Dry Cell Batteries</b>	Household batteries including AA, AAA, C, D, 9-volt, and button types.
35	<b>Oil Filters</b>	Motor oil filters.
36	<b>Other Hazardous Waste</b>	Paint, solvent, pesticides, motor oil, fluorescent lights
37	<b>Infectious Waste</b>	Un-sterilized medical waste, including needles, syringes, and medical tubing.
38	<b>Reusable Waste</b>	Reusable items such as binders, toys, and other such durable products.
39	<b>Electronic Goods</b>	Electronic devices such as televisions, computers, cell phones, cordless telephones, personal data assistants, handheld devices, rechargeable batteries, etc.
40	<b>Aseptic Containers</b>	Gable-top cartons, aseptic juice boxes, and other similar containers made of coated paperboard.



**Appendix B:  
Waste Composition Study  
Single-Family Residential Sample Results**

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**Table B-1: Single-Family Residential Sample Results (% by weight) – Fall (October 2016)**

Load information			Unincorporated (County Hauled)					
			Mon Conv. Center	Mon Conv. Center	Mon Walnut Grove Compactor	Tue Walnut Grove Compactor	Thu Conv. Center	Fri Conv. Center
	Material Categories	sample #	2	3	6	14	42	54
1	Newspaper		0.2%	0.6%	0.5%	0.4%	1.3%	8.6%
2	Glossy Magazines		0.1%	1.2%	2.1%	1.1%	2.9%	2.6%
3	Cardboard		1.9%	1.2%	3.5%	1.6%	1.4%	1.6%
4	Waxy Cardboard		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5	Phone Books		0.0%	0.0%	0.0%	0.0%	0.0%	0.5%
6	Paperboard		2.8%	2.6%	5.0%	1.4%	2.8%	1.9%
7	Other Books		0.0%	0.8%	0.0%	0.0%	1.0%	0.0%
8	White Ledger		0.7%	0.5%	1.1%	2.0%	3.2%	1.3%
9	Mixed Recyclable Paper		4.7%	7.1%	2.6%	2.6%	6.7%	8.4%
10	Low-Grade Paper		12.4%	12.9%	20.9%	15.6%	17.3%	12.2%
11	All Plastic Bottles		4.8%	4.4%	3.6%	2.7%	5.7%	2.9%
12A	Plastic Film		6.2%	7.3%	6.2%	3.7%	4.7%	5.7%
12B	Retail Bags & Stretch Film		2.5%	1.6%	2.0%	2.5%	1.8%	0.7%
13A	Dairy Plastic Containers		1.4%	0.9%	0.7%	1.0%	0.7%	0.8%
13B	Mixed Plastic Containers		0.8%	0.8%	0.8%	0.3%	0.7%	0.2%
14	All Other Plastics		6.3%	6.0%	4.8%	1.2%	5.6%	5.5%
15	Food Waste		26.2%	18.2%	18.2%	21.3%	15.5%	18.9%
16	Textiles/Leather		3.2%	4.6%	6.9%	7.0%	3.6%	16.6%
17	Diapers		5.3%	8.4%	0.2%	12.6%	4.3%	3.2%
18	Other Organics/Rubber		1.4%	2.1%	7.7%	8.6%	1.7%	1.0%
19	Tin/Steel Cans		1.3%	1.4%	1.8%	0.3%	1.2%	0.3%
20	Aerosol Cans		0.8%	0.8%	0.3%	0.5%	0.5%	0.4%
21	Other Ferrous		1.2%	1.0%	0.3%	0.8%	0.6%	0.4%
22	Aluminum Cans		0.5%	1.4%	1.2%	0.1%	0.4%	0.5%
23	Aluminum Foil		1.1%	0.4%	0.8%	0.7%	0.2%	0.2%
24	Other Non-Ferrous		1.0%	0.6%	0.0%	0.0%	0.0%	0.0%
25	Glass Bottles and Jars		8.1%	2.8%	4.6%	2.1%	2.8%	2.0%
26	Other Glass		0.0%	0.6%	1.6%	0.0%	0.6%	0.3%
27	Wood Pallets		0.0%	0.0%	0.0%	0.0%	3.2%	0.0%
28	Wood Lumber		0.4%	1.2%	0.0%	0.8%	0.3%	1.2%
29	Painted/Treated Wood		0.1%	0.0%	1.2%	0.0%	1.6%	0.0%
30	Stumps/Branches		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
31	Brick/Concrete/Dirt		1.8%	1.6%	0.0%	4.7%	2.2%	0.0%
32	Yard Waste		0.5%	2.0%	0.0%	0.0%	0.7%	0.3%
33	Lead Acid Batteries		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries		0.1%	0.1%	0.0%	0.0%	0.1%	0.1%
35	Oil Filters		0.0%	0.0%	0.9%	0.0%	0.0%	0.0%
36	Other Hazardous Waste		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
37	Infectious Waste		0.0%	0.0%	0.0%	0.0%	0.0%	1.5%
38	Reusable Waste		0.0%	3.5%	0.1%	0.0%	4.4%	0.0%
39	Electronic Waste		1.2%	1.1%	0.0%	3.8%	0.0%	0.4%
40	Aseptic Containers		0.8%	0.0%	0.5%	0.3%	0.4%	0.0%
	TOTALS		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

**Table B-1: Single-Family Residential Sample Results (% by weight) – Fall (October 2016) (cont.)**

Load information		Unincorporated (Private Haulers)				
		Mon, Rte #1002 Waste Ind. Truck #1883	Thu, Rte #1005 Waste Ind. Truck #10270	Thu, Rte #1004 Waste Ind. Truck #10267	Thu, Rte #212 Republic Truck #2604	Thu Republic Truck #4608
	Material Categories sample #	13	44	45	46	47
1	Newspaper	1.3%	0.2%	1.1%	0.3%	0.7%
2	Glossy Magazines	2.1%	0.7%	2.1%	0.5%	0.9%
3	Cardboard	3.8%	0.6%	3.3%	8.6%	0.7%
4	Waxy Cardboard	0.0%	0.0%	0.0%	0.0%	0.0%
5	Phone Books	0.0%	0.0%	0.0%	0.0%	0.0%
6	Paperboard	3.7%	2.6%	4.9%	3.8%	4.1%
7	Other Books	0.0%	0.0%	0.9%	0.0%	0.0%
8	White Ledger	2.8%	1.4%	1.8%	1.3%	1.6%
9	Mixed Recyclable Paper	2.7%	1.5%	5.9%	2.9%	6.7%
10	Low-Grade Paper	11.6%	22.4%	8.7%	6.5%	14.6%
11	All Plastic Bottles	3.2%	2.1%	2.4%	3.5%	3.6%
12A	Plastic Film	4.9%	4.6%	9.3%	5.1%	3.3%
12B	Retail Bags & Stretch Film	1.3%	1.6%	1.0%	1.4%	1.8%
13A	Dairy Plastic Containers	0.7%	0.4%	0.3%	1.6%	0.2%
13B	Mixed Plastic Containers	0.6%	0.3%	0.1%	0.5%	0.1%
14	All Other Plastics	5.9%	5.0%	11.7%	3.1%	12.0%
15	Food Waste	28.8%	26.1%	15.4%	18.2%	28.6%
16	Textiles/Leather	1.7%	5.1%	9.5%	7.0%	3.5%
17	Diapers	3.6%	12.6%	0.1%	6.5%	5.7%
18	Other Organics/Rubber	0.7%	0.2%	6.1%	11.0%	1.9%
19	Tin/Steel Cans	1.9%	2.6%	0.8%	3.7%	0.6%
20	Aerosol Cans	0.0%	1.1%	1.3%	0.5%	0.6%
21	Other Ferrous	0.6%	0.1%	1.3%	0.6%	1.0%
22	Aluminum Cans	0.7%	0.7%	0.2%	1.3%	0.5%
23	Aluminum Foil	0.7%	0.2%	0.1%	0.2%	0.1%
24	Other Non-Ferrous	0.1%	1.6%	1.2%	1.0%	0.0%
25	Glass Bottles and Jars	1.9%	1.1%	3.4%	2.0%	3.4%
26	Other Glass	0.9%	1.3%	0.9%	0.5%	0.5%
27	Wood Pallets	0.0%	0.0%	0.0%	1.0%	0.0%
28	Wood Lumber	0.2%	1.1%	2.1%	0.0%	0.6%
29	Painted/Treated Wood	0.0%	1.0%	1.9%	0.5%	1.0%
30	Stumps/Branches	0.0%	0.0%	0.0%	0.0%	0.0%
31	Brick/Concrete/Dirt	0.0%	0.8%	0.0%	1.1%	0.0%
32	Yard Waste	12.6%	0.5%	1.1%	1.9%	0.0%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.7%	0.1%	0.0%	0.4%	0.2%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%	0.0%
36	Other Hazardous Waste	0.1%	0.0%	0.4%	0.0%	1.1%
37	Infectious Waste	0.0%	0.0%	0.0%	1.9%	0.3%
38	Reusable Waste	0.0%	0.0%	0.0%	1.4%	0.0%
39	Electronic Waste	0.0%	0.1%	0.2%	0.0%	0.0%
40	Aseptic Containers	0.3%	0.3%	0.5%	0.2%	0.1%
	TOTALS	100.0%	100.0%	100.0%	100.0%	100.0%



**Table B-1: Single-Family Residential Sample Results (% by weight) – Fall (October 2016) (cont.)**

Load information			Chapel Hill					
			Mon, Rte #209 Truck #13847	Mon, Rte #204 Truck #9210	Mon, Rte #208 Truck #7204	Tue, Rte #232 Truck #13848	Tue, Rte #207	Tue, Rte #216 Truck #15446
	Material Categories	sample #	9	10	11	16	17	19
1	Newspaper		0.2%	1.3%	0.0%	1.9%	1.1%	0.0%
2	Glossy Magazines		0.0%	0.7%	1.7%	2.6%	0.9%	0.3%
3	Cardboard		0.5%	0.6%	1.5%	0.5%	0.9%	0.4%
4	Waxy Cardboard		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5	Phone Books		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6	Paperboard		2.1%	0.6%	3.3%	2.8%	2.5%	1.0%
7	Other Books		0.0%	0.4%	0.0%	0.0%	0.0%	0.0%
8	White Ledger		2.7%	1.6%	1.6%	1.6%	0.8%	0.1%
9	Mixed Recyclable Paper		2.9%	5.8%	2.3%	2.4%	4.5%	1.8%
10	Low-Grade Paper		15.5%	15.5%	12.1%	8.4%	11.2%	15.6%
11	All Plastic Bottles		1.7%	0.8%	1.8%	1.1%	2.0%	0.8%
12A	Plastic Film		5.6%	3.4%	9.0%	5.1%	8.5%	5.3%
12B	Retail Bags & Stretch Film		1.5%	1.1%	2.1%	1.6%	1.7%	3.5%
13A	Dairy Plastic Containers		1.7%	14.7%	0.4%	1.0%	1.4%	0.0%
13B	Mixed Plastic Containers		0.0%	0.6%	0.1%	1.0%	0.4%	0.9%
14	All Other Plastics		7.6%	5.9%	4.5%	8.6%	8.0%	4.4%
15	Food Waste		36.9%	27.4%	32.7%	27.4%	28.6%	29.4%
16	Textiles/Leather		2.7%	0.4%	5.0%	3.3%	2.8%	16.5%
17	Diapers		11.4%	8.5%	3.2%	1.1%	7.7%	11.8%
18	Other Organics/Rubber		0.8%	3.7%	4.1%	1.3%	4.7%	0.0%
19	Tin/Steel Cans		0.0%	1.1%	0.5%	0.8%	0.4%	1.0%
20	Aerosol Cans		0.0%	0.4%	0.2%	0.6%	0.4%	0.0%
21	Other Ferrous		0.7%	3.0%	1.9%	0.2%	3.0%	0.0%
22	Aluminum Cans		0.6%	0.1%	0.3%	0.0%	0.5%	0.2%
23	Aluminum Foil		0.7%	0.4%	0.5%	0.6%	0.5%	0.6%
24	Other Non-Ferrous		0.0%	0.0%	2.1%	0.0%	0.3%	0.0%
25	Glass Bottles and Jars		2.7%	0.4%	4.1%	3.9%	2.3%	3.0%
26	Other Glass		0.0%	0.0%	0.4%	0.0%	0.5%	0.0%
27	Wood Pallets		0.0%	0.0%	0.0%	0.0%	1.0%	0.0%
28	Wood Lumber		0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
29	Painted/Treated Wood		0.0%	0.0%	0.3%	0.0%	0.4%	0.0%
30	Stumps/Branches		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
31	Brick/Concrete/Dirt		0.0%	1.6%	0.0%	0.0%	0.0%	0.0%
32	Yard Waste		0.0%	0.0%	2.7%	21.7%	1.1%	3.3%
33	Lead Acid Batteries		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries		0.2%	0.0%	0.0%	0.1%	0.0%	0.0%
35	Oil Filters		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
36	Other Hazardous Waste		0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
37	Infectious Waste		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
38	Reusable Waste		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
39	Electronic Waste		0.7%	0.0%	0.8%	0.0%	1.5%	0.0%
40	Aseptic Containers		0.2%	0.1%	0.6%	0.3%	0.4%	0.1%
	TOTALS		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

**Table B-1: Single-Family Residential Sample Results (% by weight) – Fall (October 2016) (cont.)**

Load information		Carrboro		Hillsborough	
		Wed Truck #807	Fri Truck #808	Mon Truck # 8229	Tue Truck # 8229
Material Categories	sample #	34	51	5	18
1	Newspaper	0.4%	0.6%	1.3%	0.9%
2	Glossy Magazines	0.4%	0.8%	2.6%	0.9%
3	Cardboard	1.3%	2.2%	0.4%	2.8%
4	Waxy Cardboard	0.0%	0.0%	0.0%	0.0%
5	Phone Books	0.0%	0.0%	0.0%	0.0%
6	Paperboard	2.2%	1.5%	4.7%	3.8%
7	Other Books	0.1%	0.0%	0.0%	1.5%
8	White Ledger	0.5%	0.9%	0.4%	3.3%
9	Mixed Recyclable Paper	6.6%	4.2%	2.5%	6.0%
10	Low-Grade Paper	15.2%	15.4%	12.5%	15.2%
11	All Plastic Bottles	1.4%	1.6%	3.9%	2.8%
12A	Plastic Film	9.1%	8.4%	4.7%	6.2%
12B	Retail Bags & Stretch Film	1.4%	1.7%	2.7%	0.3%
13A	Dairy Plastic Containers	0.9%	0.8%	1.6%	0.7%
13B	Mixed Plastic Containers	0.3%	0.9%	0.6%	0.0%
14	All Other Plastics	7.5%	5.7%	13.2%	10.3%
15	Food Waste	28.0%	28.5%	24.5%	24.0%
16	Textiles/Leather	3.6%	1.7%	2.8%	5.7%
17	Diapers	4.7%	5.9%	8.5%	6.3%
18	Other Organics/Rubber	7.7%	3.7%	0.2%	1.1%
19	Tin/Steel Cans	0.4%	0.4%	0.3%	0.9%
20	Aerosol Cans	0.4%	0.4%	0.2%	0.5%
21	Other Ferrous	2.7%	1.1%	0.9%	0.0%
22	Aluminum Cans	0.4%	0.5%	0.7%	0.8%
23	Aluminum Foil	0.6%	0.8%	0.4%	0.2%
24	Other Non-Ferrous	0.2%	0.8%	0.0%	0.0%
25	Glass Bottles and Jars	1.1%	1.6%	1.8%	2.0%
26	Other Glass	0.2%	0.4%	0.0%	0.0%
27	Wood Pallets	0.0%	0.0%	0.0%	0.0%
28	Wood Lumber	1.0%	1.2%	5.1%	0.0%
29	Painted/Treated Wood	0.6%	0.5%	2.4%	0.0%
30	Stumps/Branches	0.0%	2.0%	0.0%	0.0%
31	Brick/Concrete/Dirt	0.0%	0.0%	0.0%	0.0%
32	Yard Waste	0.6%	2.8%	0.0%	3.6%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.1%	0.2%	0.3%	0.0%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%
36	Other Hazardous Waste	0.0%	0.0%	0.0%	0.0%
37	Infectious Waste	0.0%	0.0%	0.1%	0.0%
38	Reusable Waste	0.0%	0.0%	0.0%	0.0%
39	Electronic Waste	0.5%	2.8%	0.2%	0.0%
40	Aseptic Containers	0.2%	0.2%	0.4%	0.2%
	TOTALS	100.0%	100.0%	100.0%	100.0%

**Table B-2: Single-Family Residential Sample Results (% by weight) – Spring (April 2017)**

Load information		Unincorporated (County Hauled)			
		Mon Walnut Grove Compactor	Mon Conv. Center	Mon Conv. Center	Thu Walnut Grove Compactor
	Material Categories sample #	1	4	5	39
1	Newspaper	0.0%	0.2%	0.0%	0.0%
2	Glossy Magazines	0.9%	0.2%	0.0%	1.6%
3	Cardboard	1.3%	4.3%	1.5%	0.4%
4	Waxy Cardboard	0.0%	0.0%	0.0%	0.0%
5	Phone Books	0.0%	0.0%	0.0%	0.0%
6	Paperboard	2.8%	1.3%	1.4%	2.8%
7	Other Books	0.2%	0.5%	0.4%	0.5%
8	White Ledger	0.1%	0.1%	1.3%	0.6%
9	Mixed Recyclable Paper	2.9%	3.6%	8.7%	3.9%
10	Low-Grade Paper	17.2%	14.3%	16.5%	12.7%
11	All Plastic Bottles	4.0%	0.9%	3.2%	2.3%
12A	Plastic Film	7.0%	7.7%	6.4%	5.5%
12B	Retail Bags & Stretch Film	1.6%	1.8%	3.0%	1.5%
13A	Dairy Plastic Containers	0.8%	0.3%	0.3%	0.6%
13B	Mixed Plastic Containers	0.9%	0.3%	0.7%	1.4%
14	All Other Plastics	3.7%	3.8%	7.6%	6.2%
15	Food Waste	20.2%	23.0%	24.9%	16.0%
16	Textiles/Leather	16.5%	9.2%	7.4%	15.7%
17	Diapers	2.0%	3.0%	1.3%	9.2%
18	Other Organics/Rubber	3.5%	0.5%	8.4%	5.7%
19	Tin/Steel Cans	0.7%	0.8%	0.7%	0.8%
20	Aerosol Cans	0.5%	0.3%	0.3%	0.4%
21	Other Ferrous	1.3%	0.9%	0.7%	0.7%
22	Aluminum Cans	0.3%	0.3%	0.3%	2.0%
23	Aluminum Foil	0.2%	0.2%	0.4%	0.5%
24	Other Non-Ferrous	0.1%	0.1%	0.4%	0.0%
25	Glass Bottles and Jars	2.6%	1.3%	1.7%	1.7%
26	Other Glass	0.6%	2.5%	0.3%	1.9%
27	Wood Pallets	0.0%	0.0%	0.0%	0.0%
28	Wood Lumber	0.1%	5.6%	0.0%	0.0%
29	Painted/Treated Wood	0.0%	0.0%	1.5%	1.5%
30	Stumps/Branches	0.0%	0.0%	0.0%	0.0%
31	Brick/Concrete/Dirt	4.2%	9.5%	0.0%	2.8%
32	Yard Waste	0.6%	0.2%	0.0%	0.0%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.5%	0.7%	0.1%	0.2%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%
36	Other Hazardous Waste	0.3%	0.1%	0.0%	0.0%
37	Infectious Waste	0.0%	0.0%	0.0%	0.1%
38	Reusable Waste	0.0%	0.9%	0.0%	0.0%
39	Electronic Waste	2.1%	1.3%	0.4%	0.8%
40	Aseptic Containers	0.1%	0.3%	0.1%	0.2%
	TOTALS	100.0%	100.0%	100.0%	100.0%

**Table B-2: Single-Family Residential Sample Results (% by weight) – Spring (April 2017) (cont.)**

Load information		Unincorporated (Private Haulers)				
		Mon Waste Ind. Truck #10759	Wed, Rte #1002 Waste Ind. Truck #10759	Thu, Rte #1002 Waste Ind. Truck #10759	Thu Republic Truck #2605	Fri Republic Truck #2604
	Material Categories sample #	14	30	41	43	45
1	Newspaper	0.1%	0.9%	0.0%	1.2%	0.5%
2	Glossy Magazines	3.1%	0.8%	3.2%	1.8%	0.3%
3	Cardboard	1.2%	0.1%	1.5%	0.0%	5.8%
4	Waxy Cardboard	0.0%	0.0%	0.0%	0.0%	0.0%
5	Phone Books	0.0%	0.0%	0.0%	0.0%	0.0%
6	Paperboard	2.7%	2.1%	2.6%	1.9%	2.6%
7	Other Books	0.4%	0.0%	0.0%	0.6%	0.0%
8	White Ledger	0.3%	0.9%	0.0%	0.1%	0.7%
9	Mixed Recyclable Paper	4.3%	6.9%	0.9%	4.1%	2.3%
10	Low-Grade Paper	14.0%	17.8%	5.3%	12.1%	16.6%
11	All Plastic Bottles	3.5%	1.3%	2.4%	1.9%	3.9%
12A	Plastic Film	4.4%	7.3%	7.0%	4.8%	9.6%
12B	Retail Bags & Stretch Film	1.3%	1.7%	0.7%	1.1%	1.2%
13A	Dairy Plastic Containers	0.4%	0.9%	0.2%	0.6%	1.0%
13B	Mixed Plastic Containers	0.8%	1.3%	1.6%	0.9%	0.8%
14	All Other Plastics	2.9%	13.1%	3.1%	3.6%	8.0%
15	Food Waste	30.6%	23.2%	33.5%	23.4%	21.9%
16	Textiles/Leather	6.8%	10.4%	4.4%	14.2%	3.3%
17	Diapers	6.2%	3.9%	5.6%	7.1%	5.2%
18	Other Organics/Rubber	3.1%	0.9%	7.5%	1.6%	4.7%
19	Tin/Steel Cans	0.6%	0.3%	0.7%	1.4%	0.6%
20	Aerosol Cans	0.2%	0.1%	0.4%	0.3%	0.3%
21	Other Ferrous	0.2%	0.9%	1.4%	0.0%	0.2%
22	Aluminum Cans	0.5%	0.6%	0.7%	0.3%	1.8%
23	Aluminum Foil	0.7%	0.5%	0.3%	0.3%	0.0%
24	Other Non-Ferrous	0.1%	0.0%	0.1%	0.9%	0.0%
25	Glass Bottles and Jars	2.0%	0.7%	1.5%	3.2%	2.1%
26	Other Glass	1.0%	1.1%	0.5%	0.0%	0.9%
27	Wood Pallets	0.0%	0.0%	0.0%	0.0%	0.0%
28	Wood Lumber	0.0%	0.0%	0.0%	0.0%	0.0%
29	Painted/Treated Wood	0.0%	0.0%	0.6%	0.0%	2.5%
30	Stumps/Branches	0.0%	0.0%	0.0%	0.0%	0.0%
31	Brick/Concrete/Dirt	0.0%	1.0%	0.8%	8.9%	0.0%
32	Yard Waste	7.5%	0.2%	1.4%	0.0%	0.0%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.0%	0.0%	10.7%	0.0%	0.3%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%	0.0%
36	Other Hazardous Waste	0.0%	0.7%	1.1%	2.6%	0.7%
37	Infectious Waste	0.0%	0.0%	0.1%	0.0%	0.9%
38	Reusable Waste	0.0%	0.0%	0.0%	0.0%	0.0%
39	Electronic Waste	1.1%	0.0%	0.1%	0.5%	0.4%
40	Aseptic Containers	0.1%	0.4%	0.1%	0.2%	1.2%
	TOTALS	100.0%	100.0%	100.0%	100.0%	100.0%

**Table B-2: Single-Family Residential Sample Results (% by weight) – Spring (April 2017) (cont.)**

Load information		Chapel Hill				
		Mon, Rte #208 Truck #16329	Mon, Rte #209 Truck #13847	Mon, Rte #204 Truck #13847	Tue, Rte #232 Truck #13848	Tue, Rte #216 Truck #15446
	Material Categories sample #	7	9	10	19	20
1	Newspaper	0.1%	0.7%	0.3%	0.2%	0.2%
2	Glossy Magazines	0.6%	0.6%	0.1%	0.0%	0.0%
3	Cardboard	2.3%	1.9%	1.0%	0.8%	0.2%
4	Waxy Cardboard	0.0%	0.0%	0.0%	0.0%	0.0%
5	Phone Books	0.0%	0.0%	0.0%	0.0%	0.0%
6	Paperboard	0.5%	2.6%	3.4%	1.9%	1.0%
7	Other Books	0.0%	0.0%	0.0%	0.0%	0.0%
8	White Ledger	0.8%	2.4%	1.1%	0.1%	0.6%
9	Mixed Recyclable Paper	0.7%	7.2%	5.1%	1.3%	3.4%
10	Low-Grade Paper	13.6%	10.2%	12.7%	17.4%	13.4%
11	All Plastic Bottles	1.0%	2.2%	2.3%	0.7%	1.8%
12A	Plastic Film	4.9%	5.7%	5.8%	8.6%	6.1%
12B	Retail Bags & Stretch Film	0.5%	1.0%	1.4%	1.0%	2.2%
13A	Dairy Plastic Containers	0.3%	0.7%	0.5%	0.2%	0.2%
13B	Mixed Plastic Containers	0.4%	1.1%	1.8%	0.9%	1.0%
14	All Other Plastics	3.1%	6.5%	4.9%	6.8%	5.1%
15	Food Waste	32.3%	27.0%	34.2%	28.1%	34.2%
16	Textiles/Leather	4.1%	5.9%	3.3%	2.4%	11.9%
17	Diapers	7.0%	8.7%	2.9%	3.5%	8.1%
18	Other Organics/Rubber	6.4%	5.7%	7.0%	12.4%	2.4%
19	Tin/Steel Cans	0.1%	0.2%	1.8%	0.1%	0.8%
20	Aerosol Cans	0.2%	0.3%	0.4%	0.3%	0.2%
21	Other Ferrous	10.6%	0.7%	0.2%	0.2%	0.6%
22	Aluminum Cans	0.3%	0.3%	0.9%	0.1%	0.3%
23	Aluminum Foil	0.3%	0.5%	0.4%	0.2%	0.7%
24	Other Non-Ferrous	1.9%	3.2%	0.7%	0.5%	0.7%
25	Glass Bottles and Jars	3.4%	1.6%	4.3%	2.6%	1.8%
26	Other Glass	0.6%	1.0%	2.6%	1.1%	0.0%
27	Wood Pallets	0.0%	0.0%	0.0%	0.0%	0.0%
28	Wood Lumber	0.6%	0.2%	0.1%	0.0%	0.4%
29	Painted/Treated Wood	0.2%	0.0%	0.0%	0.2%	0.2%
30	Stumps/Branches	0.0%	0.0%	0.0%	0.0%	0.0%
31	Brick/Concrete/Dirt	2.0%	0.1%	0.0%	1.7%	0.0%
32	Yard Waste	0.8%	0.0%	0.0%	0.1%	0.0%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.1%	0.7%	0.0%	0.1%	0.1%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%	0.0%
36	Other Hazardous Waste	0.0%	0.0%	0.0%	4.3%	0.0%
37	Infectious Waste	0.0%	0.0%	0.0%	0.0%	0.0%
38	Reusable Waste	0.1%	0.0%	0.0%	0.5%	0.0%
39	Electronic Waste	0.0%	0.0%	0.5%	1.5%	2.4%
40	Aseptic Containers	0.1%	1.0%	0.4%	0.3%	0.1%
	TOTALS	100.0%	100.0%	100.0%	100.0%	100.0%

**Table B-2: Single-Family Residential Sample Results (% by weight) – Spring (April 2017) (cont.)**

Load information		Carrboro		Hillsborough	
		Wed Truck #806	Thu Truck #807	Mon Truck # 8207	Tue Truck # 8207
Material Categories	sample #	35	42	6	17
1	Newspaper	0.0%	0.0%	0.8%	0.2%
2	Glossy Magazines	0.6%	0.0%	1.2%	0.3%
3	Cardboard	1.8%	1.0%	0.8%	0.0%
4	Waxy Cardboard	0.0%	0.0%	0.0%	0.0%
5	Phone Books	0.0%	0.0%	0.0%	0.0%
6	Paperboard	2.1%	1.3%	1.9%	2.0%
7	Other Books	0.0%	0.0%	0.0%	0.0%
8	White Ledger	1.6%	1.7%	0.0%	0.0%
9	Mixed Recyclable Paper	1.0%	4.0%	2.2%	1.2%
10	Low-Grade Paper	14.9%	14.9%	9.9%	12.6%
11	All Plastic Bottles	1.4%	0.5%	3.5%	1.4%
12A	Plastic Film	9.2%	6.1%	4.3%	7.2%
12B	Retail Bags & Stretch Film	2.4%	1.9%	2.5%	1.2%
13A	Dairy Plastic Containers	0.5%	0.3%	0.0%	0.7%
13B	Mixed Plastic Containers	1.5%	1.4%	0.5%	1.3%
14	All Other Plastics	5.9%	8.3%	4.5%	4.7%
15	Food Waste	18.1%	22.5%	20.4%	31.2%
16	Textiles/Leather	2.8%	12.0%	11.0%	6.6%
17	Diapers	3.7%	1.9%	7.0%	14.7%
18	Other Organics/Rubber	0.7%	13.8%	1.9%	4.6%
19	Tin/Steel Cans	0.7%	0.1%	1.3%	0.2%
20	Aerosol Cans	0.1%	0.5%	0.1%	0.1%
21	Other Ferrous	15.7%	1.5%	0.7%	0.6%
22	Aluminum Cans	0.4%	0.3%	1.0%	0.1%
23	Aluminum Foil	0.2%	0.7%	0.3%	0.2%
24	Other Non-Ferrous	0.0%	1.6%	0.0%	0.0%
25	Glass Bottles and Jars	3.6%	1.4%	0.9%	6.0%
26	Other Glass	0.8%	0.4%	0.0%	0.0%
27	Wood Pallets	0.0%	0.0%	0.0%	0.0%
28	Wood Lumber	0.0%	0.0%	0.0%	0.0%
29	Painted/Treated Wood	0.0%	0.6%	0.0%	0.0%
30	Stumps/Branches	0.0%	0.0%	0.0%	0.0%
31	Brick/Concrete/Dirt	0.0%	0.5%	5.3%	1.1%
32	Yard Waste	6.2%	0.2%	16.2%	0.2%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.0%	0.0%	0.0%	0.1%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%
36	Other Hazardous Waste	0.0%	0.0%	0.4%	0.0%
37	Infectious Waste	0.0%	0.3%	0.0%	0.0%
38	Reusable Waste	0.0%	0.0%	0.0%	1.1%
39	Electronic Waste	3.5%	0.0%	1.1%	0.0%
40	Aseptic Containers	0.4%	0.3%	0.2%	0.2%
TOTALS		100.0%	100.0%	100.0%	100.0%

**Appendix C:  
Waste Composition Study  
Multi-Family Residential Sample Results**

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**Table C-1: Multi-Family Residential Sample Results (% by weight) – Fall (October 2016)**

Load information		Chapel Hill			Chapel Hill (Private)		Unic. County	Carrb.
		Wed Truck #9228	Thu Truck #9224	Fri Truck #9224	Wed Pointe @ Ch Hill Waste Mgmt	Wed Chapelview Waste Ind.	Wed Alta Springs Waste Mgmt	Wed Truck #806
Material Categories	sample #	27	37	49	30	35	29	26
1	Newspaper	1.3%	0.7%	4.2%	1.0%	4.2%	0.1%	0.7%
2	Glossy Magazines	1.9%	0.0%	0.6%	0.9%	0.6%	2.9%	2.5%
3	Cardboard	3.6%	3.9%	1.4%	1.5%	7.2%	3.1%	0.0%
4	Waxy Cardboard	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5	Phone Books	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6	Paperboard	6.0%	3.9%	1.4%	6.1%	5.2%	4.0%	4.2%
7	Other Books	0.0%	3.0%	1.2%	1.2%	0.0%	4.7%	0.0%
8	White Ledger	4.5%	1.2%	1.8%	1.2%	2.0%	0.1%	0.0%
9	Mixed Recyclable Paper	7.4%	4.1%	6.6%	3.9%	4.6%	1.6%	2.9%
10	Low-Grade Paper	8.9%	9.6%	23.2%	8.1%	16.9%	9.2%	12.6%
11	All Plastic Bottles	4.2%	3.9%	1.6%	4.7%	4.0%	2.5%	2.0%
12A	Plastic Film	3.5%	5.1%	7.4%	4.8%	6.0%	3.4%	4.7%
12B	Retail Bags & Stretch Film	0.9%	2.7%	0.6%	1.8%	1.6%	2.5%	2.9%
13A	Dairy Plastic Containers	1.1%	1.6%	0.8%	1.2%	0.3%	0.3%	0.0%
13B	Mixed Plastic Containers	0.1%	0.8%	1.0%	0.8%	0.6%	0.0%	0.1%
14	All Other Plastics	2.6%	7.0%	3.0%	4.2%	7.2%	7.7%	8.3%
15	Food Waste	22.1%	27.8%	31.2%	10.7%	16.7%	14.9%	22.9%
16	Textiles/Leather	5.4%	2.7%	0.3%	10.2%	1.3%	1.2%	14.9%
17	Diapers	9.3%	2.3%	1.7%	6.3%	2.4%	10.8%	3.2%
18	Other Organics/Rubber	0.5%	2.5%	3.2%	11.9%	1.4%	5.8%	7.6%
19	Tin/Steel Cans	0.6%	1.4%	0.5%	0.5%	1.8%	1.0%	0.7%
20	Aerosol Cans	0.6%	0.2%	0.8%	0.4%	0.1%	0.4%	0.4%
21	Other Ferrous	0.6%	0.2%	0.1%	0.7%	0.8%	1.8%	0.0%
22	Aluminum Cans	0.8%	1.6%	0.3%	1.4%	1.3%	0.9%	1.5%
23	Aluminum Foil	0.4%	0.8%	0.2%	0.3%	0.3%	0.1%	0.3%
24	Other Non-Ferrous	0.0%	0.0%	0.8%	0.0%	0.1%	0.0%	0.0%
25	Glass Bottles and Jars	2.1%	5.6%	1.6%	11.9%	12.2%	4.1%	3.2%
26	Other Glass	0.5%	0.0%	0.5%	0.4%	0.0%	0.0%	0.0%
27	Wood Pallets	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%
28	Wood Lumber	0.6%	0.4%	0.0%	1.2%	0.0%	0.0%	0.3%
29	Painted/Treated Wood	0.0%	0.0%	0.0%	0.8%	0.0%	15.7%	0.1%
30	Stumps/Branches	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
31	Brick/Concrete/Dirt	1.2%	0.0%	0.0%	1.1%	0.3%	0.0%	0.0%
32	Yard Waste	6.2%	0.0%	0.7%	0.0%	0.3%	0.0%	3.4%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.1%	0.1%	0.2%	0.4%	0.0%	0.0%	0.0%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
36	Other Hazardous Waste	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
37	Infectious Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
38	Reusable Waste	2.2%	5.9%	1.7%	0.0%	0.1%	0.0%	0.0%
39	Electronic Waste	0.5%	0.6%	0.0%	0.0%	0.0%	0.7%	0.0%
40	Aseptic Containers	0.2%	0.2%	0.9%	0.4%	0.6%	0.3%	0.5%
TOTALS		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

**Table C-2: Multi-Family Residential Sample Results (% by weight) – Spring (April 2017)**

Load information		Chapel Hill			Chapel Hill (Private)		Unincorporated County		
		Wed Rte #224/207	Thu Rte #224/227 Truck #9224	Fri Rte #224/227 Truck #9224	Wed Pointe @ Ch Hill Waste Mgmt	Wed Meadow Mount Waste Ind.	Tue Ashbury Square Republic	Wed, Carolina Meadows Waste In.	Wed Chapel Watch Republic
Material Categories	sample #	23	37	49	22	31	21	28	32
1	Newspaper	0.6%	0.2%	1.7%	0.4%	2.1%	2.4%	0.1%	2.2%
2	Glossy Magazines	0.0%	1.1%	0.0%	3.5%	0.4%	0.5%	0.0%	2.7%
3	Cardboard	1.0%	3.2%	0.7%	3.0%	1.7%	2.4%	0.8%	1.5%
4	Waxy Cardboard	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5	Phone Books	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6	Paperboard	2.1%	3.5%	2.8%	4.1%	4.1%	4.3%	0.7%	5.1%
7	Other Books	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
8	White Ledger	0.6%	0.1%	1.7%	0.0%	0.0%	0.0%	4.6%	0.0%
9	Mixed Recyclable Paper	5.3%	2.6%	0.9%	3.4%	1.8%	1.7%	5.1%	3.8%
10	Low-Grade Paper	9.3%	13.5%	16.2%	13.3%	7.3%	8.0%	9.5%	11.3%
11	All Plastic Bottles	1.0%	3.5%	2.6%	3.3%	2.5%	5.4%	0.9%	6.2%
12A	Plastic Film	3.8%	6.0%	5.6%	6.7%	4.2%	4.0%	7.1%	5.0%
12B	Retail Bags & Stretch Film	1.2%	1.8%	1.6%	2.0%	1.7%	1.6%	0.2%	2.8%
13A	Dairy Plastic Containers	1.0%	0.7%	1.8%	0.5%	0.2%	0.9%	1.0%	1.3%
13B	Mixed Plastic Containers	0.6%	0.6%	0.7%	1.6%	0.4%	0.5%	0.2%	1.6%
14	All Other Plastics	2.7%	3.3%	5.0%	4.6%	6.9%	8.4%	8.4%	3.4%
15	Food Waste	26.5%	40.1%	28.0%	25.2%	21.9%	34.8%	43.3%	30.0%
16	Textiles/Leather	8.2%	4.9%	3.9%	0.7%	3.0%	1.3%	2.0%	0.7%
17	Diapers	2.1%	5.0%	6.0%	1.7%	11.2%	2.1%	9.4%	0.8%
18	Other Organics/Rubber	6.9%	1.5%	0.0%	16.1%	6.4%	10.6%	1.5%	0.3%
19	Tin/Steel Cans	0.5%	0.1%	0.6%	1.0%	0.6%	1.3%	0.9%	1.0%
20	Aerosol Cans	0.2%	0.3%	0.0%	0.4%	0.1%	0.5%	0.0%	0.0%
21	Other Ferrous	0.4%	0.2%	0.0%	0.1%	6.0%	0.2%	0.1%	0.5%
22	Aluminum Cans	0.8%	0.6%	0.9%	0.4%	0.2%	1.4%	0.1%	1.2%
23	Aluminum Foil	0.2%	0.5%	2.2%	0.5%	1.1%	0.6%	0.1%	0.4%
24	Other Non-Ferrous	0.0%	0.0%	0.0%	0.4%	0.3%	0.4%	0.0%	0.0%
25	Glass Bottles and Jars	2.6%	4.3%	2.7%	5.6%	2.1%	3.2%	0.0%	14.1%
26	Other Glass	0.0%	0.0%	0.4%	0.0%	5.8%	1.7%	0.3%	0.9%
27	Wood Pallets	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
28	Wood Lumber	1.9%	0.0%	7.0%	0.1%	0.0%	0.0%	0.0%	0.0%
29	Painted/Treated Wood	5.4%	0.0%	2.3%	0.5%	0.0%	0.6%	0.2%	0.0%
30	Stumps/Branches	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
31	Brick/Concrete/Dirt	11.1%	0.4%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
32	Yard Waste	0.0%	0.5%	2.6%	0.0%	5.6%	0.5%	0.1%	0.0%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.1%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
36	Other Hazardous Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
37	Infectious Waste	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
38	Reusable Waste	0.2%	0.2%	0.0%	0.0%	1.0%	0.0%	0.0%	2.4%
39	Electronic Waste	3.3%	0.5%	0.0%	0.6%	1.4%	0.2%	3.1%	0.0%
40	Aseptic Containers	0.0%	0.7%	0.7%	0.3%	0.1%	0.2%	0.2%	0.7%
	TOTALS	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

**Appendix D:  
Waste Composition Study  
Commercial Sample Results**

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**Table D-1: Commercial Sample Results (% by weight) – Fall (October 2016)**

Load information		Chapel Hill							
		Wed, Rte #3003 Waste Ind. Truck #3692	Wed Truck #16014	Wed Truck #9224	Wed, Rte #3003 Waste Ind. Truck #3692	Thu Truck #9228	Thu Truck #16014	Fri Truck #9228	
	Material Categories sample #	21	25	28	32	36	40	48	
1	Newspaper	0.9%	0.6%	1.2%	0.5%	1.7%	0.4%	2.1%	
2	Glossy Magazines	1.1%	0.4%	0.8%	1.2%	0.0%	0.0%	0.2%	
3	Cardboard	4.5%	0.2%	12.3%	4.9%	2.9%	1.9%	5.3%	
4	Waxy Cardboard	0.0%	0.0%	0.0%	0.0%	0.0%	3.1%	0.0%	
5	Phone Books	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
6	Paperboard	0.6%	0.6%	4.7%	1.7%	5.1%	3.0%	3.9%	
7	Other Books	0.7%	0.0%	0.0%	0.5%	0.5%	0.0%	0.0%	
8	White Ledger	0.4%	2.8%	2.3%	1.2%	0.0%	0.3%	3.0%	
9	Mixed Recyclable Paper	8.5%	1.3%	5.1%	2.6%	9.1%	0.5%	4.8%	
10	Low-Grade Paper	11.7%	29.9%	9.9%	10.8%	13.3%	19.1%	13.6%	
11	All Plastic Bottles	2.3%	4.5%	2.8%	3.7%	8.0%	1.4%	6.2%	
12A	Plastic Film	7.6%	8.1%	2.6%	7.0%	16.0%	10.5%	8.7%	
12B	Retail Bags & Stretch Film	1.8%	0.4%	1.2%	2.1%	1.7%	0.6%	1.0%	
13A	Dairy Plastic Containers	0.2%	2.6%	0.2%	0.0%	1.1%	0.6%	3.4%	
13B	Mixed Plastic Containers	0.3%	0.4%	0.6%	0.0%	0.4%	0.2%	0.0%	
14	All Other Plastics	6.1%	5.6%	4.5%	4.2%	6.0%	4.9%	7.4%	
15	Food Waste	21.8%	29.9%	20.8%	20.4%	6.2%	30.3%	16.4%	
16	Textiles/Leather	7.0%	0.8%	2.6%	0.8%	5.9%	12.2%	2.2%	
17	Diapers	2.2%	0.3%	1.3%	14.9%	1.7%	1.2%	4.6%	
18	Other Organics/Rubber	0.3%	5.8%	2.8%	0.1%	0.6%	0.0%	1.5%	
19	Tin/Steel Cans	0.6%	0.2%	1.5%	1.6%	0.0%	0.3%	0.3%	
20	Aerosol Cans	0.1%	0.1%	0.3%	0.0%	0.0%	0.5%	0.0%	
21	Other Ferrous	0.2%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	
22	Aluminum Cans	0.9%	0.8%	0.4%	0.5%	1.2%	0.8%	0.7%	
23	Aluminum Foil	1.1%	0.0%	0.3%	0.1%	0.2%	0.4%	0.7%	
24	Other Non-Ferrous	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	
25	Glass Bottles and Jars	0.2%	0.0%	4.2%	3.7%	0.6%	0.9%	3.0%	
26	Other Glass	0.0%	1.0%	2.0%	0.0%	0.0%	0.0%	0.0%	
27	Wood Pallets	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	
28	Wood Lumber	3.2%	0.0%	0.3%	2.6%	0.0%	0.0%	3.8%	
29	Painted/Treated Wood	1.7%	0.0%	0.7%	10.9%	0.0%	0.0%	5.7%	
30	Stumps/Branches	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
31	Brick/Concrete/Dirt	2.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	
32	Yard Waste	0.6%	0.0%	1.7%	1.4%	0.0%	4.9%	0.0%	
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
34	Dry Cell Batteries	0.1%	0.0%	0.4%	0.0%	0.0%	0.0%	0.2%	
35	Oil Filters	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
36	Other Hazardous Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
37	Infectious Waste	8.6%	0.0%	0.2%	0.0%	16.9%	0.0%	0.0%	
38	Reusable Waste	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
39	Electronic Waste	2.1%	0.0%	9.3%	2.1%	0.4%	0.0%	0.1%	
40	Aseptic Containers	0.0%	3.2%	0.4%	0.5%	0.4%	1.0%	1.0%	
	TOTALS	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

**Table D-1: Commercial Sample Results (% by weight) – Fall (October 2016) (cont.)**

Load information		Carrboro		Hillsborough				
		Mon Truck #806	Fri Truck #806	Mon, Rte #3000 Waste Ind. Truck #3678	Mon Waste Mgmt. Truck #210510	Tue Republic Truck #1246	Wed Republic Truck #1246	Fri Waste Mgmt Truck #212892
Material Categories	sample #	4	50	1	15	20	33	53
1	Newspaper	0.5%	4.7%	0.6%	0.9%	0.0%	1.7%	0.3%
2	Glossy Magazines	1.2%	0.0%	1.2%	2.2%	0.1%	0.0%	0.6%
3	Cardboard	10.2%	1.2%	5.0%	5.6%	0.8%	16.0%	1.4%
4	Waxy Cardboard	3.2%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%
5	Phone Books	0.0%	0.0%	0.0%	3.1%	0.0%	0.0%	0.0%
6	Paperboard	0.7%	2.1%	4.4%	0.0%	5.5%	3.2%	1.0%
7	Other Books	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%
8	White Ledger	1.0%	1.2%	1.1%	8.5%	1.4%	0.8%	6.0%
9	Mixed Recyclable Paper	1.0%	2.0%	7.9%	4.4%	4.1%	4.9%	7.0%
10	Low-Grade Paper	12.5%	10.8%	10.9%	10.3%	9.0%	6.4%	9.2%
11	All Plastic Bottles	0.9%	2.7%	2.9%	3.6%	2.9%	1.8%	8.7%
12A	Plastic Film	3.7%	4.9%	9.7%	5.7%	5.2%	3.0%	3.8%
12B	Retail Bags & Stretch Film	1.0%	0.8%	1.9%	2.9%	0.7%	0.8%	0.4%
13A	Dairy Plastic Containers	0.6%	0.8%	0.3%	1.2%	0.2%	1.0%	0.3%
13B	Mixed Plastic Containers	0.4%	0.2%	0.3%	0.6%	0.4%	1.0%	0.5%
14	All Other Plastics	3.9%	2.6%	3.0%	4.3%	13.4%	23.0%	0.7%
15	Food Waste	39.2%	9.3%	34.7%	11.5%	11.6%	20.5%	10.4%
16	Textiles/Leather	0.6%	8.1%	2.3%	4.3%	19.8%	0.6%	16.8%
17	Diapers	2.7%	2.2%	2.2%	1.7%	9.5%	0.0%	11.0%
18	Other Organics/Rubber	0.7%	26.1%	1.6%	9.1%	5.0%	0.6%	0.0%
19	Tin/Steel Cans	0.1%	0.0%	1.1%	0.6%	1.8%	0.0%	0.2%
20	Aerosol Cans	0.6%	0.1%	0.1%	0.5%	0.4%	0.3%	1.0%
21	Other Ferrous	1.0%	1.1%	0.7%	0.7%	0.3%	0.0%	0.0%
22	Aluminum Cans	0.4%	0.8%	0.4%	0.6%	1.3%	0.3%	0.1%
23	Aluminum Foil	0.1%	0.0%	0.0%	0.3%	0.3%	0.0%	0.0%
24	Other Non-Ferrous	0.0%	0.0%	0.4%	0.0%	1.9%	1.1%	0.6%
25	Glass Bottles and Jars	0.6%	3.1%	2.4%	2.8%	2.7%	3.2%	5.8%
26	Other Glass	0.0%	0.0%	0.4%	0.5%	0.0%	2.7%	7.4%
27	Wood Pallets	2.4%	0.0%	0.0%	10.9%	0.0%	5.7%	0.0%
28	Wood Lumber	0.0%	6.1%	0.6%	0.5%	0.0%	0.0%	0.0%
29	Painted/Treated Wood	0.0%	0.0%	1.4%	0.0%	1.4%	0.0%	0.2%
30	Stumps/Branches	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
31	Brick/Concrete/Dirt	0.0%	0.0%	1.2%	1.6%	0.0%	0.0%	0.0%
32	Yard Waste	8.4%	0.9%	0.8%	0.5%	0.0%	0.0%	0.6%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.1%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%
36	Other Hazardous Waste	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.3%
37	Infectious Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
38	Reusable Waste	1.3%	7.9%	0.0%	0.0%	0.0%	0.0%	4.8%
39	Electronic Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%
40	Aseptic Containers	1.1%	0.1%	0.0%	0.1%	0.4%	0.3%	0.1%
	TOTALS	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

**Table D-1: Commercial Sample Results (% by weight) – Fall (October 2016) (cont.)**

Load information		UNC					Unincorporated. County			
		Mon Apartments w/ kitchens	Mon Dorms	Tue Research Areas	Tue Academic Areas	Tue Multi-use Areas	Thu Schools and Offices	Thu Schools and Offices	Mon Republic Truck #1246	Fri Efland Trash Services
Material Categories	sample #	7	8	22	23	24	38	39	12	55
1	Newspaper	0.7%	0.2%	0.3%	0.0%	0.4%	0.6%	0.0%	1.2%	0.3%
2	Glossy Magazines	0.0%	0.8%	0.5%	1.1%	0.6%	0.0%	0.0%	0.0%	0.8%
3	Cardboard	8.4%	3.4%	0.3%	0.0%	1.3%	0.0%	3.3%	1.3%	0.0%
4	Waxy Cardboard	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5	Phone Books	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6	Paperboard	7.2%	4.2%	1.8%	4.2%	3.5%	1.8%	2.3%	5.4%	1.0%
7	Other Books	0.0%	0.0%	0.0%	0.6%	0.0%	2.2%	1.2%	0.0%	0.0%
8	White Ledger	1.5%	1.4%	0.8%	4.7%	2.3%	0.5%	1.6%	2.0%	0.7%
9	Mixed Recyclable Paper	4.2%	2.4%	2.1%	7.2%	1.7%	1.7%	7.5%	6.6%	5.9%
10	Low-Grade Paper	13.4%	17.9%	28.8%	32.4%	24.1%	21.9%	8.0%	9.7%	12.6%
11	All Plastic Bottles	5.0%	6.1%	4.8%	4.8%	3.1%	7.9%	9.1%	5.0%	3.1%
12A	Plastic Film	7.9%	5.9%	10.9%	10.6%	10.4%	8.5%	10.8%	17.2%	7.9%
12B	Retail Bags & Stretch Film	1.1%	2.2%	1.5%	0.9%	2.3%	1.8%	0.6%	3.2%	1.1%
13A	Dairy Plastic Containers	0.7%	0.8%	1.5%	1.8%	1.6%	0.9%	1.6%	1.6%	0.4%
13B	Mixed Plastic Containers	0.5%	0.8%	0.3%	0.7%	1.1%	2.7%	0.4%	1.0%	0.1%
14	All Other Plastics	4.0%	4.8%	6.8%	8.2%	13.8%	7.7%	8.3%	3.7%	4.9%
15	Food Waste	22.9%	22.9%	34.4%	8.5%	8.6%	34.6%	33.1%	13.9%	22.5%
16	Textiles/Leather	2.5%	3.3%	0.8%	1.4%	7.0%	0.5%	0.6%	1.6%	5.7%
17	Diapers	4.4%	2.2%	0.0%	1.6%	0.0%	0.1%	0.6%	11.6%	10.4%
18	Other Organics/Rubber	0.5%	0.1%	0.0%	2.2%	2.0%	0.0%	0.6%	0.0%	6.4%
19	Tin/Steel Cans	0.6%	0.4%	1.0%	0.0%	0.0%	2.2%	0.5%	0.9%	1.8%
20	Aerosol Cans	0.4%	0.2%	0.0%	0.3%	0.6%	0.4%	0.4%	0.0%	0.6%
21	Other Ferrous	0.0%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
22	Aluminum Cans	0.8%	0.6%	1.2%	0.4%	0.4%	0.8%	0.6%	1.8%	0.6%
23	Aluminum Foil	0.3%	0.4%	0.1%	0.9%	0.3%	0.3%	0.0%	0.6%	0.3%
24	Other Non-Ferrous	0.0%	0.4%	0.0%	3.3%	0.0%	0.0%	0.0%	0.0%	0.2%
25	Glass Bottles and Jars	12.6%	2.8%	0.1%	1.6%	0.0%	0.9%	0.0%	3.9%	3.9%
26	Other Glass	0.0%	0.0%	0.0%	0.6%	0.9%	0.0%	0.0%	0.0%	0.1%
27	Wood Pallets	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
28	Wood Lumber	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	5.4%	0.0%
29	Painted/Treated Wood	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	4.1%
30	Stumps/Branches	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
31	Brick/Concrete/Dirt	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
32	Yard Waste	0.0%	14.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.4%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
36	Other Hazardous Waste	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
37	Infectious Waste	0.0%	0.0%	0.0%	0.0%	13.5%	0.0%	0.0%	0.2%	0.2%
38	Reusable Waste	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
39	Electronic Waste	0.0%	0.0%	0.0%	0.2%	0.2%	0.0%	0.0%	0.0%	0.1%
40	Aseptic Containers	0.5%	0.0%	0.9%	1.5%	0.4%	1.9%	9.0%	2.4%	0.3%
	TOTALS	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

**Table D-2: Commercial Sample Results (% by weight) – Spring (April 2017)**

Load information			Chapel Hill							
			Wed Truck #9228	Wed Truck #16174	Wed Waste Ind. Truck #3445C	Thu Truck #9228	Thu Truck #16174	Fri Waste Ind. Truck #23650C	Fri Truck #9228	Fri Waste Ind. Truck #23650C
	Material Categories	sample #	24	25	34	36	40	44	46	48
1	Newspaper		0.0%	1.3%	1.9%	0.0%	0.0%	0.1%	0.0%	1.9%
2	Glossy Magazines		0.0%	0.0%	0.7%	0.0%	2.0%	1.4%	1.5%	0.0%
3	Cardboard		7.2%	4.3%	4.5%	0.0%	0.7%	6.2%	1.3%	2.6%
4	Waxy Cardboard		0.0%	0.0%	0.5%	0.4%	0.0%	3.9%	0.0%	0.0%
5	Phone Books		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6	Paperboard		1.4%	2.0%	2.6%	1.5%	1.0%	0.8%	2.1%	3.3%
7	Other Books		0.1%	0.0%	0.0%	1.0%	0.5%	0.0%	0.0%	0.0%
8	White Ledger		4.4%	0.0%	0.2%	0.0%	2.9%	1.0%	0.5%	0.0%
9	Mixed Recyclable Paper		0.3%	8.9%	2.1%	0.9%	2.0%	6.7%	1.8%	2.0%
10	Low-Grade Paper		23.3%	11.0%	13.6%	11.2%	19.3%	13.0%	12.4%	15.3%
11	All Plastic Bottles		2.2%	1.0%	2.5%	0.1%	0.8%	5.3%	3.0%	0.0%
12A	Plastic Film		7.7%	6.3%	5.2%	5.6%	11.6%	11.9%	7.0%	11.8%
12B	Retail Bags & Stretch Film		0.6%	2.0%	0.7%	0.2%	0.7%	0.5%	0.9%	1.2%
13A	Dairy Plastic Containers		0.3%	1.2%	0.3%	1.0%	1.4%	0.8%	0.6%	0.4%
13B	Mixed Plastic Containers		0.3%	0.0%	0.5%	1.3%	1.4%	0.5%	0.5%	0.8%
14	All Other Plastics		3.6%	3.0%	2.8%	18.3%	5.5%	2.3%	6.2%	5.9%
15	Food Waste		38.7%	21.2%	31.7%	27.1%	30.0%	39.1%	16.3%	47.4%
16	Textiles/Leather		0.0%	26.9%	0.6%	2.6%	4.1%	0.1%	4.6%	0.1%
17	Diapers		1.0%	1.7%	4.2%	1.0%	0.0%	0.0%	1.1%	0.0%
18	Other Organics/Rubber		1.7%	3.7%	15.6%	0.3%	1.9%	3.8%	16.3%	0.0%
19	Tin/Steel Cans		0.0%	0.3%	0.1%	0.0%	0.2%	0.1%	2.8%	2.3%
20	Aerosol Cans		0.2%	0.0%	0.3%	0.0%	0.0%	0.0%	0.3%	0.0%
21	Other Ferrous		0.0%	1.1%	0.2%	3.4%	0.0%	0.2%	0.0%	0.2%
22	Aluminum Cans		0.5%	0.2%	2.7%	0.1%	0.4%	0.1%	1.4%	0.4%
23	Aluminum Foil		0.1%	0.7%	0.1%	0.2%	0.2%	0.8%	0.7%	1.2%
24	Other Non-Ferrous		0.3%	0.0%	0.0%	4.1%	0.0%	0.0%	0.1%	0.0%
25	Glass Bottles and Jars		1.4%	0.6%	5.2%	1.0%	7.0%	0.5%	2.0%	1.4%
26	Other Glass		0.0%	1.7%	0.0%	9.9%	0.0%	0.9%	0.8%	1.6%
27	Wood Pallets		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
28	Wood Lumber		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%
29	Painted/Treated Wood		0.0%	0.4%	0.2%	1.9%	1.4%	0.0%	0.2%	0.0%
30	Stumps/Branches		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
31	Brick/Concrete/Dirt		3.5%	0.0%	0.0%	0.0%	0.0%	0.0%	3.6%	0.0%
32	Yard Waste		0.0%	0.0%	0.1%	0.0%	0.5%	0.0%	1.1%	0.0%
33	Lead Acid Batteries		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries		0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
35	Oil Filters		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
36	Other Hazardous Waste		0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	8.8%	0.0%
37	Infectious Waste		0.0%	0.0%	0.4%	0.0%	3.9%	0.0%	0.0%	0.0%
38	Reusable Waste		0.0%	0.0%	0.0%	5.2%	0.0%	0.0%	0.0%	0.2%
39	Electronic Waste		0.4%	0.0%	0.1%	1.6%	0.0%	0.0%	0.0%	0.0%
40	Aseptic Containers		0.3%	0.3%	0.0%	0.0%	0.6%	0.2%	0.2%	0.0%
	TOTALS		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%



**Table D-2: Commercial Sample Results (% by weight) – Spring (April 2017) (cont.)**

Load information		Carrboro			Hillsborough				
		Mon Truck #804	Tue Waste Mgmt. Truck #210510	Wed Truck #804	Mon, Rte #3000 Waste Ind. Truck #3677	Tue Republic Truck #1246	Wed, Rte #3000 Waste Ind. Truck #3677	Wed Republic Truck #1246	Fri Waste Mgmt. Truck #212892
	Material Categories sample #	8	16	27	3	18	29	33	50
1	Newspaper	1.1%	0.0%	1.6%	0.0%	0.5%	0.0%	1.3%	0.5%
2	Glossy Magazines	0.2%	0.0%	0.8%	0.0%	1.6%	0.0%	2.3%	0.0%
3	Cardboard	4.9%	0.4%	4.1%	1.1%	1.3%	6.5%	13.3%	5.3%
4	Waxy Cardboard	0.0%	0.0%	2.5%	0.2%	1.6%	0.0%	0.0%	6.5%
5	Phone Books	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6	Paperboard	1.6%	1.6%	1.4%	0.6%	0.6%	0.5%	6.7%	0.0%
7	Other Books	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
8	White Ledger	0.5%	0.3%	0.6%	0.0%	0.2%	0.0%	0.0%	0.1%
9	Mixed Recyclable Paper	1.5%	7.0%	0.5%	0.0%	1.7%	2.7%	1.7%	0.2%
10	Low-Grade Paper	14.8%	11.6%	11.7%	15.1%	16.7%	7.9%	5.3%	12.1%
11	All Plastic Bottles	2.6%	1.5%	1.5%	1.6%	1.8%	1.4%	6.3%	0.7%
12A	Plastic Film	5.4%	5.4%	9.5%	9.0%	5.5%	5.8%	5.3%	12.7%
12B	Retail Bags & Stretch Film	1.4%	0.6%	1.2%	2.9%	0.5%	1.3%	0.4%	1.0%
13A	Dairy Plastic Containers	0.3%	0.3%	0.3%	0.2%	0.2%	0.3%	0.5%	0.6%
13B	Mixed Plastic Containers	0.9%	0.9%	0.7%	0.2%	2.1%	0.1%	0.2%	0.0%
14	All Other Plastics	5.7%	3.5%	4.6%	3.6%	12.4%	3.8%	21.9%	3.4%
15	Food Waste	30.8%	8.1%	27.4%	13.3%	24.0%	27.3%	7.5%	44.7%
16	Textiles/Leather	7.5%	0.2%	8.7%	2.2%	4.2%	2.4%	3.5%	0.0%
17	Diapers	2.9%	1.8%	1.5%	2.1%	6.3%	2.2%	0.3%	2.8%
18	Other Organics/Rubber	2.7%	32.7%	3.4%	0.0%	2.5%	0.7%	0.3%	3.1%
19	Tin/Steel Cans	0.9%	0.1%	0.6%	1.0%	0.0%	0.3%	0.8%	0.7%
20	Aerosol Cans	0.1%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
21	Other Ferrous	3.9%	0.1%	0.4%	0.7%	0.5%	3.1%	12.5%	0.0%
22	Aluminum Cans	0.2%	1.4%	1.2%	0.5%	0.1%	0.0%	1.2%	0.5%
23	Aluminum Foil	0.9%	0.5%	1.1%	0.0%	0.6%	0.2%	0.1%	0.2%
24	Other Non-Ferrous	0.0%	0.0%	2.0%	0.0%	0.0%	0.2%	5.6%	0.0%
25	Glass Bottles and Jars	4.3%	1.7%	1.4%	0.0%	1.9%	1.0%	0.8%	1.1%
26	Other Glass	0.0%	0.0%	0.5%	5.3%	0.9%	0.1%	0.0%	0.3%
27	Wood Pallets	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%
28	Wood Lumber	0.0%	0.0%	5.8%	10.1%	0.8%	0.0%	0.0%	0.0%
29	Painted/Treated Wood	1.7%	19.2%	0.0%	24.0%	0.6%	6.3%	0.3%	0.0%
30	Stumps/Branches	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
31	Brick/Concrete/Dirt	0.0%	0.0%	0.0%	0.0%	7.3%	22.4%	2.0%	2.4%
32	Yard Waste	0.0%	0.1%	2.8%	0.0%	0.2%	3.4%	0.0%	0.0%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.1%	0.2%	0.0%	0.0%	0.1%	0.0%	0.0%	0.5%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
36	Other Hazardous Waste	0.0%	0.0%	0.0%	5.4%	0.3%	0.0%	0.0%	0.0%
37	Infectious Waste	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%
38	Reusable Waste	0.0%	0.0%	0.0%	0.1%	2.9%	0.0%	0.0%	0.0%
39	Electronic Waste	2.7%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%
40	Aseptic Containers	0.2%	0.1%	0.2%	0.2%	0.0%	0.1%	0.0%	0.5%
	TOTALS	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

**Table D-2: Commercial Sample Results (% by weight) – Spring (April 2017) (cont.)**

Load information		UNC					Unincorporated County		
		Mon Research Areas	Mon Dorms	Mon Apartments	Tue Academic Areas	Wed Multi-use Areas	Thu Schools	Fri Government Offices	Mon Republic Truck #1249
Material Categories	sample #	2	12	13	15	26	38	51	11
1	Newspaper	0.0%	0.0%	1.1%	0.4%	0.2%	0.0%	0.3%	1.5%
2	Glossy Magazines	0.4%	0.5%	0.4%	0.3%	0.4%	0.8%	0.8%	0.0%
3	Cardboard	3.2%	2.1%	1.8%	3.0%	2.0%	0.0%	0.0%	4.9%
4	Waxy Cardboard	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5	Phone Books	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6	Paperboard	2.3%	3.1%	2.5%	1.8%	1.3%	1.3%	2.5%	1.0%
7	Other Books	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%
8	White Ledger	0.8%	0.5%	0.3%	0.8%	2.1%	0.7%	4.9%	0.0%
9	Mixed Recyclable Paper	1.7%	0.6%	1.7%	1.7%	0.9%	3.8%	6.9%	0.2%
10	Low-Grade Paper	24.1%	23.9%	9.4%	31.6%	19.0%	10.1%	17.3%	7.3%
11	All Plastic Bottles	1.8%	3.4%	2.3%	4.4%	3.0%	0.7%	2.1%	2.1%
12A	Plastic Film	17.6%	3.7%	3.1%	9.5%	11.3%	9.6%	8.0%	4.7%
12B	Retail Bags & Stretch Film	0.9%	3.7%	0.4%	1.0%	0.6%	0.4%	0.7%	0.9%
13A	Dairy Plastic Containers	0.8%	1.3%	0.5%	0.8%	1.0%	2.2%	1.6%	0.3%
13B	Mixed Plastic Containers	3.1%	0.7%	0.9%	2.8%	2.9%	0.8%	0.3%	0.3%
14	All Other Plastics	13.7%	5.1%	4.1%	2.4%	3.7%	8.1%	5.9%	7.5%
15	Food Waste	15.2%	33.5%	39.6%	37.5%	38.9%	52.7%	30.2%	11.7%
16	Textiles/Leather	8.3%	1.5%	4.7%	0.0%	5.3%	0.3%	0.2%	9.4%
17	Diapers	0.2%	1.2%	6.5%	0.0%	0.2%	0.1%	4.5%	14.3%
18	Other Organics/Rubber	4.2%	0.1%	1.9%	0.0%	3.9%	0.5%	1.4%	0.0%
19	Tin/Steel Cans	0.3%	0.4%	1.1%	0.1%	1.3%	0.1%	4.0%	0.0%
20	Aerosol Cans	0.0%	0.1%	0.6%	0.0%	0.0%	0.0%	0.0%	0.2%
21	Other Ferrous	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.6%
22	Aluminum Cans	0.2%	0.4%	0.4%	0.4%	0.7%	0.1%	0.6%	0.7%
23	Aluminum Foil	0.3%	1.0%	0.3%	0.3%	0.3%	0.0%	0.3%	0.0%
24	Other Non-Ferrous	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
25	Glass Bottles and Jars	0.8%	3.7%	3.7%	0.8%	0.9%	0.0%	0.0%	1.8%
26	Other Glass	0.0%	0.4%	0.5%	0.1%	0.0%	0.0%	0.0%	2.6%
27	Wood Pallets	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	19.4%
28	Wood Lumber	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	0.3%	2.2%
29	Painted/Treated Wood	0.0%	8.1%	1.7%	0.0%	0.0%	0.0%	0.2%	0.0%
30	Stumps/Branches	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
31	Brick/Concrete/Dirt	0.0%	0.0%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%
32	Yard Waste	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%
33	Lead Acid Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
34	Dry Cell Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%
35	Oil Filters	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
36	Other Hazardous Waste	0.0%	0.0%	6.4%	0.0%	0.0%	0.0%	0.0%	0.0%
37	Infectious Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
38	Reusable Waste	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.4%
39	Electronic Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
40	Aseptic Containers	0.0%	0.5%	0.6%	0.1%	0.1%	7.8%	5.9%	0.2%
	TOTALS	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%