WAKE COUNTY, NORTH CAROLINA
WASTE CHARACTERIZATION STUDY

JULY 2019

Prepared for: **Wake County, Solid Waste Management Division**
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Section 1
Introduction

1.1 Study Objectives

Wake County (County) contracted Kessler Consulting, Inc. (KCI) to conduct a waste characterization study (WCS) to characterize waste disposed within the County. The purpose of the WCS was to provide useful information regarding the types and percentages of materials currently disposed to compare with previous WCS data and to assist in developing future solid waste and resource management programs. In addition to assessing waste composition on a countywide basis, the WCS also specifically assessed waste generated from the North Carolina State University (NCSU) and the Town of Cary (Cary). A separate recyclables characterization study (RCS) was also conducted simultaneously to the WCS assessing single stream recyclables from Cary.

1.2 Background

Wake County is located in the Research Triangle of the Piedmont region of North Carolina and is home to North Carolina state capital, the City of Raleigh (Raleigh). Besides Raleigh, the County includes eleven other municipalities, the largest of which is Cary. The County has a population of nearly 1.1 million, approximately 470,000 of which live within Raleigh, while an additional 430,000 live within the towns. The County also includes NCSU, a public land-grant university with over 35,000 students. With its proximity to several large universities and Research Triangle Park, the research and technology industries are major facets of the County's economy.

Each municipality is responsible for providing or contracting for residential curbside collection services for waste, recyclables, and yard waste. In the unincorporated county, residential curbside collection is provided by private haulers. Commercial waste collection is provided by public or private haulers in an open market setting.

The County's Solid Waste Management Division owns and operates 11 staffed convenience centers where County residents can bring their waste, recyclables, food waste, and other materials for recovery. Three of these locations also include a multi-material recycling facility that also accepts material from residents and businesses that is banned from disposal, including household hazardous waste, electronics, and tires. The County also owns and contracts for the operation of the East Wake Transfer Station (EWTS) and the South Wake Landfill (SWLF). Materials collected at the EWTS are transferred to the SWLF for disposal. In FY 2018, these facilities received over 460,000 tons of waste; about 60 percent was received at the EWTS.

1.3 Acknowledgements

KCI would like to acknowledge and thank the County, Cary, and NCSU staff members who assisted with the planning and logistics of this WCS. KCI specifically thanks John Roberson, Roy Baldwin, Stephanie Garehan, Bob Holden, and Heather Cashwell for their assistance and support throughout this project. KCI would also like to thank the haulers that participated in the WCS. The cooperation and positive attitudes of all team members were essential to the success of the WCS.

Section 2
Methodology

2.1 Location, Equipment and Labor

The WCS was conducted over 6-consecutive days from April 22 – April 27, 2019. All sampling and sorting occurred at the old transfer station at the SWLF located at 6130 Old Smithfield Road in Apex.

KCI provided all sorting equipment; safety gear; a primary and backup scale calibrated to 0.02 pounds; and a Field Manger to oversee all sampling, sorting, weighing, and data recording. KCI contracted for a loader and operator to pull samples and load remaining material tipped from the trucks into transfer trailers. The County coordinated with its transfer truck hauler to remove material after loading into the transfer trailers. Sorting labor was provided or contracted by KCI.

KCI prepared and County/Cary/NCSU staff reviewed and approved a site safety plan that was followed throughout the sorting event. KCI worked closely with County staff to coordinate and set up a sort location at the transfer station that would ensure worker safety. Each morning of the event, sorters were given thorough safety instructions by KCI's Field Manager to ensure worker safety and proper sorting. No injuries occurred during the sorting event.

2.2 Generator Sectors and Sorting Event

The WCS assessed waste generated from three primary generator sectors, as follows:

- **Single-family residential**: Waste that is collected from residential dwellings within the County receiving curbside collection service.
- **Commercial:** Waste that is collected from commercial businesses within the County, frequently through front-end load collection service. Commercial loads also include any waste from multi-family residential properties that the haulers collected on the same route as commercial waste.
- **Convenience Centers:** Waste that is collected at the County's convenience centers.

While not a true generator sector, waste assessed from NCSU as part of the WCS is treated as a separate generator sector for the purpose of data analysis in this report.

2.3 Material Categories

Waste was sorted into the 50 material categories defined in Appendix A. For the RCS, recyclables were sorted into the 55 material categories defined in Appendix B. KCI reviewed the County's recycling program and discussed with County, Cary, and NCSU staff to develop and define these material categories and ensure they met the objectives of the WCS/RCS.

2.4 Sampling and Sorting Procedures

Throughout the WCS, KCI followed the Sampling and Sorting Protocol that was reviewed and approved prior to the event.

During the six-day sorting event, representative samples were pulled from 42 loads of waste and 8 loads of recyclables. KCI reviewed tonnage data in order to determine the number of samples to pull from each generator sector and hauler and represent the overall breakdown of waste disposed in the County.

KCI developed the weeklong sampling schedule based on the collection schedules of each program. Table 2-1 provides the number of waste samples pulled from hauler and generator sector during the WCS. Table 2-2 provides the daily sample schedule/samples pulled during the WCS. For the RCS, two recyclables samples were pulled on each day Monday – Thursday.

Table 2-1: Waste Sampling Schedule

Hauler/Source	Tonnage FY19 YTD	Residential	Commercial	Convenience Centers	Totals
Waste Industries	156,353	2	11	n/a	13
City of Raleigh	65,358	6	-	n/a	6
Wake County*	30,943	n/a	n/a	6	6
Town of Cary*	24,840	6	n/a	n/a	6
Republic	20,866	-	2	n/a	2
Waste Management	7,872	n/a	1	n/a	1
Town of Fuquay-Varina	6,649	1	-	n/a	1
All Star Waste	5,441	1	n/a	n/a	1
NCSU*	2,451	n/a	6	n/a	6
Total**	**320,503**	**16**	**20**	**6**	**42**

*Additional samples were pulled from these in order to obtain statistically representative standalone data for these sources.
**This total represents 91% of the total YTD tonnage received at both SWLF and EWTS.

Table 2-2: Daily Waste Sampling Schedule

	Monday			Tuesday			Wednesday			Thursday			Friday			Total
Hauler	Res.	Com.	C.C.	Res.	Com.	C.C.	Res.	Com.	C.C.	Res.	Com.	C.C.	Res.	Com.	C.C.	
Waste Industries	1				4		1	2			3			2		**13**
City of Raleigh				2			2			1			1			**6**
Wake County			2			1			1			1			1	**6**
Town of Cary	2			2			1			1						**6**
Republic		1						1								**2**
Waste Management		1														**1**
Fuquay-Varina										1						**1**
All Star Waste							1									**1**
NCSU		1			2			1			1			1		**6**
Total	**8**			**11**			**10**			**8**			**5**			**42**

Once the desired number of samples from each hauler and generator sector was determined, KCI coordinated with the haulers to select routes that represented a cross section of their service areas. For routes that haulers typically delivered to the EWTS, they were asked to reroute them to the SWLF. Placards were sent to each hauler detailing type of route and area for each sample. The haulers distributed the placards to the drivers of the selected route each day. These placards enabled County scalehouse staff to identify selected vehicles as they entered the scale at the SWLF and direct them to the study site.

To obtain a representative sample from a selected load of recyclables, the vehicle driver was directed to tip on the floor of the transfer station. The load was visually divided into six sections and, based on a die roll, one of the six sections was selected for sampling. A representative sample of at least 200 pounds was pulled, placed on a tarp at the sorting area, labeled, and stored until sorted. For the RCS, the load of recyclables was thoroughly mixed prior to sampling.

All samples were hand-sorted into the previously defined material categories. After the entire sample was sorted, the KCI Field Manager weighed and recorded the net weights of each material category in a tablet-based data log.

2.5 Analytical Procedures

After fieldwork was completed, KCI calculated the weighted average of each material category for each generator sector. The average was weighted by the total load weight of each sample. In order to proportionally represent the single-family residential data for Cary, data from the 6 samples from Cary were averaged into 2 data sets and then averaged with the other single-family residential samples.

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.

The Countywide aggregate waste composition was calculated by multiplying the average composition of each generator sector by the relative percentage of total waste disposed in FY 2018.

Wherever possible, the results of the present WCS were compared to the results of the 2011 WCS.

Section 3
Results

3.1 Introduction to Results

Results are organized by generator sector, followed by the countywide aggregate results. NCSU WCS results are presented in subsection 3.2.4. Cary WCS and RCS results are in subsection 3.3.

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.[1]

For the purposes of discussion and analysis, materials were organized into six broad material groups based on diversion potential:

- Recyclable paper: Paper materials currently accepted in curbside single stream recycling program in the County and at the County's Convenience Centers.
    - Newspaper
    - Corrugated cardboard
    - Office paper
    - Mixed recyclable paper
    - Bagged shredded paper[2]
- Recyclable containers: Containers currently accepted in curbside single stream recycling program in the County and at the County's Convenience Centers.
    - Aseptic containers/cartons
    - PET bottles (#1)
    - HDPE bottles (#2)
    - Recyclable plastic containers (#3-5 & 7)
    - Tin/steel cans[3]
    - Aluminum foil and trays
    - Aluminum cans[3]
    - Glass containers
- Other accepted recoverables: Materials that are not accepted in the curbside single stream recyclable program but are accepted for recovery at the County's Convenience Centers and/or Multi-Material Recycling Facilities.
    - Hard cover books
    - Bulky rigid plastics[4]
    - Other ferrous metals[4]
    - Other non-ferrous metals[4]
    - Textiles and leather
    - Hazardous/special waste
    - Electronics
    - Small appliance & elec. devices
    - Vehicle Tires

[1] The confidence interval indicates that, with a 90% level of confidence, the actual arithmetic mean is within the upper and lower limits shown. 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. Because this is a statistical analysis, the lower end of the confidence interval may be a negative number.

[2] Although it is not accepted by the County, bagged shredded paper is accepted in some of the County's municipal curbside programs, e.g. Cary's program.

[3] Includes empty aerosol cans.

[4] These materials are included as recyclable containers in the RCS results

- Potential compostables: Materials that potentially could be composted in a commercial composting facility. This may require proper source-separation or preprocessing to remove inorganic material.
    - Food waste
    - Yard waste
    - Other organics
    - Pizza boxes
    - Compostable paper
    - PLA (#7) Plastic containers
    - Clean wood waste

- Other potential recoverables: Materials that have the potential to be recovered or recycled but are not currently collected for recycling in the County's single stream recycling program. Some of these materials would require source-separation and/or additional processing to recover. Other materials are ones that may be accepted in curbside programs in other municipalities.
    - Non-bottle PET containers
    - Non-bottle HDPE containers
    - All plastic drink cups
    - Other non-accepted plastic containers
    - Packaging expanded polystyrene foam
    - Food -container expanded polystyrene foam
    - Recyclable plastic film
    - Other C&D debris
    - Furniture and mattresses
    - Other rubber

- Other materials: Materials not classified above and not feasible to recover with traditional programs or technology.
    - Paper cups
    - Non-compostable paper
    - Non-recyclable plastic film
    - Non-recyclable glass
    - Treated wood waste
    - Household Batteries
    - Diapers
    - Composite materials
    - Liquids
    - Grit

When feasible, the results of the present study were compared to the County's 2011 study. Due to the evolution of material streams and processing technologies, the categories in the two studies were not exactly the same. KCI has aligned the categories as best as possible to allow comparison between the two studies.

3.2 Waste Composition Results

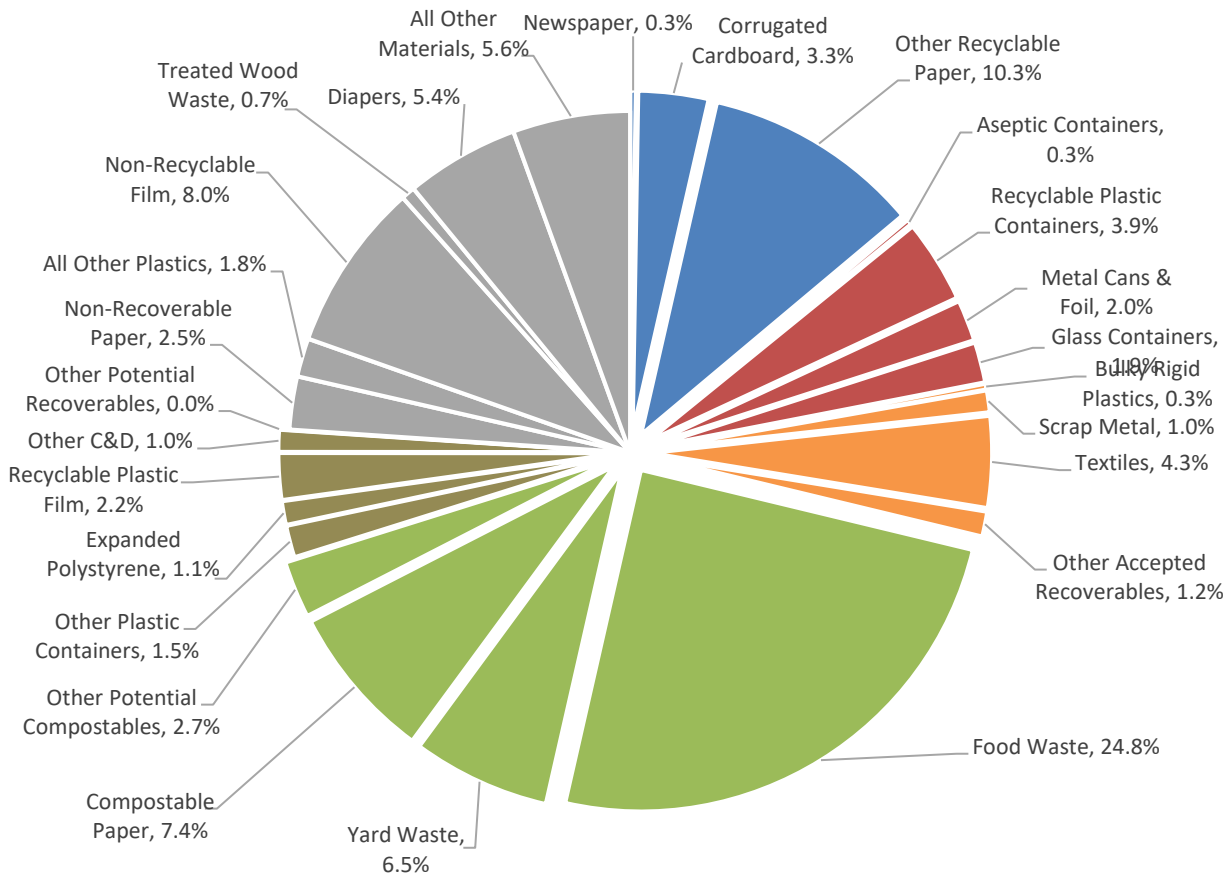
3.2.1 Single-Family Residential Waste

Figure 3-1 depicts the weighted average composition of single-family residential waste. Table 3-1 provides the weighted average with a 90 percent confidence interval for each material category measured in the single-family residential waste. Table 3-2 compares the composition of single-family residential waste from the current WCS to the 2011 WCS. Individual sample results are included in Appendix C.

Key findings from the single-family residential results are as follows:

- Over 20 percent of the waste was materials accepted in the curbside single stream collection program. Almost half of this was mixed recyclable paper. Recyclables plastic containers comprised about 4 percent of the waste stream.
- About 7 percent of the waste was other materials accepted for drop off by the County. Most of this was textiles.
- Potentially compostable materials comprised over 40 percent of the waste. Food waste alone was nearly 25 percent of the waste. Yard waste and compostable paper were other significant potentially compostable materials.
- Less than 6 percent of the waste were other potential recoverables.
- Almost 24 percent of the waste were other materials, the three most significant of which were non-recyclable plastic film, diapers, and composite materials.
- Comparing the results of the current WCS to the 2011 WCS:
    - The 2011 WCS had a much higher percentage of recyclable paper, especially newspaper and office paper, in the single-family residential waste.
    - The 2011 WCS had a slightly higher average composition of recyclable containers.
    - The current WCS has about half the percentage of other accepted materials in the waste, mostly due to lower percentage of bulky rigid plastics and textiles.
    - The current WCS had a much higher percentage of potentially compostable materials and nearly double of the percentage of food waste. Yard waste was significantly higher in the current WCS as well, but other organics were significantly lower.

Figure 3-1: Annual Composition of Single-Family Residential Waste



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

- Other Recyclable Paper includes the categories of Office Paper, Mixed Recyclable Paper, and Bagged Shredded Paper.
- Recyclable Plastic Containers include polyethylene terephthalate (PET) Bottles, high-density polyethylene (HDPE) Bottles, and Recyclable Plastic Containers (#3-#7).
- Other Recyclable Plastic Containers includes Non-Bottle PET, Non-Bottle HDPE, and Other Plastics #3-#7.
- Metal Cans and Foil includes the categories of Tin/Steel Cans, Aluminum Cans, and Aluminum Foil and Trays.
- Scrap Metals includes the categories of Other Ferrous Scrap Metals and Other Non-Ferrous Metals.
- Other Accepted Recoverables includes the categories of Hard Cover Books, Hazardous/Special Wastes, Electronics, Small Appliances and Other Electric Devices, and Vehicle Tires.
- Other Potential Compostables include the categories of Other Organics (pet waste, hair, lint, etc.), Pizza Boxes, PLA (#7) Plastic Containers, and Clean Wood Waste.
- Other Plastic Containers includes the categories of Non-Bottle PET Containers (#1), Non-Bottle HDPE Containers (#2), All Plastic Drink Cups, and Other Non-Recyclable Plastic Containers.
- Expanded Polystyrene includes the categories of Packaging Expanded Polystyrene Foam and Food-Container Expanded Polystyrene Containers.
- Other Potential Recoverables includes the categories of Furniture and Mattresses and Other Rubber.
- Non-Recoverable Paper includes the categories of Paper Cups and Non-Compostable Paper.
- All Other Materials include the categories of Non-Recyclable Glass, Household Batteries, Composite Materials, Liquids, and Grit.

Table 3-1: Composition of Single-Family Residential Waste

	Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound
Recyclable Paper			
Newspaper	**0.3%**	0.1%	0.4%
Corrugated Cardboard	**3.3%**	2.1%	4.5%
Office Paper	**0.0%**	0.0%	0.0%
Mixed Recyclable Paper	**10.3%**	8.4%	12.3%
Bagged Shredded Paper	**0.0%**	0.0%	0.0%
Total	**13.9%**		
Recyclable Containers			
Aseptic Containers/Cartons	**0.3%**	0.2%	0.3%
PET Bottles (#1)	**1.9%**	1.5%	2.2%
HDPE Bottles (#2)	**0.7%**	0.5%	0.9%
Rec. Plastic Cont. (#3-5 & 7)	**1.4%**	1.0%	1.7%
Tin/Steel Cans	**0.9%**	0.7%	1.1%
Aluminum Cans	**0.6%**	0.4%	0.7%
Aluminum Foil and Trays	**0.5%**	0.4%	0.7%
Glass Containers	**1.9%**	0.9%	2.9%
Total	**8.1%**		
Other Accepted Recoverables			
Hard Cover Books	**0.2%**	-0.1%	0.6%
Bulky Rigid Plastics	**0.3%**	0.0%	0.5%
Other Ferrous Metals	**0.9%**	0.3%	1.6%
Other Non-Ferrous Metals	**0.1%**	0.0%	0.2%
Textiles and Leather	**4.3%**	3.4%	5.3%
Vehicle Tires	**0.0%**	0.0%	0.0%
Hazardous/Special Wastes	**0.0%**	0.0%	0.0%
Electronics	**0.3%**	0.0%	0.5%
Sm. Appl. & Other Elec. Dev.	**0.7%**	0.2%	1.1%
Total	**6.8%**		
Potential Compostables			
Food Waste	**24.8%**	20.7%	28.9%
Yard Waste	**6.5%**	3.9%	9.1%
Other Organics	**2.3%**	1.2%	3.3%
Pizza Boxes	**0.4%**	0.2%	0.7%
Compostable Paper	**7.4%**	6.4%	8.3%
PLA (#7) Plastic Containers	**0.0%**	0.0%	0.0%
Clean Wood Waste	**0.0%**	0.0%	0.0%
Total	**41.4%**		

	Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound
Other Potential Recoverables			
Non-Bottle PET Cont. (#1)	**0.7%**	0.5%	1.0%
Non-Bottle HDPE Cont. (#2)	**0.0%**	0.0%	0.1%
All Plastic Drink Cups	**0.4%**	0.3%	0.6%
Other Non-Accepted Pl. Cont.	**0.3%**	0.1%	0.5%
Packaging EPS Foam	**0.1%**	0.1%	0.2%
Food-Container EPS Foam	**1.0%**	0.8%	1.3%
Recyclable Plastic Film	**2.2%**	1.8%	2.6%
Other C&D Debris	**1.0%**	0.2%	1.8%
Furniture and Mattresses	**0.0%**	0.0%	0.0%
Other Rubber	**0.0%**	0.0%	0.1%
Total	**5.9%**		
Other Materials			
Paper Cups	**0.3%**	0.2%	0.5%
Non-Compostable Paper	**2.2%**	1.6%	2.8%
All Other Plastics	**1.8%**	1.3%	2.3%
Non-Recyclable Plastic Film	**8.0%**	6.5%	9.5%
Non-Recyclable Glass	**0.7%**	0.4%	0.9%
Treated Wood Waste	**0.7%**	0.2%	1.1%
Household Batteries	**0.1%**	0.0%	0.3%
Diapers	**5.4%**	4.1%	6.7%
Composite Materials	**3.9%**	2.2%	5.7%
Liquids	**0.2%**	0.0%	0.3%
Grit	**0.6%**	0.2%	1.1%
Total	**23.9%**		

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

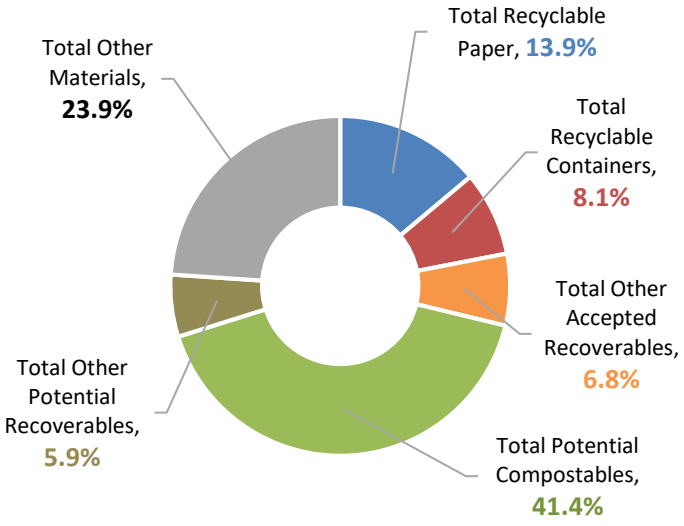


Table 3-2: Comparison of Single-Family Residential Waste to 2011 WCS

	2019 Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound	2011 Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound
Recyclable Paper						
Newspaper	**0.3%**	0.1%	0.4%	**2.6%**	1.9%	3.3%
Corrugated Cardboard	**3.3%**	2.1%	4.5%	**2.8%**	1.9%	3.7%
Office Paper	**0.0%**	0.0%	0.0%	**1.4%**	0.7%	2.2%
Mixed Recyclable Paper*	**10.3%**	8.4%	12.3%	**11.4%**	8.4%	14.1%
Bagged Shredded Paper	**0.0%**	0.0%	0.0%	**-**	-	-
Total	**13.9%**			**18.2%**		
Recyclable Containers						
Aseptic Containers/Cartons	**0.3%**	0.2%	0.3%	**0.5%**	**0.3%**	**0.7%**
PET Bottles (#1)	**1.9%**	1.5%	2.2%	**1.7%**	**1.4%**	**2.1%**
HDPE Bottles (#2)	**0.7%**	0.5%	0.9%	**0.9%**	**0.7%**	**1.1%**
Recyclable Plastic Cont. (#3-5 & 7)*	**1.4%**	1.0%	1.7%	**1.9%**	**1.4%**	**2.3%**
Tin/Steel Cans*	**0.9%**	0.7%	1.1%	**1.5%**	**1.1%**	**1.9%**
Aluminum Cans	**0.6%**	0.4%	0.7%	**0.4%**	**0.3%**	**0.5%**
Aluminum Foil and Trays	**0.5%**	0.4%	0.7%	**0.5%**	**0.3%**	**0.6%**
Glass Containers*	**1.9%**	0.9%	2.9%	**2.5%**	**1.7%**	**3.5%**
Total	**8.1%**			**9.9%**		
Other Accepted Recoverables						
Hard Cover Books	**0.2%**	-0.1%	0.6%	**0.6%**	0.5%	0.8%
Bulky Rigid Plastics	**0.3%**	0.0%	0.5%	**2.4%**	1.6%	3.2%
Other Ferrous Metals	**0.9%**	0.3%	1.6%	**1.3%**	0.6%	2.0%
Other Non-Ferrous Metals	**0.1%**	0.0%	0.2%	**0.4%**	0.2%	0.7%
Textiles and Leather*	**4.3%**	3.4%	5.3%	**6.9%**	3.5%	10.4%
Vehicle Tires	**0.0%**	0.0%	0.0%	**-**	-	-
Hazardous/Special Wastes*	**0.0%**	0.0%	0.0%	**<0.1%**	<0.1%	<0.1%
Electronics*	**0.3%**	0.0%	0.5%	**<0.1%**	<0.1%	0.3%
Sm. Appliances & Other Elec. Dev.*	**0.7%**	0.2%	1.1%	**1.0%**	0.6%	1.5%
Total	**6.8%**			**12.6%**		
Potential Compostables						
Food Waste	**24.8%**	**20.7%**	**28.9%**	**12.9%**	11.2%	14.5%
Yard Waste*	**6.5%**	**3.9%**	**9.1%**	**2.5%**	1.5%	3.5%
Other Organics	**2.3%**	**1.2%**	**3.3%**	**8.7%**	7.5%	10.0%
Pizza Boxes	**0.4%**	**0.2%**	**0.7%**	**-**	-	-
Compostable Paper	**7.4%**	**6.4%**	**8.3%**	**6.5%**	5.6%	7.5%
PLA (#7) Plastic Containers	**0.0%**	**0.0%**	**0.0%**	**-**	-	-
Clean Wood Waste*	**0.0%**	**0.0%**	**0.0%**	**2.1%**	0.8%	3.4%
Total	**41.4%**			**32.7%**		

Table 3-2: Comparison of Single-Family Residential Waste to 2011 WCS (continued)

	2019 Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound	2011 Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound
Other Potential Recoverables						
Non-Bottle PET Containers (#1)	**0.7%**	0.5%	1.0%	-	-	-
Non-Bottle HDPE Containers (#2)	**0.0%**	0.0%	0.1%	-	-	-
All Plastic Drink Cups	**0.4%**	0.3%	0.6%	-	-	-
Other Non-Accepted Plastic Cont.	**0.3%**	0.1%	0.5%	**0.1%**	<0.1%	0.2%
Packaging EPS Foam	**0.1%**	0.1%	0.2%	**1.7%**	1.5%	2.0%
Food-Container EPS Foam	**1.0%**	0.8%	1.3%			
Recyclable Plastic Film	**2.2%**	1.8%	2.6%	**1.9%**	1.4%	2.5%
Other C&D Debris*	**1.0%**	0.2%	1.8%	**1.1%**	<0.1%	2.8%
Furniture and Mattresses*	**0.0%**	0.0%	0.0%	**2.1%**	<0.1%	4.0%
Other Rubber	**0.0%**	0.0%	0.1%	**0.1%**	<0.1%	0.4%
Total	**5.9%**			**7.0%**		
Other Materials						
Paper Cups	**0.3%**	0.2%	0.5%	**0.1%**	<0.1%	0.2%
Non-Compostable Paper	**2.2%**	1.6%	2.8%	**0.5%**	0.3%	0.7%
All Other Plastics	**1.8%**	1.3%	2.3%	**<0.1%**	<0.1%	<0.1%
Non-Recyclable Plastic Film	**8.0%**	6.5%	9.5%	**6.0%**	5.2%	6.7%
Non-Recyclable Glass*	**0.7%**	0.4%	0.9%	**<0.1%**	<0.1%	0.4%
Treated Wood Waste	**0.7%**	0.2%	1.1%	**1.0%**	0.3%	1.8%
Household Batteries	**0.1%**	0.0%	0.3%	**<0.1%**	<0.1%	<0.1%
Diapers	**5.4%**	4.1%	6.7%	**4.7%**	3.6%	5.8%
Composite Materials	**3.9%**	2.2%	5.7%	**3.1%**	1.5%	4.7%
Liquids	**0.2%**	0.0%	0.3%	-	-	-
Grit	**0.6%**	0.2%	1.1%	**3.5%**	2.8%	4.2%
Total	**23.9%**			**18.9%**		

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

Category Notes:

- Mixed Recyclable Paper includes the 2011 categories: Magazines, Kraft Paper, Paperboard, Phone Books, Mixed Office Paper, File Folders, Paper Packaging.
- Recyclable Plastic Containers includes the 2011 categories: Other #3-#7 Bottles and Plastic Cups and Tubs.
- Tin/Steel Cans includes the 2011 categories: Steel/Bi Metal Food Cans and Aerosol Cans.
- Glass Containers includes the 2011 categories: Clear, Brown, and Green Glass Bottles/Jars.
- Textiles and Leather includes the 2011 categories: Textiles, Other Textiles, Leather.
- Hazardous/Special Wastes includes the 2011 categories: Infectious Waste, Household Hazardous Waste, Oil Filters, Lead-acid Batteries.
- Electronics includes the 2011 categories: Computers, VCRs, Printers, Cell Phones, Televisions, MP3 Players.
- Small Appliances & Other Electronic Devices includes the 2011 categories: Printer Ink Cartridges, DVDs/ CDs, Other Electronic Waste.
- Yard Waste includes the 2011 categories: Yard Waste and Stumps.
- Clean Wood Waste includes the 2011 categories: Untreated Wood and Pallets.
- Other C&D Debris includes the 2011 categories: Concrete, Brick, Drywall, Roofing Material, Vinyl Siding.
- Non-Recyclable Glass includes the 2011 categories: Ceramic Glass and Other Glass.

3.2.2 Commercial Waste

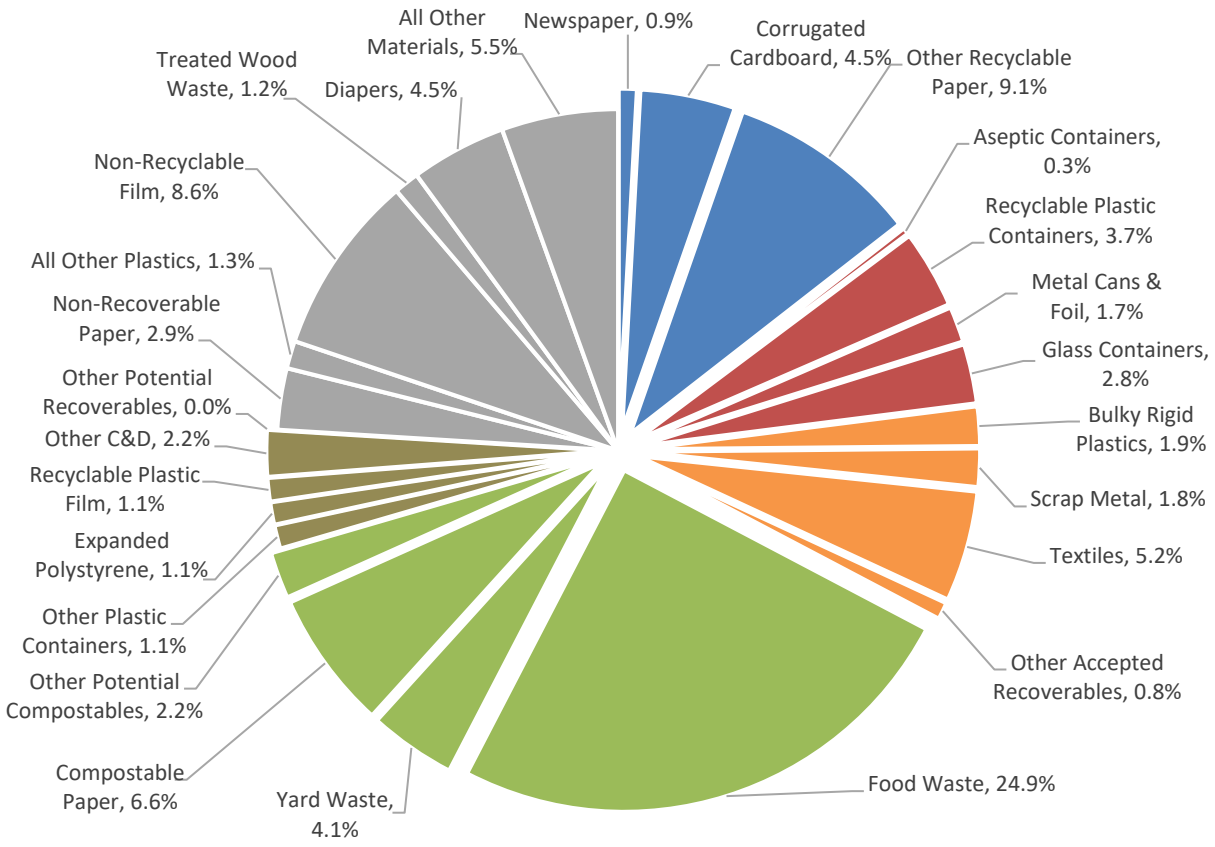
Figure 3-2 depicts the weighted average composition of commercial waste in the County. Table 3-3 provides the weighted average with a 90 percent confidence interval for each material category measured the commercial waste. Table 3-4 compares the composition of commercial waste from the current WCS to the 2011 WCS. Individual sample results are included in Appendix C.

Key findings from the commercial results are as follows:

Note: One sample (#42) of commercial waste was comprised mostly of what appeared to be street sweepings or site clearing debris (mostly soil with some yard waste). As this does not represent true commercial waste and the composition differed vastly from the average, this sample was removed as an outlier.

- Approximately 14.5 and 8.5 percent of the waste were recyclable paper and containers, respectively, that are accepted in the County's single stream recycling program. Mixed recyclable paper was the most significant recyclable material, followed by corrugated cardboard and glass containers.
- Other accepted recoverables comprised about 10 percent of the waste, over half of which was textiles.
- About 38 percent of the waste was potential compostables. Food waste comprised the vast majority of this.
- Other potential recyclables were about 5 percent of the waste. Other C&D and recyclable plastic film had the two highest percentages.
- Other materials comprised about 24 percent of the waste. Non-recyclable plastic film, diapers (mostly from nursing homes), and composite materials were the largest categories.
- Overall the composition of commercial waste was fairly similar to single-family residential.
- Comparing the results of the current WCS to the 2011 WCS:
    - The percentage of recyclable paper and containers has decreased since 2011, especially for office paper and #3-5 & 7 plastic containers.
    - Other accepted recoverables dropped slightly since 2011.
    - Potential compostables have increase slightly, but with significantly higher food waste and lower other organics than in 2011.
    - Furniture and mattresses were not present in commercial waste in the current study but comprised 3 percent of the waste in 2011.
    - Other materials also increased since 2011, mostly in diapers and non-compostable paper.

Figure 3-2: Composition of Countywide Commercial Waste



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

- Other Recyclable Paper includes the categories of Office Paper, Mixed Recyclable Paper, and Bagged Shredded Paper.
- Recyclable Plastic Containers include polyethylene terephthalate (PET) Bottles, high-density polyethylene (HDPE) Bottles, and Recyclable Plastic Containers (#3-#7).
- Other Recyclable Plastic Containers includes Non-Bottle PET, Non-Bottle HDPE, and Other Plastics #3-#7.
- Metal Cans and Foil includes the categories of Tin/Steel Cans, Aluminum Cans, and Aluminum Foil and Trays.
- Scrap Metals includes the categories of Other Ferrous Scrap Metals and Other Non-Ferrous Metals.
- Other Accepted Recoverables includes the categories of Hard Cover Books, Hazardous/Special Wastes, Electronics, Small Appliances and Other Electric Devices, and Vehicle Tires.
- Other Potential Compostables include the categories of Other Organics (pet waste, hair, lint, etc.), Pizza Boxes, PLA (#7) Plastic Containers, and Clean Wood Waste.
- Other Plastic Containers includes the categories of Non-Bottle PET Containers (#1), Non-Bottle HDPE Containers (#2), All Plastic Drink Cups, and Other Non-Recyclable Plastic Containers.
- Expanded Polystyrene includes the categories of Packaging Expanded Polystyrene Foam and Food-Container Expanded Polystyrene Containers.
- Other Potential Recoverables includes the categories of Furniture and Mattresses and Other Rubber.
- Non-Recoverable Paper includes the categories of Paper Cups and Non-Compostable Paper.
- All Other Materials include the categories of Non-Recyclable Glass, Household Batteries, Composite Materials, Liquids, and Grit.

Table 3-3: Composition of Commercial Waste

	Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound
Recyclable Paper			
Newspaper	**0.9%**	-0.1%	1.8%
Corrugated Cardboard	**4.5%**	3.5%	5.5%
Office Paper	**0.1%**	-0.1%	0.4%
Mixed Recyclable Paper	**8.4%**	6.0%	10.8%
Bagged Shredded Paper	**0.6%**	-0.2%	1.4%
Total	**14.5%**		
Recyclable Containers			
Aseptic Containers/Cartons	**0.3%**	0.0%	0.6%
PET Bottles (#1)	**1.9%**	1.5%	2.3%
HDPE Bottles (#2)	**1.1%**	0.7%	1.4%
Rec. Plastic Cont. (#3-5 & 7)	**0.7%**	0.5%	0.9%
Tin/Steel Cans	**0.6%**	0.4%	0.8%
Aluminum Cans	**0.7%**	0.5%	0.9%
Aluminum Foil and Trays	**0.4%**	0.2%	0.6%
Glass Containers	**2.8%**	1.4%	4.2%
Total	**8.5%**		
Other Accepted Recoverables			
Hard Cover Books	**0.1%**	-0.1%	0.2%
Bulky Rigid Plastics	**1.9%**	1.0%	2.8%
Other Ferrous Metals	**1.5%**	0.1%	2.9%
Other Non-Ferrous Metals	**0.3%**	-0.1%	0.7%
Textiles and Leather	**5.2%**	1.9%	8.6%
Vehicle Tires	**0.0%**	0.0%	0.0%
Hazardous/Special Wastes	**0.3%**	0.0%	0.6%
Electronics	**0.0%**	0.0%	0.0%
Sm. Appl. & Other Elec. Dev.	**0.4%**	0.1%	0.7%
Total	**9.7%**		
Potential Compostables			
Food Waste	**24.9%**	20.0%	29.8%
Yard Waste	**4.1%**	-0.4%	8.6%
Other Organics	**0.5%**	-0.1%	1.2%
Pizza Boxes	**0.3%**	0.1%	0.4%
Compostable Paper	**6.6%**	5.3%	7.8%
PLA (#7) Plastic Containers	**0.0%**	0.0%	0.1%
Clean Wood Waste	**1.4%**	0.1%	2.6%
Total	**37.8%**		

	Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound
Other Potential Recoverables			
Non-Bottle PET Cont. (#1)	**0.3%**	0.2%	0.5%
Non-Bottle HDPE Cont. (#2)	**0.0%**	0.0%	0.1%
All Plastic Drink Cups	**0.6%**	0.4%	0.8%
Other Non-Accepted Pl. Cont.	**0.1%**	0.0%	0.2%
Packaging EPS Foam	**0.3%**	0.0%	0.5%
Food-Container EPS Foam	**0.8%**	0.5%	1.2%
Recyclable Plastic Film	**1.1%**	0.8%	1.4%
Other C&D Debris	**2.0%**	**2.2%**	-2.5%
Furniture and Mattresses	**0.0%**	0.0%	0.0%
Other Rubber	**0.0%**	0.0%	0.0%
Total	**5.5%**		
Other Materials			
Paper Cups	**0.8%**	0.4%	1.1%
Non-Compostable Paper	**2.1%**	1.1%	3.2%
All Other Plastics	**1.3%**	0.8%	1.8%
Non-Recyclable Plastic Film	**8.6%**	6.6%	10.5%
Non-Recyclable Glass	**0.5%**	-0.1%	1.2%
Treated Wood Waste	**1.2%**	**1.2%**	-0.2%
Household Batteries	**0.0%**	0.0%	0.0%
Diapers	**4.5%**	2.1%	7.0%
Composite Materials	**3.1%**	1.9%	4.3%
Liquids	**1.4%**	0.5%	2.3%
Grit	**0.5%**	-0.1%	1.1%
Total	**24.0%**		

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

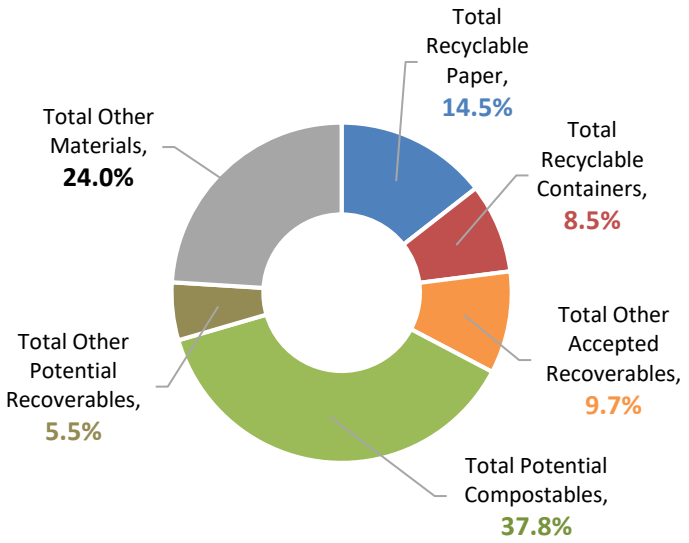


Table 3-4: Comparison of Commercial Waste to 2011 WCS

	2019 Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound	2011 Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound
Recyclable Paper						
Newspaper	**0.9%**	-0.1%	1.8%	**1.1%**	0.8%	1.4%
Corrugated Cardboard	**4.5%**	3.5%	5.5%	**5.0%**	3.8%	6.1%
Office Paper	**0.1%**	-0.1%	0.4%	**2.2%**	0.9%	3.5%
Mixed Recyclable Paper*	**8.4%**	6.0%	10.8%	**9.0%**	5.0%	13.2%
Bagged Shredded Paper	**0.6%**	-0.2%	1.4%	**-**	-	-
Total	**14.5%**			**17.3%**		
Recyclable Containers						
Aseptic Containers/Cartons	**0.3%**	0.0%	0.6%	**0.7%**	0.4%	1.1%
PET Bottles (#1)	**1.9%**	1.5%	2.3%	**2.2%**	1.4%	2.9%
HDPE Bottles (#2)	**1.1%**	0.7%	1.4%	**1.1%**	0.8%	1.4%
Recyclable Plastic Cont. (#3-5 & 7)*	**0.7%**	0.5%	0.9%	**1.8%**	1.0%	2.7%
Tin/Steel Cans*	**0.6%**	0.4%	0.8%	**1.3%**	1.0%	1.5%
Aluminum Cans	**0.7%**	0.5%	0.9%	**0.5%**	0.4%	0.6%
Aluminum Foil and Trays	**0.4%**	0.2%	0.6%	**0.4%**	0.3%	0.5%
Glass Containers*	**2.8%**	1.4%	4.2%	**2.5%**	1.2%	3.8%
Total	**8.5%**			**10.5%**		
Other Accepted Recoverables						
Hard Cover Books	**0.1%**	-0.1%	0.2%	**0.7%**	0.3%	1.2%
Bulky Rigid Plastics	**1.9%**	1.0%	2.8%	**2.4%**	1.2%	3.6%
Other Ferrous Metals	**1.5%**	0.1%	2.9%	**1.0%**	0.6%	1.5%
Other Non-Ferrous Metals	**0.3%**	-0.1%	0.7%	**0.5%**	0.3%	0.8%
Textiles and Leather*	**5.2%**	1.9%	8.6%	**5.9%**	3.3%	8.5%
Vehicle Tires	**0.0%**	0.0%	0.0%	**-**	-	-
Hazardous/Special Wastes*	**0.3%**	0.0%	0.6%	**0.2%**	<0.1%	0.5%
Electronics*	**0.0%**	0.0%	0.0%	**0.2%**	<0.1%	0.5%
Sm. Appliances & Other Elec. Dev.*	**0.4%**	0.1%	0.7%	**1.1%**	0.5%	1.8%
Total	**9.7%**			**12.0%**		
Potential Compostables						
Food Waste	**24.9%**	20.0%	29.8%	**15.1%**	13.0%	17.2%
Yard Waste*	**4.1%**	-0.4%	8.6%	**2.3%**	1.2%	3.4%
Other Organics	**0.5%**	-0.1%	1.2%	**7.9%**	7.0%	8.9%
Pizza Boxes	**0.3%**	0.1%	0.4%	**-**	-	-
Compostable Paper	**6.6%**	5.3%	7.8%	**8.1%**	6.5%	9.8%
PLA (#7) Plastic Containers	**0.0%**	0.0%	0.1%	**-**	-	-
Clean Wood Waste*	**1.4%**	0.1%	2.6%	**2.1%**	1.1%	3.1%
Total	**37.8%**			**35.5%**		

Table 3-4: Comparison of Commercial Waste to 2011 WCS (continued)

	2019 Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound	2011 Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound
Other Potential Recoverables						
Non-Bottle PET Containers (#1)	**0.3%**	0.2%	0.5%	**-**	-	-
Non-Bottle HDPE Containers (#2)	**0.0%**	0.0%	0.1%	**-**	-	-
All Plastic Drink Cups	**0.6%**	0.4%	0.8%	**-**	-	-
Other Non-Accepted Plastic Cont.	**0.1%**	0.0%	0.2%	**<0.1%**	<0.1%	0.2%
Packaging EPS Foam	**0.3%**	0.0%	0.5%	**1.7%**	1.2%	2.2%
Food-Container EPS Foam	**0.8%**	0.5%	1.2%			
Recyclable Plastic Film	**1.1%**	0.8%	1.4%	**2.3%**	1.3%	3.3%
Other C&D Debris*	**2.2%**	-2.5%	6.9%	**0.3%**	<0.1%	0.7%
Furniture and Mattresses*	**0.0%**	0.0%	0.0%	**3.1%**	0.7%	5.5%
Other Rubber	**0.0%**	0.0%	0.0%	**0.2%**	<0.1%	0.4%
Total	**5.5%**			**7.6%**		
Other Materials						
Paper Cups	**0.8%**	0.4%	1.1%	**1.0%**	<0.1%	2.1%
Non-Compostable Paper	**2.1%**	1.1%	3.2%	**0.7%**	0.2%	1.2%
All Other Plastics	**1.3%**	0.8%	1.8%	**<0.1%**	<0.1%	0.1%
Non-Recyclable Plastic Film	**8.6%**	6.6%	10.5%	**7.6%**	6.0%	9.2%
Non-Recyclable Glass*	**0.5%**	-0.1%	1.2%	**<0.1%**	<0.1%	0.3%
Treated Wood Waste	**1.2%**	-0.2%	2.5%	**0.9%**	0.3%	1.5%
Household Batteries	**0.0%**	0.0%	0.0%	**<0.1%**	<0.1%	<0.1%
Diapers	**4.5%**	2.1%	7.0%	**2.4%**	0.9%	4.0%
Composite Materials	**3.1%**	1.9%	4.3%	**3.6%**	1.0%	6.1%
Liquids	**1.4%**	0.5%	2.3%	**-**	-	-
Grit	**0.5%**	-0.1%	1.1%	**3.1%**	2.4%	3.8%
Total	**24.0%**			**19.3%**		

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

Category Notes:

- Mixed Recyclable Paper includes the 2011 categories: Magazines, Kraft Paper, Paperboard, Phone Books, Mixed Office Paper, File Folders, Paper Packaging.
- Recyclable Plastic Containers includes the 2011 categories: Other #3-#7 Bottles and Plastic Cups and Tubs.
- Tin/Steel Cans includes the 2011 categories: Steel/Bi Metal Food Cans and Aerosol Cans.
- Glass Containers includes the 2011 categories: Clear, Brown, and Green Glass Bottles/Jars.
- Textiles and Leather includes the 2011 categories: Textiles, Other Textiles, Leather.
- Hazardous/Special Wastes includes the 2011 categories: Infectious Waste, Household Hazardous Waste, Oil Filters, Lead-acid Batteries.
- Electronics includes the 2011 categories: Computers, VCRs, Printers, Cell Phones, Televisions, MP3 Players.
- Small Appliances & Other Electronic Devices includes the 2011 categories: Printer Ink Cartridges, DVDs/ CDs, Other Electronic Waste.
- Yard Waste includes the 2011 categories: Yard Waste and Stumps.
- Clean Wood Waste includes the 2011 categories: Untreated Wood and Pallets.
- Other C&D Debris includes the 2011 categories: Concrete, Brick, Drywall, Roofing Material, Vinyl Siding.
- Non-Recyclable Glass includes the 2011 categories: Ceramic Glass and Other Glass.

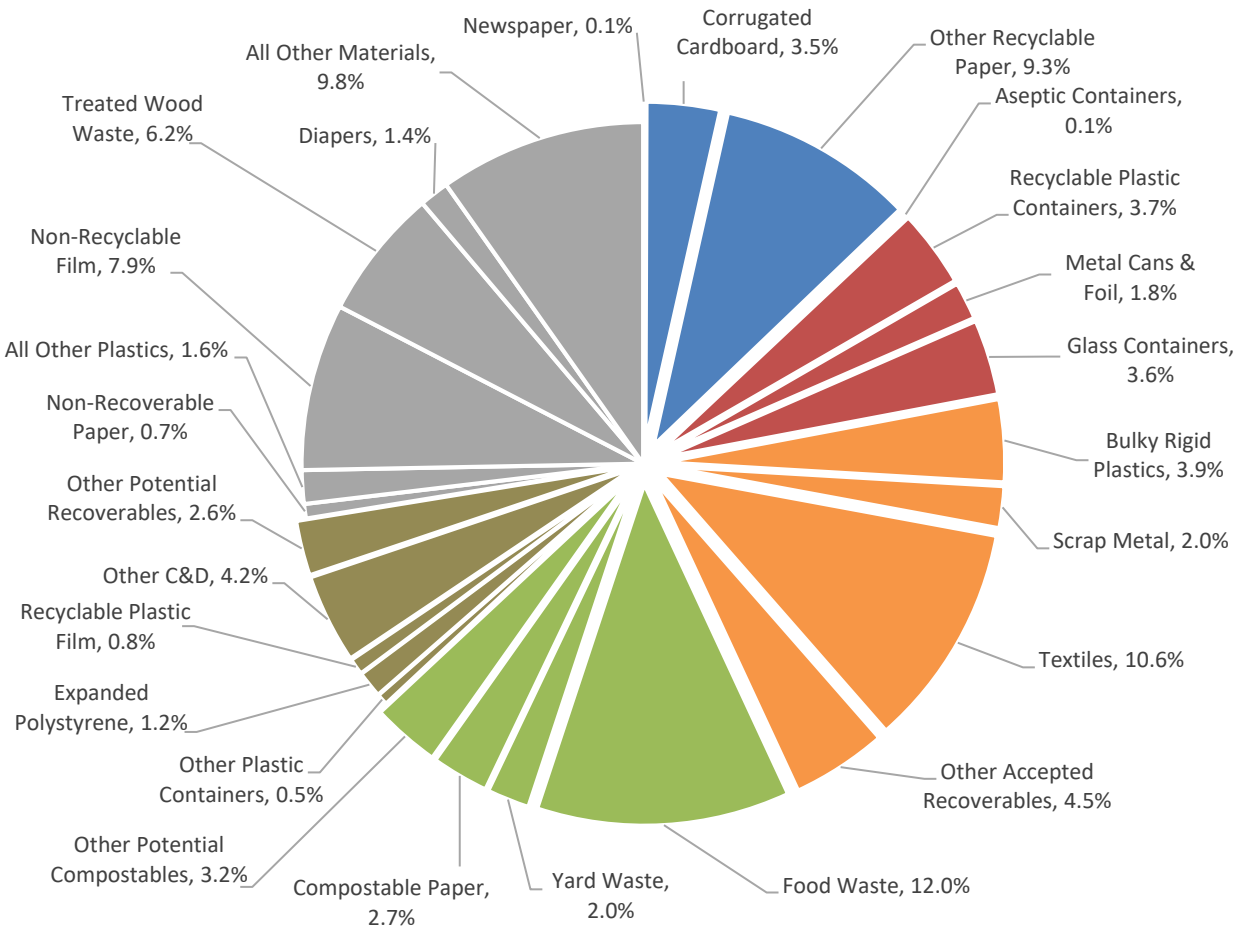
3.2.3 County Convenience Centers

Figure 3-3 depicts the weighted average composition of convenience center waste. Table 3-5 provides the weighted average with a 90 percent confidence interval for each material category measured in the convenience center waste. Individual sample results are included in Appendix C.

Key findings from the convenience center results are as follows:

- Recyclable paper and containers comprised about 13 and 9 percent of the waste. Nearly all paper was mixed recyclable paper and corrugated cardboard. More than half of the containers were PET bottles and glass containers.
- The convenience center waste had a much higher percentage of other accepted recoverables than residential or commercial waste, mostly bulky rigid plastics, textiles, and small appliances and other electric devices. Some of these materials, such as textiles, are accepted at the very same convenience centers where the waste was disposed. Also, the sample from Site #2 had the highest percent of bulky rigid plastics and other electric devices, despite being at the same location as one of the County's multi-material recycling facilities that accepts these items. Although the samples from Sites #7 and #11, which are at the other multi-material recycling facility, had much lower percentages of these two materials. This may have been due to confusion over the relatively new layout of Site #2.
- Potential compostables comprised about 20 percent of the waste, with about half as food waste. This is much lower than the residential and commercial waste. Possibly due to separate food waste drop off at these sites or possibly due to the type of waste delivered to these site (i.e. more bulky material than everyday waste).
- About 9 percent of the waste was other potential recoverables. Other C&D debris and furniture and mattresses were higher than in the other generator sectors. In fact, only in the convenience center samples was any furniture or mattresses found.
- Other materials comprised nearly 28 percent of the waste. As with the other sectors, non-recyclable plastic film had the highest percentage. However, treated wood was also a major category in the convenience center waste.

Figure 3-3: Composition of County Convenience Center Waste



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

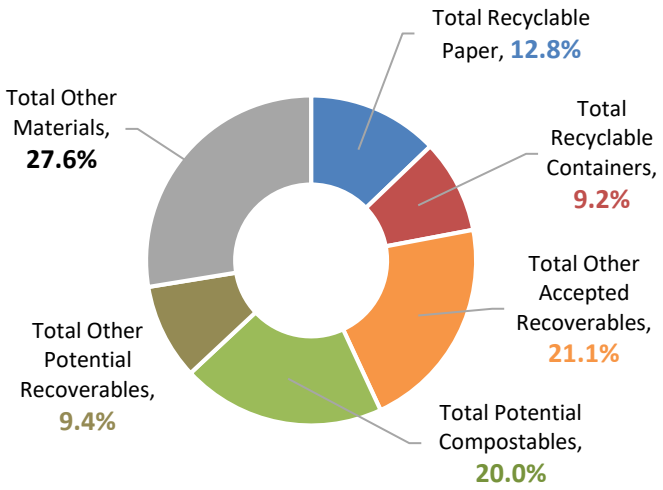
- Other Recyclable Paper includes the categories of Office Paper, Mixed Recyclable Paper, and Bagged Shredded Paper.
- Recyclable Plastic Containers include polyethylene terephthalate (PET) Bottles, high-density polyethylene (HDPE) Bottles, and Recyclable Plastic Containers (#3-#7).
- Other Recyclable Plastic Containers includes Non-Bottle PET, Non-Bottle HDPE, and Other Plastics #3-#7.
- Metal Cans and Foil includes the categories of Tin/Steel Cans, Aluminum Cans, and Aluminum Foil and Trays.
- Scrap Metals includes the categories of Other Ferrous Scrap Metals and Other Non-Ferrous Metals.
- Other Accepted Recoverables includes the categories of Hard Cover Books, Hazardous/Special Wastes, Electronics, Small Appliances and Other Electric Devices, and Vehicle Tires.
- Other Potential Compostables include the categories of Other Organics (pet waste, hair, lint, etc.), Pizza Boxes, PLA (#7) Plastic Containers, and Clean Wood Waste.
- Other Plastic Containers includes the categories of Non-Bottle PET Containers (#1), Non-Bottle HDPE Containers (#2), All Plastic Drink Cups, and Other Non-Recyclable Plastic Containers.
- Expanded Polystyrene includes the categories of Packaging Expanded Polystyrene Foam and Food-Container Expanded Polystyrene Containers.
- Other Potential Recoverables includes the categories of Furniture and Mattresses and Other Rubber.
- Non-Recoverable Paper includes the categories of Paper Cups and Non-Compostable Paper.
- All Other Materials include the categories of Non-Recyclable Glass, Household Batteries, Composite Materials, Liquids, and Grit.

Table 3-5: Composition of County Convenience Center Waste

	Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound
Recyclable Paper			
Newspaper	**0.1%**	0.0%	0.1%
Corrugated Cardboard	**3.5%**	1.3%	5.7%
Office Paper	**0.7%**	-0.2%	1.6%
Mixed Recyclable Paper	**8.6%**	3.5%	13.8%
Bagged Shredded Paper	**0.0%**	0.0%	0.0%
Total	**12.8%**		
Recyclable Containers			
Aseptic Containers/Cartons	**0.1%**	0.0%	0.3%
PET Bottles (#1)	**2.2%**	0.9%	3.5%
HDPE Bottles (#2)	**0.5%**	0.2%	0.9%
Rec. Plastic Cont. (#3-5 & 7)	**0.9%**	0.2%	1.6%
Tin/Steel Cans	**0.9%**	0.3%	1.4%
Aluminum Cans	**0.6%**	0.1%	1.0%
Aluminum Foil and Trays	**0.3%**	0.1%	0.6%
Glass Containers	**3.6%**	-0.4%	7.5%
Total	**9.2%**		
Other Accepted Recoverables			
Hard Cover Books	**0.0%**	0.0%	0.0%
Bulky Rigid Plastics	**3.9%**	1.0%	6.8%
Other Ferrous Metals	**1.7%**	0.6%	2.8%
Other Non-Ferrous Metals	**0.3%**	-0.2%	0.7%
Textiles and Leather	**10.6%**	3.2%	18.1%
Vehicle Tires	**0.0%**	0.0%	0.0%
Hazardous/Special Wastes	**0.4%**	-0.3%	1.1%
Electronics	**1.1%**	-0.4%	2.6%
Sm. Appl. & Other Elec. Dev.	**3.0%**	-0.2%	6.2%
Total	**21.1%**		
Potential Compostables			
Food Waste	**12.0%**	2.5%	21.5%
Yard Waste	**2.0%**	-0.6%	4.6%
Other Organics	**2.2%**	-1.2%	5.6%
Pizza Boxes	**0.0%**	0.0%	0.0%
Compostable Paper	**2.7%**	1.4%	4.0%
PLA (#7) Plastic Containers	**0.0%**	0.0%	0.0%
Clean Wood Waste	**1.0%**	-0.3%	2.3%
Total	**20.0%**		

	Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound
Other Potential Recoverables			
Non-Bottle PET Cont. (#1)	**0.2%**	0.0%	0.4%
Non-Bottle HDPE Cont. (#2)	**0.0%**	0.0%	0.1%
All Plastic Drink Cups	**0.1%**	0.0%	0.1%
Other Non-Accepted Pl. Cont.	**0.2%**	0.0%	0.5%
Packaging EPS Foam	**0.6%**	0.0%	1.1%
Food-Container EPS Foam	**0.7%**	0.2%	1.1%
Recyclable Plastic Film	**0.8%**	0.2%	1.3%
Other C&D Debris	**4.2%**	0.7%	7.7%
Furniture and Mattresses	**2.6%**	-1.5%	6.6%
Other Rubber	**0.0%**	0.0%	0.1%
Total	**9.4%**		
Other Materials			
Paper Cups	**0.1%**	0.0%	0.1%
Non-Compostable Paper	**0.6%**	0.1%	1.1%
All Other Plastics	**1.6%**	0.9%	2.3%
Non-Recyclable Plastic Film	**7.9%**	4.5%	11.3%
Non-Recyclable Glass	**1.3%**	0.5%	2.1%
Treated Wood Waste	**6.2%**	0.1%	12.3%
Household Batteries	**0.0%**	0.0%	0.1%
Diapers	**1.4%**	-0.3%	3.1%
Composite Materials	**5.2%**	2.1%	8.3%
Liquids	**0.4%**	-0.2%	1.1%
Grit	**2.9%**	1.2%	4.6%
Total	**27.6%**		

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



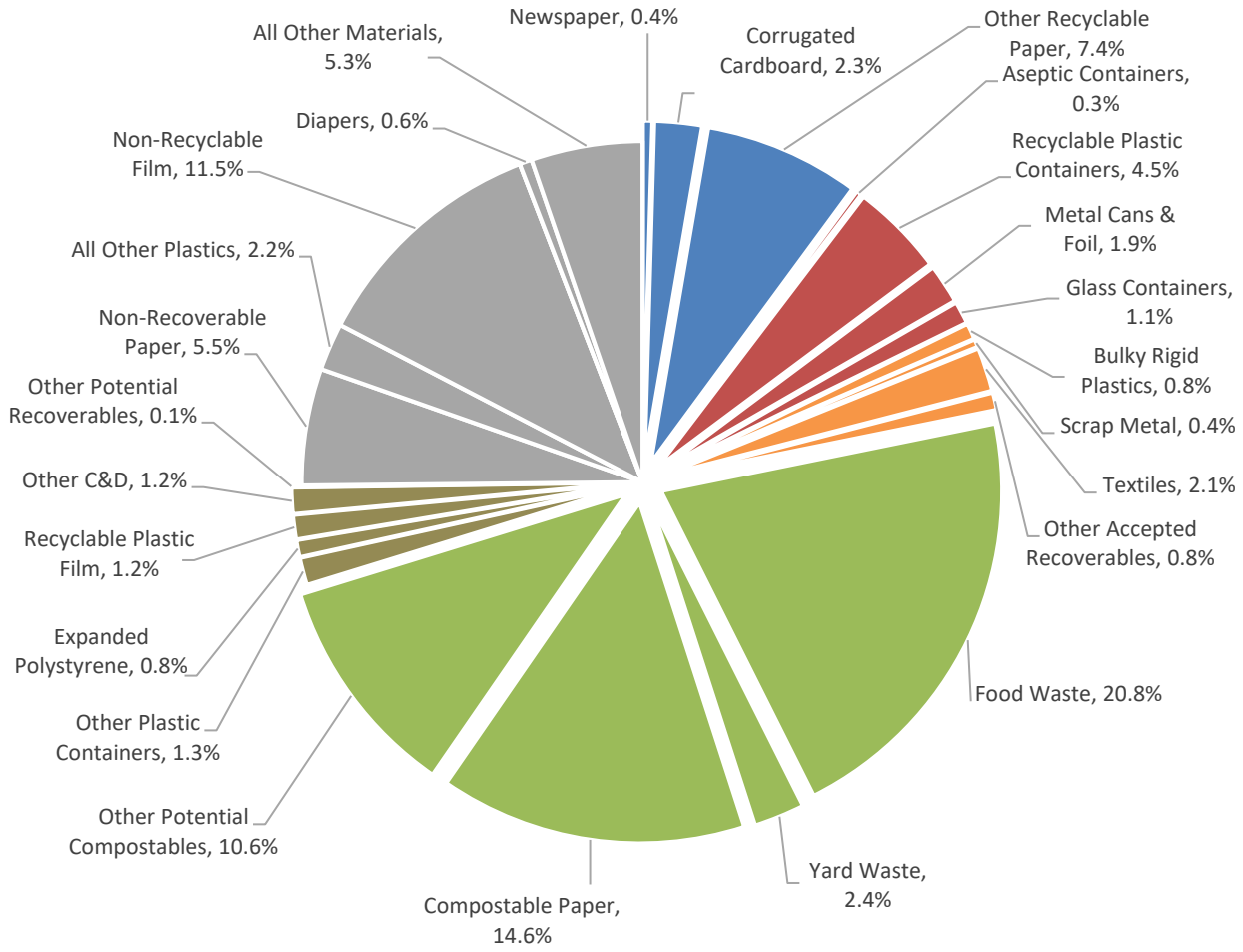
3.2.4 North Carolina State University Waste

Figure 3-4 depicts the weighted average composition of NCSU waste. Table 3-6 provides the weighted average with a 90 percent confidence interval for each material category measured in NCSU waste. Individual sample results are included in Appendix C.

Key findings from the NCSU results are as follows:

- Nearly 18 percent of the NCSU waste were recyclable paper and containers. As with other generator sectors, mixed paper and corrugated cardboard were the most significant paper products. PET bottles comprised the highest percentage of recyclable containers. Mixed use buildings had the highest percentages of mixed recyclable paper and PET bottles.
- About 4 percent of the waste was other accepted recoverables. Again this was mostly textiles.
- Potential compostables comprised nearly 50 percent of the waste. Food waste alone comprised about 21 percent, while compostable paper comprised about 15 percent. Residences and dining halls had the highest percentage of food waste. It is also important to note that Other organics comprised a high percentage of the waste; however, nearly all of this was due to a large amount (over 60 percent of the sample) of animal bedding and animal waste in the research/medical samples, likely from veterinary or animal research buildings.
- Other potential recoverables comprised less than 5 percent of the waste. Each of these materials comprised about 1 percent or less.
- Approximately 25 percent of the waste was other materials. Non-recyclable plastic film comprised 11.5 percent, while non-compostable paper (mostly paper towels) and composite materials comprised 3.6 and 3.4 percent, respectively.

Figure 3-4: Composition of NC State University Waste



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

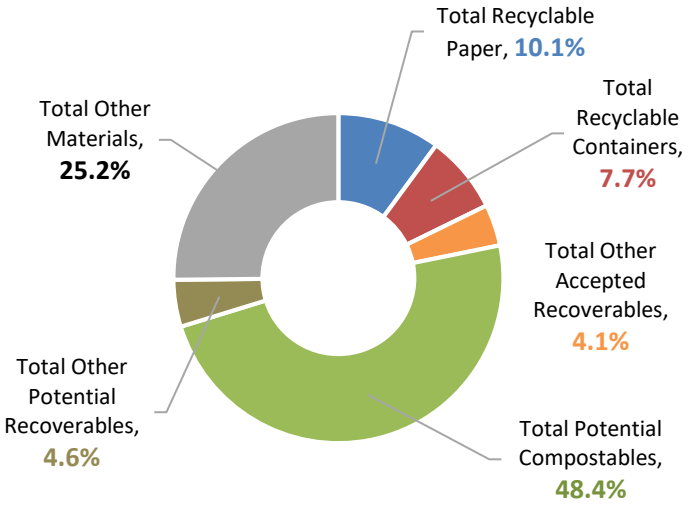
- Other Recyclable Paper includes the categories of Office Paper, Mixed Recyclable Paper, and Bagged Shredded Paper.
- Recyclable Plastic Containers include polyethylene terephthalate (PET) Bottles, high-density polyethylene (HDPE) Bottles, and Recyclable Plastic Containers (#3-#7).
- Other Recyclable Plastic Containers includes Non-Bottle PET, Non-Bottle HDPE, and Other Plastics #3-#7.
- Metal Cans and Foil includes the categories of Tin/Steel Cans, Aluminum Cans, and Aluminum Foil and Trays.
- Scrap Metals includes the categories of Other Ferrous Scrap Metals and Other Non-Ferrous Metals.
- Other Accepted Recoverables includes the categories of Hard Cover Books, Hazardous/Special Wastes, Electronics, Small Appliances and Other Electric Devices, and Vehicle Tires.
- Other Potential Compostables include the categories of Other Organics (pet waste, hair, lint, etc.), Pizza Boxes, PLA (#7) Plastic Containers, and Clean Wood Waste.
- Other Plastic Containers includes the categories of Non-Bottle PET Containers (#1), Non-Bottle HDPE Containers (#2), All Plastic Drink Cups, and Other Non-Recyclable Plastic Containers.
- Expanded Polystyrene includes the categories of Packaging Expanded Polystyrene Foam and Food-Container Expanded Polystyrene Containers.
- Other Potential Recoverables includes the categories of Furniture and Mattresses and Other Rubber.
- Non-Recoverable Paper includes the categories of Paper Cups and Non-Compostable Paper.
- All Other Materials include the categories of Non-Recyclable Glass, Household Batteries, Composite Materials, Liquids, and Grit.

Table 3-6: Composition of NC State University Waste

	Weighted Average	90% Confidence Interval Lower Bound	Upper Bound
Recyclable Paper			
Newspaper	**0.4%**	-0.6%	1.5%
Corrugated Cardboard	**2.3%**	0.9%	3.7%
Office Paper	**0.1%**	-0.2%	0.4%
Mixed Recyclable Paper	**7.3%**	2.4%	12.1%
Bagged Shredded Paper	**0.0%**	0.0%	0.0%
Total	**10.1%**		
Recyclable Containers			
Aseptic Containers/Cartons	**0.3%**	0.1%	0.4%
PET Bottles (#1)	**2.9%**	0.5%	5.3%
HDPE Bottles (#2)	**0.4%**	0.2%	0.7%
Rec. Plastic Cont. (#3-5 & 7)	**1.1%**	0.5%	1.8%
Tin/Steel Cans	**0.9%**	0.1%	1.7%
Aluminum Cans	**0.3%**	0.2%	0.5%
Aluminum Foil and Trays	**0.6%**	0.2%	1.0%
Glass Containers	**1.1%**	0.2%	1.9%
Total	**7.7%**		
Other Accepted Recoverables			
Hard Cover Books	**0.3%**	-0.3%	0.8%
Bulky Rigid Plastics	**0.8%**	-0.1%	1.6%
Other Ferrous Metals	**0.1%**	0.0%	0.2%
Other Non-Ferrous Metals	**0.3%**	-0.4%	0.9%
Textiles and Leather	**2.1%**	0.2%	3.9%
Vehicle Tires	**0.0%**	0.0%	0.0%
Hazardous/Special Wastes	**0.0%**	0.0%	0.0%
Electronics	**0.1%**	-0.1%	0.3%
Sm. Appl. & Other Elec. Dev.	**0.5%**	-0.1%	1.1%
Total	**4.1%**		
Potential Compostables			
Food Waste	**20.8%**	7.7%	33.9%
Yard Waste	**2.4%**	-3.0%	7.9%
Other Organics	**10.0%**	-11.3%	31.3%
Pizza Boxes	**0.6%**	0.1%	1.2%
Compostable Paper	**14.6%**	8.8%	20.4%
PLA (#7) Plastic Containers	**0.0%**	0.0%	0.0%
Clean Wood Waste	**0.0%**	0.0%	0.0%
Total	**48.4%**		

	Weighted Average	90% Confidence Interval Lower Bound	Upper Bound
Other Potential Recoverables			
Non-Bottle PET Cont. (#1)	**0.4%**	0.2%	0.7%
Non-Bottle HDPE Cont. (#2)	**0.0%**	0.0%	0.1%
All Plastic Drink Cups	**0.7%**	0.4%	1.0%
Other Non-Accepted Pl. Cont.	**0.1%**	0.0%	0.3%
Packaging EPS Foam	**0.2%**	0.1%	0.3%
Food-Container EPS Foam	**0.6%**	0.0%	1.2%
Recyclable Plastic Film	**1.2%**	-0.3%	2.7%
Other C&D Debris	**1.2%**	-1.2%	3.7%
Furniture and Mattresses	**0.0%**	0.0%	0.0%
Other Rubber	**0.1%**	0.0%	0.2%
Total	**4.6%**		
Other Materials			
Paper Cups	**1.9%**	0.5%	3.4%
Non-Compostable Paper	**3.6%**	1.8%	5.4%
All Other Plastics	**2.2%**	1.7%	2.8%
Non-Recyclable Plastic Film	**11.5%**	8.1%	14.9%
Non-Recyclable Glass	**0.3%**	-0.1%	0.6%
Treated Wood Waste	**0.0%**	0.0%	0.0%
Household Batteries	**0.0%**	0.0%	0.0%
Diapers	**0.6%**	0.0%	1.2%
Composite Materials	**3.4%**	-1.2%	8.0%
Liquids	**1.6%**	-0.6%	3.8%
Grit	**0.0%**	0.0%	0.0%
Total	**25.2%**		

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



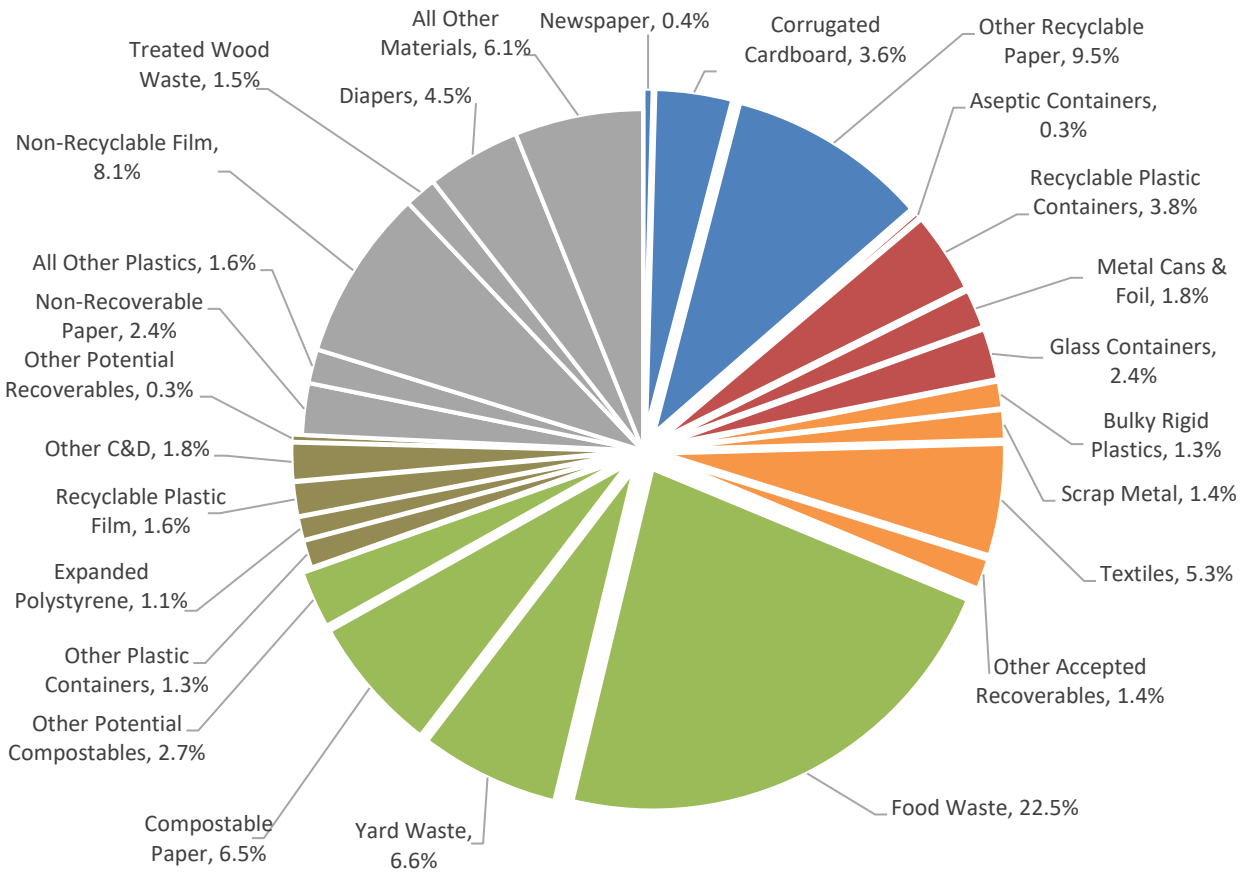
3.2.5 Countywide Aggregate Waste

Figure 3-5 depicts the weighted average composition of Countywide aggregate waste in the County. Table 3-7 provides the weighted average with a 90 percent confidence interval for each material category measured in the Countywide aggregate waste. Table 3-8 compares the composition of Countywide aggregate waste from the current WCS to the 2011 WCS. Individual sample results are included in Appendix C.

Key findings from the Countywide aggregate results are as follows:

- Recyclable paper comprised about 14 percent of the Countywide waste. In all sectors, mixed recyclable paper comprised the highest percentage of paper, followed by corrugated cardboard. Newspaper, office paper, and bagged shredded paper were fairly insignificant in the waste. Overall, the recyclable paper percentages all decreased since 2011, except for corrugated cardboard.
- About 8 percent of the Countywide waste was recyclable containers. PET and glass containers had the highest percentages in all sectors. The convenience centers had the highest percentage of glass containers, and NCSU had the highest percentages of PET bottles. All other recyclable container types were less than 1.5 percent in all sectors. The percentage of most recyclable container types decreased since the 2011 WCS.
- Other accepted recoverables comprised about 10 percent of the waste, more than half of which was textiles. The convenience centers had significantly more of these materials, especially textiles, bulky rigid plastics, electronics, and electrical devices. Again, most of these categories decreased since 2011.
- Nearly 40 percent of the waste was potentially compostable material. Most of this was food waste, while much of the other compostable material was yard waste and compostable paper. Food waste was highest in the single-family residential waste. Yard waste was highest in commercial waste, but this is mostly due to one sample with an exceptionally high percentage of yard waste. NCSU had a much higher percentage of compostable paper. The percentage of total potentially compostable material increased since 2011, with large increase in food waste and yard waste. Other organics decreased significantly since 2011. It is unclear what exactly this was in 2011. In the present study other organics consisted of mostly pet waste.
- Other potential recoverables comprised about 6 percent of the waste. C&D debris and recyclable plastic film were the significant materials in this category. Convenience center waste did have higher percentages of C&D debris and furniture and mattresses. The current WCS had a higher percentage C&D and lower percentage of furniture and mattresses than in 2011.
- All other materials were about 24 percent of the waste. This was higher in the convenience center waste, particularly treated wood waste and grit. Most of these material categories were slightly higher than in 2011.

Figure 3-5: Composition of Countywide Aggregate Waste



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

- Other Recyclable Paper includes the categories of Office Paper, Mixed Recyclable Paper, and Bagged Shredded Paper.
- Recyclable Plastic Containers include polyethylene terephthalate (PET) Bottles, high-density polyethylene (HDPE) Bottles, and Recyclable Plastic Containers (#3-#7).
- Other Recyclable Plastic Containers includes Non-Bottle PET, Non-Bottle HDPE, and Other Plastics #3-#7.
- Metal Cans and Foil includes the categories of Tin/Steel Cans, Aluminum Cans, and Aluminum Foil and Trays.
- Scrap Metals includes the categories of Other Ferrous Scrap Metals and Other Non-Ferrous Metals.
- Other Accepted Recoverables includes the categories of Hard Cover Books, Hazardous/Special Wastes, Electronics, Small Appliances and Other Electric Devices, and Vehicle Tires.
- Other Potential Compostables include the categories of Other Organics (pet waste, hair, lint, etc.), Pizza Boxes, PLA (#7) Plastic Containers, and Clean Wood Waste.
- Other Plastic Containers includes the categories of Non-Bottle PET Containers (#1), Non-Bottle HDPE Containers (#2), All Plastic Drink Cups, and Other Non-Recyclable Plastic Containers.
- Expanded Polystyrene includes the categories of Packaging Expanded Polystyrene Foam and Food-Container Expanded Polystyrene Containers.
- Other Potential Recoverables includes the categories of Furniture and Mattresses and Other Rubber.
- Non-Recoverable Paper includes the categories of Paper Cups and Non-Compostable Paper.
- All Other Materials include the categories of Non-Recyclable Glass, Household Batteries, Composite Materials, Liquids, and Grit.

Table 3-7: Composition of Countywide Aggregate Waste

	SF Resi	Com.	CC	NCSU	Wgtd. Avg.
Recyclable Paper					
Newspaper	0.3%	0.9%	0.1%	0.4%	**0.5%**
Corrugated Cardboard	3.3%	4.5%	3.5%	2.3%	**3.8%**
Office Paper	0.0%	0.1%	0.7%	0.1%	**0.1%**
Mixed Rec. Paper	10.3%	8.4%	8.6%	7.3%	**9.4%**
Bagged Shred. Paper	0.0%	0.6%	0.0%	0.0%	**0.2%**
Total	13.9%	14.5%	12.8%	10.1%	**13.9%**
Recyclable Containers					
Aseptic Cont./Cartons	0.3%	0.3%	0.1%	0.3%	**0.3%**
PET Bottles (#1)	1.9%	1.9%	2.2%	2.9%	**1.9%**
HDPE Bottles (#2)	0.7%	1.1%	0.5%	0.4%	**0.8%**
Rec. Pl. Cont.(#3-5&7)	1.4%	0.7%	0.9%	1.1%	**1.1%**
Tin/Steel Cans	0.9%	0.6%	0.9%	0.9%	**0.8%**
Aluminum Cans	0.6%	0.7%	0.6%	0.3%	**0.6%**
Aluminum Foil/Trays	0.5%	0.4%	0.3%	0.6%	**0.5%**
Glass Containers	1.9%	2.8%	3.6%	1.1%	**2.5%**
Total	8.1%	8.5%	9.2%	7.7%	**8.4%**
Other Accepted Recoverables					
Hard Cover Books	0.2%	0.1%	0.0%	0.3%	**0.2%**
Bulky Rigid Plastics	0.3%	1.9%	3.9%	0.8%	**1.3%**
Other Ferrous Metals	0.9%	1.5%	1.7%	0.1%	**1.2%**
Oth Non-Ferr. Metals	0.1%	0.3%	0.3%	0.3%	**0.2%**
Textiles and Leather	4.3%	5.2%	10.6%	2.1%	**5.5%**
Vehicle Tires	0.0%	0.0%	0.0%	0.0%	**0.0%**
Haz./Special Wastes	0.0%	0.3%	0.4%	0.0%	**0.2%**
Electronics	0.3%	0.0%	1.1%	0.1%	**0.3%**
Sm. Appliances & Other Elec. Dev.	0.7%	0.4%	3.0%	0.5%	**0.9%**
Total	6.8%	9.7%	21.1%	4.1%	**9.7%**
Potential Compostables					
Food Waste	24.8%	24.9%	12.0%	20.8%	**23.2%**
Yard Waste	6.5%	4.1%	2.0%	2.4%	**5.0%**
Other Organics	2.3%	0.5%	2.2%	10.0%	**1.7%**
Pizza Boxes	0.4%	0.3%	0.0%	0.6%	**0.3%**
Compostable Paper	7.4%	6.6%	2.7%	14.6%	**6.5%**
PLA (#7) Plastic Cont.	0.0%	0.0%	0.0%	0.0%	**0.0%**
Clean Wood Waste	0.0%	1.4%	1.0%	0.0%	**0.6%**
Total	41.4%	37.8%	20.0%	48.4%	**37.4%**

	SF Resi	Com.	CC	NCSU	Wgtd. Avg.
Other Potential Recoverables					
Non-Bottle PET Cont.	0.7%	0.3%	0.2%	0.4%	**0.5%**
Non-Bottle HDPE Cont.	0.0%	0.0%	0.0%	0.0%	**0.0%**
All Plastic Drink Cups	0.4%	0.6%	0.1%	0.7%	**0.5%**
Oth. Non-Acc. Pl. Cont.	0.3%	0.1%	0.2%	0.1%	**0.2%**
Packaging EPS Foam	0.1%	0.3%	0.6%	0.2%	**0.2%**
Food-Cont. EPS Foam	1.0%	0.8%	0.7%	0.6%	**0.9%**
Recyclable Plastic Film	2.2%	1.1%	0.8%	1.2%	**1.6%**
Other C&D Debris	1.0%	1.0%	2.2%	4.2%	1.2%
Furniture & Mattresses	0.0%	0.0%	2.6%	0.0%	**0.3%**
Other Rubber	0.0%	0.0%	0.0%	0.1%	**0.0%**
Total	5.9%	5.5%	9.4%	4.6%	**6.2%**
Other Materials					
Paper Cups	0.3%	0.8%	0.1%	1.9%	**0.5%**
Non-Comp. Paper	2.2%	2.1%	0.6%	3.6%	**2.0%**
All Other Plastics	1.8%	1.3%	1.6%	2.2%	**1.6%**
Non-Recyclable Pl. Film	8.0%	8.6%	7.9%	11.5%	**8.2%**
Non-Recyclable Glass	0.7%	0.5%	1.3%	0.3%	**0.7%**
Treated Wood Waste	0.7%	0.7%	1.2%	6.2%	0.0%
Household Batteries	0.1%	0.0%	0.0%	0.0%	**0.1%**
Diapers	5.4%	4.5%	1.4%	0.6%	**4.5%**
Composite Materials	3.9%	3.1%	5.2%	3.4%	**3.8%**
Liquids	0.2%	1.4%	0.4%	1.6%	**0.7%**
Grit	0.6%	0.5%	2.9%	0.0%	**0.9%**
Total	23.9%	24.0%	27.6%	25.2%	**24.4%**

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

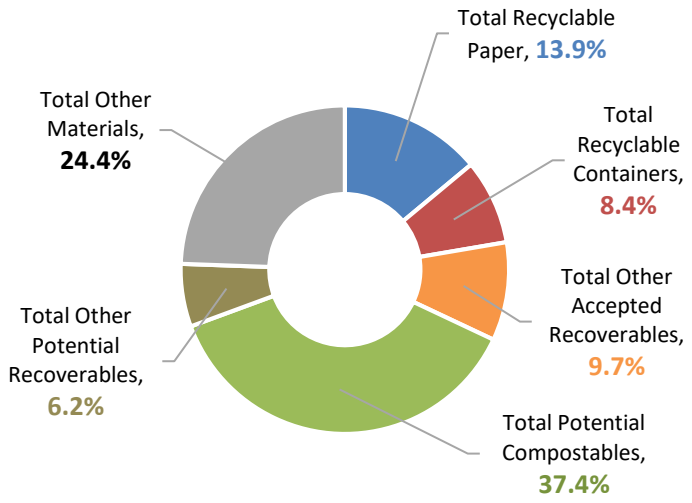


Table 3-8: Comparison of Countywide Aggregate Waste to 2011 WCS

	2019 Weighted Average	2011 Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound
Recyclable Paper				
Newspaper	**0.4%**	**1.8%**	1.4%	2.2%
Corrugated Cardboard	**3.7%**	**3.5%**	2.8%	4.1%
Office Paper	**0.1%**	**1.6%**	1.0%	2.2%
Mixed Recyclable Paper*	**9.2%**	**10.2%**	7.8%	12.5%
Bagged Shredded Paper	**0.2%**	**-**	-	-
Total	**13.7%**	**17.1%**		
Recyclable Containers				
Aseptic Containers/Cartons	**0.3%**	**0.6%**	0.4%	0.7%
PET Bottles (#1)	**1.9%**	**1.9%**	1.5%	2.2%
HDPE Bottles (#2)	**0.8%**	**0.9%**	0.8%	1.1%
Recyclable Plastic Cont. (#3-5 & 7)*	**1.1%**	**1.8%**	1.0%	2.1%
Tin/Steel Cans*	**0.8%**	**1.3%**	1.0%	1.5%
Aluminum Cans	**0.6%**	**0.5%**	0.4%	0.6%
Aluminum Foil and Trays	**0.5%**	**0.4%**	0.3%	0.5%
Glass Containers*	**2.4%**	**2.9%**	1.2%	3.6%
Total	**8.3%**	**10.3%**		
Other Accepted Recoverables				
Hard Cover Books	**0.1%**	**0.6%**	0.5%	0.8%
Bulky Rigid Plastics	**1.3%**	**2.4%**	1.8%	3.1%
Other Ferrous Metals	**1.2%**	**1.0%**	0.6%	1.5%
Other Non-Ferrous Metals	**0.2%**	**0.5%**	0.3%	0.8%
Textiles and Leather*	**5.3%**	**5.9%**	3.3%	8.5%
Vehicle Tires	**0.0%**	**-**	-	-
Hazardous/Special Wastes*	**0.2%**	**0.2%**	<0.1%	0.5%
Electronics*	**0.3%**	**0.2%**	<0.1%	0.5%
Sm. Appliances & Other Elec. Dev.*	**0.8%**	**1.1%**	0.5%	1.8%
Total	**9.4%**	**11.9%**		
Potential Compostables				
Food Waste	**22.5%**	**15.1%**	13.0%	17.2%
Yard Waste*	**6.7%**	**2.3%**	1.2%	3.4%
Other Organics	**1.6%**	**7.9%**	7.0%	8.9%
Pizza Boxes	**0.3%**	**-**	-	-
Compostable Paper	**6.4%**	**6.9%**	6.1%	7.7%
PLA (#7) Plastic Containers	**0.0%**	**-**	-	-
Clean Wood Waste*	**0.6%**	**2.1%**	1.1%	3.1%
Total	**38.2%**	**34.3%**		

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

Table 3-8: Comparison of Countywide Aggregate Waste to 2011 WCS (continued)

	2019 Weighted Average	2011 Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound
Other Potential Recoverables				
Non-Bottle PET Containers (#1)	**0.5%**	**-**	-	-
Non-Bottle HDPE Containers (#2)	**0.0%**	**-**	-	-
All Plastic Drink Cups	**0.5%**	**-**	-	-
Other Non-Accepted Plastic Cont.	**0.3%**	**0.1%**	<0.1%	0.2%
Packaging EPS Foam	**0.2%**	**1.7%**	1.5%	1.9%
Food-Container EPS Foam	**0.9%**			
Recyclable Plastic Film	**1.6%**	**2.1%**	1.6%	2.6%
Other C&D Debris*	**1.8%**	**0.3%**	<0.1%	0.6%
Furniture and Mattresses*	**0.3%**	**3.1%**	0.7%	5.5%
Other Rubber	**0.0%**	**0.2%**	<0.1%	0.4%
Total	**6.2%**	**7.5%**		
Other Materials				
Paper Cups	**0.5%**	**0.4%**	<0.1%	0.8%
Non-Compostable Paper	**1.9%**	**0.5%**	0.3%	0.7%
All Other Plastics	**1.6%**	**<0.1%**	<0.1%	<0.1%
Non-Recyclable Plastic Film	**8.1%**	**6.3%**	5.6%	7.0%
Non-Recyclable Glass*	**0.7%**	**0.1%**	<0.1%	0.3%
Treated Wood Waste	**1.5%**	**0.9%**	0.3%	1.5%
Household Batteries	**0.1%**	**<0.1%**	<0.1%	<0.1%
Diapers	**4.5%**	**3.6%**	2.8%	4.4%
Composite Materials	**3.8%**	**3.0%**	1.7%	4.2%
Liquids	**0.7%**	**-**	-	-
Grit	**0.9%**	**3.2%**	2.7%	3.7%
Total	**24.2%**	**18.0%**		

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

Category Notes:

- Mixed Recyclable Paper includes the 2011 categories: Magazines, Kraft Paper, Paperboard, Phone Books, Mixed Office Paper, File Folders, Paper Packaging.
- Recyclable Plastic Containers includes the 2011 categories: Other #3-#7 Bottles and Plastic Cups and Tubs.
- Tin/Steel Cans includes the 2011 categories: Steel/Bi Metal Food Cans and Aerosol Cans.
- Glass Containers includes the 2011 categories: Clear, Brown, and Green Glass Bottles/Jars.
- Textiles and Leather includes the 2011 categories: Textiles, Other Textiles, Leather.
- Hazardous/Special Wastes includes the 2011 categories: Infectious Waste, Household Hazardous Waste, Oil Filters, Lead-acid Batteries.
- Electronics includes the 2011 categories: Computers, VCRs, Printers, Cell Phones, Televisions, MP3 Players.
- Small Appliances & Other Electronic Devices includes the 2011 categories: Printer Ink Cartridges, DVDs/ CDs, Other Electronic Waste.
- Yard Waste includes the 2011 categories: Yard Waste and Stumps.
- Clean Wood Waste includes the 2011 categories: Untreated Wood and Pallets.
- Other C&D Debris includes the 2011 categories: Concrete, Brick, Drywall, Roofing Material, Vinyl Siding.
- Non-Recyclable Glass includes the 2011 categories: Ceramic Glass and Other Glass.

3.3 Town of Cary Results

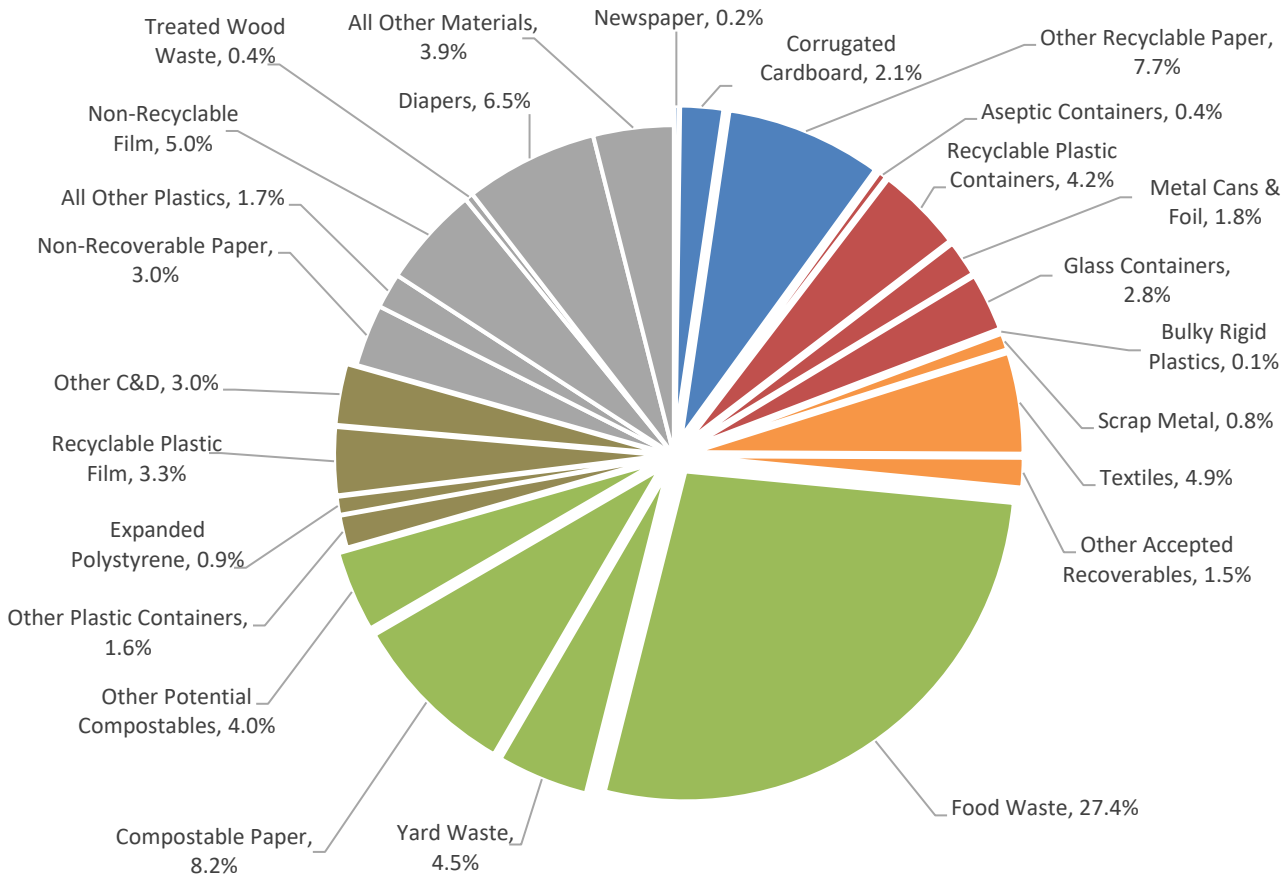
3.3.1 Cary: Single-Family Residential Waste

Figure 3-6 depicts the weighted average composition of single-family residential waste from Cary. Table 3-9 provides the weighted average with a 90 percent confidence interval for each material category measured in the Cary residential waste. Individual sample results are included in Appendix C.

Key findings from the Cary residential waste results are as follows:

- Nearly 20 percent of the waste was material accepted in Cary's recycling program. About half of this was recyclable paper. As with the Countywide waste, mixed recyclable paper was the most prominent paper material, followed by corrugated cardboard. About 9 percent of the waste was recycling containers, with glass containers and PET bottles representing about half of this. Compared to the Countywide residential waste, Cary residential waste had lower average percentages for mixed recyclable paper and corrugated cardboard and a higher average percentage of glass containers.
- Other accepted recoverables comprised about 7 percent of the waste. Again, this was mostly textiles. These materials were relatively similar in composition to the Countywide residential results. Note: Of these materials, Cary accepts bulky rigid plastics, electronics, and small appliances and other electric devices (1.4 percent of the waste). The other materials are accepted at the County convenience centers.
- Potential compostables were about 44 percent of the waste, about two-thirds of which was food waste. Food waste, other organics, and compostable paper had slightly higher average percentage and yard waste had a slightly lower average percentage for Cary residential waste than the Countywide residential.
- About 9 percent of the waste was other potential recoverables, mostly recyclable plastic film and C&D debris. These two materials comprised higher percentages that the Countywide residential waste. One sample in particular had a very high percentage of C&D debris, about 14 percent.
- Over 20 percent of the waste was other materials. Diapers and non-recyclable plastic film were the largest material categories of these materials. Compared to the Countywide residential waste, these two materials had higher average percentages, while composite materials had a lower percentage.

Figure 3-6: Composition of Town of Cary Single-Family Residential Waste



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

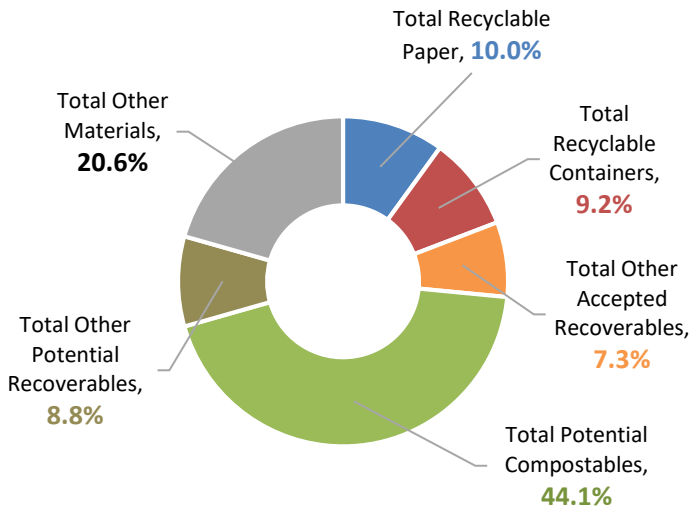
- Other Recyclable Paper includes the categories of Office Paper, Mixed Recyclable Paper, and Bagged Shredded Paper.
- Recyclable Plastic Containers include polyethylene terephthalate (PET) Bottles, high-density polyethylene (HDPE) Bottles, and Recyclable Plastic Containers (#3-#7).
- Other Recyclable Plastic Containers includes Non-Bottle PET, Non-Bottle HDPE, and Other Plastics #3-#7.
- Metal Cans and Foil includes the categories of Tin/Steel Cans, Aluminum Cans, and Aluminum Foil and Trays.
- Scrap Metals includes the categories of Other Ferrous Scrap Metals and Other Non-Ferrous Metals.
- Other Accepted Recoverables includes the categories of Hard Cover Books, Hazardous/Special Wastes, Electronics, Small Appliances and Other Electric Devices, and Vehicle Tires.
- Other Potential Compostables include the categories of Other Organics (pet waste, hair, lint, etc.), Pizza Boxes, PLA (#7) Plastic Containers, and Clean Wood Waste.
- Other Plastic Containers includes the categories of Non-Bottle PET Containers (#1), Non-Bottle HDPE Containers (#2), All Plastic Drink Cups, and Other Non-Recyclable Plastic Containers.
- Expanded Polystyrene includes the categories of Packaging Expanded Polystyrene Foam and Food-Container Expanded Polystyrene Containers.
- Other Potential Recoverables includes the categories of Furniture and Mattresses and Other Rubber.
- Non-Recoverable Paper includes the categories of Paper Cups and Non-Compostable Paper.
- All Other Materials include the categories of Non-Recyclable Glass, Household Batteries, Composite Materials, Liquids, and Grit.

Table 3-9: Composition of Town of Cary Single-Family Residential Waste

	Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound
Recyclable Paper			
Newspaper	**0.2%**	-0.1%	0.6%
Corrugated Cardboard	**2.1%**	0.4%	3.8%
Office Paper	**0.0%**	0.0%	0.1%
Mixed Recyclable Paper	**7.6%**	4.7%	10.6%
Bagged Shredded Paper	**0.0%**	0.0%	0.0%
Total	**10.0%**		
Recyclable Containers			
Aseptic Containers/Cartons	**0.4%**	0.1%	0.7%
PET Bottles (#1)	**1.8%**	1.2%	2.3%
HDPE Bottles (#2)	**1.1%**	0.6%	1.6%
Rec. Plastic Cont. (#3-5 & 7)	**1.4%**	1.0%	1.8%
Tin/Steel Cans	**0.8%**	0.5%	1.1%
Aluminum Cans	**0.4%**	0.2%	0.7%
Aluminum Foil and Trays	**0.5%**	0.3%	0.8%
Glass Containers	**2.8%**	1.5%	4.1%
Total	**9.2%**		
Other Accepted Recoverables			
Hard Cover Books	**0.1%**	0.0%	0.2%
Bulky Rigid Plastics	**0.1%**	-0.1%	0.3%
Other Ferrous Metals	**0.8%**	0.2%	1.3%
Other Non-Ferrous Metals	**0.0%**	0.0%	0.1%
Textiles and Leather	**4.9%**	1.9%	8.0%
Vehicle Tires	**0.0%**	0.0%	0.0%
Hazardous/Special Wastes	**0.0%**	0.0%	0.0%
Electronics	**0.2%**	-0.1%	0.6%
Sm. Appl. & Other Elec. Dev.	**1.1%**	-0.5%	2.8%
Total	**7.3%**		
Potential Compostables			
Food Waste	**27.4%**	21.3%	33.6%
Yard Waste	**4.5%**	-2.5%	11.4%
Other Organics	**3.5%**	0.6%	6.4%
Pizza Boxes	**0.4%**	0.0%	0.9%
Compostable Paper	**8.2%**	6.9%	9.6%
PLA (#7) Plastic Containers	**0.0%**	0.0%	0.0%
Clean Wood Waste	**0.0%**	0.0%	0.0%
Total	**44.1%**		

	Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound
Other Potential Recoverables			
Non-Bottle PET Cont. (#1)	**0.8%**	0.5%	1.2%
Non-Bottle HDPE Cont. (#2)	**0.0%**	0.0%	0.0%
All Plastic Drink Cups	**0.4%**	0.2%	0.6%
Other Non-Accepted Pl. Cont.	**0.4%**	0.0%	0.7%
Packaging EPS Foam	**0.1%**	-0.1%	0.2%
Food-Container EPS Foam	**0.8%**	0.6%	1.0%
Recyclable Plastic Film	**3.3%**	2.1%	4.5%
Other C&D Debris	**3.0%**	-1.4%	7.4%
Furniture and Mattresses	**0.0%**	0.0%	0.0%
Other Rubber	**0.0%**	0.0%	0.1%
Total	**8.8%**		
Other Materials			
Paper Cups	**0.3%**	0.1%	0.4%
Non-Compostable Paper	**2.8%**	1.2%	4.3%
All Other Plastics	**1.7%**	1.2%	2.3%
Non-Recyclable Plastic Film	**5.0%**	2.8%	7.1%
Non-Recyclable Glass	**0.8%**	0.3%	1.3%
Treated Wood Waste	**0.4%**	-0.1%	1.0%
Household Batteries	**0.0%**	0.0%	0.0%
Diapers	**6.5%**	2.9%	10.1%
Composite Materials	**2.6%**	1.2%	4.1%
Liquids	**0.2%**	0.0%	0.5%
Grit	**0.2%**	-0.2%	0.7%
Total	**20.6%**		

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



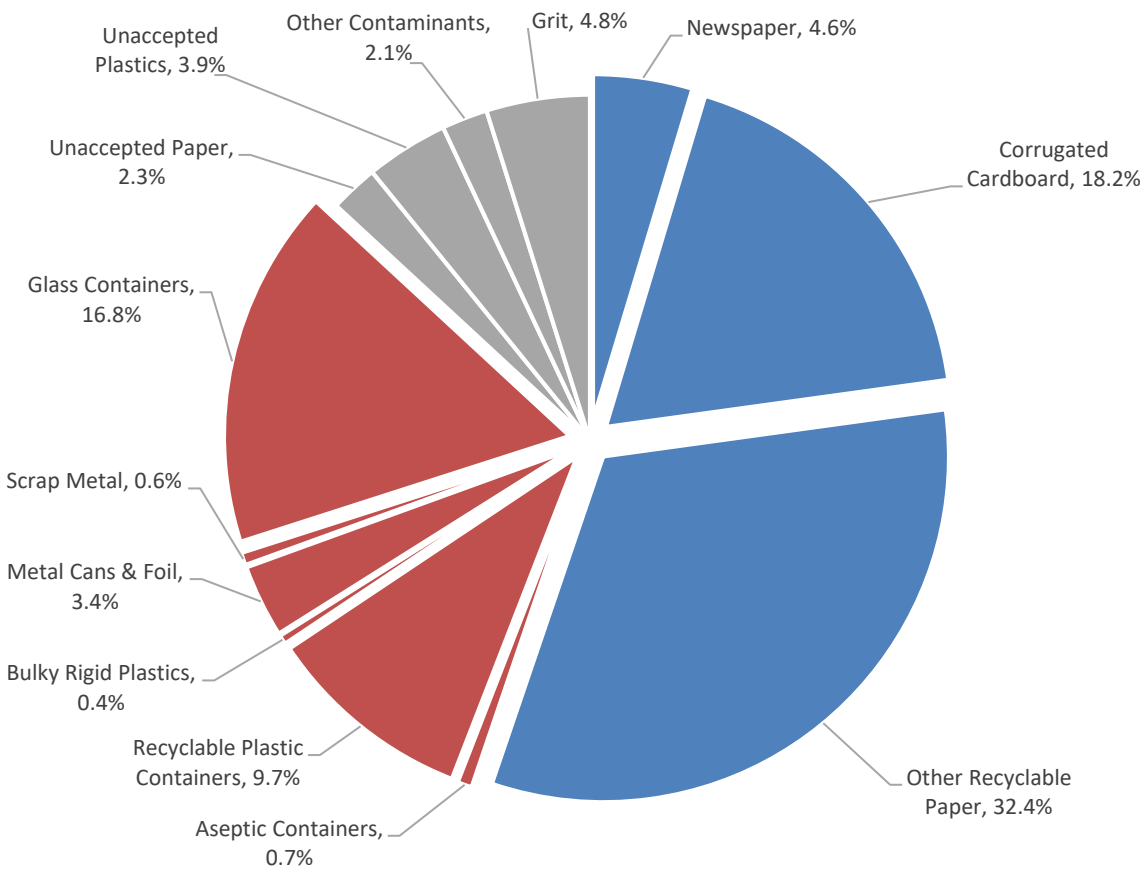
3.3.2 Cary: Single-Family Residential Recyclables

Figure 3-7 depicts the weighted average composition of single-family residential recyclables from Cary. Table 3-10 provides the weighted average with a 90 percent confidence interval for each material category measured in the Cary residential recyclables. Individual sample results are included in Appendix C.

Key findings from the Cary residential results are as follows:

- Over half of the recyclables was recyclable paper. Mixed recyclable paper comprised nearly 30 percent alone, while corrugated cardboard comprised another 18 percent.
- Over 30 percent of the recyclables was recyclable containers. Glass containers comprised the greatest amount of the container categories, at about 17 percent. PET bottles had the next highest percentage (5.5 percent), while all other containers comprised less than 2 percent each.
- Other materials comprised about 13 percent, which for the purposes of assessing the recyclables stream would be considered the contamination rate. Grit was by far the most significant contaminant by weight, 4.8 percent. Total non-accepted plastics, including film, comprised almost 4 percent of the recyclable, the most significant of which was non-bottle PET containers, 1.3 percent. Grit is often a result of the collection and transportation process (e.g. broken glass pieces) and much of this is unavoidable in the recycling stream, although some of the grit also included kitty litter, but was minor in weight by comparison to broken glass. However, the other contaminants are materials that should not be placed in recycling carts that Cary's outreach and education efforts could focus on to reduce the contamination level.
- Only one tangler, a pair of corded headphones, was found in the samples.
- Three samples had a total of 10 bags of recyclables, both samples on Monday and one of the samples on Tuesday. Across all samples, an average of 1.25 bags per sample were found in the recyclables. This represented an average of 2.4 percent of the waste. (Note: this percentage is separate from the composition as these bags were opened and contents sorted with the rest of sample). If Cary's processor does not open bags during the processing of its recyclables and places these bags into residue, these inbound recyclable materials would be lost. Education efforts should focus on ensuring recyclables are not bagged.

Figure 3-7: Composition of Town of Cary Single-Family Residential Recyclables

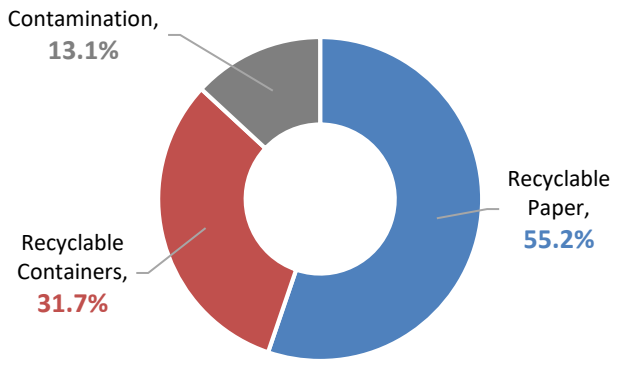


Note: For this figure, the following categories have been combined:

- All Other Recyclable Paper includes the categories of Office Paper, Mixed Recyclable Paper, Bagged Shredded Paper.
- Recyclable Plastic Containers include PET Bottles and Natural and Colored HDPE Bottles, and Recyclable Plastic Containers.
- Metal Cans and Foil includes the categories of Tin/Steel Cans, Aluminum Cans and Aluminum Foil and Trays.
- Scrap Metal includes the categories of Ferrous Metals and Non-Ferrous Metals.
- Unaccepted Paper includes the categories of Pizza Boxes, Wet OCC, Hard Cover Books, Wet Paper, Film-wrapped Paper, Paper Cups, Compostable Paper, and Non-Compostable Paper.
- Unaccepted Plastics include the categories of Non-Bottle PET Containers, Non-Bottle HDPE Containers, All Plastic Drink Cups, Other Non-Recyclable Plastic Containers, Food-Container Expanded Polystyrene Containers, Packaging Expanded Polystyrene Foam, All Other Plastics, Recyclable Plastic Film, and Non-Recyclable Plastic Film.
- Other Contaminants include the categories of Non-Recyclable Glass, Food Waste, Yard Waste, Textiles and Leather, Clean Wood Waste, Treated Wood Waste, Other C&D Debris, Vehicle Tires, Other Rubber, Electronics, Small Appliances and Other Electronic Devices, Diapers, Bagged Waste, Full Containers, and Other Contaminants.

Table 3-10: Composition of Town of Cary Single-Family Residential Recyclables

	Weighted Average	90% Confidence Interval Lower Bound	90% Confidence Interval Upper Bound
Recyclable Paper			
Newspaper	**4.6%**	2.5%	6.8%
Corrugated Cardboard	**18.2%**	11.4%	24.9%
Office Paper	**3.0%**	-0.1%	6.2%
Mixed Recyclable Paper	**29.3%**	25.5%	33.0%
Bagged Shredded Paper	**0.1%**	-0.1%	0.3%
Total	**55.2%**		
Recyclable Containers			
Aseptic Containers/Cartons	**0.7%**	0.5%	0.9%
PET Bottles (#1)	**5.5%**	4.6%	6.5%
Natural HDPE Bottles (#2)	**1.1%**	0.6%	1.7%
Colored HDPE Bottles (#2)	**1.9%**	1.4%	2.5%
Rec. Plastic Cont. (#3-5 & 7)	**1.1%**	0.8%	1.4%
Bulky Rigid Plastics	**0.4%**	-0.1%	0.9%
Tin/Steel Cans	**1.6%**	1.3%	1.9%
Aluminum Cans	**1.7%**	1.4%	2.1%
Aluminum Foil and Trays	**0.0%**	0.0%	0.1%
Other Ferrous Metals	**0.6%**	-0.2%	1.4%
Other Non-Ferrous Metals	**0.0%**	0.0%	0.0%
Glass Containers	**16.8%**	9.8%	23.8%
Total	**31.7%**		
Other Materials (Contamination)			
Pizza Boxes	**0.6%**	0.1%	1.2%
Wet OCC	**0.3%**	-0.1%	0.7%
Hard Cover Books	**0.0%**	0.0%	0.0%
Wet Paper	**0.0%**	0.0%	0.0%
Film-Wrapped Paper	**0.5%**	0.2%	0.8%
Paper Cups	**0.2%**	0.0%	0.4%
Compostable Paper	**0.2%**	0.1%	0.4%
Non-Compostable Paper	**0.4%**	0.0%	0.7%
Non-Bottle PET Cont. (#1)	**1.3%**	0.9%	1.8%
Non-Bottle HDPE Cont. (#2)	**0.0%**	0.0%	0.1%
All Plastic Drink Cups	**0.2%**	0.1%	0.4%
PLA (#7) Plastic Containers	**0.0%**	0.0%	0.0%
Other Non-Accepted Pl. Cont.	**0.3%**	0.1%	0.5%
Food-Container EPS Foam	**0.1%**	0.0%	0.2%
Packaging EPS Foam	**0.0%**	0.0%	0.0%
All Other Plastics	**0.8%**	0.7%	1.0%
Recyclable Plastic Film	**0.6%**	0.4%	0.8%
Non-Recyclable Plastic Film	**0.4%**	0.3%	0.5%
Non-Recyclable Glass	**0.1%**	0.0%	0.2%
Food Waste	**0.1%**	0.0%	0.1%
Yard Waste	**0.0%**	0.0%	0.1%
Other Organics	**0.0%**	0.0%	0.0%
Textiles and Leather	**0.2%**	0.0%	0.4%
Clean Wood Waste	**0.1%**	-0.1%	0.3%
Treated Wood Waste	**0.3%**	-0.1%	0.7%
Other C&D Debris	**0.0%**	0.0%	0.1%
Furniture and Mattresses	**0.0%**	0.0%	0.0%
Vehicle Tires	**0.0%**	0.0%	0.0%
Other Rubber	**0.0%**	0.0%	0.0%
Hazardous/Special Wastes	**0.0%**	0.0%	0.0%
Household Batteries	**0.0%**	0.0%	0.0%
Electronics	**0.0%**	0.0%	0.1%
Sm. Appl. & Other Elec. Dev.	**0.0%**	0.0%	0.1%
Diapers	**0.0%**	0.0%	0.1%
Bagged Waste	**0.2%**	0.0%	0.4%
Full Containers	**0.1%**	0.0%	0.2%
Other Contaminants	**0.9%**	0.4%	1.3%
Grit	**4.8%**	2.5%	7.2%
Total	**13.1%**		



Section 4
Findings

4.1 Waste Composition

Table 4-1 summarizes the materials in waste disposed in the County that offer the greatest potential for recycling or composting. The table includes the three primary generator sectors included in this study, the combined Countywide aggregate waste, NCSU waste, and Cary single-family residential waste. This table includes the total from the 2011 WCS where possible.

The following are overall findings of the WCS. For conciseness, County, NCSU, and Cary findings are discussed together.

- Curbside Recycling:
    - An average of 22 percent of Countywide waste are materials accepted in curbside recycling programs in the County. This was fairly consistent in all generator sectors.
    - NCSU and Cary had slightly lower percentages of curbside recyclable material in the program,17.7 percent and 19.2 percent, respectively.
    - These materials decreased from 27 percent in 2011, with decreases in nearly all material categories in all generator sectors, especially in other recyclable paper (newspaper and office paper). These decreases are possibly due to changes in material generation (e.g. diminishing newspaper subscriptions and light-weighting of materials) and to increased diversion of materials in the curbside programs in the County. One example of note: corrugated cardboard generation has typically increased nationwide with the prevalence of online shopping; however, this increase was very slight in the waste, indicating increased recovery of corrugated cardboard.
    - Continuing to increase outreach and education to residents and businesses on what is recyclable (for example, a significant amount of the mixed recyclable paper was chipboard boxes, as observed during the WCS), as well as encouraging recycling in general could further increase recovery.
- Other Accepted Materials
    - Another nearly 10 percent of waste was materials accepted at the County's convenience centers and multi-material recycling facilities.
    - These materials have mostly decreased since 2011.
    - A significant amount of this was textiles, primarily clothing, much of which appeared to be of usable quality. These could be dropped-off at the convenience centers. In fact, waste at the convenience centers had the highest percentage of these materials. This may be due to how residents use the convenience centers, more for household cleanouts than everyday waste as in the curbside programs.

  - Increased education and outreach could inform residents and business, especially users of the convenience centers, of the opportunity to divert other material at these facilities. This could also encourage textile donations to charity, such as Goodwill or Salvation Army
  - Additionally, the City of Raleigh, the Town of Apex, and Town of Wake Forest have launched pilot curbside textiles collection programs, which could reduce textiles in the waste. The County could promote these programs for residents in those municipalities. Cary could also consider launching a similar program.

- Accepted Compostables[5]
  - The most significant opportunity to increase diversion for all three entities (County, NCSU, and Cary) are compostable materials that are accepted at some of the convenience centers, this includes food waste, compostable paper products, and pizza boxes. Nearly 30 percent of the waste is accepted compostables.
  - Accepted compostables were higher in NCSU and Cary waste, 36 percent for both. NCSU had very high percentage of compostable paper, while Cary had a higher than average percent of food waste.
  - The percentage of these materials have increased since 2011, possibly due to reduction in other materials, such as recyclables.
  - Along with the County's collection of compostables, CompostNow is a private firm that provides organics collection service to residents and businesses. The County and Cary could continue to promote and expand awareness of this existing program.
  - Another option for Cary and the County to consider is evaluating the implementation of a commercial and/or residential curbside organics collection program. These programs are being developed and expanded across the country. While a multitude of factors affect the outcome of the programs, successful programs can significantly reduce the amount of organics landfilled. In general, it is recommended to first target commercial organics collection because the program can collect more tonnage from fewer generators, and it has fewer contamination issues due to more control of the collection process.
  - NCSU currently composts food waste at one of its dining halls and the student union, as well as restroom paper towels at its dining hall, added in 2016. Continued expansion of this program, as well as examining organics collection at additional dining halls or other types of buildings (e.g. residence halls) could further increase the diversion of this material. Additionally, NCSU could evaluate the potential of their compost facility to accept the large amount of animal bedding material found in the Research/Medical sample, presumably from an animal science or veterinary building.

[5] This differs from the potential compostables discussed in Section 3 as it only includes food waste and compostable paper.

- Yard Waste
    - Yard waste was about 5 percent of the County and Cary waste, increasing since 2011 for the County. NCSU waste was only about 2.5 percent yard waste.
    - Yard waste is banned from disposal in North Carolina. Ensuring residents utilize yard waste collection programs through education and/or inspections, could reduce the yard waste disposal. Yard waste disposal was very low at the convenience centers, likely due to more oversight over what is disposed there.
- Potentially Recoverable and Compostable Materials
    - Another 8 percent of the waste are materials that could potentially be recovered or composted.
    - The percentage of potential recoverables was highest for Cary, due to higher percentage of recyclable plastic film and C&D debris, and lowest for NCSU. However, NCSU had the highest percentage of other potential compostables due to the animal bedding in the medical/research sample.
    - This would require expanding materials that are accepted by the processor (such non-bottle PET containers) and/or developing additional collection programs, such as the new mattress recycling program the County is developing.
- Summary:
    - Between 60 and 70 percent of all the waste streams in the WCS are materials that are currently accepted in curbside programs and at County facilities for recovery.
    - This represents an overall increase since the 2011 WCS, due to the increase in the percentage of compostable materials.
    - While it is not realistic to completely divert all of these materials using the existing programs and technology at the County, Cary, and NCSU, continued recycling and composting efforts by the County and municipalities could help meet the County's recycling goals, reduce the disposal of recoverable materials, and increase the life of the landfill.
    - New programs, such as a curbside organics collection, or new technology, such as mixed waste processing or anaerobic digestion, could potentially achieve higher diversion rates. Additional feasibility studies would be needed to determine how applicable these would be for the County, Cary, and NCSU.

Table 4-1: Recyclable or Compostable Materials in Waste Disposed (% by weight)

	Countywide		SF Residential		Commercial		Conv. Centers	NCSU	Cary
Material Categories	**2011**	**2019**	**2011**	**2019**	**2011**	**2019**	**2019**	**2019**	**2019**
Corrugated Cardboard (OCC)	3.5%	3.8%	2.8%	3.3%	5.0%	4.5%	3.5%	2.3%	2.1%
Mixed Recyclable Paper	10.2%	9.4%	11.4%	10.3%	9.0%	8.4%	8.6%	7.3%	7.6%
Other Recyclable Paper	3.4%	0.8%	4.0%	0.3%	3.3%	1.6%	0.7%	0.6%	0.2%
TOTAL RECYCLABLE PAPER	**17.1%**	**13.9%**	**18.2%**	**13.9%**	**17.3%**	**14.5%**	**12.8%**	**10.1%**	**10.0%**
Aseptic Containers/Cartons	0.6%	0.3%	0.5%	0.3%	0.7%	0.3%	0.1%	0.3%	0.4%
Recyclable Plastic Containers	4.6%	3.8%	4.5%	3.9%	5.1%	3.7%	3.7%	4.5%	4.2%
Recyclable Metal Containers	2.2%	1.8%	2.4%	2.0%	2.2%	1.7%	1.8%	1.9%	1.8%
Glass Containers	2.9%	2.5%	2.5%	1.9%	2.5%	2.8%	3.6%	1.1%	2.8%
TOTAL RECYCLABLE CONTAINERS	**10.3%**	**8.4%**	**9.9%**	**8.1%**	**10.5%**	**8.5%**	**9.2%**	**7.7%**	**9.2%**
TOTAL CURBSIDE RECYCLABLES	**27.4%**	**22.3%**	**28.1%**	**21.9%**	**27.8%**	**23.0%**	**22.0%**	**17.7%**	**19.2%**
Accepted at Conv. Centers	8.0%	7.0%	8.2%	5.6%	8.1%	7.1%	12.6%	2.7%	5.8%
Accepted at Multi-Mat. Facilities	3.9%	2.6%	3.9%	1.2%	3.9%	2.6%	8.4%	1.3%	1.5%
TOTAL OTHER RECOVERABLES	**11.9%**	**9.7%**	**12.1%**	**6.8%**	**12.0%**	**9.7%**	**21.1%**	**4.1%**	**7.3%**
Conv. Center Compostables*	22.0%	30.0%	19.4%	32.6%	23.2%	31.7%	14.7%	36.0%	36.1%
Yard Waste	2.3%	5.0%	2.5%	6.5%	2.3%	4.1%	2.0%	2.4%	4.5%
TOTAL ACCEPTED COMPOSTABLES	**24.3%**	**35.1%**	**21.9%**	**39.1%**	**25.5%**	**35.9%**	**16.7%**	**38.4%**	**40.5%**
TOTAL ACCEPTED MATERIALS	**63.6%**	**67.1%**	**62.1%**	**67.9%**	**65.3%**	**68.6%**	**59.8%**	**60.2%**	**67.1%**
Other Potential Recoverables	7.5%	6.2%	6.3%	5.9%	7.6%	5.5%	9.4%	4.6%	8.8%
Other Potential Compostables**	10.0%	2.3%	10.8%	2.3%	10.0%	1.9%	3.2%	10.0%	3.5%
COMBINED TOTAL	**81.1%**	**75.6%**	**79.2%**	**76.1%**	**82.9%**	**76.0%**	**72.4%**	**74.8%**	**79.4%**

*Includes food waste, pizza boxes, and compostable paper, which are accepted at convenience centers #4, 7, 8, and 10.
**Includes other organics, clean wood waste, and PLA #7 plastic containers, which are not currently accepted by the County for compost.
Note: Columns may not appear to calculate correctly due to rounding.

4.2 Cary Recyclables

Table 4-2 shows the summarized composition of single-family residential recyclables for Cary.

Overall findings for the recyclable composition include:

- Approximately 55 and 32 percent of the stream are paper and containers accepted in the program. Mixed paper was the most significant individual material category.
- The remaining 13 percent are materials not accepted in the program and would be considered contamination by a processor. The top three specific contaminants were:
  - Grit: 4.8 percent
  - Non-bottle PET containers: 1.3 percent
  - All other plastics: 0.8 percent.
- Several of the contaminants, such as non-bottle PET containers and plastic drink cups could potentially be recoverable in an expanded curbside program, if these materials were able to be accepted by Cary's processor.
- Some of the contaminants could have been acceptable materials but were not prepared properly for recycling. For example, film-wrapped paper would have need to be removed from the film to be accepted or full containers would need to be emptied.
- Other contaminants, while potentially recoverable in other collection programs (e.g. plastic film collection at retail stores or a textiles collection), would generally be considered contamination in most curbside programs.
- In all cases, ongoing education and outreach efforts can help inform residents of what materials are recyclables and other recycling opportunities in Cary and the County, such as the County convenience centers.

Table 4-2: Summary Results of Cary's Residential Recyclables

Material Categories	
Corrugated Cardboard (OCC)	18.2%
All Recyclable Paper	37.0%
TOTAL RECYCLABLE PAPER	**55.2%**
Aseptic Containers/Cartons	0.7%
Recyclable Plastic Containers	10.2%
Recyclable Metal Containers	4.0%
Glass Containers	16.8%
TOTAL RECYCLABLE CONTAINERS	**31.7%**
Potential Curbside Materials*	1.9%
Improperly Prepared Curbside Materials**	0.9%
Other Potential Recoverables/Compostables***	1.9%
Other Contamination	7.8%
TOTAL CONTAMINATION	**13.1%**

*Includes non-bottle PET containers, non-bottle HDPE containers, all plastic drinking cups, and other non-accepted plastic containers
**Includes wet OCC, wet paper, film-wrapped paper, and full containers
***Includes all other materials accepted or potentially recoverables/compostables listed in Section 3

KCI appreciates the opportunity to again work with the County, Cary, and NCSU and looks forward to assisting with their future solid waste and recycling efforts.

Appendix A:
Waste Characterization Study
Material Categories

Table A: Waste Characterization Study Material Categories

#	Material Categories	Description of Categories
1	**Newspaper**	Newspaper (loose or tied) including other paper normally distributed inside newspapers such as ads, flyers, etc. and other items made from newsprint such as advertising guides.
2	**Corrugated Cardboard**	Uncoated cardboard boxes with a wavy core (no plastic liners, waxy coatings). Examples include shipping and moving boxes, packing boxes. *Does not include pizza boxes, OCC within shrink wrap plastic, such as that from a case of bottled water, waxy, or contaminated cardboard.*
3	**Pizza Boxes**	All pizza boxes regardless of level of contamination by grease or food.
4	**Office Paper**	White or colored writing and printing paper.
5	**Mixed Recyclable Paper**	Other printed or unprinted recyclable paper including white, colored, coated and uncoated papers, envelopes, index cards, file folders, magazines, telephone books, catalogs, paperboard, chipboard, mail, paperback books, blueprints, Kraft paper, brown paper bags and other printed material on glossy and non-glossy paper. *Includes loose shredded paper. Does not include office, bagged shredded, contaminated, waxy, or metallic paper.*
6	**Hard Cover Books**	All books with a hard cover.
7	**Bagged Shredded Paper**	Shredded paper in clear plastic or paper bags.
8	**Paper Cups**	Non-compostable paper coffee or other drink cups.
9	**Aseptic Containers/Cartons**	Gable-top cartons, aseptic juice boxes, and other similar containers made of coated paperboard.
10	**Compostable Paper**	Generally, low-grade, non-recyclable paper without a heavy plastic coating, including napkins, tissues, paper towels, uncoated paper plates, and other compostable serviceware. Includes food-contaminated paper.
11	**Non-Compostable Paper**	Non-compostable, non-recyclable paper products with a heavy plastic coating (e.g. waxy or plastic-coated OCC, french fry containers, coated paper plates, fast-food wrappers, wax and parchment paper, and ice cream tubs). Includes paper covered with paint, motor oil, or other non-food contamination.
12	**PET Bottles (#1)**	Clear and colored bottles and jars coded polyethylene terephthalate (PET #1). Examples include soda bottles, water bottles, food jars, etc. *Does not include loose caps and lids.*
13	**HDPE Bottles (#2)**	Clear/natural and opaque, pigmented bottles made of high-density polyethylene (HDPE #2). Examples include milk jugs, detergent bottles, and some medicine bottles. D*oes not include loose caps and lids. Does not include bottles that held toxic materials, such as motor oil or pesticides.*
14	**Non-Bottle PET Containers (#1)**	Clear and colored plastic non-bottle, non-jar containers coded PET #1. Examples include clamshell containers, lidded salad containers, and fruit or vegetable platters.
15	**Non-Bottle HDPE Containers (#2)**	Wide-mouthed tubs and containers coded HDPE #2. Examples include large plastic coffee containers and plastic chip tubes, including lids.

#	Material Categories	Description of Categories
16	**Recyclable Plastic Containers #3-5 & 7**	All other plastic tubs and bottles, regardless of color, coded #3-5 & 7. Examples include butter, yogurt and other dairy tubs, and some medicine bottles. *Does not include #6 containers, which would be include in all plastic drink cups or other non-accepted plastic containers.*
17	**All Plastic Drink Cups**	All single-use plastic drinking cups labeled #1-7. *Does not include PLA #7 cups.*
18	**PLA (#7) Plastic Containers**	Compostable rigid plastic containers (cups, clamshells, etc.) labeled PLA #7.
19	**Other Non-Accepted Plastic Containers**	All other non-recyclable containers including #6 clamshells, frozen food trays, and flowerpots.
20	**Bulky Rigid Plastics**	Non-container rigid plastic items such as, plastic drums, crates, buckets, baskets, toys, refuse totes, lawn furniture, laundry baskets, and other large plastic items. Items must be free of metal, e.g. bucket handles, wheels, or hinges. *Does not include electronic or electric toys.*
21	**Food-Container Expanded Polystyrene (EPS) Foam**	Container materials made of expanded polystyrene, which are typically white but may be pigmented. Examples include egg cartons, meat and produce trays, clam-shell containers, and disposable cups and plates.
22	**Packaging EPS**	EPS related to packaging including packing peanuts and coolers.
23	**All Other Plastics**	All rigid non-container plastics not elsewhere categorized, including straws, utensils, plastic packaging, plastic clothes hangers, plastic plates, toothbrushes, deodorant cases, loose plastic caps and lids, etc.
24	**Recyclable Plastic Film**	Loose and bagged plastic retail and grocery bags, point-of-sale bags, newspaper bags, toilet paper overwrap, dry cleaning bags, air pillows and bubble wrap, resealable bags, and plastic stretch film.
25	**Non-Recyclable Plastic Film**	All other non-recyclable plastic film including garbage bags, potato chip bags, mylar bags, floral wraps, nitrile or vinyl gloves, and balloons.
26	**Tin/Steel Cans**	Tin-plated steel cans, usually food containers and empty aerosol cans, including labels. Includes steel caps.
27	**Other Ferrous Metals**	Non-container ferrous materials. Examples include metal clothes hangers, sheet metal products, pipes, miscellaneous metal scraps, pots and pans, and other magnetic metal items.
28	**Aluminum Cans**	Aluminum soft drink, beer, and food cans. Includes empty aluminum aerosol cans.
29	**Aluminum Foil and Trays**	Aluminum foil and food trays, such as disposable pie plates and catering trays.
30	**Other Non-Ferrous Metals**	Non-container, non-foil non-ferrous metals, such as aluminum cooking pans copper wiring and tubing, and brass fixtures.
31	**Glass Containers**	All clear, green, blue, and amber glass bottles and jars as well as broken container glass pieces.
32	**Non-Recyclable Glass**	Windowpanes, mirrors, ceramics, drinking glasses, and glass containers other than clear, green, blue, or amber.
33	**Food Waste**	Packaged or loose meat and vegetable waste (includes coffee grounds and tea bags). Includes single-use coffee pods (i.e. K-cups).

#	Material Categories	Description of Categories
34	**Yard Waste**	Shrub and brush prunings, household bedding plants, weeds, leaves, grass clippings, and other landscaping and gardening wastes. Includes planting media (soil, compost, peat moss, etc.).
35	**Other Organics**	Other organic material such as pet waste (e.g. bagged dog waste and cat litter), natural fiber or wicker products, corks, lint, and hair.
36	**Textiles and Leather**	Clothing apparel, rags, leather, blankets, reusable bags, curtains, shoes, wallets, purses, belts, and scrap leather.
37	**Clean Wood Waste**	Untreated and unpainted lumber, pallets, and dimensional lumber. Also includes untreated/unpainted wood furniture including chairs, cabinets, dressers, etc.
38	**Treated Wood Waste**	Treated and painted lumber, pallets, and dimensional lumber, including treated/painted wood furniture. Also includes engineered wood such as plywood, particle board, oriented strand board, fiberboard, and laminate.
39	**Other C&D Debris**	Construction and demolition debris including concrete and other inert debris (brick, rocks, sand), carpet and padding, drywall, insulation, full and empty caulk tubes, paint supplies, and roofing materials.
40	**Furniture and Mattresses**	All furniture and mattresses.
41	**Vehicle Tires**	Car and truck tires.
42	**Other Rubber**	Small tires and other items made of rubber.
43	**Hazardous/Special Wastes**	All hazardous or other waste that would require special disposal, including motor oil and oil filters, fluorescent lights, paints, solvents, pesticides, non-household alkaline batteries (e.g. Ni-Cd, lead acid, and lithium) and medical wastes. Also includes bottles that held toxic materials.
44	**Household Batteries**	Non-rechargeable household batteries including AA, AAA, C, D, 9-volt, and button types.
45	**Electronics**	All electronics with a circuit board, such as televisions, computers, DVD/VHS players, and cell phones. Also includes printer/toner cartridges.
46	**Small Appliances and Other Electric Devices**	Household appliances and electronics, such as coffee makers, microwaves, lamps, fans, irons, hair dryers, and electrical kitchenware. Also includes Christmas lights, electric extension cords, cables, and electronic media such as CDs and VHS tapes.
47	**Diapers**	All child and adult diapers and incontinence aids. Includes feminine hygiene products.
48	**Composite Materials**	Products that are composite of materials such as cigarette packages, binders, laminated paper, spiral paper (e.g. Pringles) cans, chip bags, etc. Includes interlocked/multi-material products that cannot be separated.
49	**Liquids**	All liquids found within containers. Containers will be sorted into their appropriate category.
50	**Grit**	Any grit or fines remaining on the sort table that cannot be defined in the other categories.

Appendix B:
Town of Cary
Recyclables Characterization Study
Material Categories

Table B: Recyclables Characterization Study Material Categories

#	Material Categories	Description of Categories
1	**Newspaper**	Newspaper (loose or tied) including other paper normally distributed inside newspapers such as ads, flyers, etc. and other items made from newsprint such as advertising guides.
2	**Corrugated Cardboard (OCC)**	Uncoated cardboard boxes with a wavy core (no plastic liners, waxy coatings). Examples include shipping and moving boxes, packing boxes. *Does not include pizza boxes, OCC within shrink wrap plastic, such as that from a case of bottled water, waxy, or contaminated cardboard.*
3	**Pizza Boxes**	All pizza boxes regardless of level of contamination by grease or food.
4	**Wet OCC**	OCC that is waterlogged or has lost structural integrity due to moisture.
5	**Office Paper**	White or colored writing and printing paper.
6	**Mixed Recyclable Paper**	Other printed or unprinted recyclable paper including white, colored, coated and uncoated papers, envelopes, index cards, file folders, magazines, telephone books, catalogs, paperboard, chipboard, mail, paperback books, blueprints, Kraft paper, brown paper bags and other printed material on glossy and non-glossy paper. *Includes loose shredded paper. Does not include office, bagged shredded, contaminated, waxy, or metallic paper.*
7	**Hard Cover Books**	All books with a hard cover.
8	**Wet Paper**	Newspaper and mixed recyclable paper that is waterlogged or has lost structural integrity due to moisture.
9	**Bagged Shredded Paper**	Shredded paper in clear plastic or paper bags.
10	**Film-Wrapped Paper**	Newspaper or magazines inside plastics sleeves. OCC within shrink wrap plastic, such as that from a case of bottled water.
11	**Aseptic Containers/Cartons**	Gable-top cartons, aseptic juice boxes, and other similar containers made of coated paperboard.
12	**Paper Cups**	Non-compostable paper coffee or other drink cups.
13	**Compostable Paper**	Generally, low-grade, non-recyclable paper without a heavy plastic coating, including napkins, tissues, paper towels, uncoated paper plates, and other compostable serviceware. Includes food-contaminated paper.
14	**Non-Compostable Paper**	Non-compostable, non-recyclable paper products with a heavy plastic coating (e.g. waxy or plastic-coated OCC, french fry containers, coated paper plates, fast-food wrappers, wax and parchment paper, and ice cream tubs). Includes paper covered with paint, motor oil, or other non-food contamination.
15	**PET Bottles (#1)**	Clear and colored bottles and jars coded polyethylene terephthalate (PET #1). Examples include soda bottles, water bottles, food jars, etc. *Does not include loose caps and lids.*
16	**Natural HDPE Bottles (#2)**	Clear/natural plastic bottles coded high-density polyethylene (HDPE #2). Examples include milk jugs, vinegar bottles, and gallon water bottles. *Does not include loose caps and lids.*

#	Material Categories	Description of Categories
17	**Colored HDPE Bottles (#2)**	Opaque, pigmented plastic bottles coded high-density polyethylene (HDPE #2). Examples include detergent and shampoo bottles and some medicine bottles. *Does not include loose caps and lids. Does not include bottles that held toxic materials, such as oil or pesticides.*
18	**Non-Bottle PET Containers (#1)**	Clear and colored plastic non-bottle, non-jar containers coded PET #1. Examples include clamshell containers and fruit or vegetable platters.
19	**Non-Bottle HDPE Containers (#2)**	Wide-mouthed tubs and containers coded HDPE #2. Examples include large plastic coffee containers and plastic chip tubes, including lids.
20	**Recyclable Plastic Containers #3-5 & 7**	All other plastic tubs and bottles, regardless of color, coded #3-5 & 7. Examples include butter, yogurt and other dairy tubs, and some medicine bottles. *Does not include #6 containers, which would be include in all plastic drink cups or other non-accepted plastic containers*
21	**All Plastic Cups**	All plastic drinking cups labeled #1-7. *Does not include PLA #7 cups.*
22	**PLA (#7) Plastic Containers**	Compostable rigid plastic containers (cups, clamshells, etc.) labeled PLA #7.
23	**Other Non-Accepted Plastic Containers**	All other non-recyclable containers including #6 clamshells, frozen food trays, and flowerpots.
24	**Bulky Rigid Plastics**	Non-container rigid plastic items such as, plastic drums, crates, buckets, baskets, toys, refuse totes, lawn furniture, laundry baskets, and other large plastic items. Items must be free of metal, e.g. bucket handles, wheels, or hinges. *Does not include electronic or electric toys.*
25	**Food-Container Expanded Polystyrene (EPS) Foam**	Container materials made of expanded polystyrene, which are typically white but may be pigmented. Examples include egg cartons, meat and produce trays, clamshell containers, and disposable cups and plates.
26	**Packaging EPS**	EPS related to packaging including packing peanuts and coolers.
27	**All Other Plastics**	All rigid non-container plastics not elsewhere categorized, including straws, utensils, plastic packaging, plastic clothes hangers, plastic plates, toothbrushes, deodorant cases, loose plastic caps and lids, etc.
28	**Recyclable Plastic Film**	Loose and bagged plastic retail and grocery bags, point-of-sale bags, newspaper bags, toilet paper overwrap, dry cleaning bags, air pillows and bubble wrap, resealable bags, and plastic stretch film.
29	**Non-Recyclable Plastic Film**	All other non-recyclable plastic film including garbage bags, potato chip bags, mylar bags, floral wraps, and balloons.
30	**Tin/Steel Cans**	Tin-plated steel cans, usually food containers and empty aerosol cans, including labels. Includes steel caps.
31	**Other Ferrous Metals**	Non-container ferrous materials. Examples include metal clothes hangers, sheet metal products, pipes, miscellaneous metal scraps, pots and pans, and other magnetic metal items.
32	**Aluminum Cans**	Aluminum soft drink, beer, and food cans. Includes empty aluminum aerosol cans.
33	**Aluminum Foil and Trays**	Aluminum foil and food trays, such as disposable pie plates and catering trays.

#	Material Categories	Description of Categories
34	**Other Non-Ferrous Metals**	Non-container, non-foil, non-ferrous metals, such as aluminum cooking pans copper wiring and tubing, and brass fixtures.
35	**Glass Containers**	All clear, green, blue, or amber glass bottles and jars as well as broken container glass pieces.
36	**Non-Recyclable Glass**	Windowpanes, mirrors, ceramics, drinking glasses, and glass containers other than clear, green, blue, or amber.
37	**Food Waste**	Packaged or loose meat and vegetable waste (includes coffee grounds and tea bags). Includes single-use coffee pods (i.e. K-cups).
38	**Yard Waste**	Shrub and brush prunings, household bedding plants, weeds, leaves, grass clippings, and other landscaping and gardening wastes. Includes planting media (soil, compost, peat moss, etc.).
39	**Other Organics**	Other organic material such as pet waste (e.g. bagged dog waste and cat litter), natural fiber or wicker products, corks, lint, and hair.
40	**Textiles and Leather**	Clothing apparel, rags, leather, blankets, curtains, shoes, wallets, purses, belts, and scrap leather.
41	**Clean Wood Waste**	Untreated and unpainted lumber, pallets, and dimensional lumber. Also includes untreated/unpainted wood furniture including chairs, cabinets, dressers, etc.
42	**Treated Wood Waste**	Treated and painted lumber, pallets, and dimensional lumber, including treated/painted wood furniture. Also includes engineered wood such as plywood, particle board, oriented strand board, fiberboard, and laminate.
43	**Other C&D Debris**	Construction and demolition debris including concrete and other inert debris (brick, rocks, sand), carpet and padding, drywall, insulation, full and empty caulk tubes, paint supplies, and roofing materials.
44	**Furniture and Mattresses**	All furniture and mattresses.
45	**Vehicle Tires**	Car and truck tires.
46	**Other Rubber**	Small tires and other items made of rubber.
47	**Hazardous/Special Wastes**	All hazardous or other waste that would require special disposal, including motor oil and oil filters, fluorescent lights, paints, solvents, pesticides, non-household alkaline batteries (e.g. Ni-Cd, lead acid, and lithium) and medical wastes. Also includes bottles that held toxic materials.
48	**Household Batteries**	Non-rechargeable household batteries including AA, AAA, C, D, 9-volt, and button types.
49	**Electronics**	All electronics with a circuit board, such as televisions, computers, DVD/VHS players, and cell phones. Also includes printer/toner cartridges.
50	**Small Appliances and Other Electric Devices**	Household appliances and electronics, such as coffee makers, microwaves, lamps, fans, irons, hair dryers, and electrical kitchenware. Also includes Christmas lights, electric extension cords, cables, and electronic media such as CDs and VHS tapes.
51	**Diapers**	All child and adult diapers and incontinence aids. Includes feminine

#	Material Categories	Description of Categories
		hygiene products.
52	**Bagged Waste**	Any bagged material with more than 20% of non-recyclables or heavily contaminated recyclables. Does not include clean, bagged recyclables.
53	**Full Containers**	Recyclable containers of any material filled with food or liquid by more than 20% by volume.
54	**Other Contaminants**	Materials not included in the other categories, including products that are composite of materials such as cigarette packages, binders, laminated paper, spiral paper (e.g. Pringles) cans, chip bags, etc. Includes interlocked/multi-material products that cannot be separated.
55	**Grit**	All materials that fall through a ½ square inch mesh.

Appendix C:
Waste Characterization Study
Individual Sample Results

Table C-1: Single-Family Residential Sample Results

Hauler/Location	Residential: Waste Industries (Apex), Monday, Route #1000	Residential: Cary, Average #1	Residential: Raleigh, Tuesday, Route #21	Residential: Raleigh, Tuesday, Route #22	Residential: Cary, Average #2	Residential: All Star (Garner), Wednesday, Route #1834	Residential: Raleigh, Wednesday, Route #108-1
Material Categories sample #	**6**	**Avg.**	**15**	**16**	**Avg.**	**24**	**26**
Newspaper	0.5%	0.5%	0.0%	0.6%	0.0%	0.2%	0.6%
Corrugated Cardboard	5.2%	3.2%	6.7%	1.7%	1.3%	1.5%	0.5%
Pizza Boxes	0.3%	0.5%	0.9%	0.6%	0.4%	1.6%	0.7%
Office Paper	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Mixed Recyclable Paper	7.2%	8.9%	13.8%	6.1%	6.7%	11.2%	11.3%
Hard Cover Books	0.0%	0.0%	0.0%	0.0%	0.2%	2.4%	0.0%
Bagged Shredded Paper	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Paper Cups	0.3%	0.2%	0.5%	0.3%	0.3%	0.6%	0.1%
Aseptic Containers/Cartons	0.2%	0.5%	0.2%	0.1%	0.3%	0.4%	0.1%
Compostable Paper	6.9%	8.8%	9.9%	8.6%	7.8%	7.1%	2.8%
Non-Compostable Paper	1.8%	3.3%	1.9%	1.2%	2.4%	3.8%	1.3%
PET Bottles (#1)	1.7%	1.7%	2.4%	1.1%	1.8%	1.8%	0.8%
HDPE Bottles (#2)	0.4%	1.3%	0.8%	0.3%	1.0%	1.4%	0.2%
Non-Bottle PET Cont. (#1)	1.1%	1.0%	0.4%	1.7%	0.8%	0.0%	0.9%
Non-Bottle HDPE Cont. (#2)	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
Recyclable Plastic Cont. (#3-5 & 7)	0.9%	1.3%	1.2%	1.1%	1.4%	2.4%	0.8%
All Plastic Drink Cups	0.5%	0.4%	0.1%	0.2%	0.3%	0.2%	0.3%
PLA (#7) Plastic Containers	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other Non-Acc. Plastic Cont.	0.2%	0.4%	0.2%	0.1%	0.3%	0.3%	0.5%
Bulky Rigid Plastics	1.4%	0.2%	0.0%	0.0%	0.1%	0.0%	0.1%
Food-Container EPS Foam	0.3%	0.6%	1.1%	0.6%	0.9%	1.1%	0.7%
Packaging EPS Foam	0.1%	0.2%	0.1%	0.3%	0.0%	0.0%	0.2%
All Other Plastics	1.5%	1.3%	1.6%	3.5%	2.0%	2.4%	1.4%
Recyclable Plastic Film	1.8%	3.5%	1.5%	2.1%	3.2%	2.0%	1.3%
Non-Recyclable Plastic Film	6.6%	4.0%	6.5%	9.3%	5.7%	13.9%	10.1%
Tin/Steel Cans	1.1%	0.8%	0.4%	0.5%	0.7%	0.7%	0.7%
Other Ferrous Metals	0.2%	0.5%	0.1%	0.2%	1.0%	1.4%	1.2%
Aluminum Cans	1.3%	0.3%	0.3%	0.2%	0.6%	0.9%	0.8%
Aluminum Foil and Trays	0.3%	0.4%	0.8%	0.6%	0.7%	0.4%	0.0%
Other Non-Ferrous Metals	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.2%
Glass Containers	6.4%	2.3%	1.2%	0.6%	3.2%	2.3%	0.4%
Non-Recyclable Glass	0.8%	1.1%	0.5%	0.7%	0.6%	0.9%	0.8%
Food Waste	25.8%	21.7%	22.0%	40.5%	31.7%	12.6%	25.3%
Yard Waste	5.2%	1.0%	10.8%	2.5%	7.1%	3.9%	13.3%
Other Organics	0.0%	4.4%	2.4%	0.1%	2.9%	3.4%	1.6%
Textiles and Leather	7.6%	6.0%	2.7%	2.7%	4.2%	5.3%	6.6%
Clean Wood Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Treated Wood Waste	0.5%	0.0%	0.0%	0.2%	0.7%	0.7%	3.0%
Other C&D Debris	0.9%	5.2%	0.0%	2.4%	1.3%	2.0%	0.1%
Furniture and Mattresses	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Vehicle Tires	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other Rubber	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hazardous/Special Wastes	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Household Batteries	0.1%	0.0%	0.1%	0.0%	0.0%	1.0%	0.0%
Electronics	0.0%	0.5%	0.0%	0.3%	0.0%	0.0%	0.8%
Sm. Appliances & Other Elec. Dev.	0.5%	1.9%	0.0%	0.7%	0.6%	1.8%	0.0%
Diapers	8.6%	7.8%	1.8%	3.5%	5.6%	4.9%	5.0%
Composite Materials	1.5%	3.7%	5.8%	3.6%	1.8%	3.3%	3.2%
Liquids	0.0%	0.1%	0.0%	0.0%	0.3%	0.0%	0.2%
Grit	0.0%	0.4%	1.4%	1.2%	0.1%	0.0%	1.9%
TOTALS	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table C-1: Single-Family Residential Sample Results (cont.)

Hauler/Location	Residential: Waste Industries (Wake Forest), Wednesday, Route #1009	Residential: Raleigh, Wednesday, Route #NE1101	Residential: Fuquay-Varina, Thursday, Route #37	Residential: Raleigh, Thursday, Route #SW18	Residential: Raleigh, Friday, Route #SW20	Weighted
Material Categories sample #	**28**	**29**	**32**	**33**	**38**	**Average**
Newspaper	0.0%	0.5%	0.0%	0.4%	0.0%	**0.3%**
Corrugated Cardboard	3.0%	7.0%	1.0%	6.0%	2.8%	**3.3%**
Pizza Boxes	0.1%	0.0%	0.0%	0.0%	0.0%	**0.4%**
Office Paper	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Mixed Recyclable Paper	13.9%	4.3%	12.5%	13.6%	16.2%	**10.3%**
Hard Cover Books	0.0%	0.0%	0.0%	0.0%	0.0%	**0.2%**
Bagged Shredded Paper	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Paper Cups	0.2%	0.8%	0.3%	0.0%	0.0%	**0.3%**
Aseptic Containers/Cartons	0.3%	0.0%	0.3%	0.4%	0.2%	**0.3%**
Compostable Paper	6.6%	6.3%	8.7%	7.5%	7.1%	**7.4%**
Non-Compostable Paper	2.1%	1.3%	4.6%	1.8%	0.8%	**2.2%**
PET Bottles (#1)	0.8%	3.2%	1.8%	1.9%	2.9%	**1.9%**
HDPE Bottles (#2)	0.6%	1.0%	0.9%	0.0%	0.6%	**0.7%**
Non-Bottle PET Cont. (#1)	0.5%	0.7%	0.7%	1.0%	0.2%	**0.7%**
Non-Bottle HDPE Cont. (#2)	0.0%	0.0%	0.1%	0.0%	0.0%	**0.0%**
Recyclable Plastic Cont. (#3-5 & 7)	0.9%	0.9%	1.7%	3.1%	0.8%	**1.4%**
All Plastic Drink Cups	0.4%	1.3%	0.7%	0.3%	0.3%	**0.4%**
PLA (#7) Plastic Containers	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Other Non-Acc. Plastic Cont.	1.1%	0.0%	0.4%	0.0%	0.0%	**0.3%**
Bulky Rigid Plastics	0.4%	0.0%	0.0%	0.0%	1.2%	**0.3%**
Food-Container EPS Foam	0.2%	1.8%	1.6%	1.4%	1.7%	**1.0%**
Packaging EPS Foam	0.1%	0.0%	0.3%	0.1%	0.0%	**0.1%**
All Other Plastics	1.1%	0.6%	3.9%	0.8%	1.5%	**1.8%**
Recyclable Plastic Film	1.4%	3.0%	2.2%	3.3%	1.4%	**2.2%**
Non-Recyclable Plastic Film	3.8%	10.4%	9.1%	6.9%	7.8%	**8.0%**
Tin/Steel Cans	0.5%	1.4%	1.6%	1.0%	1.0%	**0.9%**
Other Ferrous Metals	0.0%	4.1%	0.0%	2.0%	0.0%	**0.9%**
Aluminum Cans	0.8%	0.5%	0.3%	0.5%	0.2%	**0.6%**
Aluminum Foil and Trays	0.6%	0.7%	0.5%	1.2%	0.2%	**0.5%**
Other Non-Ferrous Metals	0.1%	0.6%	0.1%	0.0%	0.0%	**0.1%**
Glass Containers	0.0%	0.5%	0.4%	4.5%	2.0%	**1.9%**
Non-Recyclable Glass	0.5%	0.1%	1.6%	0.2%	0.4%	**0.7%**
Food Waste	24.8%	28.5%	14.6%	31.8%	17.6%	**24.8%**
Yard Waste	13.0%	0.2%	6.5%	1.6%	13.6%	**6.5%**
Other Organics	0.0%	4.4%	6.3%	1.5%	0.0%	**2.3%**
Textiles and Leather	3.9%	5.1%	1.5%	3.7%	3.0%	**4.3%**
Clean Wood Waste	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Treated Wood Waste	0.0%	1.8%	0.7%	0.0%	0.0%	**0.7%**
Other C&D Debris	0.5%	0.0%	0.0%	0.3%	0.0%	**1.0%**
Furniture and Mattresses	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Vehicle Tires	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Other Rubber	0.0%	0.0%	0.0%	0.2%	0.0%	**0.0%**
Hazardous/Special Wastes	0.1%	0.0%	0.0%	0.1%	0.0%	**0.0%**
Household Batteries	0.0%	0.0%	0.1%	0.0%	0.2%	**0.1%**
Electronics	0.0%	0.1%	1.6%	0.0%	0.0%	**0.3%**
Sm. Appliances & Other Elec. Dev.	0.0%	0.0%	0.0%	0.0%	2.4%	**0.7%**
Diapers	4.4%	6.5%	6.0%	1.3%	9.2%	**5.4%**
Composite Materials	13.4%	1.3%	4.8%	0.8%	4.6%	**3.9%**
Liquids	0.0%	0.9%	0.0%	0.7%	0.0%	**0.2%**
Grit	0.0%	0.0%	2.7%	0.0%	0.0%	**0.6%**
TOTALS	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table C-2: Commercial Sample Results

Hauler/Location	Commercial: Republic (Cary), Monday, Route #1110	Commercial: Waste Mgmt (Cary), Monday, Route #Q102	Commercial: Waste Industries (Cary), Tuesday, Route #3014	Commercial: Waste Industries (Wake Forest), Tuesday, Route #3003	Commercial: Waste Industries (Cary), Tuesday, Route #3013	Commercial: Waste Industries (Apex), Tuesday, Route #3005	Commercial: Republic (East County), Wednesday, Route #109
Material Categories sample #	**1**	**2**	**10**	**11**	**13**	**18**	**22**
Newspaper	0.4%	0.0%	0.0%	0.2%	0.0%	0.0%	0.4%
Corrugated Cardboard	6.2%	2.5%	7.7%	2.8%	5.9%	2.5%	4.5%
Pizza Boxes	0.5%	0.0%	0.0%	0.4%	0.0%	0.0%	0.4%
Office Paper	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mixed Recyclable Paper	3.4%	8.7%	1.8%	4.3%	13.8%	4.3%	7.7%
Hard Cover Books	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Bagged Shredded Paper	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Paper Cups	0.6%	1.4%	0.0%	1.2%	1.7%	0.7%	0.5%
Aseptic Containers/Cartons	0.1%	0.7%	0.1%	0.3%	0.3%	0.0%	0.1%
Compostable Paper	7.8%	4.9%	3.3%	11.0%	9.7%	7.5%	4.3%
Non-Compostable Paper	2.2%	8.1%	1.0%	3.6%	0.8%	1.0%	1.2%
PET Bottles (#1)	0.4%	1.6%	1.7%	3.8%	1.9%	2.6%	1.8%
HDPE Bottles (#2)	0.4%	2.1%	1.7%	1.0%	1.2%	0.5%	0.2%
Non-Bottle PET Cont. (#1)	0.0%	0.1%	0.0%	0.3%	0.7%	0.8%	0.2%
Non-Bottle HDPE Cont. (#2)	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%
Recyclable Plastic Cont. (#3-5 & 7)	0.9%	0.9%	0.8%	0.9%	1.1%	0.1%	1.0%
All Plastic Drink Cups	0.5%	1.4%	0.5%	0.6%	0.9%	0.8%	0.3%
PLA (#7) Plastic Containers	0.0%	0.1%	0.1%	0.0%	0.4%	0.0%	0.0%
Other Non-Acc. Plastic Cont.	0.2%	0.4%	0.0%	0.7%	0.0%	0.0%	0.0%
Bulky Rigid Plastics	5.0%	0.0%	1.6%	0.0%	1.3%	0.4%	4.5%
Food-Container EPS Foam	0.2%	0.4%	0.7%	2.9%	0.1%	0.7%	0.5%
Packaging EPS Foam	0.0%	0.0%	0.0%	0.3%	1.8%	0.1%	0.0%
All Other Plastics	1.5%	2.1%	0.0%	1.6%	2.1%	0.7%	0.9%
Recyclable Plastic Film	1.0%	0.9%	0.8%	0.4%	0.1%	1.7%	0.7%
Non-Recyclable Plastic Film	7.0%	7.1%	6.3%	18.0%	7.1%	9.2%	6.3%
Tin/Steel Cans	1.0%	0.4%	0.0%	0.8%	0.0%	0.7%	0.7%
Other Ferrous Metals	10.6%	0.1%	0.0%	0.3%	0.7%	0.0%	1.5%
Aluminum Cans	0.4%	0.4%	0.8%	0.7%	0.8%	0.4%	1.6%
Aluminum Foil and Trays	1.3%	0.7%	0.2%	0.5%	0.3%	0.5%	0.5%
Other Non-Ferrous Metals	0.0%	0.0%	0.0%	2.8%	0.0%	0.0%	0.7%
Glass Containers	0.5%	2.8%	10.3%	0.5%	3.1%	0.0%	5.8%
Non-Recyclable Glass	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%
Food Waste	21.9%	40.8%	22.0%	36.0%	38.7%	14.6%	23.4%
Yard Waste	1.1%	0.9%	0.0%	0.0%	0.0%	29.1%	18.1%
Other Organics	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%
Textiles and Leather	2.3%	3.1%	24.9%	0.7%	3.0%	1.4%	4.3%
Clean Wood Waste	0.0%	0.0%	7.9%	0.3%	0.1%	0.0%	0.0%
Treated Wood Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.1%
Other C&D Debris	0.0%	0.0%	2.1%	0.0%	0.0%	0.0%	1.8%
Furniture and Mattresses	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Vehicle Tires	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other Rubber	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hazardous/Special Wastes	0.9%	0.0%	1.3%	0.0%	0.0%	0.0%	1.9%
Household Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Electronics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sm. Appliances & Other Elec. Dev.	0.0%	0.6%	0.0%	0.0%	0.2%	0.0%	0.3%
Diapers	14.1%	2.5%	0.9%	1.0%	0.2%	14.4%	1.3%
Composite Materials	4.8%	1.0%	0.4%	1.1%	0.8%	1.4%	1.2%
Liquids	1.6%	2.0%	1.1%	0.4%	1.2%	0.0%	0.0%
Grit	0.0%	0.0%	0.0%	0.0%	0.0%	3.1%	0.0%
TOTALS	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table C-2: Commercial Sample Results (cont.)

Hauler/Location	Commercial: Waste Ind. (East County), Wed., Route #3011	Commercial: Waste Ind. (West County), Wed., Route #3007	Commercial: Waste Industries (Raleigh), Thu., Route #3019	Commercial: Waste Industries (Raleigh), Thu., Route #3006	Commercial: Waste Industries (Raleigh), Thu., Route #3004	Commercial: Waste Industries (Raleigh), Friday, Route #N Raleigh	Commercial: Waste Industries (Raleigh), Friday, Route #3010	Weighted Average
Material Categories sample #	**23**	**27**	**35**	**36**	**37**	**40**	**42 - Outlier**	
Newspaper	0.0%	6.0%	0.5%	0.0%	0.3%	4.2%	0.2%	**0.9%**
Corrugated Cardboard	4.6%	8.7%	3.8%	4.0%	2.0%	3.7%	0.7%	**4.5%**
Pizza Boxes	0.7%	0.0%	0.3%	1.1%	0.2%	0.0%	0.2%	**0.3%**
Office Paper	0.3%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	**0.1%**
Mixed Recyclable Paper	13.2%	11.0%	9.0%	4.3%	10.5%	18.6%	3.5%	**8.4%**
Hard Cover Books	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.1%**
Bagged Shredded Paper	0.0%	0.0%	0.0%	0.0%	0.1%	5.6%	0.0%	**0.6%**
Paper Cups	2.2%	0.2%	1.0%	0.1%	0.1%	0.0%	0.1%	**0.8%**
Aseptic Containers/Cartons	0.0%	0.0%	0.3%	0.0%	0.0%	2.0%	0.1%	**0.3%**
Compostable Paper	5.1%	5.0%	8.1%	3.4%	4.7%	9.7%	1.2%	**6.6%**
Non-Compostable Paper	2.5%	0.5%	1.6%	3.6%	1.2%	0.5%	1.0%	**2.1%**
PET Bottles (#1)	1.4%	1.9%	2.0%	1.9%	2.4%	1.7%	1.7%	**1.9%**
HDPE Bottles (#2)	1.0%	0.9%	1.0%	1.2%	0.4%	2.7%	0.9%	**1.1%**
Non-Bottle PET Cont. (#1)	0.8%	0.3%	0.2%	0.4%	0.2%	0.0%	0.2%	**0.3%**
Non-Bottle HDPE Cont. (#2)	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Recyclable Plastic Cont. (#3-5 & 7)	0.0%	1.0%	0.8%	0.4%	0.4%	1.2%	0.4%	**0.7%**
All Plastic Drink Cups	1.2%	0.4%	0.3%	0.2%	0.4%	0.4%	0.5%	**0.6%**
PLA (#7) Plastic Containers	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Other Non-Acc. Plastic Cont.	0.0%	0.0%	0.1%	0.2%	0.0%	0.1%	2.3%	**0.1%**
Bulky Rigid Plastics	4.1%	1.9%	0.6%	0.0%	0.0%	2.8%	0.0%	**1.9%**
Food-Container EPS Foam	1.0%	0.2%	1.0%	0.9%	1.1%	0.8%	0.5%	**0.8%**
Packaging EPS Foam	0.1%	0.7%	0.1%	0.5%	0.1%	0.0%	0.0%	**0.3%**
All Other Plastics	1.0%	0.7%	4.1%	0.8%	0.8%	1.3%	1.2%	**1.3%**
Recyclable Plastic Film	1.6%	1.4%	2.2%	0.7%	1.5%	1.1%	1.3%	**1.1%**
Non-Recyclable Plastic Film	14.2%	11.0%	3.3%	4.7%	7.3%	5.9%	3.5%	**8.6%**
Tin/Steel Cans	0.6%	0.4%	1.1%	1.2%	0.5%	0.2%	0.4%	**0.6%**
Other Ferrous Metals	1.3%	0.2%	0.2%	0.0%	0.0%	0.9%	0.8%	**1.5%**
Aluminum Cans	0.8%	0.4%	1.5%	0.4%	1.1%	0.3%	0.6%	**0.7%**
Aluminum Foil and Trays	0.0%	0.1%	0.1%	0.4%	0.0%	0.3%	0.3%	**0.4%**
Other Non-Ferrous Metals	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.3%**
Glass Containers	2.3%	1.5%	5.1%	2.6%	1.2%	2.7%	2.0%	**2.8%**
Non-Recyclable Glass	0.0%	1.4%	0.1%	0.1%	4.4%	0.0%	0.0%	**0.5%**
Food Waste	25.1%	15.4%	24.4%	18.7%	34.1%	8.3%	2.6%	**24.9%**
Yard Waste	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	61.6%	**4.1%**
Other Organics	0.0%	1.3%	0.7%	0.0%	0.1%	4.7%	0.0%	**0.5%**
Textiles and Leather	1.8%	0.1%	11.3%	2.8%	9.5%	2.8%	0.7%	**5.2%**
Clean Wood Waste	5.8%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	**1.4%**
Treated Wood Waste	0.3%	8.4%	0.0%	0.1%	6.0%	0.3%	0.8%	**1.2%**
Other C&D Debris	0.0%	3.0%	0.0%	35.0%	0.0%	1.8%	0.0%	**2.2%**
Furniture and Mattresses	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Vehicle Tires	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Other Rubber	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.3%**
Hazardous/Special Wastes	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Household Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Electronics	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	**0.4%**
Sm. Appliances & Other Elec. Dev.	0.1%	0.6%	1.7%	1.3%	0.0%	1.3%	0.0%	**4.5%**
Diapers	0.4%	5.4%	8.3%	4.2%	0.5%	2.5%	4.6%	**3.1%**
Composite Materials	6.5%	1.8%	2.8%	2.4%	8.0%	4.9%	2.9%	**1.4%**
Liquids	0.0%	2.2%	2.4%	0.0%	0.6%	6.6%	1.4%	**0.5%**
Grit	0.0%	3.6%	0.0%	0.0%	0.0%	0.0%	1.8%	**0.9%**
TOTALS	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table C-3: Convenience Center Sample Results

Hauler/Location	Convenience Centers: (#2), Monday	Convenience Centers: (#1), Monday	Convenience Centers: (#7), Tuesday	Convenience Centers: (#11), Wednesday	Convenience Centers: (#8), Thursday	Convenience Centers: (#4), Friday	Weighted
Material Categories sample #	**4**	**5**	**9**	**20**	**30**	**39**	**Average**
Newspaper	0.1%	0.0%	0.0%	0.1%	0.0%	0.1%	**0.1%**
Corrugated Cardboard	5.4%	2.1%	0.5%	3.1%	2.1%	7.9%	**3.5%**
Pizza Boxes	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Office Paper	0.0%	2.7%	1.0%	0.0%	0.0%	0.0%	**0.7%**
Mixed Recyclable Paper	2.8%	9.7%	6.1%	20.2%	8.8%	4.0%	**8.6%**
Hard Cover Books	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Bagged Shredded Paper	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Paper Cups	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	**0.1%**
Aseptic Containers/Cartons	0.0%	0.0%	0.4%	0.0%	0.3%	0.1%	**0.1%**
Compostable Paper	0.0%	4.0%	1.7%	3.2%	4.2%	2.2%	**2.7%**
Non-Compostable Paper	0.0%	0.6%	0.0%	1.5%	1.0%	0.5%	**0.6%**
PET Bottles (#1)	0.1%	2.0%	2.0%	4.7%	3.0%	1.2%	**2.2%**
HDPE Bottles (#2)	0.4%	0.6%	0.0%	1.2%	0.6%	0.4%	**0.5%**
Non-Bottle PET Cont. (#1)	0.1%	0.3%	0.1%	0.0%	0.6%	0.1%	**0.2%**
Non-Bottle HDPE Cont. (#2)	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	**0.0%**
Recyclable Plastic Cont. (#3-5 & 7)	0.2%	1.1%	0.4%	2.2%	1.5%	0.2%	**0.9%**
All Plastic Drink Cups	0.0%	0.1%	0.0%	0.2%	0.1%	0.0%	**0.1%**
PLA (#7) Plastic Containers	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Other Non-Acc. Plastic Cont.	0.0%	0.0%	0.1%	0.7%	0.5%	0.0%	**0.2%**
Bulky Rigid Plastics	10.4%	5.0%	4.7%	0.7%	2.6%	1.4%	**3.9%**
Food-Container EPS Foam	0.0%	1.3%	1.2%	0.3%	0.9%	0.1%	**0.7%**
Packaging EPS Foam	0.6%	0.0%	1.4%	1.6%	0.1%	0.0%	**0.6%**
All Other Plastics	2.3%	0.6%	0.7%	1.8%	1.5%	2.8%	**1.6%**
Recyclable Plastic Film	0.3%	0.7%	0.5%	2.0%	0.9%	0.2%	**0.8%**
Non-Recyclable Plastic Film	4.5%	5.7%	6.2%	7.6%	15.9%	6.4%	**7.9%**
Tin/Steel Cans	0.1%	1.8%	0.7%	1.5%	0.8%	0.3%	**0.9%**
Other Ferrous Metals	0.5%	0.2%	1.3%	1.7%	2.2%	3.9%	**1.7%**
Aluminum Cans	0.0%	0.5%	0.1%	0.8%	1.4%	0.4%	**0.6%**
Aluminum Foil and Trays	0.0%	0.8%	0.6%	0.4%	0.1%	0.0%	**0.3%**
Other Non-Ferrous Metals	0.0%	0.0%	1.3%	0.0%	0.1%	0.2%	**0.3%**
Glass Containers	0.5%	12.6%	0.8%	1.7%	3.9%	0.0%	**3.6%**
Non-Recyclable Glass	0.7%	0.0%	2.1%	2.0%	2.3%	0.6%	**1.3%**
Food Waste	0.9%	31.1%	16.1%	5.4%	12.5%	1.0%	**12.0%**
Yard Waste	4.5%	0.0%	0.0%	0.6%	7.5%	0.0%	**2.0%**
Other Organics	0.0%	10.3%	1.0%	0.4%	0.0%	0.0%	**2.2%**
Textiles and Leather	12.0%	2.0%	6.7%	19.2%	2.1%	23.7%	**10.6%**
Clean Wood Waste	0.0%	0.0%	2.4%	0.0%	3.6%	0.0%	**1.0%**
Treated Wood Waste	19.1%	0.0%	4.0%	1.6%	3.3%	12.4%	**6.2%**
Other C&D Debris	5.4%	0.0%	9.3%	2.2%	0.0%	9.1%	**4.2%**
Furniture and Mattresses	11.7%	0.0%	0.0%	0.0%	5.9%	0.0%	**2.6%**
Vehicle Tires	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Other Rubber	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Hazardous/Special Wastes	2.1%	0.0%	0.0%	0.0%	0.7%	0.0%	**0.4%**
Household Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	**0.0%**
Electronics	0.0%	0.0%	3.9%	3.0%	0.0%	0.0%	**1.1%**
Sm. Appliances & Other Elec. Dev.	8.2%	1.5%	0.0%	0.0%	1.3%	8.0%	**3.0%**
Diapers	0.0%	0.7%	5.5%	1.6%	0.7%	0.0%	**1.4%**
Composite Materials	4.5%	1.2%	11.3%	3.1%	3.4%	8.0%	**5.2%**
Liquids	0.0%	0.6%	0.0%	2.0%	0.0%	0.0%	**0.4%**
Grit	2.1%	0.0%	5.6%	1.4%	3.6%	4.5%	**2.9%**
TOTALS	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table C-4: North Carolina State University Sample Results

Hauler/Location	NC State: (Research/ Medical), Monday	NC State: (Administrative), Tuesday	NC State: (Dining Halls), Tuesday	NC State: (Mixed Use), Wednesday	NC State: (Residences), Thursday	NC State: (Residences), Friday	Weighted
Material Categories sample #	**3**	**12**	**14**	**21**	**31**	**41**	**Average**
Newspaper	0.0%	0.0%	0.0%	3.2%	0.0%	0.0%	**0.4%**
Corrugated Cardboard	0.0%	3.2%	4.4%	2.9%	0.5%	1.7%	**2.3%**
Pizza Boxes	0.0%	0.0%	1.6%	0.0%	1.1%	0.2%	**0.6%**
Office Paper	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	**0.1%**
Mixed Recyclable Paper	2.4%	5.8%	3.6%	16.9%	5.0%	13.6%	**7.3%**
Hard Cover Books	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	**0.3%**
Bagged Shredded Paper	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Paper Cups	0.1%	2.6%	1.8%	5.0%	2.1%	0.4%	**1.9%**
Aseptic Containers/Cartons	0.0%	0.5%	0.2%	0.5%	0.2%	0.3%	**0.3%**
Compostable Paper	10.9%	27.6%	14.4%	9.3%	10.0%	18.6%	**14.6%**
Non-Compostable Paper	2.2%	2.7%	7.5%	1.6%	2.4%	2.4%	**3.6%**
PET Bottles (#1)	0.1%	1.4%	4.9%	7.4%	0.0%	2.7%	**2.9%**
HDPE Bottles (#2)	0.2%	0.5%	0.3%	0.6%	0.2%	1.0%	**0.4%**
Non-Bottle PET Cont. (#1)	0.0%	0.4%	0.7%	0.0%	0.7%	0.5%	**0.4%**
Non-Bottle HDPE Cont. (#2)	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Recyclable Plastic Cont. (#3-5 & 7)	0.1%	0.6%	2.0%	1.8%	1.3%	0.3%	**1.1%**
All Plastic Drink Cups	0.1%	1.1%	0.6%	0.8%	1.1%	0.6%	**0.7%**
PLA (#7) Plastic Containers	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Other Non-Acc. Plastic Cont.	0.1%	0.0%	0.0%	0.0%	0.5%	0.3%	**0.1%**
Bulky Rigid Plastics	0.0%	0.0%	0.0%	0.7%	2.5%	1.4%	**0.8%**
Food-Container EPS Foam	0.0%	0.5%	0.1%	0.2%	2.0%	0.9%	**0.6%**
Packaging EPS Foam	0.4%	0.0%	0.0%	0.2%	0.4%	0.3%	**0.2%**
All Other Plastics	1.9%	2.4%	2.9%	1.0%	1.9%	2.8%	**2.2%**
Recyclable Plastic Film	0.0%	0.7%	0.0%	0.2%	2.0%	4.7%	**1.2%**
Non-Recyclable Plastic Film	12.9%	10.7%	16.4%	12.8%	8.7%	4.3%	**11.5%**
Tin/Steel Cans	0.0%	0.2%	2.4%	0.4%	1.3%	0.0%	**0.9%**
Other Ferrous Metals	0.0%	0.1%	0.0%	0.0%	0.1%	0.4%	**0.1%**
Aluminum Cans	0.1%	0.7%	0.2%	0.5%	0.3%	0.4%	**0.3%**
Aluminum Foil and Trays	0.0%	0.3%	0.9%	1.1%	1.0%	0.2%	**0.6%**
Other Non-Ferrous Metals	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	**0.3%**
Glass Containers	0.0%	0.0%	0.5%	2.2%	1.9%	2.0%	**1.1%**
Non-Recyclable Glass	0.0%	0.0%	0.0%	0.0%	1.0%	0.6%	**0.3%**
Food Waste	1.3%	22.9%	34.1%	13.7%	38.6%	1.7%	**20.8%**
Yard Waste	0.0%	0.0%	0.0%	0.0%	0.0%	16.2%	**2.4%**
Other Organics	63.7%	0.0%	0.0%	1.1%	0.0%	0.0%	**10.0%**
Textiles and Leather	0.5%	1.4%	0.0%	1.4%	5.9%	4.0%	**2.1%**
Clean Wood Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Treated Wood Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Other C&D Debris	0.0%	7.5%	0.0%	2.4%	0.0%	0.0%	**1.2%**
Furniture and Mattresses	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Vehicle Tires	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Other Rubber	0.0%	0.0%	0.1%	0.4%	0.0%	0.0%	**0.1%**
Hazardous/Special Wastes	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Household Batteries	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	**0.0%**
Electronics	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	**0.1%**
Sm. Appliances & Other Elec. Dev.	0.0%	0.0%	0.0%	0.0%	1.5%	1.3%	**0.5%**
Diapers	1.1%	0.0%	0.2%	1.8%	0.6%	0.0%	**0.6%**
Composite Materials	1.1%	2.5%	0.0%	0.9%	3.3%	14.8%	**3.4%**
Liquids	0.6%	2.0%	0.0%	7.1%	0.4%	1.4%	**1.6%**
Grit	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
TOTALS	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table C-5: Town of Cary Waste Sample Results

Hauler/Location	Residential: Cary, Monday, Route #M186	Residential: Cary, Monday, Route #M177	Residential: Cary, Tuesday, Route #T173	Residential: Cary, Tuesday, Route #T174	Residential: Cary, Wednesday, Route #W176	Residential: Cary, Thursday, Route #H183	Weighted
Material Categories sample #	**7**	**8**	**17**	**19**	**25**	**34**	**Average**
Newspaper	1.0%	0.0%	0.3%	0.0%	0.0%	0.1%	**0.2%**
Corrugated Cardboard	5.4%	0.3%	3.5%	0.3%	0.8%	2.3%	**2.1%**
Pizza Boxes	0.1%	1.5%	0.0%	0.3%	0.5%	0.4%	**0.4%**
Office Paper	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	**0.0%**
Mixed Recyclable Paper	14.1%	5.7%	6.6%	3.8%	7.0%	8.5%	**7.6%**
Hard Cover Books	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	**0.1%**
Bagged Shredded Paper	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Paper Cups	0.4%	0.1%	0.1%	0.2%	0.3%	0.5%	**0.3%**
Aseptic Containers/Cartons	0.5%	0.2%	0.9%	0.7%	0.0%	0.2%	**0.4%**
Compostable Paper	8.0%	9.4%	9.0%	5.9%	6.8%	10.0%	**8.2%**
Non-Compostable Paper	1.8%	6.5%	2.0%	2.4%	3.6%	1.4%	**2.8%**
PET Bottles (#1)	2.6%	1.4%	1.1%	1.1%	1.9%	2.3%	**1.8%**
HDPE Bottles (#2)	1.9%	0.5%	1.3%	0.5%	0.6%	1.6%	**1.1%**
Non-Bottle PET Cont. (#1)	1.2%	1.2%	0.5%	1.4%	0.8%	0.3%	**0.8%**
Non-Bottle HDPE Cont. (#2)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Recyclable Plastic Cont. (#3-5 & 7)	2.0%	1.0%	0.8%	1.7%	1.0%	1.6%	**1.4%**
All Plastic Drink Cups	0.7%	0.3%	0.2%	0.5%	0.0%	0.4%	**0.4%**
PLA (#7) Plastic Containers	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Other Non-Acc. Plastic Cont.	1.2%	0.1%	0.0%	0.0%	0.6%	0.4%	**0.4%**
Bulky Rigid Plastics	0.0%	0.0%	0.6%	0.0%	0.3%	0.0%	**0.1%**
Food-Container EPS Foam	0.7%	0.5%	0.5%	0.9%	0.6%	1.2%	**0.8%**
Packaging EPS Foam	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	**0.1%**
All Other Plastics	1.6%	1.1%	1.1%	1.1%	2.3%	2.5%	**1.7%**
Recyclable Plastic Film	3.4%	5.3%	2.1%	1.4%	3.0%	4.6%	**3.3%**
Non-Recyclable Plastic Film	8.2%	1.0%	2.5%	5.6%	4.6%	6.5%	**5.0%**
Tin/Steel Cans	1.1%	0.4%	0.9%	0.2%	0.8%	1.1%	**0.8%**
Other Ferrous Metals	1.1%	0.0%	0.3%	0.0%	1.3%	1.4%	**0.8%**
Aluminum Cans	0.3%	0.2%	0.3%	0.1%	0.6%	0.9%	**0.4%**
Aluminum Foil and Trays	0.2%	0.4%	0.5%	0.2%	0.7%	0.9%	**0.5%**
Other Non-Ferrous Metals	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	**0.0%**
Glass Containers	2.4%	1.6%	2.9%	0.9%	2.2%	5.5%	**2.8%**
Non-Recyclable Glass	1.9%	0.4%	1.1%	0.6%	1.2%	0.1%	**0.8%**
Food Waste	21.0%	23.8%	20.8%	40.6%	25.8%	29.8%	**27.4%**
Yard Waste	1.2%	0.6%	1.0%	21.8%	2.7%	0.0%	**4.5%**
Other Organics	3.8%	7.8%	2.3%	0.1%	8.3%	0.8%	**3.5%**
Textiles and Leather	1.4%	5.8%	10.3%	2.8%	8.4%	2.0%	**4.9%**
Clean Wood Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Treated Wood Waste	0.1%	0.0%	0.0%	0.0%	0.0%	1.7%	**0.4%**
Other C&D Debris	0.4%	0.0%	13.7%	0.0%	1.0%	2.5%	**3.0%**
Furniture and Mattresses	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Vehicle Tires	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Other Rubber	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	**0.0%**
Hazardous/Special Wastes	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Household Batteries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Electronics	0.2%	0.0%	1.1%	0.0%	0.0%	0.0%	**0.2%**
Sm. Appliances & Other Elec. Dev.	0.0%	0.0%	5.1%	0.0%	0.1%	1.4%	**1.1%**
Diapers	6.0%	14.6%	4.0%	3.2%	9.6%	4.3%	**6.5%**
Composite Materials	3.4%	6.2%	2.1%	1.8%	2.2%	1.5%	**2.6%**
Liquids	0.4%	0.0%	0.0%	0.0%	0.0%	0.7%	**0.2%**
Grit	0.0%	1.4%	0.0%	0.0%	0.4%	0.0%	**0.2%**
TOTALS	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table C-5: Town of Cary Recycling Sample Results

Hauler/Location	Rec.: Cary, Mon. Route #M209-Y	Rec.: Cary, Mon. Route #M204-Y	Rec.: Cary, Tue. Route #T207-Y	Rec.: Cary, Tue. Route #T202-Y	Rec.: Cary, Wed. Route #W205-Y
Material Categories sample #	**1**	**2**	**3**	**4**	**5**
Newspaper	1.5%	3.1%	6.0%	4.8%	2.0%
Corrugated Cardboard	19.4%	20.4%	6.6%	2.4%	30.8%
Wet OCC	1.6%	0.0%	0.0%	0.0%	0.0%
Pizza Boxes	2.4%	0.9%	0.4%	0.0%	0.0%
Office Paper	1.0%	0.3%	7.7%	0.4%	0.4%
Mixed Recyclable Paper	25.0%	24.8%	41.5%	30.9%	26.1%
Wet Paper	0.0%	0.0%	0.0%	0.0%	0.0%
Hard Cover Books	0.0%	0.0%	0.0%	0.0%	0.0%
Bagged Shredded Paper	0.0%	0.0%	0.0%	0.0%	0.0%
Film-Wrapped Paper	0.4%	0.2%	1.2%	0.0%	0.3%
Paper Cups	0.0%	0.0%	0.9%	0.1%	0.0%
Aseptic Containers/Cartons	1.1%	0.6%	0.5%	0.4%	0.4%
Compostable Paper	0.2%	0.0%	0.4%	0.7%	0.0%
Non-Compostable Paper	0.4%	0.0%	1.0%	0.1%	1.2%
PET Bottles (#1)	3.7%	6.7%	5.9%	3.5%	6.3%
Natural HDPE Bottles (#2)	0.2%	1.5%	0.8%	0.4%	1.6%
Colored HDPE Bottles (#2)	1.0%	3.1%	1.8%	0.8%	1.4%
Non-Bottle PET Cont. (#1)	1.6%	1.5%	0.7%	0.9%	1.6%
Non-Bottle HDPE Cont. (#2)	0.0%	0.0%	0.0%	0.0%	0.2%
Recyclable Plastic Cont. (#3-5 & 7)	1.0%	1.3%	0.8%	0.4%	1.2%
All Plastic Drink Cups	0.0%	0.2%	0.6%	0.1%	0.1%
PLA (#7) Plastic Containers	0.0%	0.0%	0.0%	0.0%	0.0%
Other Non-Acc. Plastic Cont.	0.0%	0.8%	0.0%	0.8%	0.4%
Bulky Rigid Plastics	0.0%	2.2%	0.0%	0.0%	0.0%
Food-Container EPS Foam	0.1%	0.0%	0.2%	0.0%	0.0%
Packaging EPS Foam	0.0%	0.0%	0.0%	0.0%	0.0%
All Other Plastics	1.2%	0.7%	1.2%	0.9%	0.4%
Recyclable Plastic Film	0.6%	0.7%	1.3%	0.2%	0.2%
Non-Recyclable Plastic Film	0.2%	0.5%	0.5%	0.2%	0.3%
Tin/Steel Cans	1.5%	1.6%	0.9%	1.8%	1.6%
Other Ferrous Metals	1.3%	0.0%	0.0%	0.1%	0.2%
Aluminum Cans	1.3%	2.2%	1.3%	2.0%	2.8%
Aluminum Foil and Trays	0.0%	0.1%	0.0%	0.0%	0.0%
Other Non-Ferrous Metals	0.0%	0.0%	0.0%	0.0%	0.0%
Glass Containers	17.9%	22.9%	10.9%	40.1%	18.3%
Other Glass	0.0%	0.6%	0.0%	0.0%	0.0%
Food Waste	0.0%	0.0%	0.0%	0.0%	0.2%
Yard Waste	0.1%	0.2%	0.0%	0.0%	0.0%
Other Organics	0.0%	0.0%	0.0%	0.0%	0.0%
Textiles and Leather	0.1%	0.2%	0.0%	0.0%	0.0%
Clean Wood Waste	0.7%	0.0%	0.0%	0.0%	0.0%
Treated Wood Waste	1.9%	0.0%	0.0%	0.1%	0.0%
Other C&D Debris	0.0%	0.0%	0.0%	0.0%	0.0%
Furniture and Mattresses	0.0%	0.0%	0.0%	0.0%	0.0%
Vehicle Tires	0.0%	0.0%	0.0%	0.0%	0.0%
Other Rubber	0.0%	0.0%	0.0%	0.0%	0.0%
Hazardous/Special Wastes	0.0%	0.0%	0.0%	0.0%	0.0%
Household Batteries	0.0%	0.0%	0.0%	0.0%	0.0%
Electronics	0.0%	0.0%	0.0%	0.0%	0.0%
Sm. Appliances & Other Elec. Dev.	0.3%	0.0%	0.0%	0.0%	0.0%
Diapers	0.0%	0.0%	0.0%	0.0%	0.0%
Bagged Waste	0.0%	0.0%	0.5%	0.0%	0.0%
Full Containers	0.0%	0.0%	0.0%	0.4%	0.0%
Composite Materials	1.2%	0.9%	0.0%	0.4%	1.2%
Grit	11.2%	2.0%	6.6%	6.9%	0.6%
TOTALS	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table C-5: Town of Cary Recycling Sample Results (cont.)

Hauler/Location	Rec.: Cary, Wed. Route #W201-Y	Rec.: Cary, Thu. Route #H209-Y	Rec.: Cary, Thu. Route #H208-Y	Weighted
Material Categories sample #	**6**	**7**	**8**	**Average**
Newspaper	5.8%	0.3%	10.3%	**4.6%**
Corrugated Cardboard	24.6%	16.2%	29.2%	**18.2%**
Wet OCC	0.0%	0.9%	0.0%	**0.3%**
Pizza Boxes	0.0%	0.7%	0.0%	**0.6%**
Office Paper	12.8%	1.1%	0.6%	**3.0%**
Mixed Recyclable Paper	24.8%	29.0%	27.4%	**29.3%**
Wet Paper	0.0%	0.0%	0.0%	**0.0%**
Hard Cover Books	0.0%	0.0%	0.0%	**0.0%**
Bagged Shredded Paper	0.8%	0.0%	0.0%	**0.1%**
Film-Wrapped Paper	0.3%	0.0%	1.1%	**0.5%**
Paper Cups	0.2%	0.0%	0.0%	**0.2%**
Aseptic Containers/Cartons	0.5%	1.1%	0.6%	**0.7%**
Compostable Paper	0.2%	0.3%	0.1%	**0.2%**
Non-Compostable Paper	0.4%	0.0%	0.2%	**0.4%**
PET Bottles (#1)	6.5%	7.1%	4.8%	**5.5%**
Natural HDPE Bottles (#2)	2.1%	2.4%	0.7%	**1.1%**
Colored HDPE Bottles (#2)	2.1%	3.2%	1.7%	**1.9%**
Non-Bottle PET Cont. (#1)	1.0%	2.8%	1.0%	**1.3%**
Non-Bottle HDPE Cont. (#2)	0.1%	0.0%	0.0%	**0.0%**
Recyclable Plastic Cont. (#3-5 & 7)	1.6%	1.8%	0.9%	**1.1%**
All Plastic Drink Cups	0.1%	0.3%	0.2%	**0.2%**
PLA (#7) Plastic Containers	0.0%	0.0%	0.0%	**0.0%**
Other Non-Acc. Plastic Cont.	0.2%	0.6%	0.0%	**0.3%**
Bulky Rigid Plastics	0.3%	0.0%	0.2%	**0.4%**
Food-Container EPS Foam	0.1%	0.3%	0.1%	**0.1%**
Packaging EPS Foam	0.0%	0.0%	0.1%	**0.0%**
All Other Plastics	0.8%	0.9%	0.5%	**0.8%**
Recyclable Plastic Film	0.5%	0.4%	0.3%	**0.6%**
Non-Recyclable Plastic Film	0.7%	0.4%	0.3%	**0.4%**
Tin/Steel Cans	1.8%	2.5%	1.7%	**1.6%**
Other Ferrous Metals	0.0%	3.3%	0.0%	**0.6%**
Aluminum Cans	1.3%	1.3%	2.1%	**1.7%**
Aluminum Foil and Trays	0.0%	0.0%	0.1%	**0.0%**
Other Non-Ferrous Metals	0.0%	0.0%	0.0%	**0.0%**
Glass Containers	7.1%	17.0%	9.1%	**16.8%**
Other Glass	0.0%	0.0%	0.0%	**0.1%**
Food Waste	0.1%	0.0%	0.2%	**0.1%**
Yard Waste	0.0%	0.0%	0.0%	**0.0%**
Other Organics	0.0%	0.0%	0.0%	**0.0%**
Textiles and Leather	0.1%	0.8%	0.3%	**0.2%**
Clean Wood Waste	0.0%	0.0%	0.0%	**0.1%**
Treated Wood Waste	0.4%	0.0%	0.0%	**0.3%**
Other C&D Debris	0.2%	0.0%	0.0%	**0.0%**
Furniture and Mattresses	0.0%	0.0%	0.0%	**0.0%**
Vehicle Tires	0.0%	0.0%	0.0%	**0.0%**
Other Rubber	0.0%	0.0%	0.1%	**0.0%**
Hazardous/Special Wastes	0.0%	0.0%	0.0%	**0.0%**
Household Batteries	0.0%	0.0%	0.0%	**0.0%**
Electronics	0.3%	0.0%	0.0%	**0.0%**
Sm. Appliances & Other Elec. Dev.	0.0%	0.0%	0.1%	**0.0%**
Diapers	0.0%	0.0%	0.2%	**0.0%**
Bagged Waste	0.0%	0.8%	0.0%	**0.2%**
Full Containers	0.0%	0.0%	0.3%	**0.1%**
Composite Materials	0.1%	1.4%	1.8%	**0.9%**
Grit	1.8%	2.8%	3.7%	**4.8%**
TOTALS	**100.0%**	**100.0%**	**100.0%**	**100.0%**