

2022 Iowa Statewide Material Characterization Study

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The SCS Engineers project team would like to thank the Iowa Department of Natural Resources (DNR) for their support and guidance throughout the execution of the 2022 Iowa Statewide Material Characterization Study (Study). SCS Engineers could not have completed this Study without the staff support at the ten host facilities that participated in this Study. Staff at these facilities provided detailed information on waste acceptance data, allowed access to their site and waste receipts, and made available equipment and staff resources to aid in obtaining and sorting samples. Additionally, SCS would like to thank the volunteers from the DNR, Iowa Waste Exchange, and regional solid waste planning agencies that volunteered to assist with this Study.

SCS Engineers acknowledges the support of the following sites and staff to help produce the results of this Study:

- Metro Waste Authority – Metro Park East Landfill (MPE)
- City of Newton Landfill
- Iowa City Landfill and Recycling Center
- Cherokee County Landfill
- Landfill of North Iowa
- Cedar Rapids Linn County Solid Waste Agency
- Carroll County Landfill
- Black Hawk County Landfill
- Dubuque Metropolitan Area Solid Waste Agency
- Waste Commission of Scott County

1 EXECUTIVE SUMMARY

The Iowa Department of Natural Resources (DNR) contracted with SCS Engineers (SCS) in March 2022 to conduct the 2022 Iowa Statewide Material Characterization Study (Study). This Study continued DNR's decades long history of tracking the types and quantities of waste disposed of in Iowa. It was designed to mirror previous statewide waste characterization studies to facilitate the comparison and tracking of waste disposal trends. This Study provides meaningful data to help the DNR and local governments make program and policy decisions to expand waste diversion initiatives and improve existing program efficiencies. This Study will help DNR measure progress in obtaining waste reduction and recycling goals and will be the basis for implementing new programs and policies and enhancing existing efforts to further reduce and recycle waste materials.

Ten host facilities were selected for participation in this Study based on applications submitted to the DNR. The selected facilities are listed below:

- Metro Waste Authority – Metro Park East Landfill (MPE)
- City of Newton Landfill
- Iowa City Landfill and Recycling Center
- Cherokee County Landfill
- Landfill of North Iowa
- Cedar Rapids Linn County Solid Waste Agency
- Carroll County Landfill
- Black Hawk County Landfill
- Dubuque Metropolitan Area Solid Waste Agency
- Waste Commission of Scott County

The ten host facilities represent the diversity of solid waste facilities in the State of Iowa with respect to geography, population of service area, types of waste generators, and waste volumes managed. Sampling and sorting activities took place at facilities based on identified facility characteristics (i.e., past participation, geographic location, etc.), quantities of waste received from targeted waste sectors and generator types, and ability to provide accommodations for loader staff and appropriate physical space for the sort.

The overall objectives of the Study were as follows:

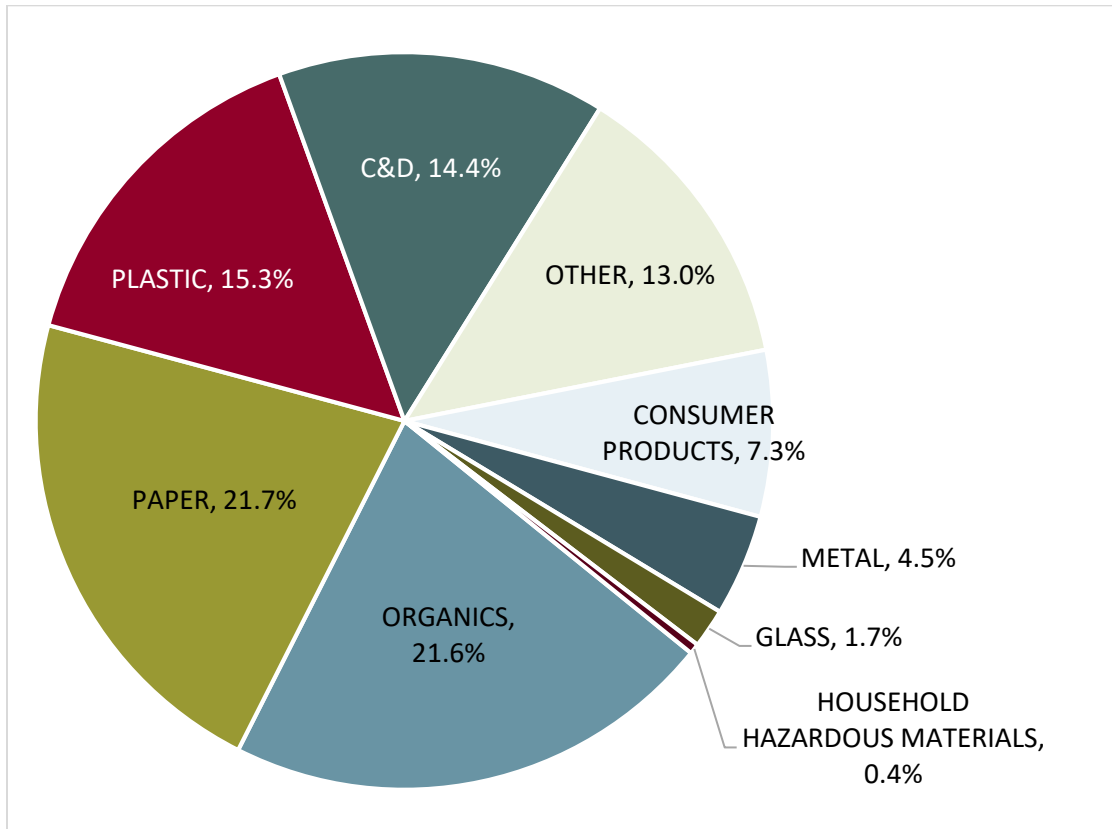
- 1) Develop statewide material composition data by weight for the residential and institutional/commercial/industrial (ICI) generating sectors for 84 different material components;
- 2) Document the number of deposit and non-deposit containers found in the physical sort of residential and ICI generating sectors;
- 3) Develop statewide material composition data by weight for the construction demolition debris (C&D) generating sector for 30 different material components;
- 4) Provide local detailed material composition data to each of the host facilities that participated in the Study;
- 5) Perform standard statistical analyses of the material composition data and calculate the 90 percent confidence internals for each material component for the physical waste sort;
- 6) Use field collection methods that statistically measure material composition data for municipal solid waste (MSW) generated in Iowa and disposed of at permitted solid waste facilities in the state; and
- 7) Design the Study so it can be compared to previous characterization studies and for ease of replication in future studies the DNR might commission.

This Study provides composition data for the following waste generating sectors:

- **Residential** – Material generated in single-family and multi-family residential households
- **Institutional/Commercial/Industrial (ICI)** – Material disposed by businesses, institutions, and industrial facilities
- **Construction Demolition Debris (C&D)** – Material generated during construction and/or demolition activities

The Study was conducted from May 2022 through July 2022. More than 500 samples were collected and physically sorted and more than 480 samples of C&D were visually characterized as part of this Study. **Exhibit 1** summarizes the overall MSW composition for materials disposed in Iowa (percent by weight) based on the results of the physical sort performed for this Study.

Exhibit 1. Overall Statewide MSW Material Composition



Exhibits 2 & 3 summarize the waste composition data for the residential and ICI waste streams, respectively. Detailed material composition profiles for these individual generating sectors are provided in the results section of this report.

Exhibit 2. Residential Statewide MSW Material Composition

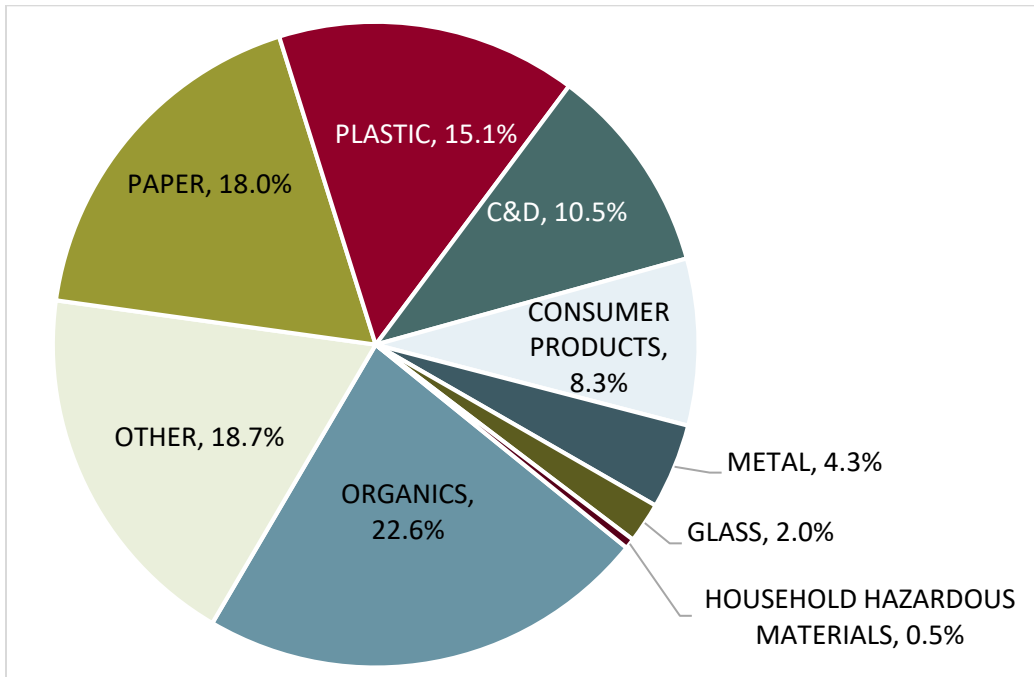


Exhibit 3. ICI Statewide MSW Material Composition

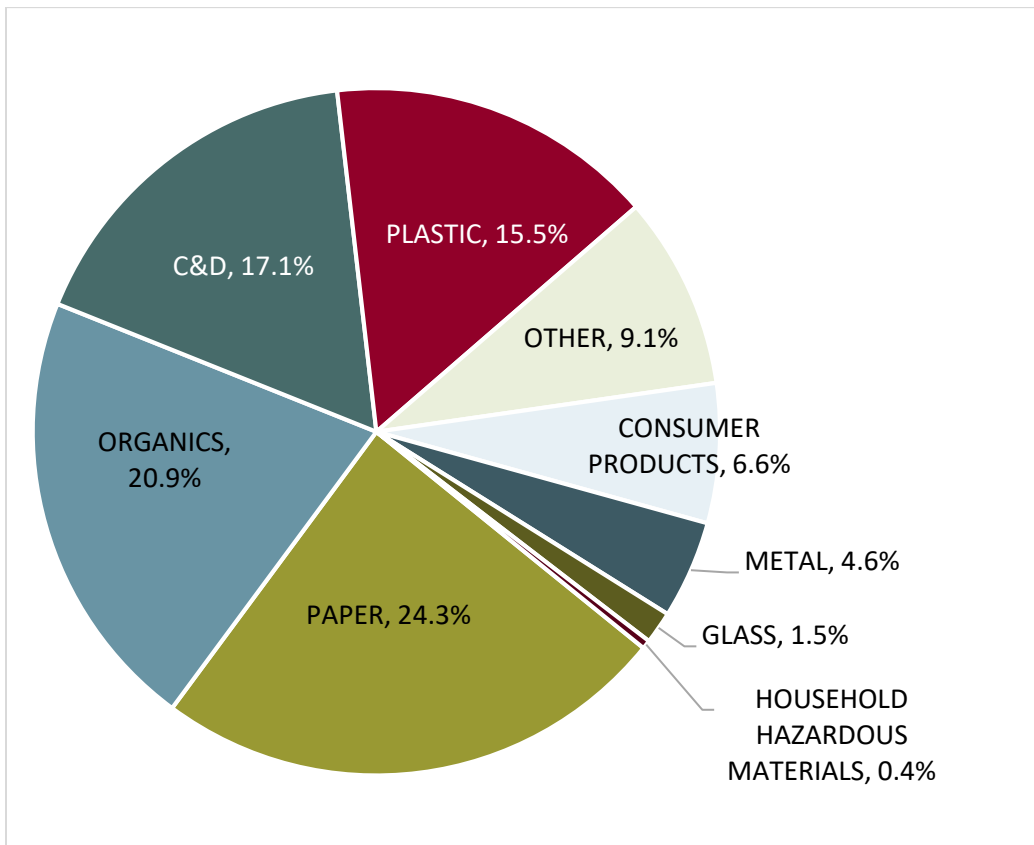


Table 1 shows the top five material components for the overall statewide MSW composition that comprised the largest portion of materials identified in this Study.

Table 1. Top Five Material Components Comprising Residential, ICI, and Overall Statewide Material Composition

No.	Residential	ICI	Overall Statewide
1	Food Waste¹ 19.1%	Food Waste¹ 19.2%	Food Waste¹ 19.2%
2	Plastic Film² 7.1%	OCC and Kraft Paper 9.9%	Plastic Film² 7.7%
3	Textiles and Leather 6.3%	Plastic Film² 8.1%	OCC and Kraft Paper 7.5%
4	Diapers 4.8%	Wood – Treated 6.0%	Textiles and Leather 5.0%
5	Mixed Recyclable Paper 4.7%	Compostable Paper 5.4%	Compostable Paper 5.0%
Total	42.0%	48.6%	44.4%

¹Food waste is both Food Waste – Packaged and Food Waste – Loose.

²Plastic Film includes Retail Shopping Bags and Plastic Film.

Table 2 provides a more detailed breakdown of the MSW characterization results for all material components measured. The data presented in the exhibit and table are aggregated from the residential and ICI waste streams and represents the overall MSW waste stream. It is to note that the C&D material category is only C&D materials found in the physical sort of residential and ICI waste. The C&D visual characterization results can be seen in **Exhibit 5**.

The mean percentage for each material category (i.e. paper, plastic, metal, etc.) equals the sum of the mean percentages for the individual material components. This is not true for the confidence intervals, which are calculated individually for each material component. The confidence intervals for material categories are calculated from the mean percentage of that category and thus will not equal the sum of the corresponding individual waste components.

Table 2. Overall Statewide MSW Waste Composition – Detailed

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
PAPER					
	Compostable Paper	5.0%	3.2%	4.8%	5.3%
	High Grade Office Paper	1.2%	3.7%	0.9%	1.5%
	Mixed Recyclable Paper	4.4%	6.1%	4.0%	4.9%
	Newsprint	0.3%	0.7%	0.2%	0.3%
	Magazines/Catalogs	0.5%	1.3%	0.4%	0.6%
	OCC and Kraft Paper	7.5%	8.5%	6.9%	8.1%
	Aseptic/Gable Top Containers	0.6%	1.0%	0.5%	0.7%
	Polycoated Paper	1.2%	1.9%	1.1%	1.4%
	Other Non-Recyclable Paper	1.0%	1.6%	0.9%	1.1%
	Total Paper	21.7%	12.3%	20.8%	22.6%
PLASTIC					
	#1 PET IA Deposit Beverage Containers	0.2%	0.2%	0.2%	0.3%
	#1 PET Beverage Containers	0.8%	0.6%	0.8%	0.9%
	#1 PET Other Non-Beverage Containers	0.5%	0.4%	0.5%	0.5%
	#2 HDPE Natural Containers	0.4%	0.4%	0.3%	0.4%
	#2 HDPE Colored Containers	0.6%	1.1%	0.5%	0.7%
	#3 PVC	0.1%	1.6%	<0.1%	0.2%
	#4 LDPE	<0.1%	0.9%	<0.1%	0.1%
	#5 PP	1.4%	0.9%	1.3%	1.4%
	#6 PS	0.5%	0.6%	0.4%	0.5%
	#7 Other/Unknown Plastic	0.2%	0.3%	0.2%	0.2%
	Expanded Polystyrene	0.6%	0.9%	0.5%	0.7%
	Retail Shopping Bags	0.6%	0.5%	0.6%	0.6%
	Other Plastic Film	7.1%	6.4%	6.6%	7.6%
	Other Plastic Products	2.3%	4.0%	2.0%	2.5%
	Total Plastic	15.3%	9.0%	14.6%	16.0%
METAL					
	Aluminum IA Deposit Beverage Containers	0.5%	0.5%	0.5%	0.6%
	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
	Ferrous Food and Beverage Containers	0.5%	0.8%	0.4%	0.6%

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
	Aluminum Foil and Foil Containers	0.2%	0.2%	0.1%	0.2%
	Other Aluminum Containers	0.1%	0.3%	0.1%	0.2%
	Other Ferrous Scrap Metals	2.9%	5.2%	2.6%	3.3%
	Other Non-Ferrous Scrap Metals	0.1%	0.6%	0.1%	0.2%
	Total Metal	4.5%	5.3%	4.1%	4.9%
GLASS					
	Glass IA Deposit Containers	0.8%	1.2%	0.7%	0.9%
	Clear Glass Containers	0.5%	0.7%	0.4%	0.5%
	Green Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
	Brown/Other Colored Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
	Other Mixed Glass	0.4%	2.5%	0.2%	0.5%
	Total Glass	1.7%	1.6%	1.6%	1.8%
C&D					
	Wood - Untreated	2.3%	8.5%	1.7%	3.0%
	Wood - Treated	4.9%	10.1%	4.1%	5.6%
	Plastic Lumber	0.2%	2.1%	<0.1%	0.3%
	Insulation	<0.1%	0.6%	<0.1%	<0.1%
	Asphalt Paving	<0.1%	0.3%	<0.1%	<0.1%
	Soil, Rock, Sand	1.4%	4.4%	1.0%	1.7%
	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.5%	3.1%	0.3%	0.7%
	Concrete	0.7%	3.2%	0.4%	0.9%
	Asphalt Roofing	0.3%	3.7%	<0.1%	0.6%
	Drywall Gypsum Board	0.4%	2.9%	0.2%	0.6%
	Carpet and Carpet Padding	2.0%	8.8%	1.3%	2.6%
	Mattresses	0.3%	1.7%	0.1%	0.4%
	Furniture	1.5%	6.5%	1.0%	1.9%
	Total C&D	14.4%	20.4%	12.9%	15.9%
ORGANICS					
	Yard Waste	2.5%	7.4%	1.9%	3.0%
	Food Waste - Loose	14.6%	12.7%	13.6%	15.5%
	Food Waste - Packaged	4.6%	9.5%	3.9%	5.3%
	Total Organics	21.6%	17.6%	20.3%	22.9%
CONSUMER PRODUCTS					
	Television - LCD	<0.1%	0.1%	<0.1%	<0.1%

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
	Television - CRT	<0.1%	<0.1%	<0.1%	<0.1%
	Television Peripherals	<0.1%	0.1%	<0.1%	<0.1%
	Computer Monitor - LCD	<0.1%	0.3%	<0.1%	<0.1%
	Computer Monitor - CRT	<0.1%	<0.1%	<0.1%	<0.1%
	Computers - Desktop and Laptop	<0.1%	0.3%	<0.1%	<0.1%
	Computer Peripherals	<0.1%	0.4%	<0.1%	<0.1%
	Computer Printers	<0.1%	0.6%	<0.1%	<0.1%
	Audio Equipment	<0.1%	0.2%	<0.1%	<0.1%
	Electronic Gaming Equipment	<0.1%	<0.1%	<0.1%	<0.1%
	Cell Phone and Chargers	<0.1%	0.1%	<0.1%	<0.1%
	Other Plug-in Electronics	0.3%	1.1%	0.2%	0.4%
	Other "Smart" Devices - with chip	<0.1%	<0.1%	<0.1%	<0.1%
	Other Electrical and Household Appliances	0.5%	2.5%	0.3%	0.7%
	Textiles and Leather	5.0%	8.2%	4.4%	5.6%
	Rubber	1.3%	5.6%	0.9%	1.7%
	Total Consumer Products	7.3%	10.7%	6.5%	8.1%
HOUSEHOLD HAZARDOUS MATERIALS					
	Automotive Products	0.2%	1.8%	<0.1%	0.3%
	Household Cleaners	<0.1%	0.3%	<0.1%	<0.1%
	Lead Acid Batteries	<0.1%	0.1%	<0.1%	<0.1%
	Mercury Containing Products	<0.1%	0.2%	<0.1%	<0.1%
	Lithium Batteries	<0.1%	<0.1%	<0.1%	<0.1%
	Other Batteries	<0.1%	<0.1%	<0.1%	<0.1%
	Paints and Solvents	0.1%	1.0%	<0.1%	0.2%
	Pesticides (insecticides, herbicides, fungicide)	<0.1%	<0.1%	<0.1%	<0.1%
	Sharps	<0.1%	<0.1%	<0.1%	<0.1%
	Prescription Medications	<0.1%	0.2%	<0.1%	<0.1%
	Total Household Hazardous Materials	0.4%	2.1%	0.3%	0.6%
OTHER					
	Diapers	3.0%	3.6%	2.8%	3.3%
	Other Organics	1.5%	5.4%	1.1%	1.9%
	Other Inorganics	2.0%	4.2%	1.7%	2.3%

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
	Other Consumer Products	0.2%	0.8%	0.1%	0.2%
	Other C&D	0.8%	6.0%	0.3%	1.2%
	Other HHMs	<0.1%	<0.1%	<0.1%	<0.1%
	Fines	5.5%	3.1%	5.3%	5.7%
	Total Other	13.0%	9.9%	12.3%	13.7%
	TOTAL	100.0%			

Table 3 provides a list of the top ten most predominant material components as calculated for each of the DNR statewide characterization studies for the overall statewide MSW waste stream. The mean percentages are shown in the table along with the cumulative percent of these ten material components. These materials have consistently accounted for about two-thirds of the waste disposed of in Iowa.

Table 3. Predominant Material Components – Overall Statewide MSW

2022		2017		2011		2005		1998	
Pct.	Material	Pct.	Material	Pct.	Material	Pct.	Material	Pct.	Material
19.1%	Food Waste ¹	20.0%	Food Waste ¹	13.0%	Food Waste	10.6%	Food Waste	10.7%	Food Waste
7.7%	Plastic Film ²	8.7%	Plastic Film ²	9.0%	OCC and Kraft Paper	8.5%	OCC and Kraft Paper	10.3%	Non-Rec. Paper
7.5%	OCC and Kraft Paper	7.6%	Compostable Paper	6.7%	Plastic Film ²	7.0%	Mixed Rec. Paper	8.5%	OCC and Kraft Paper
5.5%	Fines	6.1%	Mixed Rec. Paper	6.1%	Compostable Paper	6.6%	Plastic Film ²	7.5%	Other Plastic Products
5.0%	Textiles and Leather	4.8%	Fines	5.4%	Untreated Wood	6.5%	Compostable Paper	5.4%	Mixed Rec. Paper
5.0%	Compostable Paper	4.6%	OCC and Kraft Paper	5.4%	Construction/Demolition ³	6.0%	Other Plastic Products	5.2%	Fines
4.9%	Wood - Treated	4.1%	Other Organic	5.3%	Other Plastic Products	5.5%	Construction/Demolition ³	4.8%	Construction/Demolition ³
4.4%	Mixed Recyclable Paper	4.1%	Textiles and Leather	4.6%	Yard Waste	4.9%	Textiles and Leather	4.8%	Plastic Film
3.0%	Diapers	3.5%	Diapers	4.1%	Textiles and Leather	4.6%	Wood - Treated	4.2%	Textiles and Leather

2022		2017		2011		2005		1998	
2.9%	Other Ferrous Scrap Metals	3.1%	Other Plastic Products	3.8%	Wood - Treated	4.0%	Newsprint	3.6%	Wood - Treated
65.1%	2022 Cumulative Percent	66.6%	2017 Cumulative Percent	63.7%	2011 Cumulative Percent	68.4%	2005 Cumulative Percent	65.0%	1998 Cumulative Percent

¹Food Waste was divided into food waste – loose and food waste – packaged in 2017 and 2022.

²Plastic Film was divided into retail shopping bags and other plastic film in 2011, 2017, and 2022.

³Demolition/Renovation/Construction material category was divided into asphalt pavement; brick, rock, and concrete; asphalt roofing; drywall, gypsum board; carpet and carpet padding; and other C&D in 2011 and 2017. In 2022, it was further divided into plastic lumber; insulation; asphalt paving; soil, rock, and sand; brick, ceramics, and porcelain; concrete; asphalt roofing; drywall gypsum board; carpet and carpet padding; mattresses; and furniture.

In Iowa, specific bottles and cans are classified as deposit/redemption or non-deposit/non-redemption. Deposit/redemption containers typically contain carbonated and alcoholic beverages. Non-deposit/non-redemption containers typically contain non-carbonated and non-alcoholic beverages. As part of the physical portion of the Study, the number of deposit and non-deposit containers identified in the physically sorted samples were counted as well as weighed. The Study counted a total of 34,708 containers of which 17,739 were identified as deposit containers and 16,969 were identified as non-deposit containers. **Exhibit 4** shows the total percentage of deposit and non-deposit containers counted as part of the physical sort efforts.

Exhibit 4. Total Percentage of Deposit and Non-Deposit Container Counts

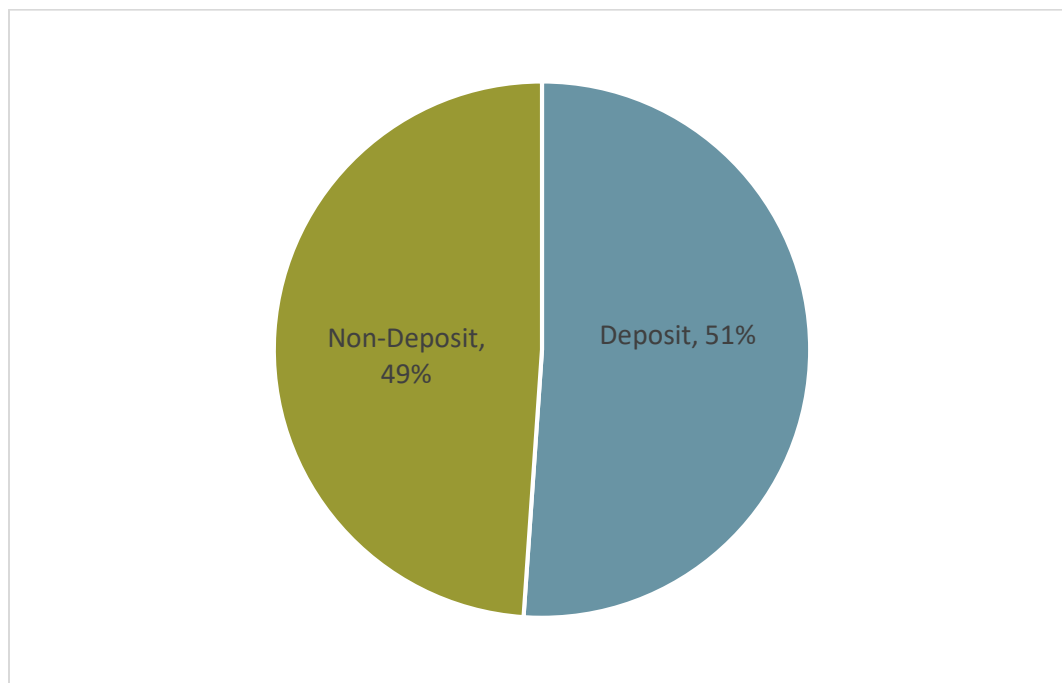
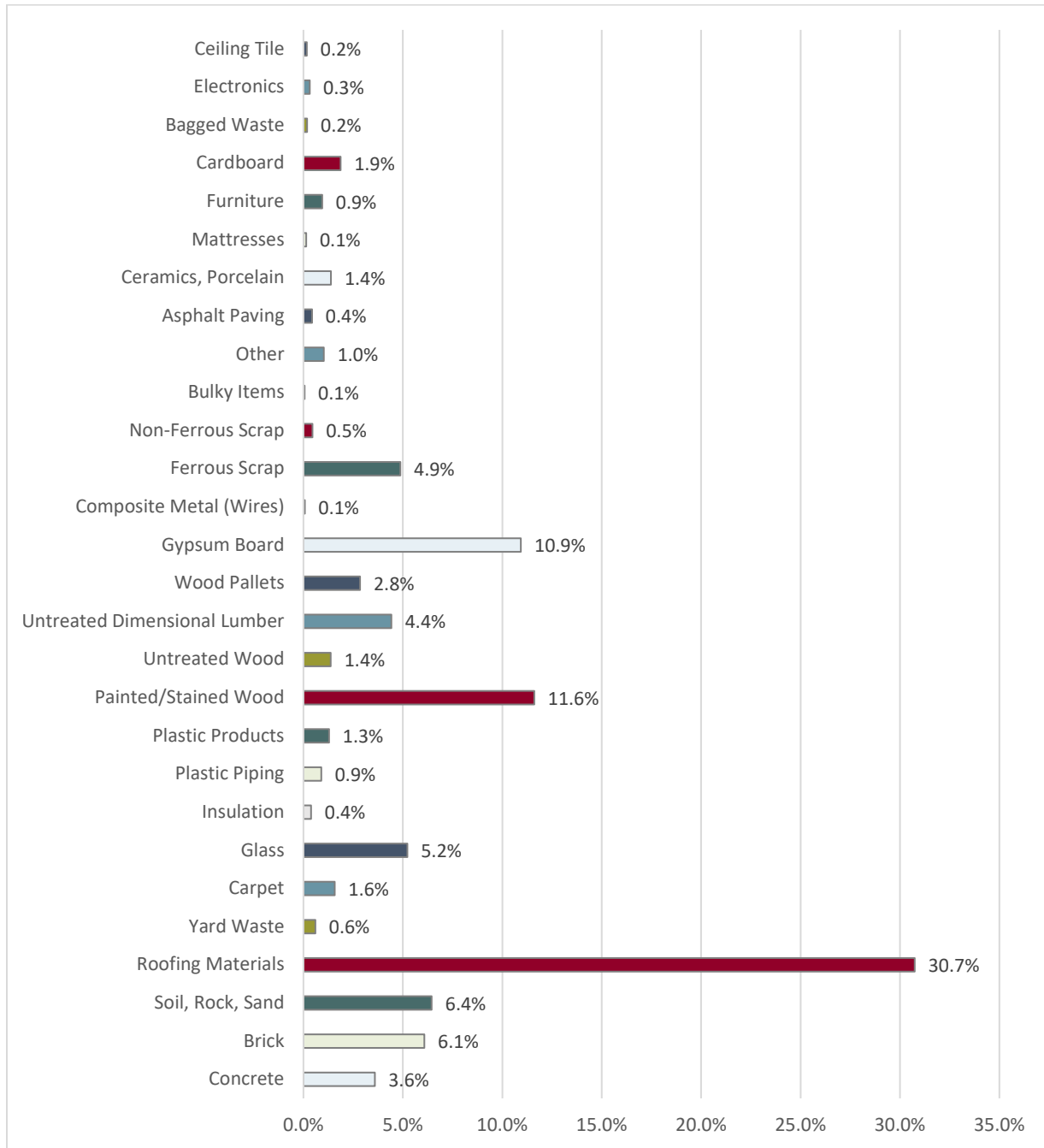


Exhibit 5 summarizes the overall C&D composition by material component (percent of estimated weight) identified as part of the visual characterizations completed for this Study.

Exhibit 5. Overall Statewide C&D Material Composition¹



¹Categories that represent less than 0.1% of the overall composition are not included in the graph. Those categories are: Appliances and Plastic Lumber.

2 INTRODUCTION

This report provides the methods used to collect the information and determine the results of the Study. The report is organized in the following sections:

- **Background:** The background section of the report includes Iowa material generation and disposal, and other data used to extrapolate the results of this Study to develop a composition profile for the entire state, and similarities/differences from previous studies.
- **Methods:** This section contains information on the generating sectors analyzed, the number of sampling targets and how they were stratified, material categories and components, host facilities and schedule of field activities, and information on field sampling and sorting protocols.
- **Results:** This section provides detailed results about the composition of material disposed of in the State of Iowa. Results are presented graphically as well as in tables for a more detailed presentation of the data. Results are presented by the residential and ICI sectors as well as aggregated overall for the state.
- **Comparison to Previous Studies:** This section compares the results from this Study to previous statewide characterization studies. This discussion includes notes on how portions of the waste stream have changed over the last 20 years and summarizes the top ten material components for each of the previous statewide studies.
- **Conclusions:** This section provides SCS's conclusions on how the Study achieved the desired objectives.
- **Recommendations:** This section outlines SCS's recommendations on studies that could be undertaken by DNR, local governments, or other stakeholders in the future.
- **Appendices:** The appendices include supplemental materials relevant to the Study.

3 BACKGROUND

The DNR has a long history of tracking the amount and components of MSW disposed of at landfills across the State of Iowa. For the last two decades, the DNR has commissioned characterization studies to quantitatively and qualitatively measure the disposed materials. This Study aimed to mirror previous studies completed in 1998, 2005, 2011, and 2017 in terms of documenting MSW disposal. The results of this Study will be used by DNR and local governments to make decisions on waste diversion programs that can be expanded and implemented to further divert material from disposal. The following are the guiding principles for carrying out the characterization study activities:

1. Develop a 2022 statewide material characterization profile by weight for materials currently disposed at Iowa disposal facilities, including obtaining information on the residential and ICI sectors and how they differ;

2. Selection of waste samples that are statistically representative of the MSW and C&D disposed in Iowa;
3. Provide data that the DNR and local governments can use to make decisions on expanding existing and implementing new programs and policies for diverting waste materials.
4. Mirror previous characterization studies to facilitate ease of comparison and duplication in the future.

PAST STUDY COMPARISON

As stated above, one of the important guiding principles for this Study was to mirror previous characterization studies to facilitate the comparison of results and to track trends and how the disposed waste stream in Iowa is changing. This section summarizes the similarities and differences between this Study and methods of conducting fieldwork used in previous Iowa statewide characterization studies.

Similarities

- **Waste Generating Sectors** – As in prior studies, this Study separately analyzed the composition of residential and ICI wastes. The data was aggregated to calculate an overall material characterization profile for each host facility and the state as a whole.
- **In-State Wastes** - Like previous studies, this Study targeted materials that were both generated and disposed of at facilities in Iowa. Wastes that were imported or exported out of the State were not included.
- **Host Facility Sort Duration** – The fieldwork at each host facility was confined to a one-week period, Monday through Friday, with the target of sorting 50 physical samples at each site.
- **Targeted Waste from Transfer Stations** – Five host facilities receive quantities of waste materials from transfer stations. If waste from the transfer station was pre-identified for sampling during the planning stage, the host facility would coordinate with the transfer station to segregate their waste streams (i.e., residential and ICI transferred in separate loads). Sampling and sorting of the transfer station waste occurred at the host facilities.
- **Development of Site-Specific Sampling Plans** – For sampling and sorting events at each host facility, SCS obtained waste disposal data from facility staff. This data was used to develop a sampling plan specific to each facility that proportioned the number of residential and ICI samples based on the amount of each waste type received at the facility.
- **Seasonal Sampling and Sorting Events** – The fieldwork for this Study was completed in May, June, and July 2022, which was the same timeline as the 2017 study, and a similar timeframe to when the fieldwork from the 2011 study was completed (in April, May, and June). Fieldwork for the 1998 and 2005 studies were completed in the fall months of September, October, and November.

Differences

- **Material Categories and Components** – The MSW material categories and components sorted as part of this Study were nearly identical to previous studies, with only a few modifications being made. Any modification made was done such that the data could still be compared to historical results. These modifications are identified below for each material category:
 - **Paper**
 - Added 'Polycoated Paper'
 - **Plastic**
 - Separated 'Plastics #3-#7' into individual categories
 - Changed 'Other #1 PET Containers' to '#1 PET Other Non-Beverage Containers'
 - Changed 'Other Plastic Containers' to 'Other Plastic Products'
 - **Metal**
 - Added 'Aluminum Foil and Foil Containers'
 - **Glass**
 - Changed 'Clear Glass' to 'Clear Glass Containers'
 - Changed 'Green Glass' to 'Green Glass Containers'
 - Changed 'Brown Glass' and 'Blue Glass' to 'Brown/Other Colored Glass Containers'
 - Changed 'Other Mixed Cullet' to 'Other Mixed Glass'
 - **Construction & Demolition**
 - Added 'Plastic Lumber'
 - Separated 'Asphalt Pavement, Brick, Rock, and Concrete' into the following material components:
 - 'Asphalt Paving'
 - 'Brick, Ceramics and Porcelain'
 - 'Soil, Rock and Sand'
 - 'Concrete'
 - Added 'Mattresses'
 - Added 'Furniture'
 - Added 'Insulation'
 - **Organics**
 - Removed 'Yard Waste – Loose'
 - Added 'Yard Waste'
 - Moved 'Diapers' to the 'Other' material category
 - Moved 'Rubber' to the 'Consumer Products' material category
 - Moved 'Textiles and Leather' to the 'Consumer Products' material category
 - **Consumer Products (previously called Durables)**
 - Separated 'Central Processing Units/Peripherals' into the following material components:
 - 'Television Peripherals'
 - 'Computer Peripherals'
 - 'Computers – Desktop and Laptop'
 - 'Computer Printers'
 - Separated 'Computer Monitors/TVs' into the following material components:
 - 'Television – LCD'

- 'Television – CRT'
 - 'Computer Monitor – LCD'
 - 'Computer Monitor – CRT'
 - Added 'Audio Equipment'
 - Added 'Electronic Gaming Equipment'
 - Added 'Other Plug-In Electronics'
 - Added 'Other "Smart" Devices – with chip'
 - Moved 'Textiles and Leather' from the Organics category
 - Moved 'Rubber' from the 'Organics' material category
 - **Household Hazardous Materials**
 - Separated 'Chemicals' into 'Household Cleaners', 'Paints and Solvents', and 'Pesticide, herbicide, and insecticide'
 - Added 'Automotive Products'
 - **Other**
 - Added 'Other Consumer Products'
 - Added 'Diapers' from the 'Organics' material category
- **Number of Host Facilities** – The fieldwork for this Study occurred at ten landfills. The fieldwork for the 2017 Study occurred at ten different host facilities – nine landfills and one transfer station. In 2017, the number of host facilities increased to ten from nine in 2011, six in 2005, and five in 1998.
- **Number of Samples** - The number of samples obtained and sorted in 2022 decreased from those in the 2017 study (501 in 2022, 524 in 2017). While this difference occurred, the goal was reached for the 2022 Study. Additionally, C&D samples collected and visualized totaled 486 for this Study and were not part of previous studies.
- **Visual Characterization of Construction Demolition Debris (C&D) Wastes** – C&D samples were visually evaluated and characterized as part of this Study. As this was not performed during previous studies, the work plan was to perform up to 15 visuals per day, equaling up to 75 visuals per host facility.
- **Deposit and Non-Deposit** – Counting the number of #1 PET IA Deposit Beverage Containers, #1 PET Beverage Containers, Aluminum IA Deposit Beverage Containers, Aluminum Beverage Containers, Glass IA Deposit Containers, Green Glass Containers, and Brown/Other Colored Glass Containers.
- **Mattresses** – For each MSW physical and C&D visual sample, the sample selector visually determined the number of mattresses and box springs in the tipped load.

Table 4 provides a history of the 2022 host facilities' participation in previous DNR characterizations studies. Five of the 2022 host facilities have participated in three of four DNR studies (Metro Waste Authority – MPE Landfill, Iowa City Landfill and Recycling Center, Cedar Rapids Linn County Solid Waste Agency, Dubuque Metropolitan Area Solid Waste Agency, and Waste Commission of Scott County). Participating in these studies provides these facilities with data that allows them to track waste stream

changes at a local level. Three host facilities participated in the DNR characterization study for the first time in 2022 (Cherokee County Landfill, Carroll County Landfill, and Black Hawk County Landfill).

Table 4. 2022 Host Facilities Participation

Host Facility	Study Year				
	2022	2017	2011	2005	1998
Metro Waste Authority - MPE	X	X	X	X	
City of Newton Landfill	X	X			
Iowa City Landfill and Recycling Center	X	X	X		X
Cherokee County Landfill	X				
Landfill of North Iowa	X	X			
Cedar Rapids Linn County Solid Waste Agency	X	X		X	
Carroll County Landfill	X	X			
Black Hawk County Landfill	X				
Dubuque Metropolitan Area Solid Waste	X	X	X	X	
Waste Commission of Scott County	X	X	X		

4 METHODS

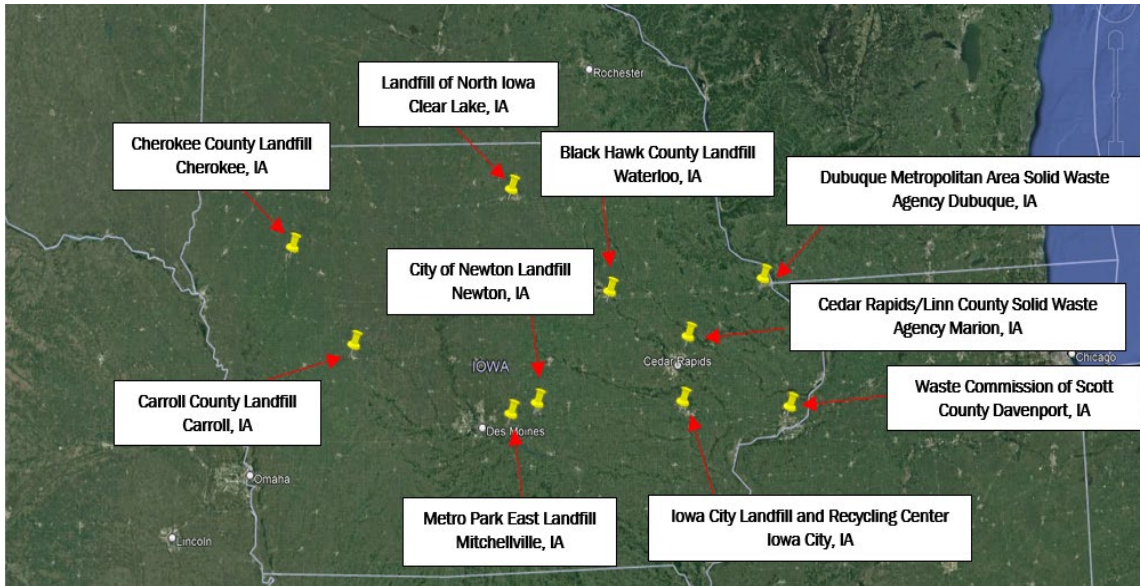
Developing a sound approach to complete this Study was critical for laying the foundation for a successful project that yielded reliable and statistically valid data. Careful planning went into selecting host facilities, identifying and screening waste streams, completing field activities, and analyzing data. This section describes how SCS designed the Study. The Study design elements included in this section reflect feedback and modifications by DNR during the planning and execution stages of this Study.

WASTE GENERATION AND DISPOSAL

HOST FACILITIES

Fieldwork for this Study was conducted at ten host facilities that included ten landfills. **Exhibit 6** is a map showing the geographic location of the ten host facilities.

Exhibit 6. Map of 2022 Study Host Facilities



SCS used the DNR tonnage report from fiscal year (FY) 2021 and detailed tonnage reports provided by the host facilities to develop the sampling plan for this Study. Several sites do not track tonnages by waste types (i.e., residential, ICI, C&D, etc.). In those cases, SCS would work with host facility staff to review their historical data by haulers and work with scale house staff to develop a sampling plan based on percentages of estimated totals for each waste type. During the sample collection process (described later in this report), SCS staff would interview the driver and visually inspect the tipped load to evaluate the type of waste category to determine if the sample is valid for selection. **Table 5** summarizes the MSW and C&D tonnage data originally submitted to the DNR in their application to participate as a host facility.

Table 5. 2021 Host Facility Disposal Quantities (tons)

Host Facility	Residential	ICI	Total Residential and ICI	C&D Waste
Metro Waste Authority – Metro Park East Landfill (MPE)	199,727	300,280	500,007	236,865
City of Newton Landfill	14,291	7,608	21,899	8,722
Iowa City Landfill and Recycling Center	30,581	121,212	151,793	NA ¹
Cherokee County Landfill	7,841	7,509	15,350	6,483
Landfill of North Iowa	12,710	NA ¹	NA ¹	58,763

Host Facility	Residential	ICI	Total Residential and ICI	C&D Waste
Cedar Rapids Linn County Solid Waste Agency ²	141,813	102,653	244,466	20,230
Carroll County Landfill	48,607	32,405	81,012	NA ¹
Black Hawk County Landfill	145,487	NA ¹	NA ¹	NA ¹
Dubuque Metropolitan Area Solid Waste Agency	26,004	65,751	91,755	NA ¹
Waste Commission of Scott County	62,699	11,404	74,103	59,089

¹Data not available from host facility.

²FY 2020 tonnages were used for this facility as the FY 2021 tonnages were impacted by damage caused by the Derecho storm event (August 2020).

WASTE GENERATING SECTORS

Targeted Waste Generating Sectors

Waste from the following generating sectors was sampled and characterized for this Study:

- **Residential** – Material generated in single-family and multi-family residential households
- **Institutional/Commercial/Industrial (ICI)** – Material disposed by businesses, institutions, and industrial facilities
- **Construction Demolition Debris (C&D)** – Material generated during construction and/or demolition activities

Waste samples obtained and physically sorted as part of this Study were classified as either residential or ICI. SCS took a number of steps in order to avoid the sampling of mixed waste. This included interviews with host facility staff and scale house attendants to stratify incoming loads by hauler and truck type. Additional measures to avoid the sampling of mixed waste included interviews with truck drivers and the visual inspection of the loads by an experienced SCS field manager who is well versed in the characteristics of residential and ICI samples. When there was uncertainty about whether or not a sample should be considered residential or ICI, that sample was discarded and a new sample was obtained.

Similar to previous studies, this Study avoided the sampling and sorting of non-MSW waste such as special waste.

MATERIAL CATEGORIES AND COMPONENTS

Physical Waste Sort

The material categories and material components for this Study included those that were in previous studies. This Study also included additional materials that helped capture more detailed data of the materials in the waste stream which may help provide greater information for potential future program modifications.

SCS reviewed each material category and material component with DNR staff prior to commencing field work to confirm a mutual understanding of how materials are classified. This was particularly important given continual changes in product packaging that bring new materials into the waste stream. Additionally, the review of materials was helpful to understand and obtain mutual agreement on how to sort composite materials and how to handle instances when food or liquids were contained in plastic, metal, and glass packaging.

A total of 84 unique material components were measured for the physical sort. The list of material categories and material components is included in **Table 6**. Detailed descriptions of each material are included in **Appendix A**.

Table 6. 2022 Material Categories and Component List

Group	No.	Material Category	Group	No.	Material Category
Paper	1	Compostable Paper	Organics	49	Yard Waste
	2	High Grade Office Paper		50	Food Waste - Loose
	3	Mixed Recyclable Paper		51	Food Waste - Packaged
	4	Newsprint	Consumer Products	52	Television – LCD
	5	Magazines/Catalogs		53	Television – CRT
	6	OCC and Kraft Paper		54	Television Peripherals
	7	Aseptic/Gable Top Containers		55	Computer Monitor – LCD
	8	Polycoated Paper		56	Computer Monitor – CRT
	9	Other Non-Recyclable Paper		57	Computers – Desktop and Laptop
Plastic	10	#1 PET IA Deposit Beverage Containers	58	Computer Peripherals	

Group	No.	Material Category	Group	No.	Material Category
	11	#1 PET Beverage Containers		59	Computer Printers
	12	#1 PET Other Non-Beverage Containers		60	Audio Equipment
	13	#2 HDPE Natural Containers		61	Electronic Gaming Equipment
	14	#2 HDPE Colored Containers		62	Cell Phone and Chargers
	15	#3 PVC		63	Other Plug-in Electronics
	16	#4 LDPE		64	Other "Smart" Devices – with chip
	17	#5 PP		65	Other Electrical and Household Appliances
	18	#6 PS		66	Textiles and Leather
	19	#7 Other/Unknown Plastic		67	Rubber
	20	Expanded Polystyrene		Household Hazardous Materials	68
	21	Retail Shopping Bags	69		Household Cleaners
	22	Other Plastic Film	70		Lead Acid Batteries
	23	Other Plastic Products	71		Mercury Containing Products
	24	Aluminum IA Deposit Beverage Containers	72		Lithium Batteries
	Metals	25	Aluminum Beverage Containers	73	Other Batteries
		26	Ferrous Food and Beverage Containers	74	Paints and Solvents
		27	Aluminum Foil and Foil Containers	75	Pesticides (insecticides, herbicides, fungicides)
		28	Other Aluminum Containers	76	Sharps
		29	Other Ferrous Scrap Metals	77	Prescription Medications
		30	Other Non-Ferrous Scrap	Other	78
	Glass	31	Glass IA Deposit Containers		79

Group	No.	Material Category	Group	No.	Material Category
	32	Clear Glass Containers		80	Other Inorganics
	33	Green Glass Containers		81	Other Consumer Products
	34	Brown/Other Colored Glass Containers		82	Other C&D
	35	Other Mixed Glass		83	Other HHMs
Construction and Demolition	36	Wood – Untreated		84	Fines
	37	Wood – Treated			
	38	Plastic Lumber			
	39	Insulation			
	40	Asphalt Paving			
	41	Soil, Rock, Sand			
	42	Brick, Ceramics, Porcelain			
	43	Concrete			
	44	Asphalt Roofing			
	45	Drywall/Gypsum Board			
	46	Carpet and Carpet Padding			
	47	Mattresses			
	48	Furniture			

Visual Characterizations

Due to the nature of some of the material accepted at the participating landfills, it is not viable to physically sort through the material. Therefore, SCS performed visual evaluation of materials considered C&D waste. Since visual characterizations were not part of previous studies, SCS established a goal of performing 15 visual characterizations per day at each facility. The number of visual characterizations that could be completed was dependent upon the facility receiving the necessary number of acceptable

samples for selection. The number of acceptable samples received was influenced by construction and demolition projects within the area generating C&D wastes, weather, and other unpredictable factors. Therefore, it was not always possible to collect the targeted 15 visual samples per day.

Table 7 lists the C&D material components. Detailed descriptions of each of these components is included in **Appendix A**.

Table 7. 2022 C&D Visual Waste Characterization Material Component List

No.	Material Component	No.	Material Component
1	Concrete	16	Composite metal (wires)
2	Brick	17	Appliances
3	Soil, Rock, Sand	18	Ferrous scrap
4	Roofing materials	19	Non-ferrous scrap
5	Yard waste	20	Bulky Items
6	Carpet	21	Other
7	Glass	22	Plastic Lumber
8	Insulation	23	Asphalt Paving
9	Plastic piping	24	Ceramics, Porcelain
10	Plastic products	25	Mattresses
11	Painted/stained wood	26	Furniture
12	Untreated wood	27	Cardboard
13	Untreated dimensional lumber	28	Bagged Waste
14	Wood pallets	29	Electronics
15	Gypsum board	30	Ceiling Tile

SAMPLING PLAN DEVELOPMENT

SCS developed detailed sampling plans for each field activity so that the Study accurately represented the material disposed of in Iowa, this included interviewing the host facility staff to obtain information on the generating sectors and quantities received for disposal at their facility from the previous fiscal year (2021). Using this data, SCS stratified the waste receipts between residential and ICI waste streams to provide for a target number of samples from each of the waste generating sectors. Further information was gathered on haulers that included the quantities and waste generating sectors each

major hauler brings to the site. This allowed SCS to put together a sampling plan that specified the number of loads to be targeted by hauler which was in proportion to the quantity of residential and ICI waste they deliver to the site.

As discussed in the **Generator Sectors** section of this report, SCS avoided the sampling and sorting of mixed solid waste for this Study. **Table 8** provides a summary of the number of samples selected at each host facility.

Table 8. Number of Samples Selected by Generating Sector

Host Facility	MSW Residential	MSW ICI	MSW Total	C&D Total
Metro Waste Authority – Metro Park East Landfill (MPE)	20	30	50	75
City of Newton Landfill	34	16	50	28
Iowa City Landfill and Recycling Center	18	32	50	65
Cherokee County Landfill	28	22	50	20
Landfill of North Iowa	20	30	50	55
Cedar Rapids Linn County Solid Waste Agency	14	36	50	76
Carroll County Landfill	23	27	50	24
Black Hawk County Landfill	24	26	50	37
Dubuque Metropolitan Area Solid Waste Agency	15	36	51	31
Waste Commission of Scott County	42	8	50	75
Total	238	263	501	486

Transferred Waste

SCS understands a portion of waste that arrives at disposal facilities in Iowa is delivered via transfer trailers. This waste is typically material from all generating sectors mixed together, making it nearly impossible to accurately characterize.

SCS worked with host facilities to understand how much (if any) of their disposed waste stream is received from in-state transfer stations. If waste from transfer stations was identified for sample collection, the host facility would work with the transfer station staff to have them segregate select residential and/or ICI loads prior to delivery to the landfill.

TIMING AND SCHEDULE

Fieldwork was completed at each host facility over a one-week period Monday - Friday during normal facility operating hours. Fieldwork commenced the second week of May 2022 and continued through the last week of July 2022. The seasonal timeframe for the 2022 fieldwork was similar to the 2017 study. Fieldwork at each host facility was scheduled in order to sample and sort waste for a typical week and as such avoided special events or activities that could impact the normal waste received at a facility. **Table 9** summarizes the field schedule for the Study.

Table 9. 2022 Fieldwork Schedule

Sort Dates	Sort Locations
May 9 – May 13	Metro Waste Authority - MPE
May 16 – May 20	City of Newton Landfill
May 23 – May 27	Iowa City Landfill and Recycling Center
May 30 - June 3	Memorial Day Week – NO FIELD WORK
June 6 – June 10	Cherokee County Landfill
June 13 – June 17	Landfill of North Iowa
June 20 – June 24	Cedar Rapids Linn County Solid Waste Agency
July 27 – July 1	Carroll County Landfill
July 4 – July 8	July 4 th Week – NO FIELD WORK
July 11 – July 15	Black Hawk County Landfill
July 18 – July 22	Dubuque Metropolitan Area Solid Waste
July 25 – July 29	Waste Commission of Scott County

FIELD WORK COLLECTION METHODS

Equipment

The equipment used to complete the fieldwork at each host facility was the same throughout the project. Equipment used to carry out the Study included:

- Containers** – Approximately 95 containers were used to collect samples and to place and weigh the sorted material components. Containers were a mix of 32-gallon trash cans, 18-gallon totes, and five-gallon buckets. SCS weighed and recorded the tare-weight for each container at the beginning of field work for each facility. A label with the material name, unique container number, and the recorded tare-weight was placed onto each container with tape, ensuring the label was secure and waterproof prior to the start of field activities. **Figure 1** depicts the containers used and an example of the typical physical sort layout.

Figure 1. Physical Sort Area Layout



- **Sort Table** – The sort table was a piece of plywood that was capable of supporting 150 pounds of waste materials. The plywood was placed on multiple 55-gallon barrels or saw horses. **Figure 2** shows the sort table.

Figure 2. Physical Sort Table



- **Scales** – CAS factory-calibrated scales were used to weigh waste samples and sorted waste components. Scales recorded weight to the nearest 0.10 pounds.
- **Personal Protective Equipment (PPE)** – Protecting the health and safety of all project staff was the number one priority of the project. Field staff were required to wear steel/composite toe shoes or boots, safety glasses, reflective safety vests, and nitrile and puncture resistant gloves at all times when participating in fieldwork.
- **Data forms** – SCS created a separate data collection form for each waste sample sorted during the project. This form contained fields to capture information on the waste sample, including the generating sector and hauler information. This form was used to record material component weights. Additionally, a similar form was used for the C&D visual, documenting dimensions of tipped loads and percentages of materials in that load.

Sample Selection – Physical Sorting

The integrity of this project started with selecting the right samples for sorting. SCS employed a number of procedures and quality control measures to confirm that the samples obtained for sorting were representative of the residential and ICI waste streams disposed of at each of the host facilities.

SCS appointed a Sampling Manager (from SCS staff) to oversee selection and collection of each waste sample. This individual utilized the site-specific sampling plan to identify which trucks to stop for further waste screening. Based on the sampling plan, the Sampling Manager randomly stopped trucks and interviewed the driver to obtain details on the waste contained in the vehicle. The driver was asked whether the waste contained in the truck was residential or ICI.

The Sampling Manager would direct the driver of a truck selected for sampling to a designated area where the waste load would be discharged. The SCS Sampling Manager would then visually inspect the waste to confirm the waste load should be sampled and counted the number of mattresses and box springs in the load. If there was uncertainty as to whether the waste was residential or ICI, the sample was discarded and another sample was obtained.

As discussed earlier in this report, five host facilities receive residential and ICI waste from transfer stations. If waste from the transfer stations was to be selected for sorting, the host facility worked with operators of these transfer stations to have residential and ICI waste segregated at the transfer stations and transferred to the host facility separately. It was requested that transfer station personnel minimize the compaction of the waste in order to keep it in as close to the same condition as it was direct-hauled to the transfer station to facilitate the separation of the materials into distinct material components. Once a transfer trailer of segregated residential and ICI waste was received at the host landfill, the waste was discharged and inspected by the SCS Sampling Manager.

Sample Gathering – Physical Sorting

At the direction of the Sampling Manager, a host facility heavy equipment operator would obtain a sample of waste from a randomly selected “section” (six total sections) of the waste pile. Depending on the type of equipment used (i.e. Bobcat, front-end loader, etc.), the operator would scoop up or grab a sample of the waste and transport it to the sorting area. The waste sample would be placed in tared 32-gallon containers and the weight of the sample would be recorded. At all host facilities, samples were able to be held and sorted in a covered location, protecting the samples from being impacted by precipitation and inclement weather. Consistent with ASTM International’s Standard Test Method of Characterizing Unprocessed Solid Waste, each sample was weighed until approximately 215-220 pounds of waste materials were obtained. Each waste sample was labeled and assigned a unique color code (using spray paint) for identification.

Physical Sorting Process

The physical sorting of solid waste followed a five-step process that is summarized below. Waste materials were sorted into the 84 different material components summarized below:

Step #	Description of Activity
1	A selected sample of waste was transferred from containers to the sort table and photographed; large or heavy items, such as wood panels or bulky waste, were examined and placed directly into the appropriate container for subsequent weighing.

Step # **Description of Activity**

2

Plastic bags containing materials were opened and contents were physically sorted according to the agreed upon material components; separated materials were placed in a unique container and this process continued until the sample was completely sorted; the Sorting Manager oversaw operations and provided continual quality control of the sorted waste categories.

3

Sorting of materials continued until the sample had been characterized down to small indistinguishable particle size of 2-inches or less; these small materials were removed from the sort table and placed in a separate container for weighing as “fines.”

4

Containers with the sorted materials were individually weighed by the Sorting Manager who also performed additional quality control measures to confirm the purity of each sorted material category; the weights of containers with the separated materials were recorded on a sample data sheet which was unique for every sample; measurements were made to the nearest tenth of a pound; the number of Iowa deposit and non-deposit metal, plastic, and glass beverage containers were counted (in addition to weighed) and each count was recorded on the data sheet.

5

Upon completion of weighing sorted materials and recording the data for each sample, the materials were placed in a container for disposal and recyclable materials were placed in a separate container for diversion (if provided by a host facility); host facilities provided containers for the disposal of trash (and recovery of recyclable materials if they desire).

This process was repeated until all of the samples were characterized. Waste samples were maintained in as-disposed conditions or as close to this as possible until the actual sorting began. Factors that might affect the conditions of the waste materials, such as compaction or rainfall, were mitigated so that the composition or condition of the sample did not change.

Sample Selection – Visual Characterization

A number of host facilities receive amounts of C&D that is bulky in nature. As a result, this material was visually characterized.

As part of the general host facility’s sampling plan, the goal was to achieve up to 15 visual samples per day. The SCS Sampling Manager would conduct interviews with truck drivers similar to the physical sort interviews. Once a load was deemed acceptable, the SCS Sampling Manager would instruct the truck driver to expel the load into a specific area to be documented and characterized.

Once the load of waste was tipped, the SCS Sampling Manager estimated the dimensions of the pile and the percent composition of the materials. Additionally, the hauler, weather, time, and date were recorded. Photos were taken of each side of this pile to compliment the data. Once this process was complete, the SCS Sampling Manager notified an operator to push the load into the working face.

Sample Gathering (Data Collection) – Visual Characterization

Materials were categorized into the 30 different material components utilizing the following process:

Step #	Description of Activity
1	The screening protocol for truck selection, driver interviews, visual inspection, and data recording were completed for each load of C&D visually characterized to confirm only representative waste samples were obtained.
2	For selected and screened loads, the dimensions of the tipped materials were estimated.
3	The load was tipped in a designated location and, if necessary, SCS staff would work with the host facility to request a loader operator spread the contents of the container. However, typically the waste vehicle driver tipped the load in a manner such that a visual characterization of C&D could adequately be performed without needing to spread the pile out. Pictures of the tipped load was captured.
4	The SCS C&D Characterization Manager observed the entire load of materials and noted the major material components in the load. This professional estimated the percent of the load that comprises each major material type.
5	The SCS C&D Characterization Manager made a second pass around the entire load and noted the secondary (smaller quantity) material components in the load. This professional estimated the percent of the load that comprised each major material type.
6	All data was recorded on a data collection form unique to each C&D sample visually characterized. SCS staff confirmed that the sum of the estimated percentages equal 100.

Data Recording – Physical and Visual

The SCS field managers were responsible for the recording of all data related to this project. Each of the 501 MSW samples and 486 C&D visual samples analyzed as part of this Study had its own unique waste sample form where all information and data about the sample was recorded. Sample information and weight data were recorded immediately after it was obtained and the material components were weighed. In addition, a separate waste sample tracker document was maintained by SCS field managers to serve as an additional check on the number and source of samples obtained and sorted. At the end of each day of fieldwork, the SCS Sorting Manager would review the data and match the individual data sheets to the waste sample tracker document to confirm accurate and consistent tracking of the data.

STATISTICAL METHODS – PHYSICAL SORT

Using standard statistical procedures for the physical sort data, SCS developed detailed estimates of mean composition and standard deviations for each of the 84 material components evaluated for this Study. The composition was developed for the residential and ICI waste generating sectors separately, which were then aggregated to develop the overall statewide waste composition. 90 percent confidence intervals were also calculated for each material component.

Composition estimates represent the ratio of a material components' weight to the weight of the total material. This was done by summing each components weight across all relevant samples and dividing it by the total weight of all applicable samples.

Sample Weighting

Data analysis for this Study consisted of calculating straight and weighted average compositions for material categories and components. For the residential and ICI waste compositions at individual host facilities, straight averages were calculated based on the data from each sample obtained from the residential and ICI waste generating sectors, respectively. The overall MSW composition for the individual host facilities was weighted based on the amount of residential and ICI waste received at the host facility. For example, The Waste Commission of Scott County receives 84 percent residential waste and 16 percent ICI waste. To obtain the overall MSW waste composition, the residential composition for each material category and component is multiplied by 84 percent and the ICI waste composition for each material category and component is multiplied by 16 percent. These two weighted compositions are added together to obtain the overall MSW composition for each material category and component.

To calculate the statewide composition of overall MSW, residential, and ICI waste streams, the weighted compositions of the material categories and components were used. For the residential and ICI waste streams, the material category and component compositions are weighted in proportion to how much of each type of waste is received at the individual host facilities. The weighted compositions are added together to obtain the overall statewide residential and ICI waste composition. In calculating the overall statewide waste composition, the residential and ICI compositions are weighted in proportion to the total amount of residential (47 percent) and ICI (53 percent) waste received at all study host facilities.

STATISTICAL METHODS – VISUAL CHARACTERIZATION

Using standard statistical procedures for the visual characterization, SCS developed detailed estimates of mean composition for each of the 30 material components evaluated in this Study.

The composition estimates represent the ratio of the material categories' weight to the weight of the total material. The two pieces of data collected by the SCS Sampling Manager were the volume of waste in cubic feet (visually estimated) and the percent of volume of each material category (visually estimated). The estimated total volume was converted into cubic yards (cy), multiplied by the percent of volume for a material component and the density estimate (lbs/cy) to achieve the estimated material weight (lbs) for a material component. The density estimates (lbs/cy) for the material categories were sourced from The Environmental Protection Agency and the California Department of Resources Recycling and Recovery.

Once the estimated material weight (lbs) was determined for each material component, this was summed to find the total estimated weight for each sample. The individual material components in a sample were divided by the total estimated weight for each sample to determine the percentage by weight (normalized) for each of the material components.

5 RESULTS

This section provides the detailed results of the Study. The results presented in this section include:

- Physical Sort - Composition for Residential and ICI Waste;
- Count of Deposit and Non-Deposit Containers;
- Mattress Count for Residential and ICI Waste; and
- Visual Characterization – Composition for C&D.

The data was aggregated to calculate the overall statewide waste characterization.

Consistent with previous studies, the results presented represent materials from the following generator sectors:

- **Overall MSW** – This data represents the aggregated material composition profiles for the residential and ICI waste generating sectors that were disposed of at the ten host facilities.
- **Residential** – The residential material composition is the portion of MSW that is generated at residential dwellings, including both single-family and multi-family residences.
- **Institutional, Commercial, and Industrial (ICI)** – The ICI waste stream represents materials generated from non-residential facilities such as businesses, schools, hospitals, and manufacturing facilities to name a few.
- **Construction Demolition Debris (C&D)** – This data represents materials generated from construction and demolition projects.

It is important to note that special waste disposed of in Iowa was excluded from the sampling and sorting program.

PHYSICAL STATEWIDE COMPOSITION

Overall Statewide MSW Composition

Exhibit 7 provides a summary of the nine material categories that comprise the overall waste delivered to the ten host facilities. Data is provided for each material category as a percentage of the total weight. Note that the overall waste composition includes waste from the residential and ICI waste generating sectors only. Other source-separated types of waste (i.e., special waste) were not included in this data.

As indicated in the Exhibit below, the paper category comprises the largest portion of the waste stream at 21.7 percent, followed by organics at 21.6 percent, and plastics at 15.3 percent.

Exhibit 7. Overall Statewide MSW Composition by Material Categories

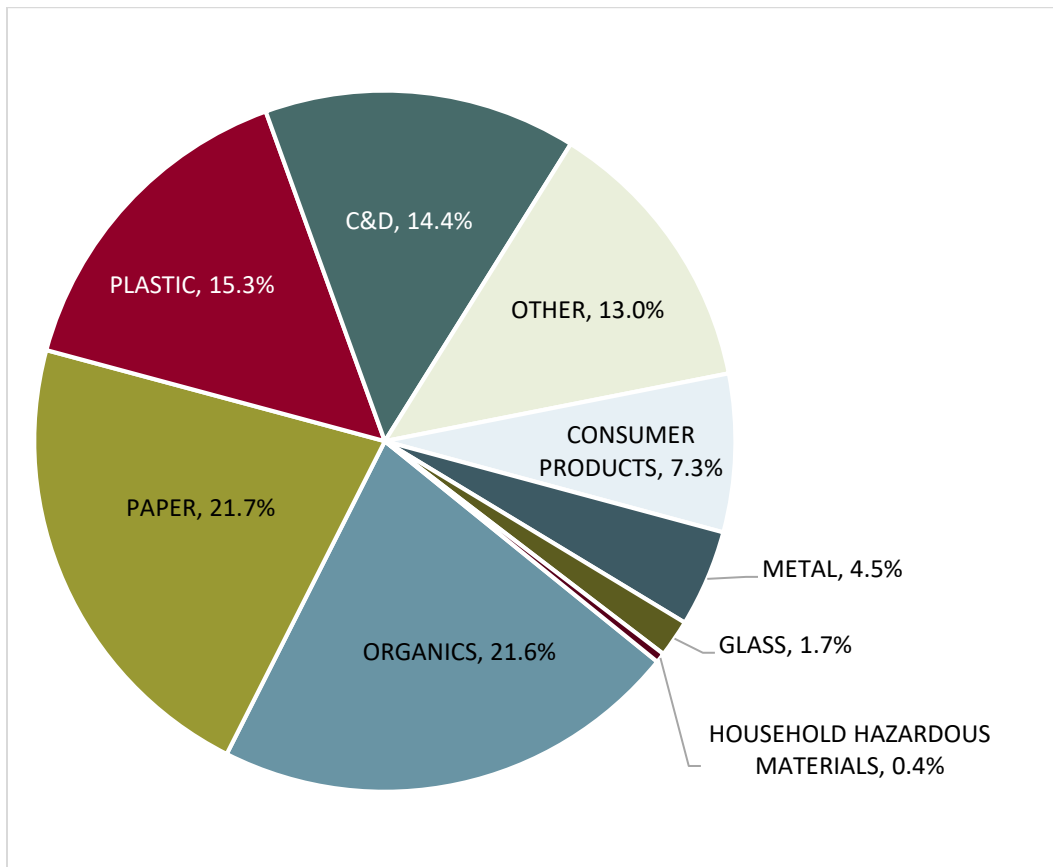


Table 10 provides a detailed profile of the overall MSW component that includes the percentage contribution of all 84 material components. For each material component, the mean percent, standard deviation, and 90 percent confidence intervals are included. The sum of the individual material components for a particular category equal the percentage shown for that category.

Table 10. Overall Statewide MSW Material Composition – Detailed

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
PAPER	Compostable Paper	5.0%	3.2%	4.8%	5.3%
	High Grade Office Paper	1.2%	3.7%	0.9%	1.5%
	Mixed Recyclable Paper	4.4%	6.1%	4.0%	4.9%
	Newsprint	0.3%	0.7%	0.2%	0.3%

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
	Magazines/Catalogs	0.5%	1.3%	0.4%	0.6%
	OCC and Kraft Paper	7.5%	8.5%	6.9%	8.1%
	Aseptic/Gable Top Containers	0.6%	1.0%	0.5%	0.7%
	Polycoated Paper	1.2%	1.9%	1.1%	1.4%
	Other Non-Recyclable Paper	1.0%	1.6%	0.9%	1.1%
	Total Paper	21.7%	12.3%	20.8%	22.6%
PLASTIC					
	#1 PET IA Deposit Beverage Containers	0.2%	0.2%	0.2%	0.3%
	#1 PET Beverage Containers	0.8%	0.6%	0.8%	0.9%
	#1 PET Other Non-Beverage Containers	0.5%	0.4%	0.5%	0.5%
	#2 HDPE Natural Containers	0.4%	0.4%	0.3%	0.4%
	#2 HDPE Colored Containers	0.6%	1.1%	0.5%	0.7%
	#3 PVC	0.1%	1.6%	<0.1%	0.2%
	#4 LDPE	<0.1%	0.9%	<0.1%	0.1%
	#5 PP	1.4%	0.9%	1.3%	1.4%
	#6 PS	0.5%	0.6%	0.4%	0.5%
	#7 Other/Unknown Plastic	0.2%	0.3%	0.2%	0.2%
	Expanded Polystyrene	0.6%	0.9%	0.5%	0.7%
	Retail Shopping Bags	0.6%	0.5%	0.6%	0.6%
	Other Plastic Film	7.1%	6.4%	6.6%	7.6%
	Other Plastic Products	2.3%	4.0%	2.0%	2.5%
	Total Plastic	15.3%	9.0%	14.6%	16.0%
METAL					
	Aluminum IA Deposit Beverage Containers	0.5%	0.5%	0.5%	0.6%
	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
	Ferrous Food and Beverage Containers	0.5%	0.8%	0.4%	0.6%
	Aluminum Foil and Foil Containers	0.2%	0.2%	0.1%	0.2%
	Other Aluminum Containers	0.1%	0.3%	0.1%	0.2%

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
	Other Ferrous Scrap Metals	2.9%	5.2%	2.6%	3.3%
	Other Non-Ferrous Scrap Metals	0.1%	0.6%	0.1%	0.2%
	Total Metal	4.5%	5.3%	4.1%	4.9%
GLASS					
	Glass IA Deposit Containers	0.8%	1.2%	0.7%	0.9%
	Clear Glass Containers	0.5%	0.7%	0.4%	0.5%
	Green Glass Containers Brown/Other Colored	<0.1%	0.2%	<0.1%	<0.1%
	Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
	Other Mixed Glass	0.4%	2.5%	0.2%	0.5%
	Total Glass	1.7%	1.6%	1.6%	1.8%
C&D					
	Wood - Untreated	2.3%	8.5%	1.7%	3.0%
	Wood - Treated	4.9%	10.1%	4.1%	5.6%
	Plastic Lumber	0.2%	2.1%	<0.1%	0.3%
	Insulation	<0.1%	0.6%	<0.1%	<0.1%
	Asphalt Paving	<0.1%	0.3%	<0.1%	<0.1%
	Soil, Rock, Sand	1.4%	4.4%	1.0%	1.7%
	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.5%	3.1%	0.3%	0.7%
	Concrete	0.7%	3.2%	0.4%	0.9%
	Asphalt Roofing	0.3%	3.7%	<0.1%	0.6%
	Drywall Gypsum Board	0.4%	2.9%	0.2%	0.6%
	Carpet and Carpet Padding	2.0%	8.8%	1.3%	2.6%
	Mattresses	0.3%	1.7%	0.1%	0.4%
	Furniture	1.5%	6.5%	1.0%	1.9%
	Total C&D	14.4%	20.4%	12.9%	15.9%
ORGANICS					
	Yard Waste	2.5%	7.4%	1.9%	3.0%
	Food Waste - Loose	14.6%	12.7%	13.6%	15.5%
	Food Waste - Packaged	4.6%	9.5%	3.9%	5.3%
	Total Organics	21.6%	17.6%	20.3%	22.9%
CONSUMER PRODUCTS					
	Television - LCD	<0.1%	0.1%	<0.1%	<0.1%
	Television - CRT	<0.1%	<0.1%	<0.1%	<0.1%

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
	Television Peripherals	<0.1%	0.1%	<0.1%	<0.1%
	Computer Monitor - LCD	<0.1%	0.3%	<0.1%	<0.1%
	Computer Monitor - CRT	<0.1%	<0.1%	<0.1%	<0.1%
	Computers - Desktop and Laptop	<0.1%	0.3%	<0.1%	<0.1%
	Computer Peripherals	<0.1%	0.4%	<0.1%	<0.1%
	Computer Printers	<0.1%	0.6%	<0.1%	<0.1%
	Audio Equipment	<0.1%	0.2%	<0.1%	<0.1%
	Electronic Gaming Equipment	<0.1%	<0.1%	<0.1%	<0.1%
	Cell Phone and Chargers	<0.1%	0.1%	<0.1%	<0.1%
	Other Plug-in Electronics	0.3%	1.1%	0.2%	0.4%
	Other "Smart" Devices - with chip	<0.1%	<0.1%	<0.1%	<0.1%
	Other Electrical and Household Appliances	0.5%	2.5%	0.3%	0.7%
	Textiles and Leather	5.0%	8.2%	4.4%	5.6%
	Rubber	1.3%	5.6%	0.9%	1.7%
	Total Consumer Products	7.3%	10.7%	6.5%	8.1%
HOUSEHOLD HAZARDOUS MATERIALS					
	Automotive Products	0.2%	1.8%	<0.1%	0.3%
	Household Cleaners	<0.1%	0.3%	<0.1%	<0.1%
	Lead Acid Batteries	<0.1%	0.1%	<0.1%	<0.1%
	Mercury Containing Products	<0.1%	0.2%	<0.1%	<0.1%
	Lithium Batteries	<0.1%	<0.1%	<0.1%	<0.1%
	Other Batteries	<0.1%	<0.1%	<0.1%	<0.1%
	Paints and Solvents	0.1%	1.0%	<0.1%	0.2%
	Pesticides (insecticides, herbicides, fungicide)	<0.1%	<0.1%	<0.1%	<0.1%
	Sharps	<0.1%	<0.1%	<0.1%	<0.1%
	Prescription Medications	<0.1%	0.2%	<0.1%	<0.1%
	Total Household Hazardous Materials	0.4%	2.1%	0.3%	0.6%
OTHER					
	Diapers	3.0%	3.6%	2.8%	3.3%
	Other Organics	1.5%	5.4%	1.1%	1.9%

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
	Other Inorganics	2.0%	4.2%	1.7%	2.3%
	Other Consumer Products	0.2%	0.8%	0.1%	0.2%
	Other C&D	0.8%	6.0%	0.3%	1.2%
	Other HHMs	<0.1%	<0.1%	<0.1%	<0.1%
	Fines	5.5%	3.1%	5.3%	5.7%
	Total Other	13.0%	9.9%	12.3%	13.7%
	TOTAL	100.0%			

Residential Statewide MSW Composition

Exhibit 8 provides a summary of the nine material categories that comprise the statewide residential waste composition delivered to the ten host facilities. The five largest material categories represented in the residential waste stream are as follows:

- Organics – 22.6 percent
- Other – 18.7 percent (note: this includes fines (7.6 percent), diapers (4.8 percent) - which was previously part of the organics material category, other inorganics (3.2 percent), other organics, and other miscellaneous waste components that cannot be classified into other categories such as hand soap, shampoo, etc.)
- Paper – 18.0 percent
- Plastic – 15.1 percent
- C&D – 10.5 percent (note: this does not include source-separated C&D disposed of at the host facilities)

Exhibit 8. Residential Statewide MSW Composition by Material Categories

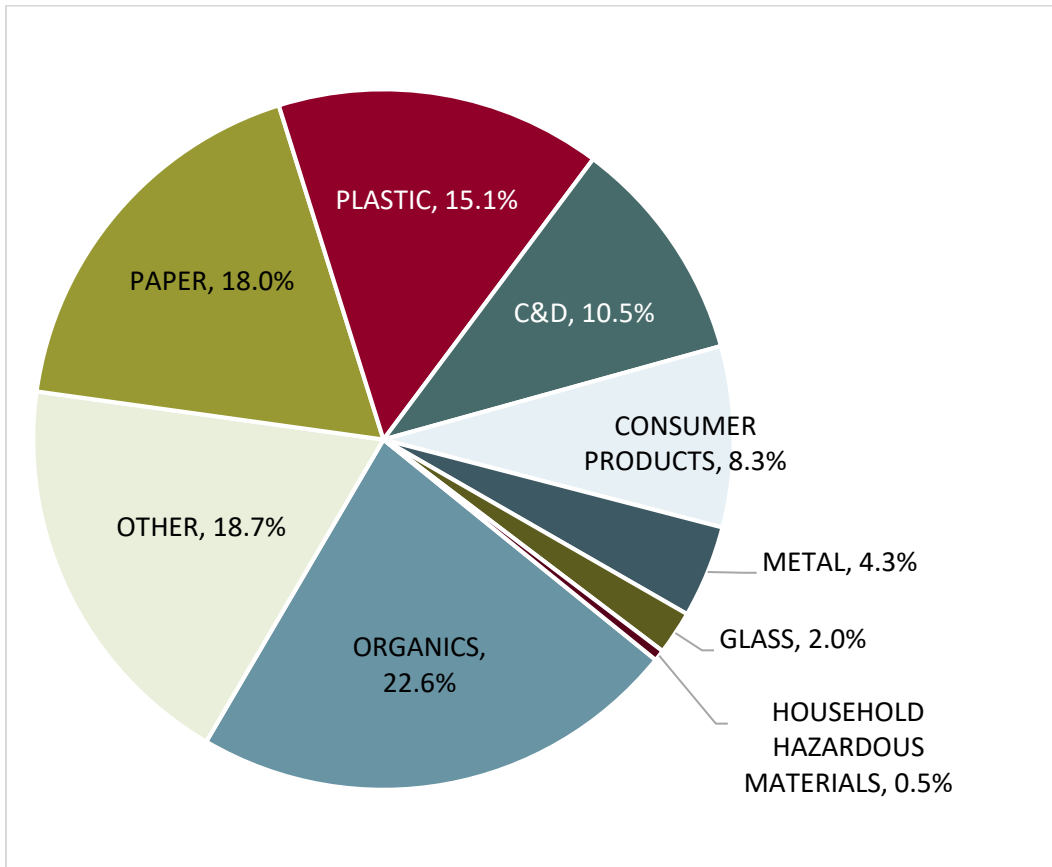


Table 11 provides a detailed profile of the statewide residential material composition that includes the percentage contribution of all 84 material components. For each material component, the mean percent, standard deviation, and 90 percent confidence intervals are included.

Table 11. Residential Statewide MSW Composition – Detailed

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
PAPER					
	Compostable Paper	4.4%	2.0%	4.2%	4.7%
	High Grade Office Paper	1.2%	3.9%	0.8%	1.6%
	Mixed Recyclable Paper	4.7%	2.2%	4.4%	4.9%
	Newsprint	0.5%	0.7%	0.4%	0.6%
	Magazines/Catalogs	0.6%	1.3%	0.4%	0.7%
	OCC and Kraft Paper	3.9%	4.6%	3.4%	4.4%

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
	Aseptic/Gable Top Containers	0.3%	0.3%	0.3%	0.3%
	Polycoated Paper	1.4%	1.0%	1.3%	1.5%
	Other Non-Recyclable Paper	1.0%	0.8%	0.9%	1.0%
	Total Paper	18.0%	8.5%	17.1%	18.9%
PLASTIC					
	#1 PET IA Deposit Beverage Containers	0.3%	0.2%	0.2%	0.3%
	#1 PET Beverage Containers	0.8%	0.5%	0.8%	0.9%
	#1 PET Other Non-Beverage Containers	0.6%	0.4%	0.6%	0.7%
	#2 HDPE Natural Containers	0.4%	0.4%	0.3%	0.4%
	#2 HDPE Colored Containers	0.6%	1.0%	0.5%	0.7%
	#3 PVC	<0.1%	0.2%	<0.1%	<0.1%
	#4 LDPE	<0.1%	0.2%	<0.1%	<0.1%
	#5 PP	1.6%	0.9%	1.5%	1.7%
	#6 PS	0.4%	0.4%	0.3%	0.4%
	#7 Other/Unknown Plastic	0.3%	0.3%	0.3%	0.4%
	Expanded Polystyrene	0.6%	0.4%	0.5%	0.6%
	Retail Shopping Bags	1.0%	0.6%	0.9%	1.0%
	Other Plastic Film	6.1%	2.7%	5.8%	6.4%
	Other Plastic Products	2.3%	3.0%	2.0%	2.6%
	Total Plastic	15.1%	5.2%	14.5%	15.6%
METAL					
	Aluminum IA Deposit Beverage Containers	0.5%	0.4%	0.5%	0.6%
	Aluminum Beverage Containers	<0.1%	<0.1%	<0.1%	<0.1%
	Ferrous Food and Beverage Containers	0.6%	0.5%	0.5%	0.6%
	Aluminum Foil and Foil Containers	0.2%	0.2%	0.2%	0.3%
	Other Aluminum Containers	0.2%	0.4%	0.2%	0.2%
	Other Ferrous Scrap Metals	2.4%	4.3%	2.0%	2.9%
	Other Non-Ferrous Scrap Metals	0.2%	0.8%	0.1%	0.3%
	Total Metal	4.3%	4.2%	3.8%	4.7%
GLASS					
	Glass IA Deposit Containers	0.9%	1.1%	0.8%	1.0%

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
	Clear Glass Containers	0.7%	0.7%	0.6%	0.8%
	Green Glass Containers	<0.1%	0.3%	<0.1%	0.1%
	Brown/Other Colored Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
	Other Mixed Glass	0.3%	1.2%	0.2%	0.4%
	Total Glass	2.0%	1.9%	1.8%	2.2%
C&D					
	Wood - Untreated	0.5%	2.1%	0.3%	0.7%
	Wood - Treated	3.1%	7.6%	2.3%	4.0%
	Plastic Lumber	0.2%	0.4%	0.1%	0.2%
	Insulation	<0.1%	0.3%	<0.1%	<0.1%
	Asphalt Paving	<0.1%	<0.1%	<0.1%	<0.1%
	Soil, Rock, Sand	2.0%	1.4%	1.9%	2.2%
	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.6%	3.8%	0.2%	1.0%
	Concrete	0.3%	0.8%	0.2%	0.4%
	Asphalt Roofing	0.2%	1.1%	0.1%	0.4%
	Drywall Gypsum Board	0.2%	0.7%	0.2%	0.3%
	Carpet and Carpet Padding	1.6%	7.9%	0.7%	2.4%
	Mattresses	0.4%	<0.1%	<0.1%	<0.1%
	Furniture	1.2%	6.3%	0.6%	1.9%
	Total C&D	10.5%	17.9%	8.6%	12.4%
ORGANICS					
	Yard Waste	3.5%	7.1%	2.8%	4.3%
	Food Waste - Loose	14.8%	7.6%	13.9%	15.6%
	Food Waste - Packaged	4.3%	4.0%	3.9%	4.8%
	Total Organics	22.6%	12.6%	21.3%	23.9%
CONSUMER PRODUCTS					
	Television - LCD	<0.1%	<0.1%	<0.1%	<0.1%
	Television - CRT	<0.1%	<0.1%	<0.1%	<0.1%
	Television Peripherals	<0.1%	0.2%	<0.1%	<0.1%
	Computer Monitor - LCD	<0.1%	<0.1%	<0.1%	<0.1%
	Computer Monitor - CRT	<0.1%	<0.1%	<0.1%	<0.1%
	Computers - Desktop and Laptop	<0.1%	0.3%	<0.1%	<0.1%
	Computer Peripherals	<0.1%	0.5%	<0.1%	0.1%
	Computer Printers	<0.1%	0.4%	<0.1%	<0.1%

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
	Audio Equipment	<0.1%	0.2%	<0.1%	<0.1%
	Electronic Gaming Equipment	<0.1%	0.1%	<0.1%	<0.1%
	Cell Phone and Chargers	<0.1%	0.2%	<0.1%	<0.1%
	Other Plug-in Electronics	0.5%	1.3%	0.3%	0.6%
	Other "Smart" Devices - with chip	<0.1%	<0.1%	<0.1%	<0.1%
	Other Electrical and Household Appliances	0.4%	2.3%	0.1%	0.6%
	Textiles and Leather	6.3%	6.7%	5.6%	7.1%
	Rubber	0.9%	2.5%	0.6%	1.2%
	Total Consumer Products	8.3%	7.6%	7.5%	9.2%
HOUSEHOLD HAZARDOUS MATERIALS					
	Automotive Products	0.2%	1.2%	<0.1%	0.3%
	Household Cleaners	<0.1%	0.3%	<0.1%	<0.1%
	Lead Acid Batteries	<0.1%	0.1%	<0.1%	<0.1%
	Mercury Containing Products	<0.1%	<0.1%	<0.1%	<0.1%
	Lithium Batteries	<0.1%	<0.1%	<0.1%	<0.1%
	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
	Paints and Solvents	0.2%	1.2%	<0.1%	0.3%
	Pesticides (insecticides, herbicides, fungicide)	<0.1%	<0.1%	<0.1%	<0.1%
	Sharps	<0.1%	<0.1%	<0.1%	<0.1%
	Prescription Medications	<0.1%	0.3%	<0.1%	<0.1%
	Total Household Hazardous Materials	0.5%	1.9%	0.3%	0.7%
OTHER					
	Diapers	4.8%	3.8%	4.4%	5.2%
	Other Organics	1.8%	2.7%	1.5%	2.1%
	Other Inorganics	3.2%	4.6%	2.7%	3.7%
	Other Consumer Products	0.4%	1.1%	0.3%	0.5%
	Other C&D	1.0%	5.3%	0.4%	1.5%
	Other HHMs	<0.1%	<0.1%	<0.1%	<0.1%
	Fines	7.6%	3.5%	7.3%	8.0%
	Total Other	18.7%	9.0%	17.8%	19.7%
	TOTAL	100.0%			

ICI Statewide MSW Composition

Exhibit 9 provides a summary of the nine material categories that comprise the statewide ICI waste composition delivered to the ten host facilities. The five largest material categories represented in the ICI waste stream are as follows:

- Paper – 24.3 percent
- Organics – 20.9 percent
- C&D – 17.1 percent
- Plastic – 15.5 percent
- Other – 9.1 percent (note: this includes fines (4.1 percent), diapers (1.8 percent) - which was previously part of the organics material component, other organics, other inorganics and other miscellaneous waste components that cannot be classified into other categories such as hand soap, shampoo, etc.)

Exhibit 9. ICI Statewide MSW Composition

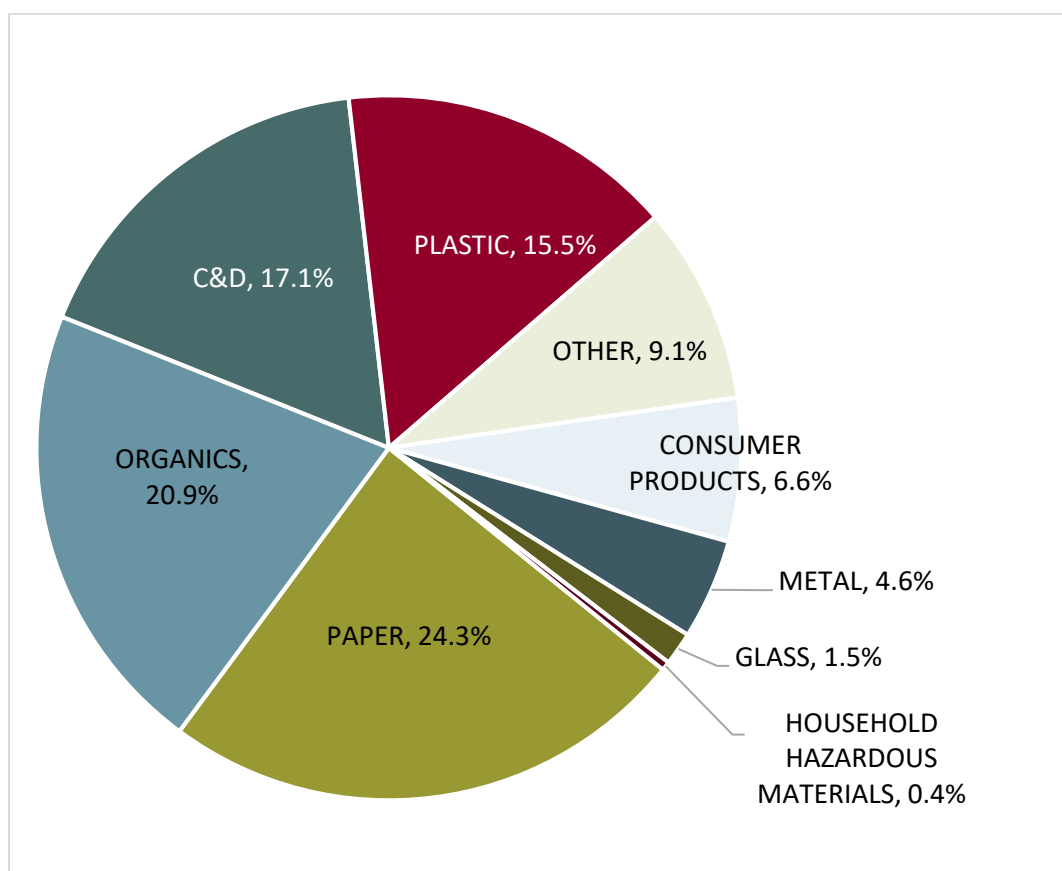


Table 12 provides a detailed profile of the statewide ICI waste composition that includes the percentage contribution of all 84 material components. For each material component, the mean percent, standard deviation, and 90 percent confidence intervals are included.

Table 12. ICI Statewide MSW Composition – Detailed

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
PAPER					
	Compostable Paper	5.4%	4.0%	5.0%	5.8%
	High Grade Office Paper	1.2%	3.5%	0.8%	1.5%
	Mixed Recyclable Paper	4.3%	8.2%	3.5%	5.1%
	Newsprint	0.2%	0.6%	0.1%	0.2%
	Magazines/Catalogs	0.4%	1.2%	0.3%	0.6%
	OCC and Kraft Paper	9.9%	10.9%	8.8%	11.0%
	Aseptic/Gable Top Containers	0.8%	1.3%	0.7%	0.9%
	Polycoated Paper	1.1%	2.5%	0.9%	1.4%
	Other Non-Recyclable Paper	1.0%	2.1%	0.8%	1.2%
	Total Paper	24.3%	15.0%	22.8%	25.8%
PLASTIC					
	#1 PET IA Deposit Beverage Containers	0.2%	0.3%	0.2%	0.3%
	#1 PET Beverage Containers	0.8%	0.7%	0.7%	0.9%
	#1 PET Other Non-Beverage Containers	0.4%	0.5%	0.3%	0.4%
	#2 HDPE Natural Containers	0.3%	0.4%	0.3%	0.4%
	#2 HDPE Colored Containers	0.6%	1.2%	0.5%	0.7%
	#3 PVC	0.2%	2.2%	<0.1%	0.4%
	#4 LDPE	<0.1%	1.3%	<0.1%	0.2%
	#5 PP	1.2%	0.9%	1.1%	1.3%
	#6 PS	0.6%	0.8%	0.5%	0.6%
	#7 Other/Unknown Plastic	0.2%	0.3%	0.1%	0.2%
	Expanded Polystyrene	0.6%	1.2%	0.5%	0.7%
	Retail Shopping Bags	0.3%	0.3%	0.3%	0.4%
	Other Plastic Film	7.8%	8.5%	6.9%	8.6%
	Other Plastic Products	2.2%	4.7%	1.7%	2.7%
	Total Plastic	15.5%	11.4%	14.3%	16.6%
METAL					
	Aluminum IA Deposit Beverage Containers	0.5%	0.6%	0.5%	0.6%
	Aluminum Beverage Containers	<0.1%	0.2%	<0.1%	<0.1%
	Ferrous Food and Beverage Containers	0.4%	1.0%	0.3%	0.5%
	Aluminum Foil and Foil Containers	0.1%	0.2%	<0.1%	0.1%

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
	Other Aluminum Containers	<0.1%	0.3%	<0.1%	0.1%
	Other Ferrous Scrap Metals	3.3%	6.0%	2.7%	3.9%
	Other Non-Ferrous Scrap Metals	<0.1%	0.2%	<0.1%	0.1%
	Total Metal	4.6%	6.1%	4.0%	5.2%
GLASS					
	Glass IA Deposit Containers	0.7%	1.3%	0.6%	0.8%
	Clear Glass Containers	0.3%	0.6%	0.3%	0.4%
	Green Glass Containers	<0.1%	<0.1%	<0.1%	<0.1%
	Brown/Other Colored Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
	Other Mixed Glass	0.4%	3.3%	<0.1%	0.7%
	Total Glass	1.5%	3.8%	1.1%	1.9%
C&D					
	Wood - Untreated	3.6%	11.5%	2.4%	4.8%
	Wood - Treated	6.0%	11.9%	4.8%	7.2%
	Plastic Lumber	0.2%	2.9%	<0.1%	0.5%
	Insulation	<0.1%	0.8%	<0.1%	0.1%
	Asphalt Paving	<0.1%	0.4%	<0.1%	<0.1%
	Soil, Rock, Sand	0.9%	5.9%	0.3%	1.5%
	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.5%	2.3%	0.2%	0.7%
	Concrete	0.9%	4.3%	0.5%	1.3%
	Asphalt Roofing	0.4%	5.0%	<0.1%	0.9%
	Drywall Gypsum Board	0.5%	4.0%	<0.1%	0.9%
	Carpet and Carpet Padding	2.2%	9.4%	1.3%	3.2%
	Mattresses	0.2%	2.3%	<0.1%	0.4%
	Furniture	1.6%	6.7%	0.9%	2.3%
	Total C&D	17.1%	22.5%	14.8%	19.4%
ORGANICS					
	Yard Waste	1.8%	7.6%	1.0%	2.5%
	Food Waste - Loose	14.5%	16.0%	12.8%	16.1%
	Food Waste - Packaged	4.7%	12.6%	3.4%	6.0%
	Total Organics	20.9%	21.2%	18.8%	23.1%
CONSUMER PRODUCTS					
	Television - LCD	<0.1%	0.2%	<0.1%	<0.1%
	Television - CRT	<0.1%	<0.1%	<0.1%	<0.1%
	Television Peripherals	<0.1%	0.1%	<0.1%	<0.1%

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
	Computer Monitor - LCD	<0.1%	0.4%	<0.1%	<0.1%
	Computer Monitor - CRT	<0.1%	<0.1%	<0.1%	<0.1%
	Computers - Desktop and Laptop	<0.1%	0.3%	<0.1%	<0.1%
	Computer Peripherals	<0.1%	0.3%	<0.1%	<0.1%
	Computer Printers	<0.1%	0.7%	<0.1%	<0.1%
	Audio Equipment	<0.1%	0.2%	<0.1%	<0.1%
	Electronic Gaming Equipment	<0.1%	<0.1%	<0.1%	<0.1%
	Cell Phone and Chargers	<0.1%	<0.1%	<0.1%	<0.1%
	Other Plug-in Electronics	0.1%	0.8%	<0.1%	0.2%
	Other "Smart" Devices - with chip	<0.1%	0.1%	<0.1%	<0.1%
	Other Electrical and Household Appliances	0.6%	2.7%	0.3%	0.8%
	Textiles and Leather	4.1%	9.3%	3.1%	5.0%
	Rubber	1.6%	7.4%	0.9%	2.4%
	Total Consumer Products	6.6%	13.0%	5.3%	7.9%
HOUSEHOLD HAZARDOUS MATERIALS					
	Automotive Products	0.2%	2.2%	<0.1%	0.4%
	Household Cleaners	<0.1%	0.3%	<0.1%	<0.1%
	Lead Acid Batteries	<0.1%	0.1%	<0.1%	<0.1%
	Mercury Containing Products	<0.1%	0.2%	<0.1%	<0.1%
	Lithium Batteries	<0.1%	<0.1%	<0.1%	<0.1%
	Other Batteries	<0.1%	<0.1%	<0.1%	<0.1%
	Paints and Solvents	<0.1%	0.7%	<0.1%	0.2%
	Pesticides (insecticides, herbicides, fungicide)	<0.1%	<0.1%	<0.1%	<0.1%
	Sharps	<0.1%	<0.1%	<0.1%	<0.1%
	Prescription Medications	<0.1%	<0.1%	<0.1%	<0.1%
	Total Household Hazardous Materials	0.4%	2.3%	0.2%	0.6%
OTHER					
	Diapers	1.8%	3.3%	1.5%	2.2%
	Other Organics	1.4%	6.9%	0.7%	2.1%
	Other Inorganics	1.1%	3.7%	0.8%	1.5%
	Other Consumer Products	<0.1%	0.2%	<0.1%	<0.1%
	Other C&D	0.6%	6.6%	<0.1%	1.3%

Material Categories	Material Components	Mean Composition	Standard Deviation	90% Confidence Limits	
				Lower	Upper
	Other HHMs	<0.1%	<0.1%	<0.1%	<0.1%
	Fines	4.1%	2.6%	3.8%	4.3%
	Total Other	9.1%	10.7%	8.0%	10.2%
	TOTAL	100.0%			

Table 13 presents the mean percent material composition by generating sector for the MSW physical sort data and provides the overall statewide composition as well.

Table 13. Comparison of MSW Composition by Generating Sector

Material Categories	Material Components	Residential Composition	ICI Composition	Overall Composition
PAPER				
	Compostable Paper	4.4%	5.4%	5.0%
	High Grade Office Paper	1.2%	1.2%	1.2%
	Mixed Recyclable Paper	4.7%	4.3%	4.4%
	Newsprint	0.5%	0.2%	0.3%
	Magazines/Catalogs	0.6%	0.4%	0.5%
	OCC and Kraft Paper	3.9%	9.9%	7.5%
	Aseptic/Gable Top Containers	0.3%	0.8%	0.6%
	Polycoated Paper	1.4%	1.1%	1.2%
	Other Non-Recyclable Paper	1.0%	1.0%	1.0%
	Total Paper	18.0%	24.3%	21.7%
PLASTIC				
	#1 PET IA Deposit Beverage Containers	0.3%	0.2%	0.2%
	#1 PET Beverage Containers	0.8%	0.8%	0.8%
	#1 PET Other Non-Beverage Containers	0.6%	0.4%	0.5%
	#2 HDPE Natural Containers	0.4%	0.3%	0.4%
	#2 HDPE Colored Containers	0.6%	0.6%	0.6%
	#3 PVC	<0.1%	0.2%	0.1%
	#4 LDPE	<0.1%	<0.1%	<0.1%
	#5 PP	1.6%	1.2%	1.4%
	#6 PS	0.4%	0.6%	0.5%
	#7 Other/Unknown Plastic	0.3%	0.2%	0.2%

Material Categories	Material Components	Residential Composition	ICI Composition	Overall Composition
	Expanded Polystyrene	0.6%	0.6%	0.6%
	Retail Shopping Bags	1.0%	0.3%	0.6%
	Other Plastic Film	6.1%	7.8%	7.1%
	Other Plastic Products	2.3%	2.2%	2.3%
	Total Plastic	15.1%	15.5%	15.3%
METAL				
	Aluminum IA Deposit Beverage Containers	0.5%	0.5%	0.5%
	Aluminum Beverage Containers	<0.1%	<0.1%	<0.1%
	Ferrous Food and Beverage Containers	0.6%	0.4%	0.5%
	Aluminum Foil and Foil Containers	0.2%	0.1%	0.2%
	Other Aluminum Containers	0.2%	<0.1%	0.1%
	Other Ferrous Scrap Metals	2.4%	3.3%	2.9%
	Other Non-Ferrous Scrap Metals	0.2%	<0.1%	0.1%
	Total Metal	4.3%	4.6%	4.5%
GLASS				
	Glass IA Deposit Containers	0.9%	0.7%	0.8%
	Clear Glass Containers	0.7%	0.3%	0.5%
	Green Glass Containers	<0.1%	<0.1%	<0.1%
	Brown/Other Colored Glass Containers	<0.1%	<0.1%	<0.1%
	Other Mixed Glass	0.3%	0.4%	0.4%
	Total Glass	2.0%	1.5%	1.7%
C&D				
	Wood - Untreated	0.5%	3.6%	2.3%
	Wood - Treated	3.1%	6.0%	4.9%
	Plastic Lumber	0.2%	0.2%	0.2%
	Insulation	<0.1%	<0.1%	<0.1%
	Asphalt Paving	<0.1%	<0.1%	<0.1%
	Soil, Rock, Sand	2.0%	0.9%	1.4%
	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.6%	0.5%	0.5%
	Concrete	0.3%	0.9%	0.7%
	Asphalt Roofing	0.2%	0.4%	0.3%
	Drywall Gypsum Board	0.2%	0.5%	0.4%

Material Categories	Material Components	Residential Composition	ICI Composition	Overall Composition
	Carpet and Carpet Padding	1.6%	2.2%	2.0%
	Mattresses	0.4%	0.2%	0.3%
	Furniture	1.2%	1.6%	1.5%
	Total C&D	10.5%	17.1%	14.4%
ORGANICS				
	Yard Waste	3.5%	1.8%	2.5%
	Food Waste - Loose	14.8%	14.5%	14.6%
	Food Waste - Packaged	4.3%	4.7%	4.6%
	Total Organics	22.6%	20.9%	21.6%
CONSUMER PRODUCTS				
	Television - LCD	<0.1%	<0.1%	<0.1%
	Television - CRT	<0.1%	<0.1%	<0.1%
	Television Peripherals	<0.1%	<0.1%	<0.1%
	Computer Monitor - LCD	<0.1%	<0.1%	<0.1%
	Computer Monitor - CRT	<0.1%	<0.1%	<0.1%
	Computers - Desktop and Laptop	<0.1%	<0.1%	<0.1%
	Computer Peripherals	<0.1%	<0.1%	<0.1%
	Computer Printers	<0.1%	<0.1%	<0.1%
	Audio Equipment	<0.1%	<0.1%	<0.1%
	Electronic Gaming Equipment	<0.1%	<0.1%	<0.1%
	Cell Phone and Chargers	<0.1%	<0.1%	<0.1%
	Other Plug-in Electronics	0.5%	0.1%	0.3%
	Other "Smart" Devices - with chip	<0.1%	<0.1%	<0.1%
	Other Electrical and Household Appliances	0.4%	0.6%	0.5%
	Textiles and Leather	6.3%	4.1%	5.0%
	Rubber	0.9%	1.6%	1.3%
	Total Consumer Products	8.3%	6.6%	7.3%
HOUSEHOLD HAZARDOUS MATERIALS				
	Automotive Products	0.2%	0.2%	0.2%
	Household Cleaners	<0.1%	<0.1%	<0.1%
	Lead Acid Batteries	<0.1%	<0.1%	<0.1%
	Mercury Containing Products	<0.1%	<0.1%	<0.1%

Material Categories	Material Components	Residential Composition	ICI Composition	Overall Composition
	Lithium Batteries	<0.1%	<0.1%	<0.1%
	Other Batteries	<0.1%	<0.1%	<0.1%
	Paints and Solvents	0.2%	<0.1%	0.1%
	Pesticides (insecticides, herbicides, fungicide)	<0.1%	<0.1%	<0.1%
	Sharps	<0.1%	<0.1%	<0.1%
	Prescription Medications	<0.1%	<0.1%	<0.1%
	Total Household Hazardous Materials	0.5%	0.4%	0.4%
OTHER				
	Diapers	4.8%	1.8%	3.0%
	Other Organics	1.8%	1.4%	1.5%
	Other Inorganics	3.2%	1.1%	2.0%
	Other Consumer Products	0.4%	<0.1%	0.2%
	Other C&D	1.0%	0.6%	0.8%
	Other HHMs	<0.1%	<0.1%	<0.1%
	Fines	7.6%	4.1%	5.5%
	Total Other	18.7%	9.1%	13.0%
	TOTAL	100.0%	100.0%	100.0%

In comparing the residential and ICI waste composition profiles, a number of observations can be made:

- **Paper** – The paper category comprises the largest portion of the ICI waste stream and the third largest of the residential waste stream. The same three material categories make up the largest percentages in both the residential and ICI generator sector. These material categories are OCC and Kraft paper (residential 3.9 percent, ICI 9.9 percent), compostable paper (residential 4.4 percent, ICI 5.4 percent), and mixed recyclable paper (residential 4.7 percent, ICI 4.3 percent).
- **Plastics** – The most notable material in the plastics category for both waste streams is other plastic film. The percentage of other plastic film in the residential waste stream is 6.1 percent and 7.8 percent for the ICI waste stream.
- **Metal** – The amount and type of materials found in the metal category were similar for both residential and ICI waste streams. The total composition difference between the two waste streams was less than 0.3 percent.
- **Glass** – Glass materials comprise 2.0 percent of the residential waste stream in comparison to 1.5 percent of the ICI waste stream. The increased amounts of glass in the residential waste stream result from more glass IA deposit containers (0.9 percent) and clear glass containers (0.7 percent) than was present in the ICI waste stream (0.7 percent glass IA deposit and 0.3 percent clear glass containers).

- **C&D** – The ICI waste stream for the C&D category was 17.1 percent, whereas the residential waste stream was 10.5 percent. The percentages for the ICI waste stream that contribute to this difference are as follows: treated wood (6.0 percent), untreated wood (3.6 percent), and carpet and carpet padding (2.2 percent).
- **Organics** – As in the 2017 Study, food waste was separated into loose and packaged. Loose food waste was the more common of the two representing around 15 percent in both the residential and ICI waste streams.
- **Consumer Products** – There is a difference in the consumer products category for both waste streams. The percentage of consumer products in the residential waste streams is 8.3 while the ICI percentage is 6.6. This difference is largely contributed to the 6.3 percent of textiles and leather found in the residential stream, compared to 4.1 percent in the ICI stream.
- **Household Hazardous Materials** – The amount and type of materials found in this category were similar for both the residential and ICI waste streams. The total composition between the two waste streams was less than 0.1 percent.
- **Other** – The other category is higher in the residential sector (18.7 percent) than in the ICI sector (9.1 percent). Materials that contribute to this difference are diapers (residential 4.8 percent), other inorganics including cat litter and shampoo (residential 3.2 percent), and fines (residential 7.6 percent), which is small or indistinguishable material that does not fit other waste component definitions.

Physical Statewide Material Composition Comparison by Host Facility

Table 14 presents the material composition data for each of the ten host facilities where field activities occurred in 2022. Note that only the mean percent composition for each waste component is presented. **Appendix B** contains the detailed composition for each of the host facilities that includes the standard deviations and 90 percent confidence interval calculations.

Table 14. Comparison of MSW Composition by Host Facility

Material Categories	Material Components	MPE	Newton	Iowa City	Cherokee	North Iowa	Cedar Rapids	Carroll County	Black Hawk	Dubuque	WCSC	Overall Statewide
PAPER												
	Compostable Paper	6.8%	2.8%	4.7%	4.3%	3.1%	3.8%	2.8%	3.6%	3.5%	3.9%	5.0%
	High Grade Office Paper	1.8%	1.5%	1.6%	0.7%	0.9%	0.2%	1.2%	0.4%	0.5%	0.4%	1.2%
	Mixed Recyclable Paper	3.6%	4.2%	3.3%	4.6%	8.6%	4.0%	5.7%	7.9%	4.5%	4.3%	4.4%
	Newsprint	0.1%	0.4%	0.3%	0.7%	0.5%	0.2%	0.6%	0.4%	0.6%	0.6%	0.3%
	Magazines/Catalogs	0.5%	0.6%	0.7%	0.7%	0.3%	0.2%	0.7%	0.4%	0.4%	0.4%	0.5%
	OCC and Kraft Paper	9.8%	6.2%	4.2%	5.8%	2.7%	6.5%	5.0%	5.9%	7.4%	5.9%	7.5%
	Aseptic/Gable Top Containers	0.8%	0.8%	1.0%	0.5%	0.4%	0.2%	0.2%	0.2%	0.4%	0.2%	0.6%
	Polycoated Paper	1.0%	0.8%	1.1%	1.7%	1.5%	1.5%	1.0%	1.7%	1.3%	1.4%	1.2%
	Other Non-Recyclable Paper	0.8%	0.7%	1.1%	1.7%	2.1%	1.1%	1.0%	0.9%	1.3%	0.9%	1.0%
	Total Paper	25.2%	18.0%	18.1%	20.6%	20.0%	17.7%	18.3%	21.4%	19.9%	18.0%	21.7%
PLASTIC												
	#1 PET IA Deposit Beverage Containers	0.3%	0.2%	0.2%	0.3%	0.3%	0.1%	0.2%	0.3%	0.2%	0.3%	0.2%
	#1 PET Beverage Containers	1.0%	0.8%	0.5%	0.8%	0.8%	0.5%	0.9%	0.9%	0.7%	0.9%	0.8%
	#1 PET Other Non-Beverage Containers	0.6%	0.4%	0.3%	0.6%	0.4%	0.3%	0.5%	0.5%	0.3%	0.6%	0.5%
	#2 HDPE Natural Containers	0.4%	0.4%	0.2%	0.4%	0.3%	0.2%	0.4%	0.5%	0.3%	0.3%	0.4%

Material Categories	Material Components	MPE	Newton	Iowa City	Cherokee	North Iowa	Cedar Rapids	Carroll County	Black Hawk	Dubuque	WCSC	Overall Statewide
	#2 HDPE Colored Containers	0.5%	0.7%	0.7%	0.8%	0.5%	0.4%	1.0%	0.8%	0.6%	0.5%	0.6%
	#3 PVC	<0.1%	0.2%	0.1%	<0.1%	<0.1%	<0.1%	0.1%	0.1%	0.8%	<0.1%	0.1%
	#4 LDPE	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.2%	0.5%	<0.1%	<0.1%	<0.1%	<0.1%
	#5 PP	1.5%	1.1%	1.4%	1.2%	1.2%	1.2%	1.0%	1.2%	1.4%	1.1%	1.4%
	#6 PS	0.5%	0.5%	0.6%	0.4%	0.3%	0.3%	0.5%	0.4%	0.4%	0.3%	0.5%
	#7 Other/Unknown Plastic	0.3%	0.4%	0.2%	0.1%	0.2%	<0.1%	0.2%	0.2%	0.1%	0.2%	0.2%
	Expanded Polystyrene	0.8%	0.5%	0.7%	0.5%	0.6%	0.4%	0.5%	0.4%	0.4%	0.4%	0.6%
	Retail Shopping Bags	0.8%	0.6%	0.4%	0.5%	0.6%	0.5%	0.5%	0.6%	0.4%	0.6%	0.6%
	Other Plastic Film	8.7%	4.8%	7.0%	5.8%	7.9%	4.2%	5.3%	6.0%	5.7%	7.2%	7.1%
	Other Plastic Products	2.0%	2.5%	1.7%	3.1%	4.1%	2.7%	1.6%	3.0%	2.7%	2.3%	2.3%
	Total Plastic	17.3%	13.1%	14.0%	14.6%	17.5%	11.2%	13.2%	14.9%	14.0%	14.9%	15.3%
METAL												
	Aluminum IA Deposit Beverage Containers	0.6%	0.3%	0.3%	0.4%	0.6%	0.2%	0.5%	0.7%	0.5%	0.6%	0.5%
	Aluminum Beverage Containers	0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Ferrous Food and Beverage Containers	0.4%	0.5%	0.5%	0.8%	0.5%	0.5%	0.5%	0.7%	0.4%	0.7%	0.5%
	Aluminum Foil and Foil Containers	0.2%	0.1%	0.2%	0.2%	0.2%	0.2%	0.1%	0.2%	<0.1%	<0.1%	0.2%

Material Categories	Material Components	MPE	Newton	Iowa City	Cherokee	North Iowa	Cedar Rapids	Carroll County	Black Hawk	Dubuque	WCSC	Overall Statewide
	Other Aluminum Containers	<0.1%	0.3%	0.1%	0.2%	0.2%	0.1%	0.1%	0.3%	0.2%	0.3%	0.1%
	Other Ferrous Scrap Metals	3.0%	3.2%	3.7%	1.1%	2.8%	3.4%	3.2%	3.2%	1.7%	1.9%	2.9%
	Other Non-Ferrous Scrap Metals	0.3%	0.5%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.1%
	Total Metal	4.7%	5.1%	4.9%	2.8%	4.2%	4.5%	4.5%	5.1%	2.9%	3.6%	4.5%
GLASS												
	Glass IA Deposit Containers	0.8%	0.5%	1.0%	0.7%	0.6%	0.6%	1.0%	0.7%	0.8%	0.7%	0.8%
	Clear Glass Containers	0.4%	0.7%	0.6%	0.7%	0.4%	0.4%	0.4%	0.7%	0.5%	0.6%	0.5%
	Green Glass Containers	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Brown/Other Colored Glass Containers	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Other Mixed Glass	0.1%	0.6%	0.2%	0.5%	0.3%	0.2%	1.1%	1.0%	0.4%	0.4%	0.4%
	Total Glass	1.4%	1.8%	1.8%	1.9%	1.3%	1.4%	2.7%	2.6%	1.8%	1.9%	1.7%
C&D												
	Wood - Untreated	1.2%	0.3%	1.5%	2.9%	3.4%	8.4%	2.9%	2.2%	2.9%	0.3%	2.3%
	Wood - Treated	6.5%	6.2%	3.9%	7.0%	3.6%	1.9%	6.2%	2.9%	6.0%	3.3%	4.9%
	Plastic Lumber	<0.1%	<0.1%	0.1%	<0.1%	1.0%	0.7%	<0.1%	0.2%	0.1%	<0.1%	0.2%
	Insulation	<0.1%	<0.1%	<0.1%	<0.1%	0.3%	<0.1%	<0.1%	<0.1%	0.2%	<0.1%	<0.1%
	Asphalt Paving	<0.1%	<0.1%	0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Soil, Rock, Sand	1.5%	0.9%	1.8%	0.9%	3.6%	2.0%	0.5%	1.3%	0.2%	0.5%	1.4%

Material Categories	Material Components	MPE	Newton	Iowa City	Cherokee	North Iowa	Cedar Rapids	Carroll County	Black Hawk	Dubuque	WCSC	Overall Statewide
	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.2%	0.8%	0.8%	0.7%	0.2%	0.3%	0.5%	0.8%	0.6%	1.2%	0.5%
	Concrete	0.7%	0.3%	1.0%	<0.1%	0.1%	1.5%	0.3%	0.6%	0.4%	0.1%	0.7%
	Asphalt Roofing	<0.1%	1.6%	0.3%	0.2%	<0.1%	<0.1%	1.7%	0.4%	0.9%	0.3%	0.3%
	Drywall Gypsum Board	0.2%	0.5%	1.3%	<0.1%	<0.1%	0.3%	0.7%	0.1%	1.3%	0.2%	0.4%
	Carpet and Carpet Padding	1.6%	1.2%	2.9%	0.3%	1.2%	3.2%	4.9%	0.3%	3.0%	1.8%	2.0%
	Mattresses	0.3%	0.3%	0.4%	0.1%	0.1%	<0.1%	<0.1%	<0.1%	1.2%	0.1%	0.3%
	Furniture	0.3%	3.7%	4.2%	1.6%	1.4%	2.1%	0.8%	1.7%	3.2%	1.4%	1.5%
	Total C&D	12.7%	15.8%	18.4%	13.9%	14.9%	20.6%	18.6%	10.7%	20.0%	9.2%	14.4%
ORGANICS												
	Yard Waste	2.4%	2.4%	4.1%	3.0%	1.9%	2.3%	1.6%	1.1%	2.1%	3.9%	2.5%
	Food Waste - Loose	13.2%	14.9%	16.8%	13.0%	15.1%	10.8%	12.7%	15.7%	17.5%	19.3%	14.6%
	Food Waste - Packaged	3.2%	4.0%	3.6%	4.7%	4.5%	9.1%	6.0%	6.0%	4.0%	3.6%	4.6%
	Total Organics	18.8%	21.4%	24.4%	20.7%	21.5%	22.1%	20.3%	22.9%	23.7%	26.8%	21.6%
CONSUMER PRODUCTS												
	Television - LCD	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Television - CRT	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Television Peripherals	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Computer Monitor - LCD	<0.1%	<0.1%	<0.1%	0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%

Material Categories	Material Components	MPE	Newton	Iowa City	Cherokee	North Iowa	Cedar Rapids	Carroll County	Black Hawk	Dubuque	WCSC	Overall Statewide
	Computer Monitor - CRT	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Computers - Desktop and Laptop	<0.1%	<0.1%	<0.1%	0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Computer Peripherals	<0.1%	<0.1%	<0.1%	<0.1%	0.2%	<0.1%	<0.1%	0.1%	<0.1%	<0.1%	<0.1%
	Computer Printers	<0.1%	<0.1%	<0.1%	0.3%	0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Audio Equipment	<0.1%	0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Electronic Gaming Equipment	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Cell Phone and Chargers	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Other Plug-in Electronics	0.3%	0.5%	0.2%	0.5%	0.3%	0.2%	0.4%	0.4%	0.3%	0.4%	0.3%
	Other "Smart" Devices - with chip	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Other Electrical and Household Appliances	0.4%	1.6%	0.4%	0.9%	0.9%	1.1%	0.3%	0.4%	0.5%	0.4%	0.5%
	Textiles and Leather	4.5%	6.3%	3.5%	3.6%	4.6%	6.5%	4.9%	5.0%	4.8%	8.2%	5.0%
	Rubber	0.6%	1.3%	0.8%	1.1%	0.7%	4.3%	0.9%	1.2%	2.8%	0.9%	1.3%
	Total Consumer Products	5.8%	9.9%	5.1%	6.8%	6.9%	12.1%	6.8%	7.2%	8.7%	10.0%	7.3%
HOUSEHOLD HAZARDOUS MAERIALS												
	Automotive Products	<0.1%	<0.1%	0.5%	0.5%	<0.1%	<0.1%	1.1%	0.1%	<0.1%	0.4%	0.2%

Material Categories	Material Components	MPE	Newton	Iowa City	Cherokee	North Iowa	Cedar Rapids	Carroll County	Black Hawk	Dubuque	WCSC	Overall Statewide
	Household Cleaners	<0.1%	<0.1%	0.2%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.1%	<0.1%	<0.1%
	Lead Acid Batteries	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Mercury Containing Products	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Lithium Batteries	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Other Batteries	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Paints and Solvents	<0.1%	<0.1%	<0.1%	0.1%	<0.1%	<0.1%	0.6%	0.2%	<0.1%	0.1%	0.1%
	Pesticides (insecticides, herbicides, fungicide)	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Sharps	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Prescription Medications	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Total Household Hazardous Materials	0.2%	0.2%	0.7%	0.9%	0.2%	0.2%	1.9%	0.4%	0.3%	0.6%	0.4%
OTHER												
	Diapers	2.9%	2.7%	2.3%	4.0%	2.9%	2.2%	3.8%	3.9%	3.5%	3.5%	3.0%
	Other Organics	1.2%	0.6%	0.9%	1.5%	2.5%	1.8%	0.6%	3.8%	1.0%	2.5%	1.5%
	Other Inorganics	0.8%	3.3%	2.0%	3.0%	3.6%	2.5%	2.4%	3.6%	1.9%	4.2%	2.0%
	Other Consumer Products	0.4%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.2%
	Other C&D	0.5%	1.8%	1.7%	3.5%	0.5%	0.7%	2.6%	0.4%	0.4%	0.5%	0.8%

Material Categories	Material Components	MPE	Newton	Iowa City	Cherokee	North Iowa	Cedar Rapids	Carroll County	Black Hawk	Dubuque	WCSC	Overall Statewide
	Other HHMs	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	Fines	7.9%	6.3%	5.6%	5.8%	4.0%	2.9%	4.3%	3.1%	1.9%	4.4%	5.5%
	Total Other	13.8%	14.7%	12.6%	17.8%	13.4%	10.1%	13.8%	14.8%	8.7%	15.0%	13.0%
	TOTALS	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

DEPOSIT AND NON-DEPOSIT COMPOSITION

Overall Statewide Deposit and Non-Deposit Composition

The Study counted a total of 34,708 containers of which 17,739 were identified as deposit containers and 16,969 were identified as non-deposit containers. **Exhibit 10** shows the total percent of the deposit and non-deposit containers that were counted as part of the physical sort for this Study. Data is provided for both deposit and non-deposit which includes materials of metal, glass, and plastic. Note that the overall waste composition includes waste from residential and ICI facilities. **Exhibit 11** provides a detailed visual of material components that made up the deposit and non-deposit containers.

Exhibit 10. Overall Statewide Deposit and Non-Deposit Container Count

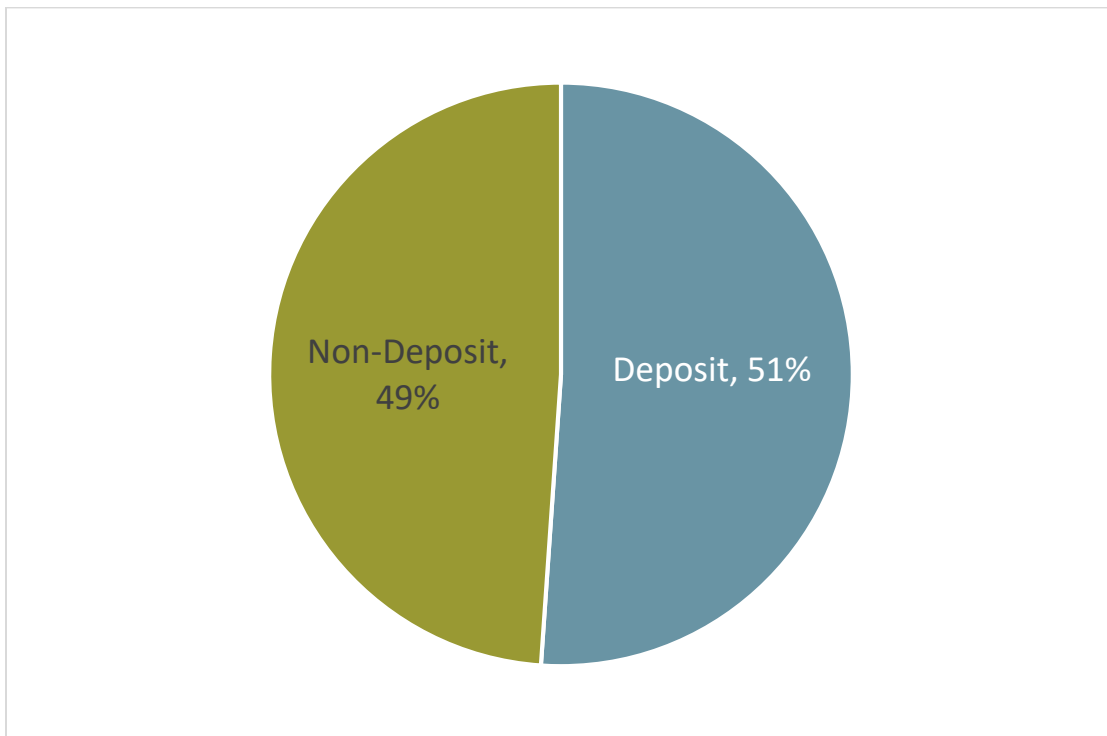


Exhibit 11. Overall Statewide Deposit and Non-Deposit Container Counts – Detailed

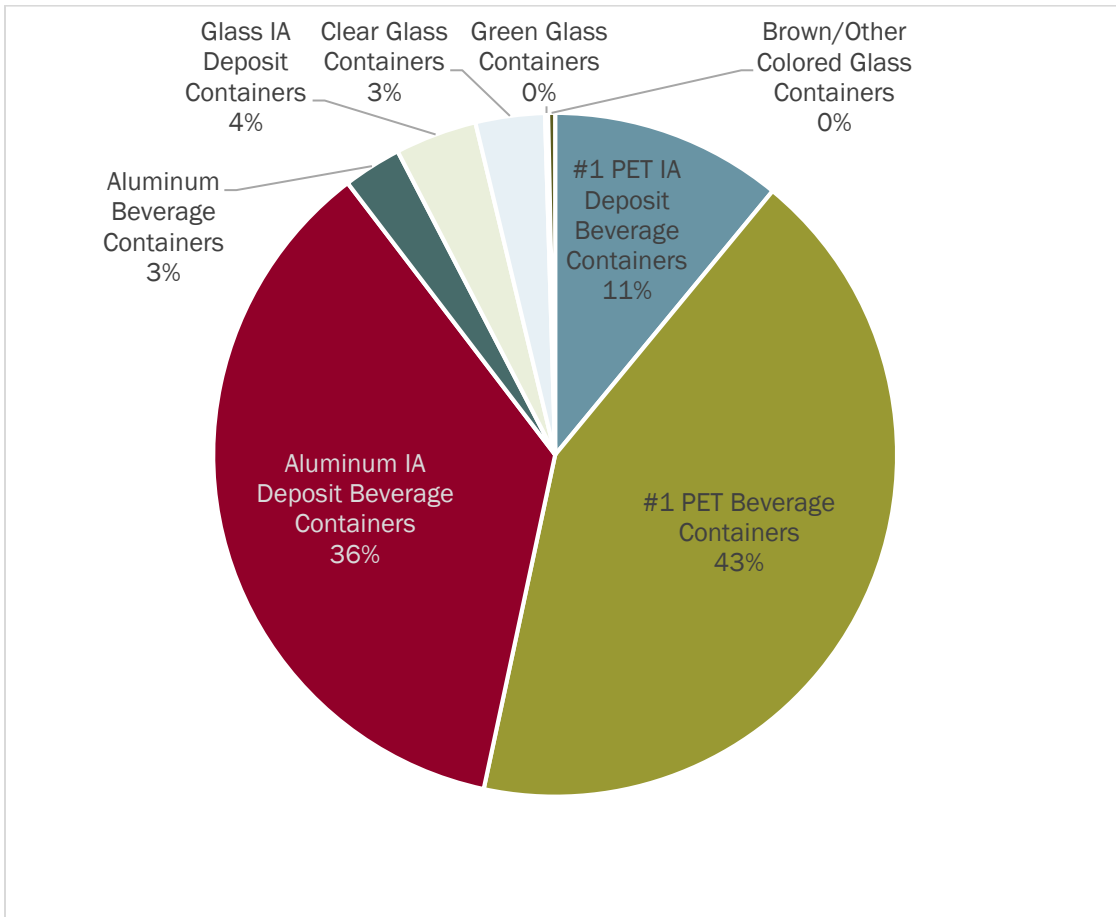
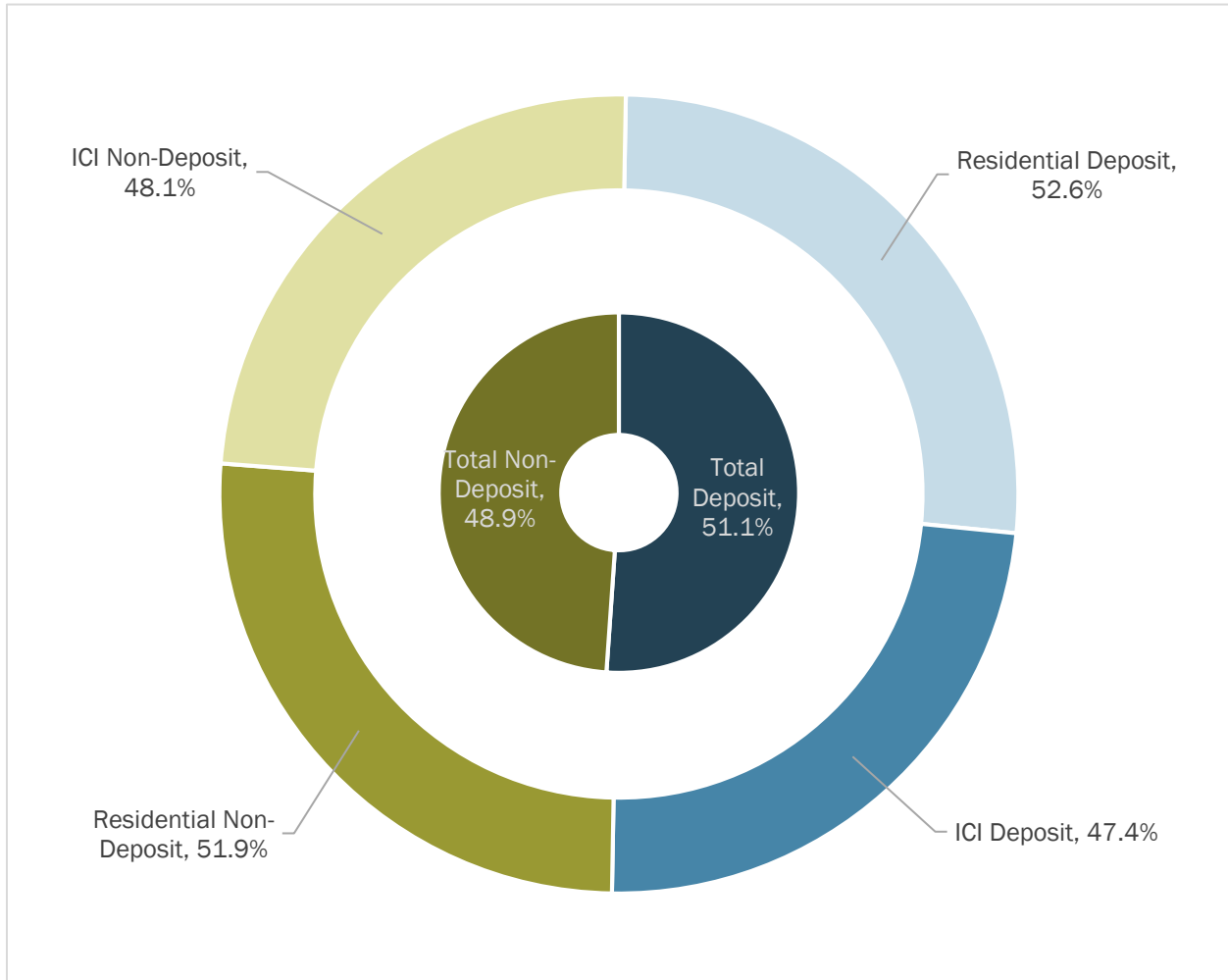


Exhibit 12 shows the comparison between residential and ICI generating sectors for deposit and non-deposit containers based on the percent of total containers counted. The total percentages for both deposit and non-deposit are in the center of the graph. The outer graph illustrates the percentage of total counted containers that are either residential and ICI for the deposit or non-deposit categories. The non-deposit percentages can be seen in shades of green, whereas the deposit percentages can be seen in shades of blue.

Exhibit 12. Deposit and Non-Deposit Container Counts by Generating Sector



Deposit and Non-Deposit Comparison by Host Facility

Table 15 provides a comparison of deposit and non-deposit container counts across the ten host facilities. The deposit materials are highlighted in green. Data is provided as a number count for each material component. Additionally, the overall statewide averaged totals can be seen on the last column. Totals for deposit, non-deposit, and all containers by each host facility and the overall statewide can be seen in the rows highlighted in blue.

Table 15. Comparison of Deposit and Non-Deposit Containers by Host Facility

Material Components	MPE	Newton	Iowa City	Cherokee	North Iowa	Cedar Rapids	Carroll County	Black Hawk	Dubuque	WCSC	Statewide Total (Averaged)
#1 PET IA Deposit Containers	365	314	339	440	430	240	406	470	359	446	380
#1 PET Beverage Containers	1,357	1,291	1,066	1,753	1,338	847	1,874	1,761	1,673	1,748	1,470
Aluminum IA Deposit Containers	1,416	964	803	1,078	1,656	731	1,366	1,663	1,397	1,512	1,258
Aluminum Beverage Containers	98	81	93	69	68	41	74	108	157	169	95
Glass IA Deposit Containers	118	142	176	153	97	76	194	122	123	139	134
Clear Glass Containers	89	115	144	125	82	87	91	158	105	141	113
Green Glass Containers	12	2	3	5	1	6	2	6	9	4	5
Brown/Other Colored Glass Containers	17	10	8	12	8	4	18	10	9	18	11
Total Deposit	1,899	1,420	1,319	1,671	2,183	1,047	1,967	2,255	1,879	2,097	1,773
Total Non-Deposit	1,573	1,499	1,315	1,965	1,497	985	2,059	2,043	1,953	2,080	1,696
Total Containers	3,472	2,919	2,634	3,636	3,680	2,032	4,026	4,298	3,832	4,177	3,470

MATTRESS/BOX SPRING COUNT

It was suggested by the DNR to provide a count of mattresses from the loads that physical sort samples were collected. Mattresses and box springs are too bulky in nature to physically sort, therefore a visual count represents the number disposed as a part of the MSW sorting process. This was documented for residential and ICI loads. **Table 16** indicates the number of mattresses and/or box springs visually identified in selected loads.

Table 16. Mattress & Box Spring Count

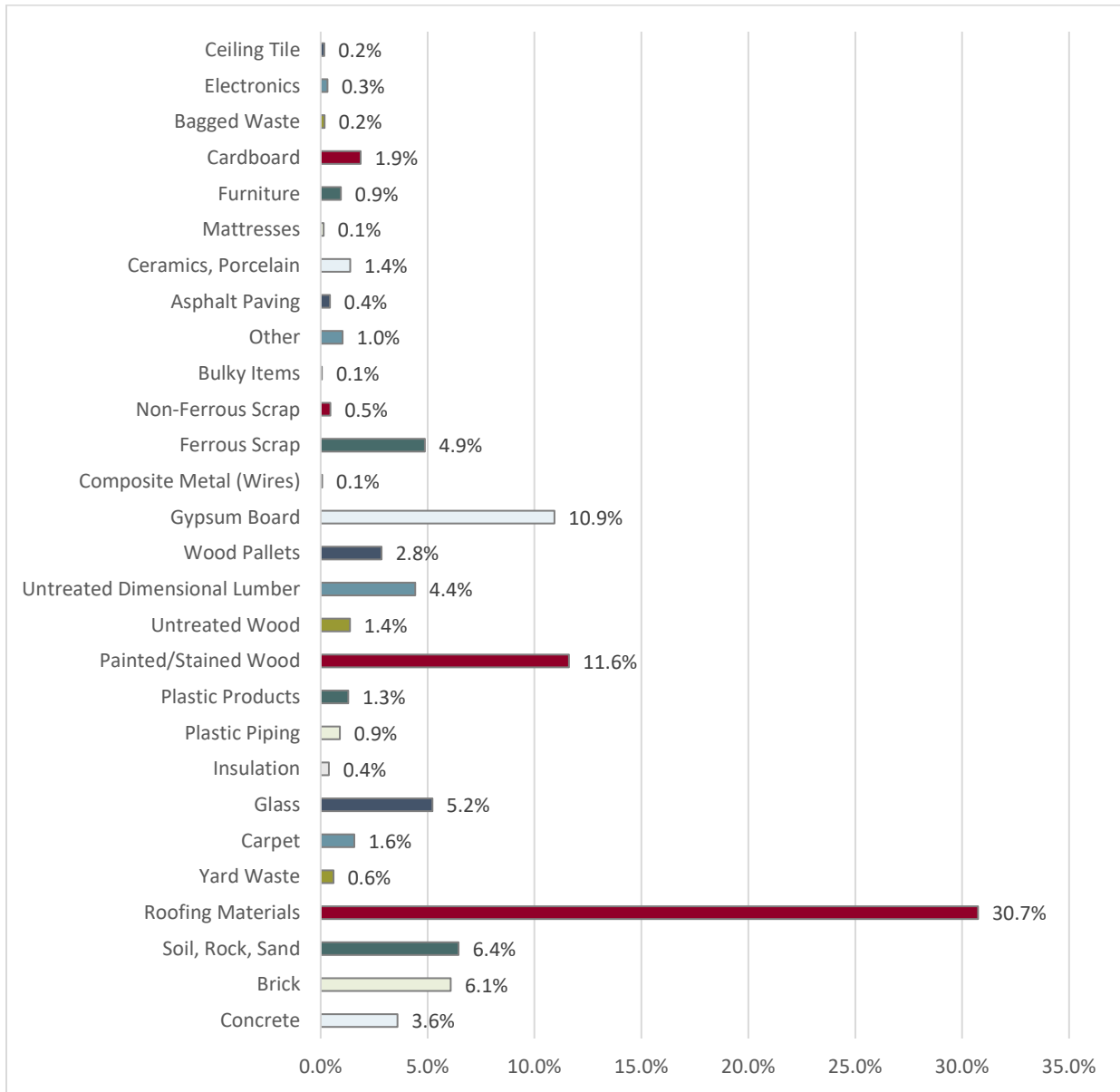
Residential	ICI	Overall
46	29	75

VISUAL STATEWIDE MATERIAL COMPOSITION

Overall Statewide Visual Composition

Table 17 provides a summary of the 30 material categories that comprise the overall C&D delivered to the ten host facilities. Data is provided for each category as a percentage of the total estimated weight.

Table 17. Overall Statewide Visual Composition Estimates¹



¹Categories that represent less than 0.1% of the overall composition are not included in the graph. Those categories are: Appliances, Plastic Lumber, Asphalt Paving, Ceramics, Porcelain, Mattresses, Furniture, Bagged Waste, Electronics, and Ceiling Tile.

Table 18 shows the top five material categories observed (by estimated weight) from the visual waste estimate.

Table 18. Overall Statewide Top Five C&D Material Categories

No.	Material Category and Composition Percentage
1	Roofing Materials 30.7%
2	Painted/Stained Wood 11.6%
3	Gypsum Board 10.9%
4	Soil, Rock, Sand 6.4%
5	Brick 6.1%
Total	65.7% Overall

Table 19 presents the C&D composition data showing estimated percent of total weight by material category for each of the ten host facilities.

Table 19. Estimated Percent by Weight of C&D Materials by Host Facility

Material Components	MPE	Newton	Iowa City	Cherokee	LNI	Cedar Rapids	Carroll	Dubuque	WCSC	Overall Statewide
Concrete	1.0%	0.0%	0.6%	10.3%	0.0%	6.1%	0.0%	13.4%	6.9%	3.6%
Brick	7.4%	0.0%	5.0%	0.0%	0.9%	11.0%	0.0%	14.0%	5.8%	6.1%
Soil, Rock, Sand	9.4%	6.1%	8.0%	4.5%	3.0%	12.7%	0.6%	9.0%	0.6%	6.4%
Roofing Materials	10.7%	52.9%	13.2%	34.4%	67.3%	22.5%	55.2%	16.8%	46.6%	30.7%
Yard Waste	1.2%	0.2%	1.3%	0.3%	0.1%	0.7%	0.0%	0.1%	0.3%	0.6%
Carpet	1.6%	0.1%	3.8%	1.0%	0.3%	2.7%	1.5%	0.6%	0.7%	1.6%
Glass	5.3%	17.3%	1.8%	6.9%	3.2%	0.3%	21.3%	0.0%	2.4%	5.2%
Insulation	0.4%	0.1%	1.0%	0.1%	0.1%	0.3%	0.3%	0.8%	0.3%	0.4%
Plastic Piping	1.7%	0.9%	1.9%	0.0%	0.4%	0.1%	0.0%	2.1%	0.1%	0.9%
Plastic Products	1.4%	0.9%	1.1%	1.0%	1.0%	2.0%	0.8%	1.1%	1.2%	1.3%
Painted/Stained Wood	16.1%	5.6%	11.9%	14.0%	6.2%	8.2%	10.0%	12.9%	9.9%	11.6%
Untreated Wood	1.9%	1.1%	1.1%	1.6%	0.4%	0.6%	0.0%	1.4%	2.3%	1.4%
Untreated Dimensional Lumber	9.9%	1.0%	8.8%	5.8%	2.7%	2.4%	0.6%	2.4%	1.1%	4.4%
Wood Pallets	1.7%	3.0%	2.5%	3.7%	3.3%	4.8%	0.8%	2.1%	3.8%	2.8%
Gypsum Board	14.5%	5.3%	26.3%	4.1%	4.2%	7.4%	4.0%	11.7%	9.8%	10.9%
Composite Metal (Wires)	0.2%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.1%
Appliances	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Ferrous Scrap	7.0%	2.7%	6.7%	1.3%	3.4%	4.8%	3.9%	6.4%	3.3%	4.9%
Non-Ferrous Scrap	1.1%	0.3%	0.1%	0.7%	0.1%	1.0%	0.0%	0.0%	0.0%	0.5%
Bulky Items	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Other	0.0%	0.0%	0.0%	0.0%	0.5%	5.1%	0.0%	0.4%	0.1%	1.0%
Plastic Lumber	0.0%	0.0%	0.0%	0.6%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%
Asphalt Paving	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	0.0%	0.0%	0.0%	0.4%
Ceramics, Porcelain	1.7%	0.0%	2.4%	1.2%	0.5%	0.7%	0.0%	1.5%	2.7%	1.4%
Mattresses	0.2%	0.0%	0.0%	0.8%	0.1%	0.3%	0.0%	0.0%	0.1%	0.1%
Furniture	1.3%	0.8%	0.3%	3.9%	0.6%	0.4%	0.0%	0.0%	0.1%	0.9%

Material Components	MPE	Newton	Iowa City	Cherokee	LNI	Cedar Rapids	Carroll	Dubuque	WCSC	Overall Statewide
Cardboard	2.9%	1.1%	1.0%	3.1%	1.1%	2.4%	1.0%	1.6%	1.7%	1.9%
Bagged Waste	0.3%	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%
Electronics	0.8%	0.1%	0.7%	0.7%	0.2%	0.0%	0.0%	0.0%	0.0%	0.3%
Ceiling Tile	0.0%	0.3%	0.1%	0.0%	0.0%	0.5%	0.0%	1.0%	0.1%	0.2%
Total	100.0%	100.0%	100%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

6 COMPARISON TO PREVIOUS STUDIES

INTRODUCTION

This Study continues DNR’s effort to track solid waste disposal in the State of Iowa. Previous characterizations studies have occurred in 2017, 2011, 2005, and 1998. This section compares the results from this Study to the results in the previous studies in order to understand how the waste stream may have changed over the last 24 years.

COMPARISON WITH PRIOR STUDIES

Since the first statewide characterization study in 1998, all studies have estimated the mean percent composition as well as calculated the 90 percent confidence intervals for the physically sorted materials. This helps facilitate comparison of the studies in order to track waste disposal trends over a period of time.

Table 20, **Table 21**, and **Table 22** compare the material compositions for the overall statewide MSW, residential, and ICI waste generating sectors across all five DNR studies – 2022, 2017, 2011, 2005, & 1998. The tables include the mean percent composition for each material category and component as well as the upper and lower confidence intervals. The second column, labeled “statistically significant increase/decrease,” in each table indicates if there has been a statistically significant change in the composition from 2017 to 2022 and whether the statistically significant result is an increase or decrease. The results are deemed to be statistically significant if the 90 percent confidence intervals for 2022 and 2017 are mutually exclusive. Additionally, if the 90 percent confidence intervals for 2022 and 2017 share an endpoint, this was also considered a statistically significant increase or decrease.

For example, paper is estimated to have decrease in 2022 at a statistically significant level over 2017 because the lower and upper confidence intervals are 24.8 and 26.2 percent for 2017, and the lower and upper confidence intervals are 20.8 and 22.6 percent in 2022 (**Table 20**). Since the confidence intervals do not overlap, this is a statistically significant change. If the 2022 and 2017 lower and upper limits share endpoints but do not overlap otherwise, this is also considered a statistically significant change.

Table 20. Comparison of 2022 Study Results to Prior Studies – Overall Statewide MSW

Material Categories and Components	Statistically Significant Increase/Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results		
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit
Paper¹	DECREASE	21.7%	20.8%	22.6%	25.5%	24.8%	26.2%	25.2%	23.5%	26.9%	33.1%	30.5%	35.7%	32.3%	30.5%	34.0%
Compostable Paper	DECREASE	5.0%	4.8%	5.3%	7.6%	7.3%	7.9%	6.1%	5.4%	6.8%	6.5%	5.7%	7.4%	N/A	N/A	N/A
High Grade Office Paper		1.2%	0.9%	1.5%	0.9%	0.8%	1.0%	0.9%	0.6%	1.2%	2.5%	1.9%	3.1%	2.3%	2.0%	2.5%
Magazines/Catalogs	DECREASE	0.5%	0.4%	0.6%	1.5%	1.4%	1.6%	1.2%	1.0%	1.4%	1.8%	1.6%	2.1%	2.5%	2.2%	2.8%
Mixed Recyclable Paper	DECREASE	4.4%	4.0%	4.9%	6.1%	5.8%	6.3%	3.7%	3.4%	4.0%	7.0%	6.3%	7.7%	5.4%	5.0%	5.9%
Newsprint	DECREASE	0.3%	0.2%	0.3%	1.3%	1.2%	1.4%	1.6%	1.4%	1.9%	4.0%	3.4%	4.7%	3.3%	2.9%	3.6%
Non-Recyclable Paper	DECREASE	1.0%	0.9%	1.1%	2.9%	2.7%	3.2%	2.4%	1.8%	2.9%	2.8%	2.3%	3.3%	10.3%	9.4%	11.2%
OCC and Kraft Paper	INCREASE	7.5%	6.9%	8.1%	4.6%	4.1%	5.0%	9.0%	7.5%	10.5%	8.5%	7.2%	10.1%	8.5%	7.7%	10.1%
Aseptic/Gable Top Paper Containers		0.6%	0.5%	0.7%	0.6%	0.5%	0.7%	0.2%	0.2%	0.3%	N/A	N/A	N/A	N/A	N/A	N/A
Polycoated Paper ¹		1.2%	1.1%	1.4%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Metal²	INCREASE	4.5%	4.1%	4.9%	3.9%	3.6%	4.1%	5.0%	3.7%	6.2%	4.7%	4.1%	5.5%	6.0%	5.5%	6.6%
Aluminum Beverage Containers	DECREASE	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.1%	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	0.1%	0.0%	0.1%
Aluminum IA Deposit Beverage Containers		0.5%	0.5%	0.6%	0.4%	0.4%	0.5%	0.2%	0.2%	0.2%	0.2%	0.1%	0.2%	0.1%	0.1%	0.2%
Ferrous Food and Beverage Containers	DECREASE	0.5%	0.4%	0.6%	0.8%	0.7%	0.9%	0.7%	0.5%	0.9%	1.0%	0.8%	1.2%	1.7%	1.5%	1.9%
Other Aluminum Containers	DECREASE	0.1%	0.1%	0.2%	0.4%	0.3%	0.4%	0.3%	0.2%	0.4%	0.1%	0.1%	0.2%	N/A	N/A	N/A

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results		
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit
Other Ferrous Scrap Metals	INCREASE	2.9%	2.6%	3.3%	1.9%	1.7%	2.2%	2.2%	1.7%	2.6%	2.8%	2.3%	3.5%	3.4%	3.0%	3.8%
Aluminum Foil and Foil Containers ²	DECREASE	0.2%	0.1%	0.2%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other Non-Ferrous Scrap Metals	DECREASE	0.1%	0.1%	0.2%	0.3%	0.2%	0.4%	1.6%	0.4%	2.7%	0.5%	0.4%	0.6%	0.7%	0.6%	0.8%
Glass	DECREASE	1.7%	1.6%	1.8%	2.1%	1.9%	2.4%	1.5%	1.3%	1.7%	1.6%	1.5%	2.0%	2.7%	2.2%	2.9%
Blue Glass ³	DECREASE	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
Brown Glass ³					<0.1%	<0.1%	0.2%	0.1%	0.1%	0.2%	0.0%	0.0%	0.1%	0.2%	0.1%	0.2%
Clear Glass	DECREASE	0.5%	0.4%	0.5%	0.8%	0.7%	0.9%	0.5%	0.5%	0.6%	0.7%	0.6%	0.9%	1.0%	0.9%	1.1%
Glass Deposit Containers		0.8%	0.7%	0.9%	0.8%	0.7%	1.0%	0.2%	0.2%	0.3%	0.3%	0.2%	0.4%	0.3%	0.3%	0.4%
Green Glass		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.2%	0.1%	0.0%	0.1%
Other Mixed Glass		0.4%	0.2%	0.5%	0.4%	0.2%	0.6%	0.6%	0.4%	0.7%	0.5%	0.4%	0.7%	1.1%	0.9%	1.3%
Organic⁴	DECREASE	21.6%	20.3%	22.9%	31.5%	30.5%	32.5%	25.5%	23.8%	27.1%	20.1%			19.7%		
Pumpkins		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.3%	0.2%	0.4%	0.4%	0.3%	0.5%
Yard Waste		2.5%	1.9%	3.0%	2.9%	2.6%	3.2%	4.6%	3.9%	5.2%	1.4%	1.0%	1.9%	1.3%	1.1%	1.5%
Food Waste - Loose		14.6%	13.6%	15.5%	13.3%	12.7%	14.0%	13.3%	11.9%	14.8%	10.6%	9.3%	12.2%	10.7%	9.6%	11.8%
Food Waste - Packaged	DECREASE	4.6%	3.9%	5.3%	6.7%	6.2%	7.2%									
Textiles and Leather ⁵		5.0%	4.4%	5.6%	4.1%	3.7%	4.5%	4.1%	3.5%	4.7%	4.9%	4.0%	6.1%	4.2%	3.7%	4.7%
Diapers ⁶		3.0%	2.8%	3.3%	3.5%	3.2%	3.9%	2.5%	2.1%	2.8%	2.4%	2.0%	2.8%	2.3%	2.0%	2.7%
Rubber ⁵		1.3%	0.9%	1.7%	1.0%	0.8%	1.2%	1.0%	0.6%	1.5%	0.5%	0.3%	0.6%	0.8%	0.7%	0.9%
Construction and Demolition⁷	INCREASE	14.4%	12.9%	15.9%	5.4%	4.7%	6.0%	13.5%	11.3%	15.7%	13.5%			11.2%		
Wood - Untreated	INCREASE	2.3%	1.7%	3.0%	0.9%	0.7%	1.2%	5.4%	3.7%	7.1%	3.4%	2.7%	4.4%	2.8%	2.3%	3.2%
Wood - Treated	INCREASE	4.9%	4.1%	5.6%	2.2%	1.8%	2.6%	3.8%	3.1%	4.5%	4.6%	3.6%	6.0%	3.6%	3.0%	4.2%

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results		
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit
Asphalt Paving ⁸	INCREASE	<0.1%	<0.1%	<0.1%	0.6%	0.5%	0.8%	0.7%	0.5%	0.9%	5.5%	4.1%	7.6%	4.8%	4.0%	5.7%
Brick, Ceramics, and Porcelain ⁸	INCREASE	0.5%	0.3%	0.7%												
Soil, Rock, and Sand ⁸	INCREASE	1.4%	1.0%	1.7%												
Concrete ⁸	INCREASE	0.7%	0.4%	0.9%												
Asphalt Roofing		0.3%	<0.1%	0.6%	0.2%	<0.1%	0.4%	0.8%	0.0%	1.6%						
Drywall/Gypsum Board		0.4%	0.2%	0.6%	0.3%	0.2%	0.4%	1.0%	0.5%	1.5%						
Carpet and Carpet Padding		2.0%	1.3%	2.6%	1.1%	0.8%	1.4%	1.8%	1.2%	2.5%						
Plastic Lumber ⁷		0.2%	<0.1%	0.3%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Insulation ⁷		<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mattresses ⁷		0.3%	0.1%	0.4%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Furniture ⁷		1.5%	1.0%	1.9%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Plastic	DECREASE	15.3%	14.6%	16.0%	18.3%	17.5%	19.1%	16.7%	15.0%	18.3%	14.9%	13.4%	16.6%	14.4%	13.3%	15.6%
#1 PET IA Deposit Beverage Containers	DECREASE	0.2%	0.2%	0.3%	0.4%	0.3%	0.4%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%	0.2%
#1 PET Beverage Containers	DECREASE	0.8%	0.8%	0.9%	1.1%	1.1%	1.2%	0.5%	0.4%	0.5%	0.4%	0.4%	0.5%	0.2%	0.2%	0.3%
#2 HDPE Containers Natural	DECREASE	0.4%	0.3%	0.4%	0.5%	0.4%	0.5%	0.3%	0.2%	0.3%	1.0%	0.9%	1.2%	1.0%	0.9%	1.1%
#2 HDPE Containers Colored		0.6%	0.5%	0.7%	0.6%	0.6%	0.7%	0.4%	0.3%	0.4%						
Plastic Retail Shopping Bags	DECREASE	0.6%	0.6%	0.6%	0.9%	0.8%	0.9%	0.3%	0.2%	0.3%						
Other Film Plastic		7.1%	6.6%	7.6%	7.8%	7.4%	8.1%	6.4%	5.6%	7.1%	6.6%	5.7%	7.5%	4.8%	4.3%	5.2%
Other #1 PET Containers		0.5%	0.5%	0.5%	0.5%	0.4%	0.5%	0.3%	0.2%	0.3%	0.3%	0.2%	0.3%	N/A	N/A	N/A

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results		
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit
#3 PVC ⁹		0.1%	<0.1%	0.2%	2.2%	2.1%	2.3%	0.7%	0.6%	0.7%	N/A	N/A	N/A	N/A	N/A	N/A
#4 LDPE ⁹		<0.1%	<0.1%	0.1%							N/A	N/A	N/A	N/A	N/A	N/A
#5 PP ⁹		1.4%	1.3%	1.4%							N/A	N/A	N/A	N/A	N/A	N/A
#6 PS ⁹		0.5%	0.4%	0.5%							N/A	N/A	N/A	N/A	N/A	N/A
#7 Other/Unknown Plastic ⁹		0.2%	0.2%	0.2%							N/A	N/A	N/A	N/A	N/A	N/A
Other Plastic Containers ¹⁰	DECREASE	0.6%	0.6%	0.6%	0.5%	0.5%	0.6%	1.1%	0.1%	2.0%	0.4%	0.3%	0.5%	0.8%	0.7%	0.9%
Other Plastic Products ¹⁰	DECREASE				3.1%	2.3%	3.8%	5.3%	4.3%	6.3%	6.0%	5.3%	6.9%	7.5%	6.7%	8.4%
Expanded Polystyrene	DECREASE	0.6%	0.5%	0.7%	0.8%	0.7%	0.9%	1.5%	0.3%	2.7%	N/A	N/A	N/A	N/A	N/A	N/A
Consumer Products (formerly Durable) ¹¹	INCREASE	7.3%	6.5%	8.1%	1.4%	1.2%	1.6%	2.3%	1.5%	3.1%	2.4%			1.6%		
Cell Phones and Chargers	DECREASE	<0.1%	<0.1%	<0.1%	0.1%	<0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	N/A	N/A	N/A
Television - LCD ¹¹	DECREASE	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.1%	0.3%	0.1%	0.5%	0.1%	0.0%	0.1%	N/A	N/A	N/A
Television - CRT ¹¹	DECREASE	<0.1%	<0.1%	<0.1%												
Computer Monitor - LCD ¹¹	DECREASE	<0.1%	<0.1%	<0.1%												
Computer Monitor - CRT ¹¹	DECREASE	<0.1%	<0.1%	<0.1%												
Computers - Desktop and Laptop ¹¹	DECREASE	<0.1%	<0.1%	<0.1%	0.2%	<0.1%	0.3%	0.4%	0.1%	0.6%	0.2%	0.1%	0.3%	N/A	N/A	N/A
Computer Peripherals ¹¹	DECREASE	<0.1%	<0.1%	<0.1%												
Television Peripherals ¹¹	DECREASE	<0.1%	<0.1%	<0.1%												

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results				
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit		
Computer Printers ¹¹		<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Audio Equipment ¹¹		<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Electronic Gaming Equipment ¹¹		<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Other Plug-In Electronics ¹¹		0.3%	0.2%	0.4%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Other "Smart" Devices with Chip ¹¹		<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Electrical and Household Appliances	DECREASE	0.5%	0.3%	0.7%	1.0%	0.9%	1.2%	1.6%	0.9%	2.3%	2.1%	1.6%	2.9%	1.6%	1.3%	1.9%		
Household Hazardous Materials		0.4%	0.3%	0.6%	0.5%	0.4%	0.6%	0.2%	0.2%	0.3%	0.3%			1.4%				
Automotive Products		0.2%	<0.1%	0.3%	0.2%	0.2%	0.3%	0.1%	0.0%	0.2%	0.0%	0.0%	0.0%	0.3%	0.2%	0.3%		
Household Cleaners		<0.1%	<0.1%	<0.1%				0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%
Paints and Solvents		0.1%	<0.1%	0.2%				0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Pesticides, Herbicides, Fungicides		<0.1%	<0.1%	<0.1%				0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Lead Acid Batteries		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
Mercury Containing Products		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	N/A	N/A	N/A		
Lithium Batteries		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Other Batteries		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.1%	0.0%	0.1%	0.2%	0.2%	0.3%	0.1%	0.1%	0.1%		
Sharps	DECREASE	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.5%	0.8%		

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results		
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit
Prescription Medications		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.0%	N/A	N/A	N/A	N/A	N/A	N/A
Other¹²	INCREASE	13.0%	12.3%	13.7%	11.4%	10.7%	12.2%	10.1%	9.2%	11.1%	9.6%			10.9%		
Other Organic	DECREASE	1.5%	1.1%	1.9%	4.1%	3.6%	4.6%	3.2%	2.7%	3.7%	1.5%	1.2%	1.8%	1.7%	1.5%	2.0%
Other Inorganic	INCREASE	2.0%	1.7%	2.3%	0.7%	0.6%	0.8%	0.3%	0.1%	0.4%	2.4%	1.9%	3.0%	1.7%	1.4%	2.1%
Other C&D		0.8%	0.3%	1.2%	0.6%	0.4%	0.9%	1.1%	0.8%	1.4%	N/A	N/A	N/A	N/A	N/A	N/A
Other Consumer Products (formerly Durable)	DECREASE	0.2%	0.1%	0.2%	0.7%	0.3%	1.1%	2.1%	1.4%	2.8%	2.7%	1.9%	3.8%	2.2%	1.8%	2.7%
Other HHM	DECREASE	<0.1%	<0.1%	<0.1%	0.4%	<0.1%	0.8%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Fines	INCREASE	5.5%	5.3%	5.7%	4.8%	4.6%	5.1%	3.1%	2.6%	3.5%	2.4%	2.1%	2.8%	5.2%	4.6%	5.6%
Other ¹³		N/A	N/A	N/A	0.1%	<0.1%	0.2%	0.5%	0.1%	0.8%	0.5%	0.3%	0.8%	N/A	N/A	N/A
Total		100.0%			100.0%			100.0%			100.0%			100.0%		

¹Polycoated Paper was added to the Paper category in 2022.

²Aluminum Foil and Foil Containers was added to the metal category in 2022.

³Brown glass and blue glass were merged into one material component in 2022 (“Brown/Other Colored Glass Containers”).

⁴Pumpkins, Textiles and Leather, Diapers, and Rubber were removed from the Organics category in 2022.

⁵Textiles and Leather and Rubber were reassigned to the Consumer Products category in 2022.

⁶Diapers were reassigned to the Other category in 2022.

⁷Plastic Lumber, Insulation, Mattresses, and Furniture were added to the Consumer Products category in 2022.

⁸“Asphalt Pavement, Brick, Rock, and Concrete” was broken out into four individual components in 2022: Asphalt Paving; Bricks, Ceramics and Porcelain; Soil, Rock, and Sand; and Concrete.

⁹“#3-#7 Plastic Containers” were broken out into five individual components in 2022: #3 PVC, #4 LDPE, #5 PP, #6 PS, #7 Other/Unknown Plastic.

¹⁰“Other Plastic Containers” and “Other Plastic Products” were merged into one component in 2022 (“Other Plastic Products”).

¹¹The Consumer Products category, formerly named the Durables category, included 12 new components in 2022: Television – LCD; Television – CRT; Computer Monitor – LC;; Computer Monitor – CRT; Computers – Desktop and Laptop; Computer Peripherals; Television Peripherals; Computer Printers; Audio Equipment; Electronic Gaming Equipment; Other Plug-In Electronics; and Other “Smart” Devices with Chips.

¹²The ‘Diapers’ component moved from Organics to Other in 2022.

¹³The Other material component was removed in 2022.

Table 21. Comparison of 2022 Study Results to Prior Studies – Residential

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results		
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit
Paper¹	DECREASE	18.0%	17.1%	18.9%	22.8%	22.1%	23.5%	20.2%	19.0%	21.3%	31.1%	27.5%	34.8%	29.0%	26.2%	31.7%
Compostable Paper	DECREASE	4.4%	4.2%	4.7%	6.8%	6.5%	7.0%	6.2%	5.7%	6.7%	7.9%	6.4%	9.7%	N/A	N/A	N/A
High Grade Office Paper		1.2%	0.8%	1.6%	0.8%	0.7%	0.9%	0.5%	0.4%	0.7%	1.5%	1.2%	2.0%	1.8%	1.4%	2.1%
Magazines/Catalogs	DECREASE	0.6%	0.4%	0.7%	1.7%	1.5%	1.9%	1.6%	1.4%	1.9%	2.4%	1.9%	3.0%	3.2%	2.7%	3.7%
Mixed Recyclable Paper	DECREASE	4.7%	4.4%	4.9%	6.5%	6.1%	6.8%	4.5%	4.1%	4.8%	7.9%	6.7%	9.2%	6.1%	5.4%	6.9%
Newsprint	DECREASE	0.5%	0.4%	0.6%	1.4%	1.3%	1.6%	1.9%	1.7%	2.1%	5.7%	4.3%	7.3%	4.2%	3.5%	4.9%
Non-Recyclable Paper	DECREASE	1.0%	0.9%	1.0%	2.2%	2.0%	2.4%	1.5%	1.2%	1.7%	1.9%	1.5%	2.3%	9.6%	8.4%	10.8%
OCC and Kraft Paper	INCREASE	7.5%	6.9%	8.1%	3.0%	2.8%	3.3%	3.8%	3.2%	4.4%	3.8%	2.8%	4.9%	4.1%	3.5%	4.8%
Aseptic/Gable Top Paper Containers	DECREASE	0.3%	0.3%	0.3%	0.4%	0.4%	0.5%	0.2%	0.1%	0.2%	N/A	N/A	N/A	N/A	N/A	N/A
Polycoated Paper ¹		1.4%	1.3%	1.5%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Metal²		4.3%	3.8%	4.7%	3.9%	3.7%	4.2%	5.0%	4.1%	6.0%	4.2%	3.3%	5.3%	7.2%	6.1%	8.3%
Aluminum Beverage Containers	DECREASE	<0.1%	<0.1%	<0.1%	0.1%	<0.1%	0.2%	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%
Aluminum IA Deposit Beverage Containers	INCREASE	0.5%	0.5%	0.6%	0.3%	0.3%	0.4%	0.3%	0.2%	0.3%	0.2%	0.1%	0.3%	0.2%	0.1%	0.2%
Ferrous Food and Beverage Containers	DECREASE	0.6%	0.5%	0.6%	0.9%	0.8%	1.0%	0.8%	0.7%	0.9%	1.2%	1.0%	1.5%	1.3%	1.1%	1.6%
Other Aluminum Containers	DECREASE	0.2%	0.2%	0.2%	0.5%	0.4%	0.5%	0.3%	0.2%	0.4%	0.1%	0.1%	0.1%	N/A	N/A	N/A
Other Ferrous Scrap Metals		2.4%	2.0%	2.9%	1.9%	1.7%	2.1%	2.8%	1.9%	3.7%	2.0%	1.4%	2.7%	4.6%	3.6%	5.7%
Aluminum Foil and Foil Containers ²		0.2%	0.2%	0.3%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other Non-Ferrous Scrap Metals		0.2%	0.1%	0.3%	0.2%	<0.1%	0.3%	0.8%	0.6%	1.1%	0.7%	0.5%	0.9%	1.0%	0.8%	1.3%

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results		
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit
Glass	DECREASE	2.0%	1.8%	2.2%	2.6%	2.3%	2.8%	2.0%	1.8%	2.3%	2.5%	1.9%	3.1%	2.5%	2.2%	2.9%
Blue Glass ³		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.2%	0.0%	0.0%	0.0%
Brown Glass ³					<0.1%	<0.1%	<0.1%	0.1%	0.1%	0.2%	0.1%	0.0%	0.1%	0.2%	0.2%	0.3%
Clear Glass	DECREASE	0.7%	0.6%	0.8%	1.0%	0.9%	1.1%	0.7%	0.6%	0.8%	1.0%	0.8%	1.3%	1.4%	1.2%	1.7%
Glass Deposit Containers		0.9%	0.8%	1.0%	1.1%	0.9%	1.2%	0.3%	0.2%	0.4%	0.3%	0.2%	0.4%	0.4%	0.3%	0.5%
Green Glass		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.2%	0.1%	0.0%	0.1%
Other Mixed Glass		0.3%	0.2%	0.4%	0.4%	0.2%	0.5%	0.8%	0.5%	1.0%	0.9%	0.5%	1.4%	0.4%	0.3%	0.5%
Organic ⁴	DECREASE	22.6%	21.3%	23.9%	33.5%	32.4%	34.5%	31.7%	29.6%	33.9%	22.5%			23.5%		
Pumpkins		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1%	0.1%	0.2%	0.9%	0.6%	1.3%
Yard Waste		3.5%	2.8%	4.3%	4.7%	4.2%	5.3%	7.8%	6.6%	9.0%	1.6%	0.9%	2.5%	1.9%	1.4%	2.5%
Food Waste - Loose	INCREASE	14.8%	13.9%	15.6%	10.9%	10.3%	11.6%	13.6%	11.9%	15.2%	11.2%	9.2%	3.6%	10.8%	9.2%	12.4%
Food Waste - Packaged	DECREASE	4.3%	3.9%	4.8%	6.9%	6.5%	7.3%									
Textiles and Leather ⁵		6.3%	5.6%	7.1%	5.4%	4.9%	5.8%	5.9%	5.2%	6.6%	5.4%	4.0%	7.1%	5.5%	4.6%	6.4%
Diapers ⁶		4.8%	4.4%	5.2%	4.8%	4.4%	5.2%	3.8%	3.2%	4.5%	4.1%	3.1%	5.4%	3.7%	3.0%	4.5%
Rubber ⁵		0.9%	0.6%	1.2%	0.7%	0.6%	0.8%	0.7%	0.4%	0.9%	0.1%	0.1%	0.1%	0.7%	0.5%	0.9%
Construction and Demolition ⁷	INCREASE	10.5%	8.6%	12.4%	4.0%	3.6%	4.4%	11.0%	8.7%	13.2%	12.5%			10.4%		
Wood - Untreated	DECREASE	0.5%	0.3%	0.7%	1.1%	0.9%	1.4%	2.4%	1.7%	3.1%	2.2%	1.1%	3.8%	1.4%	1.0%	1.8%
Wood - Treated	INCREASE	3.1%	2.3%	4.0%	1.5%	1.3%	1.7%	4.5%	3.4%	5.6%	4.9%	2.9%	7.8%	5.0%	3.7%	6.5%
Asphalt Paving ⁸	INCREASE	<0.1%	<0.1%	<0.1%	0.3%	0.2%	0.4%	1.1%	0.7%	1.6%	5.4%	2.5%	10.0%	4.0%	2.9%	5.3%
Brick, Ceramics, and Porcelain ⁸	INCREASE	0.6%	0.2%	1.0%												

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results		
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit
Soil, Rock, and Sand ⁸	INCREASE	2.0%	1.9%	2.2%												
Concrete ⁸	INCREASE	0.3%	0.2%	0.4%												
Asphalt Roofing		0.2%	0.1%	0.4%	0.1%	<0.1%	0.2%	0.2%	0.0%	0.4%						
Drywall/Gypsum Board	INCREASE	0.2%	0.2%	0.3%	0.1%	<0.1%	0.2%	0.5%	0.1%	0.8%						
Carpet and Carpet Padding		1.6%	0.7%	2.4%	0.8%	0.6%	1.0%	2.3%	1.5%	3.1%						
Plastic Lumber ⁷		0.2%	0.1%	0.2%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Insulation ⁷		<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mattresses ⁷		0.4%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Furniture ⁷		1.2%	0.6%	1.9%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Plastic	DECREASE	15.1%	14.5%	15.6%	16.6%	16.1%	17.0%	14.5%	13.5%	15.4%	13.2%	10.9%	15.8%	10.4%	9.3%	11.4%
#1 PET IA Deposit Beverage Containers		0.3%	0.2%	0.3%	0.3%	0.3%	0.4%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.2%	0.1%	0.2%
#1 PET Beverage Containers		0.8%	0.8%	0.9%	1.0%	0.9%	1.0%	0.6%	0.6%	0.7%	0.5%	0.4%	0.6%	0.3%	0.2%	0.4%
#2 HDPE Containers Natural		0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.3%	0.2%	0.3%	1.3%	1.0%	1.6%	0.9%	0.8%	1.0%
#2 HDPE Containers Colored		0.6%	0.5%	0.7%	0.6%	0.6%	0.7%	0.5%	0.4%	0.6%						
Plastic Retail Shopping Bags	DECREASE	1.0%	0.9%	1.0%	1.1%	1.1%	1.2%	0.4%	0.3%	0.5%	5.3%	4.3%	6.5%	3.9%	3.4%	4.5%
Other Film Plastic		6.1%	5.8%	6.4%	6.4%	6.2%	6.6%	5.4%	4.9%	6.0%						
Other #1 PET Containers	INCREASE	0.6%	0.6%	0.7%	0.5%	0.4%	0.5%	0.3%	0.3%	0.4%	0.4%	0.3%	0.6%	N/A	N/A	N/A
#3 PVC ⁹		<0.1%	<0.1%	<0.1%	2.1%	2.0%	2.2%	0.9%	0.8%	1.0%	N/A	N/A	N/A	N/A	N/A	N/A
#4 LDPE ⁹		<0.1%	<0.1%	<0.1%							N/A	N/A	N/A	N/A	N/A	N/A
#5 PP ⁹		1.6%	1.5%	1.7%							N/A	N/A	N/A	N/A	N/A	N/A

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results			
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	
#6 PS ⁹		0.4%	0.3%	0.4%							N/A	N/A	N/A	N/A	N/A	N/A	
#7 Other/Unknown Plastic ⁹		0.3%	0.3%	0.4%							N/A	N/A	N/A	N/A	N/A	N/A	
Other Plastic Containers ¹⁰	DECREASE	2.3%	2.0%	2.6%	0.5%	0.5%	0.6%	0.7%	0.5%	0.8%	0.5%	0.4%	0.6%	0.7%	0.6%	0.9%	
Other Plastic Products ¹⁰	DECREASE				2.8%	2.5%	3.1%	4.5%	4.0%	5.0%	5.0%	4.0%	6.2%	4.4%	3.9%	5.0%	
Expanded Polystyrene	DECREASE	0.6%	0.5%	0.6%	0.8%	0.7%	0.9%	0.7%	0.5%	0.9%	N/A	N/A	N/A	N/A	N/A	N/A	
Consumer Products (formerly Durable) ¹¹	INCREASE	8.3%	7.5%	9.2%	1.5%	1.2%	1.8%	2.8%	1.4%	4.2%	2.0%			2.3%			
Cell Phones and Chargers		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	N/A	N/A	N/A	
Television - LCD ¹¹		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.1%	0.0%	0.2%	0.0%	0.0%	0.0%	N/A	N/A	N/A	
Television - CRT ¹¹		<0.1%	<0.1%	<0.1%													
Computer Monitor - LCD ¹¹		<0.1%	<0.1%	<0.1%													
Computer Monitor - CRT ¹¹		<0.1%	<0.1%	<0.1%													
Computers - Desktop and Laptop ¹¹		<0.1%	<0.1%	<0.1%	0.1%	<0.1%	0.3%	0.6%	0.1%	1.1%	0.0%	0.0%	0.1%	N/A	N/A	N/A	
Computer Peripherals ¹¹		<0.1%	<0.1%	0.1%													
Television Peripherals ¹¹		<0.1%	<0.1%	<0.1%													
Computer Printers ¹¹		<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Audio Equipment ¹¹		<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Electronic Gaming Equipment ¹¹		<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other Plug-In Electronics ¹¹		0.5%	0.3%	0.6%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results					
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit			
Other "Smart" Devices with Chip ¹¹		<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Electrical and Household Appliances	DECREASE	0.4%	0.1%	0.6%	1.3%	1.1%	1.6%	2.1%	1.0%	3.2%	2.0%	1.1%	3.4%	2.3%	1.7%	3.0%			
Household Hazardous Materials		0.5%	0.3%	0.7%	0.5%	0.4%	0.6%	0.4%	0.2%	0.5%	0.5%			1.1%					
Automotive Products		0.2%	<0.1%	0.3%	0.3%	0.2%	0.3%	0.2%	0.0%	0.3%	0.0%	0.0%	0.0%	0.3%	0.2%	0.4%			
Household Cleaners		<0.1%	<0.1%	<0.1%				0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	
Paints and Solvents		0.2%	<0.1%	0.3%				0.0%	0.0%	0.1%	0.2%	0.1%	0.4%	0.2%	0.1%	0.4%	0.2%	0.1%	0.2%
Pesticides, Herbicides, Fungicides		<0.1%	<0.1%	<0.1%				0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Lead Acid Batteries		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Mercury Containing Products		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	N/A	N/A	N/A			
Lithium Batteries		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Other Batteries	DECREASE	<0.1%	<0.1%	<0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.3%	0.2%	0.5%	0.1%	0.1%	0.2%			
Sharps	DECREASE	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.3%	0.6%			
Prescription Medications		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.0%	N/A	N/A	N/A	N/A	N/A	N/A			
Other ¹²	INCREASE	18.7%	17.8%	19.7%	14.6%	13.5%	15.8%	12.4%	11.1%	13.8%	11.3%			13.7%					
Other Organic	DECREASE	1.8%	1.5%	2.1%	5.6%	4.9%	6.3%	4.6%	3.9%	5.2%	2.2%	1.6%	3.0%	1.8%	1.4%	2.3%			
Other Inorganic	INCREASE	3.2%	2.7%	3.7%	0.8%	0.6%	0.9%	0.2%	0.1%	0.4%	3.9%	2.8%	5.4%	1.9%	1.4%	2.4%			
Other C&D		1.0%	0.4%	1.5%	0.3%	0.2%	0.5%	0.9%	0.6%	1.3%	N/A	N/A	N/A	N/A	N/A	N/A			
Other Consumer Products (formerly Durable)		0.4%	0.3%	0.5%	0.8%	<0.1%	1.4%	3.1%	1.7%	4.5%	1.6%	1.0%	2.7%	4.1%	2.8%	5.7%			

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results		
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit
Other HHM	DECREASE	<0.1%	<0.1%	<0.1%	0.7%	<0.1%	1.5%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%
Fines	INCREASE	7.6%	7.3%	8.0%	6.4%	6.1%	6.7%	3.5%	3.2%	3.8%	3.6%	2.8%	4.6%	5.8%	5.0%	6.6%
Other ¹³		N/A	N/A	N/A	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	N/A	N/A	N/A
Total		100.0%			100.0%			100.0%			100.0%			100.0%		

¹Polycoated Paper was added to the Paper category in 2022.

²Aluminum Foil and Foil Containers was added to the metal category in 2022.

³Brown glass and blue glass were merged into one material component in 2022 (“Brown/Other Colored Glass Containers”).

⁴Pumpkins, Textiles and Leather, Diapers, and Rubber were removed from the Organics category in 2022.

⁵Textiles and Leather and Rubber were reassigned to the Consumer Products category in 2022.

⁶Diapers were reassigned to the Other category in 2022.

⁷Plastic Lumber, Insulation, Mattresses, and Furniture were added to the Consumer Products category in 2022.

⁸“Asphalt Pavement, Brick, Rock, and Concrete” was broken out into four individual components in 2022: Asphalt Paving; Bricks, Ceramics and Porcelain; Soil, Rock, and Sand; and Concrete.

⁹“#3-#7 Plastic Containers” were broken out into five individual components in 2022: #3 PVC, #4 LDPE, #5 PP, #6 PS, #7 Other/Unknown Plastic.

¹⁰“Other Plastic Containers” and “Other Plastic Products” were merged into one component in 2022 (“Other Plastic Products”).

¹¹The Consumer Products category, formerly named the Durables category, included 12 new components in 2022: Television – LCD; Television – CRT; Computer Monitor – LC; Computer Monitor – CRT; Computers – Desktop and Laptop; Computer Peripherals; Television Peripherals; Computer Printers; Audio Equipment; Electronic Gaming Equipment; Other Plug-In Electronics; and Other “Smart” Devices with Chips.

¹²The ‘Diapers’ component moved from Organics to Other in 2022.

¹³The Other material component was removed in 2022.

Table 22. Comparison of 2022 Study Results to Prior Studies – ICI

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results		
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit
Paper ¹	DECREASE	24.3%	22.8%	25.8%	27.8%	26.7%	29.0%	29.3%	26.3%	32.3%	34.0%	29.6%	38.8%	32.5%	28.8%	36.1%
Compostable Paper	DECREASE	5.4%	5.0%	5.8%	8.4%	7.9%	9.0%	6.1%	4.8%	7.3%	5.4%	4.3%	6.8%	N/A	N/A	N/A

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results		
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit
High Grade Office Paper		1.2%	0.8%	1.5%	1.0%	0.8%	1.2%	1.2%	0.7%	1.7%	3.4%	2.4%	4.6%	1.9%	1.5%	2.3%
Magazines/Catalogs	DECREASE	0.4%	0.3%	0.6%	1.3%	1.1%	1.5%	0.9%	0.6%	1.2%	1.1%	0.8%	1.5%	1.2%	0.9%	1.5%
Mixed Recyclable Paper	DECREASE	4.3%	3.5%	5.1%	5.7%	5.3%	6.1%	3.1%	2.6%	3.6%	6.0%	5.0%	7.2%	4.0%	3.2%	4.8%
Newsprint	DECREASE	0.2%	0.1%	0.2%	1.2%	1.0%	1.3%	1.4%	1.0%	1.8%	2.3%	1.7%	3.2%	1.5%	1.1%	1.8%
Non-Recyclable Paper	DECREASE	1.0%	0.8%	1.2%	3.5%	3.1%	4.0%	3.1%	2.1%	4.1%	3.4%	2.7%	4.5%	10.7%	8.7%	12.8%
OCC and Kraft Paper	INCREASE	9.9%	8.8%	11.0%	5.9%	5.0%	6.8%	13.2%	10.5%	15.9%	12.4%	9.8%	15.3%	13.2%	11.0%	15.5%
Aseptic/Gable Top Paper Containers		0.8%	0.7%	0.9%	0.7%	0.6%	0.9%	0.3%	0.2%	0.4%	N/A	N/A	N/A	N/A	N/A	N/A
Polycoated Paper ¹		1.1%	0.9%	1.4%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Metal²		4.6%	4.0%	5.2%	3.8%	3.4%	4.2%	4.9%	2.7%	7.0%	4.9%	3.8%	6.2%	5.2%	4.3%	6.5%
Aluminum Beverage Containers		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	0.0%	0.0%	0.0%
Aluminum IA Deposit Beverage Containers		0.5%	0.5%	0.6%	0.5%	0.4%	0.6%	0.1%	0.1%	0.2%	0.1%	0.1%	0.2%	0.1%	0.1%	0.2%
Ferrous Food and Beverage Containers	DECREASE	0.4%	0.3%	0.5%	0.7%	0.6%	0.8%	0.7%	0.4%	0.9%	0.8%	0.5%	1.2%	2.0%	1.5%	2.6%
Other Aluminum Containers	INCREASE	<0.1%	<0.1%	0.1%	0.3%	0.2%	0.4%	0.3%	0.1%	0.4%	0.1%	0.0%	0.1%	N/A	N/A	N/A
Other Ferrous Scrap Metals	INCREASE	3.3%	2.7%	3.9%	1.9%	1.5%	2.4%	1.7%	1.2%	2.1%	3.4%	2.4%	4.6%	2.4%	1.8%	3.1%
Aluminum Foil and Foil Containers ²		0.1%	<0.1%	0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other Non-Ferrous Scrap Metals		<0.1%	<0.1%	0.1%	0.3%	0.1%	0.5%	2.2%	0.0%	4.3%	0.4%	0.3%	0.5%	0.7%	0.5%	0.9%
Glass		1.5%	1.1%	1.9%	1.8%	1.3%	2.3%	1.1%	0.8%	1.4%	1.0%	0.8%	1.4%	3.3%	2.3%	4.3%

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results		
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit
Blue Glass ³		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Brown Glass ³					0.1%	<0.1%	0.3%	0.1%	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%
Clear Glass	DECREASE	0.3%	0.3%	0.4%	0.6%	0.5%	0.7%	0.4%	0.3%	0.5%	0.4%	0.3%	0.6%	0.6%	0.4%	0.7%
Glass Deposit Containers		0.7%	0.6%	0.8%	0.7%	0.5%	0.8%	0.1%	0.1%	0.2%	0.2%	0.1%	0.3%	0.3%	0.2%	0.4%
Green Glass		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%
Other Mixed Glass		0.4%	<0.1%	0.7%	0.4%	<0.1%	0.8%	0.4%	0.2%	0.6%	0.3%	0.2%	0.5%	2.3%	1.5%	3.1%
Organic ⁴	DECREASE	20.9%	18.8%	23.1%	29.8%	28.1%	31.6%	20.4%	17.9%	22.8%	17.8%			15.4%		
Pumpkins		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.4%	0.2%	0.8%	0.1%	0.0%	0.1%
Yard Waste		1.8%	1.0%	2.5%	1.3%	0.9%	1.7%	1.9%	1.3%	2.6%	0.7%	0.4%	1.1%	0.8%	0.5%	1.0%
Food Waste - Loose		14.5%	12.8%	16.1%	15.4%	14.3%	16.6%	13.1%	10.9%	15.4%	10.3%	8.1%	13.1%	10.2%	8.2%	12.5%
Food Waste - Packaged		4.7%	3.4%	6.0%	6.5%	5.4%	7.6%									
Textiles and Leather ⁵		4.1%	3.1%	5.0%	3.0%	2.3%	3.7%	2.7%	1.8%	3.6%	4.8%	3.2%	6.8%	2.5%	1.9%	3.2%
Diapers ⁶		1.8%	1.5%	2.2%	2.4%	1.8%	2.9%	1.3%	0.9%	1.7%	0.9%	0.6%	1.2%	0.8%	0.6%	1.0%
Rubber ⁵		1.6%	0.9%	2.4%	1.2%	0.8%	1.6%	1.3%	0.6%	2.1%	0.7%	0.5%	1.0%	1.0%	0.8%	1.4%
Construction and Demolition ⁷	INCREASE	17.1%	14.8%	19.4%	6.5%	5.3%	7.8%	15.6%	12.1%	19.1%	14.9%			14.6%		
Wood - Untreated	INCREASE	3.6%	2.4%	4.8%	0.8%	0.3%	1.3%	7.9%	4.8%	10.9%	4.7%	3.4%	6.3%	4.7%	3.5%	6.1%
Wood - Treated	INCREASE	6.0%	4.8%	7.2%	2.9%	2.0%	3.7%	3.3%	2.4%	4.1%	4.6%	3.2%	6.6%	3.8%	2.7%	5.0%
Asphalt Paving ⁸		<0.1%	<0.1%	<0.1%	0.9%	0.6%	1.2%	0.4%	0.2%	0.5%	5.6%	3.7%	8.2%	6.1%	4.4%	8.2%
Brick, Ceramics, and Porcelain ⁸		0.5%	0.2%	0.7%												
Soil, Rock, and Sand ⁸		0.9%	0.3%	1.5%												

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results		
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit
Concrete ⁸		0.9%	0.5%	1.3%												
Asphalt Roofing		0.4%	<0.1%	0.9%	0.3%	<0.1%	0.6%	1.3%	0.0%	2.6%						
Drywall/Gypsum Board		0.5%	<0.1%	0.9%	0.4%	0.2%	0.6%	1.4%	0.5%	2.4%						
Carpet and Carpet Padding		2.2%	1.3%	3.2%	1.4%	0.8%	2.0%	1.4%	0.5%	2.4%						
Plastic Lumber ⁷		0.2%	<0.1%	0.5%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Insulation ⁷		<0.1%	<0.1%	0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mattresses ⁷		0.2%	<0.1%	0.4%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Furniture ⁷		1.6%	0.9%	2.3%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Plastic	DECREASE	15.5%	14.3%	16.6%	19.7%	18.1%	21.4%	18.4%	15.6%	21.3%	16.1%	13.5%	19.1%	18.6%	15.5%	21.7%
#1 PET IA Deposit Beverage Containers	DECREASE	0.2%	0.2%	0.3%	0.4%	0.4%	0.4%	0.2%	0.1%	0.2%	0.2%	0.1%	0.3%	0.1%	0.1%	0.1%
#1 PET Beverage Containers	DECREASE	0.8%	0.7%	0.9%	1.3%	1.2%	1.4%	0.3%	0.3%	0.4%	0.4%	0.3%	0.5%	0.2%	0.1%	0.2%
#2 HDPE Containers Natural	DECREASE	0.3%	0.3%	0.4%	0.5%	0.4%	0.6%	0.3%	0.2%	0.3%	0.8%	0.6%	1.0%	1.1%	0.8%	1.3%
#2 HDPE Containers Colored		0.6%	0.5%	0.7%	0.6%	0.5%	0.7%	0.3%	0.2%	0.3%						
Plastic Retail Shopping Bags	DECREASE	0.3%	0.3%	0.4%	0.6%	0.5%	0.7%	0.2%	0.1%	0.2%	7.6%	6.0%	9.4%	4.6%	3.8%	5.5%
Other Film Plastic		7.8%	6.9%	8.6%	8.9%	8.2%	9.6%	7.1%	5.9%	8.4%						
Other #1 PET Containers		0.4%	0.3%	0.4%	0.5%	0.3%	0.6%	0.2%	0.1%	0.3%	0.1%	0.1%	0.2%	0.0%	0.0%	0.0%
#3 PVC ⁹		0.2%	<0.1%	0.4%							N/A	N/A	N/A	N/A	N/A	N/A
#4 LDPE ⁹		<0.1%	<0.1%	0.2%	2.4%	2.2%	2.6%	0.5%	0.4%	0.6%	N/A	N/A	N/A	N/A	N/A	N/A
#5 PP ⁹		1.2%	1.1%	1.3%							N/A	N/A	N/A	N/A	N/A	N/A

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results		
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit
#6 PS ⁹		0.6%	0.5%	0.6%							N/A	N/A	N/A	N/A	N/A	N/A
#7 Other/Unknown Plastic ⁹		0.2%	0.1%	0.2%							N/A	N/A	N/A	N/A	N/A	N/A
Other Plastic Containers ¹⁰		2.2%	1.7%	2.7%	0.5%	0.4%	0.6%	1.4%	0.0%	3.1%	0.2%	0.2%	0.3%	1.1%	0.8%	1.4%
Other Plastic Products ¹⁰					3.3%	1.7%	4.9%	5.9%	4.1%	7.7%	6.8%	5.5%	8.4%	11.5%	9.0%	14.2%
Expanded Polystyrene		0.6%	0.5%	0.7%	0.8%	0.7%	0.9%	2.1%	0.0%	4.3%	N/A	N/A	N/A	N/A	N/A	N/A
Consumer Products (formerly Durable) ¹¹	INCREASE	6.6%	5.3%	7.9%	1.3%	1.0%	1.7%	1.9%	0.9%	2.9%	2.5%			1.3%		
Cell Phones and Chargers	INCREASE	<0.1%	<0.1%	<0.1%	0.2%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	N/A	N/A	N/A
Television - LCD ¹¹	DECREASE	<0.1%	<0.1%	<0.1%	0.2%	<0.1%	0.2%	0.5%	0.1%	0.8%	0.0%	0.0%	0.0%	N/A	N/A	N/A
Television - CRT ¹¹	DECREASE	<0.1%	<0.1%	<0.1%												
Computer Monitor - LCD ¹¹	DECREASE	<0.1%	<0.1%	<0.1%												
Computer Monitor - CRT ¹¹	DECREASE	<0.1%	<0.1%	<0.1%												
Computers - Desktop and Laptop ¹¹	DECREASE	<0.1%	<0.1%	<0.1%	0.2%	<0.1%	0.3%	0.1%	0.0%	0.3%	0.1%	0.0%	0.1%	N/A	N/A	N/A
Computer Peripherals ¹¹	DECREASE	<0.1%	<0.1%	<0.1%												
Television Peripherals ¹¹	DECREASE	<0.1%	<0.1%	<0.1%												
Computer Printers ¹¹		<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Audio Equipment ¹¹		<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Electronic Gaming Equipment ¹¹		<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results				
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit		
Other Plug-In Electronics ¹¹		0.1%	<0.1%	0.2%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Other "Smart" Devices with Chip ¹¹		<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Electrical and Household Appliances		0.6%	0.3%	0.8%	0.8%	0.6%	1.0%	1.2%	0.4%	2.0%	2.4%	1.4%	3.6%	1.3%	0.9%	1.7%		
Household Hazardous Materials		0.4%	0.2%	0.6%	0.4%	0.3%	0.6%	0.2%	0.1%	0.2%	0.1%			1.4%				
Automotive Products		0.2%	<0.1%	0.4%	0.2%	<0.1%	0.3%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.3%	0.2%	0.3%		
Household Cleaners		<0.1%	<0.1%	<0.1%				0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Paints and Solvents		<0.1%	<0.1%	0.2%				0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.3%	0.2%	0.3%		
Pesticides, Herbicides, Fungicides		<0.1%	<0.1%	<0.1%				0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
Lead Acid Batteries		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
Mercury Containing Products		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	N/A	N/A	N/A		
Lithium Batteries		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Other Batteries		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%		
Sharps	DECREASE	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.6%	1.1%		
Prescription Medications		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.0%	N/A	N/A	N/A	N/A	N/A	N/A		
Other ¹²		9.1%	8.0%	10.2%	8.6%	7.7%	9.6%	8.3%	7.0%	9.6%	8.5%			8.0%				
Other Organic	DECREASE	1.4%	0.7%	2.1%	2.8%	2.2%	3.4%	2.1%	1.5%	2.7%	0.9%	0.6%	1.3%	1.7%	1.2%	2.2%		
Other Inorganic		1.1%	0.8%	1.5%	0.7%	0.4%	0.9%	0.3%	0.1%	0.4%	1.3%	0.9%	2.0%	1.9%	1.2%	2.6%		

Material Categories and Components	Statistically Significant Increase/ Decrease from 2017	2022 Results			2017 Results			2011 Results			2005 Results			1998 Results		
		Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit	Mean	Lower Limit	Upper Limit
Other C&D		0.6%	<0.1%	1.3%	0.9%	0.4%	1.4%	1.2%	0.7%	1.6%	N/A	N/A	N/A	0.0%	0.0%	0.0%
Other Consumer Products (formerly Durable)	DECREASE	<0.1%	<0.1%	<0.1%	0.6%	0.2%	1.0%	1.2%	0.8%	1.7%	4.0%	2.5%	6.1%	1.4%	0.9%	1.9%
Other HHM		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.2%
Fines	INCREASE	4.1%	3.8%	4.3%	3.4%	3.1%	3.8%	2.7%	2.0%	3.4%	1.4%	1.2%	1.8%	2.9%	2.2%	3.5%
Other ¹³		N/A	N/A	N/A	0.2%	<0.1%	0.5%	0.8%	0.1%	1.5%	0.8%	0.4%	1.3%	N/A	N/A	N/A
Total		100.0%			100.0%			100.0%			100.0%			100.0%		

¹Polycoated Paper was added to the Paper category in 2022.

²Aluminum Foil and Foil Containers was added to the metal category in 2022.

³Brown glass and blue glass were merged into one material component in 2022 (“Brown/Other Colored Glass Containers”).

⁴Pumpkins, Textiles and Leather, Diapers, and Rubber were removed from the Organics category in 2022.

⁵Textiles and Leather and Rubber were reassigned to the Consumer Products category in 2022.

⁶Diapers were reassigned to the Other category in 2022.

⁷Plastic Lumber, Insulation, Mattresses, and Furniture were added to the Consumer Products category in 2022.

⁸“Asphalt Pavement, Brick, Rock, and Concrete” was broken out into four individual components in 2022: Asphalt Paving; Bricks, Ceramics and Porcelain; Soil, Rock, and Sand; and Concrete.

⁹“#3-#7 Plastic Containers” were broken out into five individual components in 2022: #3 PVC, #4 LDPE, #5 PP, #6 PS, #7 Other/Unknown Plastic.

¹⁰“Other Plastic Containers” and “Other Plastic Products” were merged into one component in 2022 (“Other Plastic Products”).

¹¹The Consumer Products category, formerly named the Durables category, included 12 new components in 2022: Television – LCD; Television – CRT; Computer Monitor – LC; Computer Monitor – CRT; Computers – Desktop and Laptop; Computer Peripherals; Television Peripherals; Computer Printers; Audio Equipment; Electronic Gaming Equipment; Other Plug-In Electronics; and Other “Smart” Devices with Chips.

¹²The ‘Diapers’ component moved from Organics to Other in 2022.

¹³The Other material component was removed in 2022

TOP 10 PREVELANT MATERIAL COMPONENTS

This section provides a comparison of the top ten material components that were calculated to comprise the largest portions of the disposed waste stream by weight for each of the years a study was performed.

Overall MSW

Table 23 provides a list of the top ten most predominant material components as calculated for each of the DNR statewide waste characterization studies for the overall statewide MSW waste stream. The mean percentages are shown in the table along with the cumulative percent of these ten material components. These materials have consistently accounted for about two-thirds of the waste disposed of in Iowa.

Table 23. Predominant Material Components – Overall Statewide MSW

2022		2017		2011		2005		1998	
Pct.	Material	Pct.	Material	Pct.	Material	Pct.	Material	Pct.	Material
19.2%	Food Waste ¹	20.0%	Food Waste ¹	13.3%	Food Waste	10.6%	Food Waste	10.7%	Food Waste
7.7%	Plastic Film ₂	8.7%	Plastic Film ²	9.0%	OCC and Kraft Paper	8.5%	OCC and Kraft Paper	10.3%	Non-Rec. Paper
7.5%	OCC and Kraft Paper	7.6%	Compostable Paper	6.7%	Plastic Film ²	7.0%	Mixed Rec. Paper	8.5%	OCC and Kraft Paper
5.5%	Fines	6.1%	Mixed Rec. Paper	6.1%	Compostable Paper	6.6%	Plastic Film ²	7.5%	Other Plastic Products
5.0%	Textiles and Leather	4.8%	Fines	5.4%	Untreated Wood	6.5%	Compostable Paper	5.4%	Mixed Rec. Paper
5.0%	Compostable Paper	4.6%	OCC and Kraft Paper	5.4%	Construction/Demolition ³	6.0%	Other Plastic Products	5.2%	Fines
4.9%	Wood - Treated	4.1%	Other Organic	5.3%	Other Plastic Products	5.5%	Construction/Demolition ³	4.8%	Construction / Demolition ³
4.4%	Mixed Recyclable Paper	4.1%	Textiles and Leather	4.6%	Yard Waste	4.9%	Textiles and Leather	4.8%	Plastic Film
3.0%	Diapers	3.5%	Diapers	4.1%	Textiles and Leather	4.6%	Wood - Treated	4.2%	Textiles and Leather
2.9%	Other Ferrous Scrap Metals	3.1%	Other Plastic Products	3.8%	Wood - Treated	4.0%	Newsprint	3.6%	Wood - Treated
65.1%	2022 Cumulative Percent	66.6%	2017 Cumulative Percent	63.4%	2011 Cumulative Percent	64.2%	2005 Cumulative Percent	65.0%	1998 Cumulative Percent

¹Food Waste was divided into food waste – loose and food waste – packaged in 2017 and 2022.

²Plastic Film was divided into retail shopping bags and other plastic film in 2011, 2017, and 2022.

³Demolition/Renovation/Construction material category was divided into asphalt pavement; brick, rock, and concrete; asphalt roofing; drywall, gypsum board; carpet and carpet padding; and other C&D in 2011 and 2017. In 2022, it was further divided into plastic lumber; insulation; asphalt paving; soil, rock, and sand; brick, ceramics, and porcelain; concrete; asphalt roofing; drywall gypsum board; carpet and carpet padding; mattresses; and furniture.

⁴Other Ferrous Scrap Metals and Other Inorganics both have a percentage of 2.7 for the overall data, therefore sharing the 10th most predominant material components place.

Four material components have ranked in the top ten for each of the five statewide waste characterization studies, including:

- Food waste
- Plastic film
- OCC and Kraft paper
- Textiles and leather

One material component made the top ten list for the first time in 2022: other ferrous scrap metals.

Residential

Table 24 provides a list of the top ten most predominant material components as calculated for each of the DNR statewide waste characterization studies for the residential waste stream. The mean percentages are shown in the table along with the cumulative percent of these ten material components. In 2022, the cumulative proportion of the residential waste stream these materials comprised is nearly seven percentage points lower than in 2017.

Table 24. Predominant Material Components – Residential

2022		2017		2011		2005		1998	
Pct.	Material	Pct.	Material	Pct.	Material	Pct.	Material	Pct.	Material
19.1%	Food Waste ¹	17.9%	Food Waste ¹	13.6%	Food Waste	11.2%	Food Waste	10.8%	Food Waste
7.6%	Fines	7.6%	Plastic Film ²	7.8%	Yard Waste	7.9%	Mixed Recyclable Paper	9.6%	Non-Recyclable Paper
7.1%	Plastic Film ²	6.8%	Compostable Paper	6.2%	Compostable Paper	5.7%	Newsprint	6.1%	Mixed Recyclable Paper
6.3%	Textiles and Leather	6.5%	Mixed Rec. Paper	5.9%	Textiles and Leather	5.4%	Textiles and Leather	5.8%	Fines
4.8%	Diapers	6.4%	Fines	5.4%	Plastic Film ²	5.4%	Construction/Demolition	5.5%	Textiles and Leather
4.7%	Mixed Recyclable Paper	5.6%	Other Organics	5.0%	Construction/Demolition ³	5.3%	Plastic Film ²	5.0%	Wood - Treated
4.4%	Compostable Paper	5.4%	Textiles and Leather	4.6%	Other Organic	5.0%	Other Plastic Products	4.6%	Other Ferrous Scrap Metals
3.9%	OCC and Kraft Paper	4.8%	Diapers	4.5%	Mixed Rec. Paper	4.9%	Wood - Treated	4.4%	Other Plastic Products
3.5%	Yard Waste	4.7%	Yard Waste	4.5%	Wood - Treated	4.1%	Diapers	4.2%	Newsprint
3.2%	Other Inorganics	3.1%	OCC and Kraft Paper	4.5%	Other Plastic Products	3.9%	Other Inorganic	4.1%	OCC and Kraft Paper
64.6%	2022 Cumulative Percent	68.8%	2017 Cumulative Percent	62.0%	2011 Cumulative Percent	58.8%	2005 Cumulative Percent	60.1%	1998 Cumulative Percent

¹Food Waste was divided into food waste – loose and food waste – packaged in 2017 and 2022.

²Plastic Film was divided into retail shopping bags and other plastic film in 2011, 2017, and 2022.

³Demolition/Renovation/Construction material category was divided into asphalt pavement; brick, rock, and concrete; asphalt roofing; drywall, gypsum board; carpet and carpet padding; and other C&D in 2011 and 2017. In 2022, it was further divided into plastic lumber; insulation; asphalt paving; soil, rock, and sand; brick, ceramics, and porcelain; concrete; asphalt roofing; drywall gypsum board; carpet and carpet padding; mattresses; and furniture.

Three material components have made the top ten list for the residential waste stream, including food waste, mixed recyclable paper, and textiles and leather, for all five studies. The proportion of the waste stream that includes food has been steadily increasing since the 1998 Study, however, has a smaller

percentage of increase for 2022 than 2017. There has been a decrease for many of the categories that appear on the top ten list in 2022 compared to the 2017 Study.

A couple of other interesting notes on the residential waste stream include:

- **Wood – Treated** – This material component has remained off of the prevalent materials in residential waste since 2017.
- **Yard Waste** – Yard waste made the top ten list in 2011 for the first time when it comprised 7.8 percent of the waste stream. Although still on the list in 2022, its proportion has decreased at 3.5 percent. Yard waste has been banned from disposal in Iowa since 1991;
- **Compostable Paper** – This category has had a decrease since the 2017 Study. In the 2017 Study, compostable paper was 6.8 percent of the residential waste stream, whereas in 2022 this category was 4.4 percent.
- **Plastic Film** – This category has decreased in the 2022 Study, after steadily increasing from the 2005 Study, plastic film has decreased. This Study's data shows plastic film contributes to 7.1 percent of the residential waste stream, while in 2017 this percentage was 7.6.

ICI

Table 25 provides a list of the top ten most predominant material components as calculated for each of the DNR statewide waste characterization studies for the ICI waste stream. The mean percentages are shown in the table along with the cumulative percent of these ten material components. For the ICI waste stream, the cumulative proportion of the top ten materials has consistently comprised of just over two-thirds of the waste stream since the first study in 1998, but has declined slightly in the 2022 study.

Table 25. Predominant Material Components – ICI

2022		2017		2011		2005		1998	
Pct.	Material	Pct.	Material	Pct.	Material	Pct.	Material	Pct.	Material
19.2%	Food Waste ¹	21.9%	Food Waste ¹	13.2%	OCC and Kraft Paper	12.4%	OCC and Kraft Paper	13.2%	OCC and Kraft Paper
9.9%	OCC and Kraft Paper	9.5%	Plastic Film ²	13.1%	Food Waste	10.3%	Food Waste	11.5%	Other Plastic Products
8.1%	Plastic Film ²	8.4%	Compostable Paper	7.9%	Wood - Untreated	7.6%	Plastic Film	10.7%	Non-Rec. Paper
6.0%	Wood - Treated	5.9%	OCC and Kraft Paper	7.3%	Plastic Film ²	6.8%	Other Plastic Products	10.2%	Food Waste
5.4%	Compostable Paper	5.7%	Mixed Rec. Paper	6.1%	Compostable Paper	6.0%	Mixed Rec. Paper	6.1%	Construction/ Demolition
4.3%	Mixed Recyclable Paper	3.8%	Construction/ Demolition	5.9%	Other Plastic Products	5.6%	Construction/ Demolition	4.7%	Wood - Untreated
4.1%	Textiles and Leather	3.5%	Non-Rec. Paper	5.7%	Construction/ Demolition	5.4%	Compostable Paper	4.6%	Plastic Film
4.1%	Fines	3.4%	Fines	3.3%	Wood - Treated	4.8%	Textiles and Leather	4.0%	Mixed Rec. Paper
3.6%	Wood - Untreated	3.3%	Other Plastic Products	3.1%	Mixed Rec. Paper	4.7%	Wood - Untreated	3.8%	Wood - Treated
3.3%	Other Ferrous Scrap Metals	3.0%	Textiles and Leather	3.1%	Non-Rec. Paper	4.6%	Wood - Treated	2.9%	Fines
68.0%	2022 Cumulative Percent	68.4%	2017 Cumulative Percent	68.7%	2011 Cumulative Percent	68.2%	2005 Cumulative Percent	71.7%	1998 Cumulative Percent

¹Food Waste was divided into food waste – loose and food waste – packaged in 2017 and 2022.

²Plastic Film was divided into retail shopping bags and other plastic film in 2011, 2017, and 2022.

³Demolition/Renovation/Construction material category was divided into asphalt pavement; brick, rock, and concrete; asphalt roofing; drywall, gypsum board; carpet and carpet padding; and other C&D in 2011 and 2017. In 2022, it was further divided into plastic lumber; insulation; asphalt paving; soil, rock, and sand; brick, ceramics, and porcelain; concrete; asphalt roofing; drywall gypsum board; carpet and carpet padding; mattresses; and furniture.

Four of the material components listed in the top ten for the 2022 study have made the list for each of the previous four studies. These include food waste, plastic film, OCC and Kraft paper, and mixed recyclable paper. All but one of ten materials on the list in 2022 have made at least one of the previous study's top ten list.

A few points of interest in this data are:

- **OCC and Kraft Paper** – This percentage increased from 5.9 percent in 2017 to 9.9 percent in 2022.
- **Compostable Paper** – This material decreased from 8.4 percent in 2017 to 5.4 percent in 2022.
- **Other Ferrous Scrap Metals** – Other ferrous scrap metals is a new component to the top ten most prevalent materials. Until 2022, no metal products had been on this list.

7 CONCLUSIONS

This section summarizes some conclusions that can be drawn from the 2022 Study:

- **Comparability** – This Study was designed to mirror previous DNR characterization studies, and in a broad sense, these studies can be directly compared. However, each study was modified slightly to account for changes in the study’s parameters. Data from this Study was obtained from ten host facilities with additional visual material characterizations conducted on C&D waste at each of these host facilities.
- **Comprehensiveness** – This Study successfully characterized 501 MSW samples and 486 C&D samples at ten host facilities throughout the State of Iowa. Of these MSW samples, 238 were of residential waste and 263 were from the ICI generating sector. The facilities that participated in the study ranged in size from accepting several hundred thousand tons of solid waste annually to just over 20,000 tons – and everything in between. These ten facilities were geographically diverse in their location. Thus, this Study provides a comprehensive picture of MSW and C&D disposed of in the State of Iowa.

8 RECOMMENDATIONS


Continue Performing Statewide Material Characterization Studies – Over the last two decades, the characterization studies commissioned by the DNR have provided the State and local governments with valuable information on the waste stream. This allows governments to make decisions on the programs and policies needed to create diversion strategies, reduce disposal, and recover resources. The DNR should continue carrying out these studies on an incremental basis to further track changes and trends in the waste stream.

Seasonal Studies – The State of Iowa may consider conducting a multi-season material characterization study. Not only did the waste composition change throughout the ten weeks of this Study, but the characterization, waste generation, disposal quantities and composition are known to fluctuate by season. Iowa, with four very distinct seasons, may benefit from a waste characterization study that spans two-to-four seasons in order to obtain detailed data on how the waste composition changes from one season to the next.

Mattress/Box Spring Visual Count – This Study performed a count of mattresses and/or box springs for the first time. The DNR should continue this addition to material characterization studies to capture this information as these bulky items are unable to be physically sorted, but take up a large amount of space in landfills.

Measure Waste Diversion Program Performance and Establish Priorities - The Study establishes a library of knowledge concerning materials disposed (types and quantities) in Iowa and allows comparison of how disposal trends may have changed from previous studies. Disposal trends could change over time due to several influences such as consumer behaviors, economics, seasons, responses to national health crisis or natural disasters, participation and performance of waste diversion programs, local and regional environmental goals, etc. The results of the Study allow integrated solid waste management (ISWM) planners the ability to evaluate the performance of existing waste diversion programs and opportunities to expand existing or create new programs that focus on specific materials.

ISWM priorities and resources vary from community to community and between communities and regions across Iowa. This Study provides comprehensive and impartial data in such a way that it can be used to help identify opportunities for increased waste diversion initiatives. ISWM planners may use the data to help evaluate existing waste diversion program progress against historical trends and potentially identify new waste diversion strategies that align with their priorities. For example, a community may desire to initiate waste diversion initiatives that focus specifically on reducing the amount of food waste disposed by ICI generators.



Appendix A

DNR Material Category and Component Definitions for Physical and Visual Characterizations

#	PHYSICAL SORT CATEGORIES	Material Description
PAPER		
1	Compostable Paper	Low grade paper that could be composted; examples include uncoated paper towels, paper plate, napkins, tissues, and food-contaminated recyclable paper.
2	High Grade Office Paper	The type of paper that is free of ground wood fibers; usually sulfite or sulphate paper; includes office printing and writing papers such as white ledger, color ledger, envelopes, and computer printout paper, bond, rag, or stationary grade paper. This subtype does not include fluorescent dyed paper or deep-tone dyed paper such a goldenrod colored paper.
3	Mixed Recyclable Paper	Other recyclable paper; examples include manila folders, manila envelopes, index cards, notebook paper, carbonless forms, junk mail, chipboard and uncoated paperboard, phone directories, non glossy catalogs, books and deep-toned or fluorescent dyed paper.
4	Newsprint	Paper chiefly used for printing newspapers – i.e. uncoated ground wood paper includes glossy inserts.
5	Magazines/Catalogs	Items made of glossy coated paper; this paper is usually slick, smooth to the touch, and reflects light. Examples include glossy magazines, catalogs, brochures, and pamphlets.
6	OCC and Kraft Paper	Corrugated boxes or paper bags made from Kraft paper. Old Corrugated Cardboard has a wavy center layer and is sandwiched between the two outer layers; examples include entire cardboard containers, such as shipping and moving boxes, computer packaging cartons, and sheets and pieces of boxes and cartons. This type does not include chipboard. Examples of Kraft paper include paper grocery bags, un-soiled fast food bags, department store bags, and heavyweight sheets of Kraft packing paper.
7	Aseptic/Gable Top Containers	Containers made from paper, polyethylene, and aluminum layers. Examples include non-refrigerated drinks and food containers such as juice boxes, soy milk containers, and tofu containers. Polycoated bleached paperboard boxes that contain ready-to-drink beverages such as milk or orange juice. May include plastic pour spouts as part of the carton. Excludes take-out containers.
8	Polycoated Paper	Kraft paper rolls are commonly used for wrapping a variety of metal objects, Pallet liners, Liquid packaging board for milk and juice folding cartons, hot and cold paper drinking cups, paper plates, frozen food containers, plastic-lined paper bags, take-out containers, waterproof paper (also multi-use), heat sealable paper.
9	Other Non-Recyclable Paper	Items made mostly of paper but combined with large amounts of other materials such as plastic, metal, glues, foil, and moisture; examples include plastic coated corrugated cardboard, cellulose insulation, blueprints, sepia, onionskin, foiled lined fast food wrappers, frozen juice containers, carbon paper, self-adhesive notes, and photographs.
PLASTIC		
10	#1 PET IA Deposit Beverage Containers	Plastic beverage containers subject to IA's container redemption law and marked as deposit container.
11	#1 PET Beverage Containers	Clear or colored PET beverage bottles other than IA deposit containers (water, flavored water, juice, sports drinks, etc.); when marked for identification, it bears the number (1) in the center of the triangular recycling symbol and may also bear the letters (PETE) or (PET). A PET container usually has a small dot left from the manufacturing process, not a seam.
12	#1 PET Other Non-Beverage Containers	Types of containers such as PET jars, rectangular, cups, or clam shell PET containers used for food, produce, egg cartons, etc.
13	#2 HDPE Natural Containers	Plastic is usually cloudy white allowing light to pass through it; when marked for identification, it bears the number(2) in the triangular recycling symbol and may also bear the letters (HDPE).
14	#2 HDPE Colored Containers	Colored HDPE containers. This plastic is a solid color, preventing light from passing through it; when marked for identification, it bears the number (2) in the triangular recycling symbol and may also bear the letters (HDPE).
15	#3 PVC	Rigid polyvinyl chloride examples include gutters, window frames, plumbing and sewage pipes, fencing, decking, railing, tiles, bottles such as shampoo bottles, credit cards, bank cards and store cards. Flexible polyvinyl chloride examples include shower curtains, raincoats, cling films and meat wrap, medicine packaging, fire retardant clothing, imitation leather, vinyl flooring, electrical cable insulation and Inflatable products like pool toys.
16	#4 LDPE	Low-density polyethylene, is number 4-coded plastic, commonly used to make Squeezable bottles for condiments, kids toys, general packaging, container lids for bottled drinks, dry cleaning bags and plastic wrap.
17	#5 PP	Examples include bottles, rigid containers, and packaging - polypropylene tubs, cups, clamshells and trays that are > 2" and <2 gallons.
18	#6 PS	Examples include non-foam, non-bottle rigid containers and packaging - non-foam polystyrene tubs, cups, clamshells and trays that are > 2" and <2 gallons.
19	#7 Other/Unknown Plastic	All other non-film packaging that does not fit into the above categories including pails, cups, plant pots and flats, caps, closures, blister packs tubs, and other miscellaneous plastic packaging not listed above.
20	Expanded Polystyrene	"Styrofoam" products includes food packaging and finished products made of expanded polystyrene including cups, plates, trays, clamshells, packaging products, including packing peanuts and other packaging materials.
21	Retail Shopping Bags	Plastic shopping bags, used to contain merchandise to transport from the place of purchase, given out by the store with the purchase.

22	Other Plastic Film	Examples include garbage bags and other types of plastic bags (sandwich bags, zipper-re-closeable bags, produce bags, frozen vegetable bags), painting tarps, food wrappers such as candy-bar wrappers, mailing pouches, bank bags, X-ray film, metalized film (wine containers and balloons), plastic food wrap, and source contaminated commercial/industrial film.
23	Other Plastic Products	Remainder or composite plastic composed of at least 50% plastic that is not identifiable as one of the categories above. Molded toys, plastic clothes hangers, corrugated plastic, plastic lawn furniture, disposable razors, kitchen ware, plastic hoses, drinking straws, credit cards, CD and DVDs, car parts, and writing pens.
METAL		
24	Aluminum IA Deposit Beverage Containers	Aluminum beverage containers subject to IA's container deposit law and marked as deposit container.
25	Aluminum Beverage Containers	Beverage containers made from aluminum other than IA deposit containers.
26	Ferrous Food and Beverage Containers	Rigid containers made mainly of steel, such as food and beverage containers; these items will stick to a magnet and may be tin-coated.
27	Aluminum Foil and Foil Containers	Food Containers made from aluminum and the thin aluminum sheeting used to cover and wrap food.
28	Other Aluminum Containers	Aluminum containers such as food containers, cat food cans, aluminum foil, empty aerosol cans, etc.
29	Other Ferrous Scrap Metals	Any iron or steel that is magnetic; this subtype does not include non- food "tin/steel containers;" examples include empty or dry paint cans, structural steel beams, boilers, clothes hangers, pipes, some cookware, security bars, scrap ferrous items, and galvanized items such as nails and flashing.
30	Other Non-Ferrous Scrap Metals	Metal items that are not magnetic including copper, brass, lead, zinc, etc.
GLASS		
31	Glass IA Deposit Containers	Glass beverage containers subject to IA's bottle bill and marked as deposit containers in Iowa.
32	Clear Glass Containers	Clear glass bottles and jars that do not have an IA deposit; these nonalcoholic beverage containers, food jars, etc.
33	Green Glass Containers	Green glass bottles and jars that do not have an IA deposit; these nonalcoholic beverage containers, food jars, etc.
34	Brown/Other Colored Glass Containers	Brown and other colored glass bottles and jars that do not have an IA deposit; these nonalcoholic beverage containers, food jars, etc.
35	Other Mixed Glass	Glass that cannot be put in any other type. It may include items made mostly of glass but combined with other materials. Examples include Pyrex, Corning ware, crystal, plate glass, window and door glass, ceramics, porcelain, and other glass tableware, mirrors, non-fluorescent light bulbs, auto windshields, laminated glass, or any curved glass.
CONSTRUCTION AND DEMOLITION		
36	Wood – Untreated	Refers to any wood which does not contain an adhesive, paint, stain, fire retardant, pesticide or preservative; includes such items as pallets, skids, spools, packaging materials, bulky wood waste or scraps from newly built wood products and wood pallets; does not include land clearing debris or yard waste pruning and trimmings.
37	Wood – Treated	Wood that contains an adhesive, paint, stain, fire retardant, pesticide or preservative; includes all engineered wood.
38	Plastic Lumber	Wood-like product made from recycled plastic or recovered plastic mixed with other materials.
39	Insulation	Refers to any material used to reduce heat loss or heat gain by providing a barrier between the inside of your home and the significantly different temperature outside. Includes fiberglass, mineral wool, cellulose, natural fibers, polystyrene, polyisocyanurate, polyurethane and perlite.
40	Asphalt Paving	Includes asphalt pavement and other black or brown, tar-like material mixed with aggregate and used as a paving material.
41	Soil, Rock, Sand	Includes soil and clay, solid minerals, and loose granular substances.
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	Includes masonry brick, landscaping or walkway brick, finished ceramic or porcelain household fixtures such as toilets, tiling, and sinks.
43	Concrete	Includes pieces of building foundations, concrete paving, and cinder blocks.
44	Asphalt Roofing	Composite shingles and other roofing material made with asphalt; examples include asphalt shingles and attached roofing tar and tar paper.
45	Drywall/Gypsum Board	Painted or unpainted interior wall covering made of a sheet of gypsum sandwiched between paper layers; examples include used or unused, broken or whole sheets of sheetrock, drywall, gypsum board, plasterboard, gypsum board, and wallboard.
46	Carpet and Carpet Padding	Flooring applications consisting of various natural or synthetic fibers which maybe bonded to some type of backing material and plastic, foam, felt, or other material used under carpet to provide insulation and padding.
47	Mattresses	Includes all fabric case filled with deformable or resilient material, used for sleeping on.
48	Furniture	Includes items such as tables and chairs, used to make a house, office, or other space suitable for living or working.
ORGANICS		
49	Yard Waste	Debris such as grass clippings, leaves, garden waste, brush, tree stumps and trees.

50	Food Waste - Loose	Food material resulting from the processing, storage, preparation, cooking, handling, or consumption of food; includes material from industrial, commercial, or residential sources; examples include discarded meat scraps, dairy products, eggshells, fruit or vegetable peels, and other food items from homes, stores and restaurants. Includes apple pomace and other processed residues or material from canneries, wineries or other industrial sources; does not include food discarded in its original store-bought or manufacturing packaging
51	Food Waste - Packaged	Food material still in the original packaging; includes material from industrial, commercial, or residential sources. Examples include discarded meat scraps. Also includes, liquids drained from PET #1, HDPE #2, metal, or glass containers discarded as waste such as unconsumed soft drinks, water, milk, pickle juice, etc.; excludes any liquid not meant for human consumption.
CONSUMER PRODUCTS		
52	Television – LCD	Non-CRT televisions without cathode-ray tubes including LED plasma televisions.
53	Television – CRT	Televisions with cathode-ray tubes. Includes console television and rear projection televisions.
54	Television Peripherals	Devices which are essentially not part of a television, but which need to be connected to the television, to be used.
55	Computer Monitor – LCD	Non-CRT computer monitor without cathode-ray tubes.
56	Computer Monitor – CRT	CRTs - monitors with cathode-ray tubes.
57	Computers – Desktop and Laptop	Includes computer CPUs, laptop computers, notebook computers.
58	Computer Peripherals	Devices which are essentially not part of a computer, but which need to be connected to the computer to be used; examples include keyboard, mouse, trackball, touchpad, pointing stick, joystick and light pen.
59	Computer Printers	An electronic device that accepts digital files or images from a computer and transfers them to a medium such as paper or film. Includes photocopiers.
60	Audio Equipment	Includes wireless microphones, powered speakers, home or portable stereo equipment, and microphone mixers.
61	Electronic Gaming Equipment	Examples include video game consoles (including hand held consoles) and accessories.
62	Cell Phone and Chargers	Cellular phones and the related chargers.
63	Other Plug-in Electronics	Any plug-in electronic items not elsewhere classified.
64	Other “Smart” Devices – with chip	All other “Smart” Devices – with chip not elsewhere classified.
65	Other Electrical and Household Appliances	Includes PODs, PDAs, small electronic appliances such as toasters, wall telephones, clocks, hair dryers, microwaves, electric motors, alternators, etc.
66	Textiles and Leather	Items composed of at least 50% natural or manmade textile and leather. Items such yarn, thread, clothing, apparel, shop rags, blankets, pillows, shoes, stuffed toys, backpacks, and in some cases suit/briefcases; includes leather items such as wallets, purses, belts, shoes, and scrap leather.
67	Rubber	Natural or manmade rubber products such as hoses; foam rubber; latex or nitrile gloves; rubber bands and solid or pneumatic tires intended for use on any type of vehicle (including bicycles), or trailer to be used in tandem with any type vehicle.
HOUSEHOLD HAZARDOUS MATERIALS		
68	Automotive Products	Household and commercial products including containers with fluids used in vehicles or engines.
69	Household Cleaners	Household cleaners that are toxic or corrosive.
70	Lead Acid Batteries	Lead acid storage batteries most commonly used in vehicles such as cars, trucks, boats, etc.
71	Mercury Containing Products	Items or product that contain mercury. Items such as thermostats, thermometers, and light switches. This category also includes fluorescent light ballasts, which are devices that electrically control fluorescent light fixtures and that include a capacitor, CFLs, which are compact fluorescent bulbs, and other fluorescent lighting, which includes tubular fluorescent lamps, neon lamps, black lights, and other lamps used for sanitation or cosmetic purposes.
72	Lithium Batteries	Lithium storage batteries most commonly used in cell phones.
73	Other Batteries	Alkaline (including rechargeable) or household batteries such as AA, AAA, C, D, 4.5 volt, button cell, rechargeable and 9 volt used for flashlights, small appliances, and electronic devices.
74	Paints and Solvents	Household and commercial products including containers with paint or solvents in them. Does not include empty paint cans or empty aerosol paint cans.
75	Pesticides (insecticides, herbicides, fungicides)	Household and commercial products. Including products used to destroy or control organisms such as insects, plants, or fungus growth.
76	Sharps	Discarded needles that have been used in animal or human patient care or treatment or in medical, research or laboratories.
77	Prescription Medications	Medication which requires a doctor's prescription. Does not include over-the-counter medications.
OTHER		
78	Diapers	Adult or infant diapers; includes soiled absorbing bed covers and dog pads.
79	Other Organics	Organic material that cannot be put in any other type or subtype. This type includes items made mostly of organic materials but combined with other materials. Examples include cork, hemp rope, hair, cigarette butts, full vacuum bags, sawdust, wax, sponges, and animal feces from residential dwellings.
80	Other Inorganics	All other inorganic items not elsewhere classified. Includes products such as de-icing chemicals, hand warming packets, desiccant, shampoo, tooth paste, hair coloring products and some non-prescription medication and creams.

81	Other Consumer Products	Items not elsewhere classified.
82	Other C&D	Construction and demolition material that cannot be put in any other type or subtype. This type may include items from different types of material that are combined, which would be very hard to separate. Also includes items used in construction/demolition/renovations activities such as ceiling tiles, insulation, tiles, linoleum, used paint brushes, caulking tubes, glue, plaster mixtures, etc. Does not include paints or other solvents.
83	Other HHMs	All household or commercial products characterized as toxic, corrosive, flammable, ignitable, radioactive, poisonous, reactive, or not elsewhere classified.
84	Fines	Un-sortable small fragments (generally less than 1/2 inch in diameter); mainly composed of organic material and miscellaneous fines and dirt.

	VISUAL SORT CATEGORIES	Material Description
#	Material	
1	Concrete	Includes pieces of building foundations, concrete paving, and cinder blocks.
2	Brick	Includes masonry brick, landscaping or walkway brick.
3	Soil, Rock, Sand	Includes soil and clay, solid minerals, and loose granular substances.
4	Roofing materials	Composite shingles and other roofing material made with asphalt; examples include asphalt shingles and attached roofing tar and tar paper.
5	Yard waste	Debris such as grass clippings, leaves, garden waste, brush, tree stumps and trees.
6	Carpet	Flooring applications consisting of various natural or synthetic fibers which maybe bonded to some type of backing material and plastic, foam, felt, or other material used under carpet to provide insulation and padding.
7	Glass	Examples include Pyrex, Corning ware, crystal, plate glass, window and door glass, ceramics, porcelain, and other glass tableware, mirrors, non-fluorescent light bulbs, auto windshields, laminated glass, or any curved glass. - Includes beverage containers.
8	Insulation	Refers to any material used to reduce heat loss or heat gain by providing a barrier between the inside of your home and the significantly different temperature outside Includes fiberglass, mineral wool, cellulose, natural fibers, polystyrene, polyisocyanurate, polyurethane and perlite.
9	Plastic piping	Plastic pipe is a tubular section, or hollow cylinder, made of plastic.
10	Plastic products	Includes products made of plastic that are not classified elsewhere.
11	Painted/stained wood	Wood that has had an external coating applied, such as paint or varnish in more than small amounts. Includes treated wood.
12	Untreated wood	Refers to any wood which does not contain an adhesive, paint, stain, fire retardant, pesticide or preservative; includes such items as skids, spools, packaging materials, bulky wood waste or scraps from newly built wood products; does not include land clearing debris or yard waste pruning and trimmings.
13	Untreated dimensional lumber	Refers to any wood fiber that is cut to a specific size (thickness/width/length) based on pre-defined, standardized sizes which does not contain an adhesive, paint, stain, fire retardant, pesticide or preservative. Common examples of dimensional lumber sizes include two-by-fours (2x4s) and four-by-fours (4x4s).
14	Wood pallets	Wood pallets and crating materials commonly used for industrial and commercial packaging and shipping.
15	Gypsum board	Painted or unpainted interior wall covering made of a sheet of gypsum sandwiched between paper layers; examples include used or unused, broken or whole sheets of sheetrock, drywall, gypsum board, plasterboard, gypsum board, and wallboard.
16	Composite metal (wires)	Metal drawn out into the form of a thin flexible thread or rod.
17	Appliances	Household and commercial devices such as refrigerators, freezers, kitchen ranges, air-conditioning units, dehumidifiers, gas water heaters, furnaces, clothes washers, clothes dryers, dishwashers, microwave ovens and commercial coolers with components containing mercury, refrigerant, or PCB-containing capacitors.
18	Ferrous scrap	Any iron or steel that is magnetic; this subtype does not include non- food "tin/steel containers;" examples include empty or dry paint cans, structural steel beams, boilers, clothes hangers, pipes, some cookware, security bars, scrap ferrous items, and galvanized items such as nails and flashing.
19	Non-ferrous scrap	Metal items that are not magnetic including copper, brass, lead, zinc, etc.
20	Bulky Items	Large household durable good items including upholstered furniture.
21	Other	Items not elsewhere classified.
22	Plastic Lumber	Wood-like product made from recycled plastic or recovered plastic mixed with other materials.
23	Asphalt Paving	Includes asphalt pavement and other black or brown, tar-like material mixed with aggregate and used as a paving material.
24	Ceramics, Porcelain	Finished ceramic or porcelain household fixtures such as toilets, tiling, and sinks.
25	Mattresses	Includes all fabric case filled with deformable or resilient material, used for sleeping on.
26	Furniture	Includes items such as tables and chairs, used to make a house, office, or other space suitable for living or working.
27	Cardboard	Corrugated boxes or paper bags made from Kraft paper. Old Corrugated Cardboard has a wavy center layer and is sandwiched between the two outer layers; examples include entire cardboard containers, such as shipping and moving boxes, computer packaging cartons, and sheets and pieces of boxes and cartons. This type does not include chipboard. Examples of Kraft paper include paper grocery bags, un-soiled fast food bags, department store bags, and heavyweight sheets of Kraft packing paper.
28	Bagged Waste	Includes all plastic bags filled with unknown materials.
29	Electronics	Circuits or devices using transistors, microchips, and other components.
30	Ceiling Tile	Any lightweight construction materials, which are used to cover ceilings include acoustical, plastic, tin, and cork ceiling tile.

Appendix B

Host Facility Physical Sort Material Characterization Data

Iowa Statewide Waste Sort
MPE
Residential and Institutional, Commercial, and Industrial (ICI) Waste Composition

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	6.8%	6.0%	5.4%	8.2%
2	High Grade Office Paper	1.8%	5.6%	0.5%	3.1%
3	Mixed Recyclable Paper	3.6%	2.2%	3.1%	4.1%
4	Newsprint	0.1%	0.3%	<0.1%	0.2%
5	Magazines/Catalogs	0.5%	0.5%	0.3%	0.6%
6	OCC and Kraft Paper	9.8%	10.4%	7.4%	12.3%
7	Aseptic/Gable Top Containers	0.8%	1.6%	0.4%	1.2%
8	Polycoated Paper	1.0%	0.9%	0.8%	1.2%
9	Other Non-Recyclable Paper	0.8%	1.7%	0.4%	1.2%
Total Paper		25.2%	12.2%	9.4%	15.1%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.3%	0.2%	0.2%	0.3%
11	#1 PET Beverage Containers	1.0%	0.7%	0.8%	1.1%
12	#1 PET Other Non-Beverage Containers	0.6%	0.6%	0.4%	0.7%
13	#2 HDPE Natural Containers	0.4%	0.4%	0.3%	0.5%
14	#2 HDPE Colored Containers	0.5%	1.0%	0.2%	0.7%
15	#3 PVC	<0.1%	0.1%	<0.1%	<0.1%
16	#4 LDPE	<0.1%	0.0%	<0.1%	<0.1%
17	#5 PP	1.5%	0.9%	1.3%	1.7%
18	#6 PS	0.5%	0.7%	0.4%	0.7%
19	#7 Other/Unknown Plastic	0.3%	0.4%	0.2%	0.4%
20	Expanded Polystyrene	0.8%	0.9%	0.5%	1.0%
21	Retail Shopping Bags	0.8%	0.8%	0.6%	1.0%
22	Other Plastic Film	8.7%	7.1%	7.1%	10.4%
23	Other Plastic Products	2.0%	2.5%	1.4%	2.6%
Total Plastic		17.3%	9.6%	7.4%	11.8%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.6%	0.7%	0.5%	0.8%
25	Aluminum Beverage Containers	0.1%	0.3%	<0.1%	0.2%
26	Ferrous Food and Beverage Containers	0.4%	0.5%	0.3%	0.5%
27	Aluminum Foil and Foil Containers	0.2%	0.2%	0.1%	0.2%
28	Other Aluminum Containers	<0.1%	0.2%	<0.1%	<0.1%
29	Other Ferrous Scrap Metals	3.0%	4.5%	2.0%	4.1%
30	Other Non-Ferrous Scrap Metals	0.3%	0.7%	0.1%	0.4%
Total Metal		4.7%	4.7%	3.6%	5.7%
Glass					
31	Glass IA Deposit Containers	0.8%	1.1%	0.5%	1.0%
32	Clear Glass Containers	0.4%	0.5%	0.2%	0.5%
33	Green Glass Containers	<0.1%	0.3%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.3%	<0.1%	<0.1%
35	Other Mixed Glass	0.1%	0.4%	<0.1%	0.2%
Total Glass		1.4%	1.5%	1.1%	1.8%
C&D					
36	Wood - Untreated	1.2%	4.7%	0.1%	2.3%
37	Wood - Treated	6.5%	11.5%	3.8%	9.2%
38	Plastic Lumber	<0.1%	0.6%	<0.1%	<0.1%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
39	Insulation	<0.1%	0.0%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	1.5%	5.5%	0.3%	2.8%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.2%	1.0%	<0.1%	0.5%
43	Concrete	0.7%	3.9%	<0.1%	1.6%
44	Asphalt Roofing	<0.1%	0.1%	<0.1%	<0.1%
45	Drywall Gypsum Board	0.2%	1.0%	<0.1%	0.4%
46	Carpet and Carpet Padding	1.6%	3.6%	0.8%	2.5%
47	Mattresses	0.3%	1.8%	<0.1%	0.7%
48	Furniture	0.3%	1.4%	<0.1%	0.6%
Total C&D		12.7%	14.3%	11.0%	17.7%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	2.4%	3.9%	1.5%	3.3%
50	Food Waste - Loose	13.2%	9.2%	11.1%	15.4%
51	Food Waste - Packaged	3.2%	4.3%	2.2%	4.2%
Total Organics		18.8%	10.5%	8.0%	12.9%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.3%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.1%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.1%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.0%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.3%	0.5%	0.1%	0.4%
64	Other "Smart" Devices - with chip	<0.1%	0.1%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.4%	2.0%	<0.1%	0.8%
66	Textiles and Leather	4.5%	5.0%	3.3%	5.7%
67	Rubber	0.6%	1.8%	0.2%	1.0%
Total Consumer Products		5.8%	6.6%	5.1%	8.2%
Household Hazardous Materials					
68	Automotive Products	<0.1%	0.0%	<0.1%	<0.1%
69	Household Cleaners	<0.1%	0.1%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.4%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.1%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.1%	<0.1%	<0.1%
Total Household Hazardous Materials		0.2%	0.4%	0.3%	0.5%
Other					
78	Diapers	2.9%	3.5%	2.1%	3.7%
79	Other Organics	1.2%	2.1%	0.7%	1.7%
80	Other Inorganics	0.8%	2.0%	0.3%	1.2%
81	Other Consumer Products	0.4%	2.4%	<0.1%	1.0%
82	Other C&D	0.5%	1.5%	0.2%	0.9%
83	Other HHMs	<0.1%	0.1%	<0.1%	<0.1%
84	Fines	7.9%	5.7%	6.6%	9.2%
Total Other		13.8%	9.1%	7.0%	11.2%
Total of Residential and CI Waste		100.0%			

Notes for MPE

1 Based on 50 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
MPE
Residential Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	4.6%	1.8%	3.9%	5.3%
2	High Grade Office Paper	2.4%	8.6%	<0.1%	5.6%
3	Mixed Recyclable Paper	3.7%	1.7%	3.0%	4.3%
4	Newsprint	0.2%	0.4%	<0.1%	0.4%
5	Magazines/Catalogs	0.5%	0.5%	0.3%	0.7%
6	OCC and Kraft Paper	5.4%	6.9%	2.8%	7.9%
7	Aseptic/Gable Top Containers	0.3%	0.3%	0.2%	0.5%
8	Polycoated Paper	1.0%	0.8%	0.7%	1.3%
9	Other Non-Recyclable Paper	0.7%	0.6%	0.5%	1.0%
Total Paper		18.9%	10.4%	15.1%	22.7%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.2%	0.2%	0.2%	0.3%
11	#1 PET Beverage Containers	0.9%	0.4%	0.7%	1.1%
12	#1 PET Other Non-Beverage Containers	0.7%	0.5%	0.5%	0.8%
13	#2 HDPE Natural Containers	0.4%	0.4%	0.2%	0.5%
14	#2 HDPE Colored Containers	0.2%	0.2%	0.2%	0.3%
15	#3 PVC	<0.1%	0.1%	<0.1%	<0.1%
16	#4 LDPE	<0.1%	0.0%	<0.1%	<0.1%
17	#5 PP	1.8%	0.8%	1.5%	2.1%
18	#6 PS	0.3%	0.3%	0.2%	0.5%
19	#7 Other/Unknown Plastic	0.5%	0.5%	0.3%	0.6%
20	Expanded Polystyrene	0.7%	0.5%	0.5%	0.9%
21	Retail Shopping Bags	1.3%	1.0%	0.9%	1.7%
22	Other Plastic Film	7.7%	3.5%	6.4%	9.0%
23	Other Plastic Products	2.1%	1.7%	1.5%	2.8%
Total Plastic		16.9%	4.7%	15.1%	18.6%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.5%	0.4%	0.4%	0.7%
25	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.5%	0.3%	0.4%	0.6%
27	Aluminum Foil and Foil Containers	0.3%	0.3%	0.2%	0.4%
28	Other Aluminum Containers	<0.1%	0.1%	<0.1%	<0.1%
29	Other Ferrous Scrap Metals	2.6%	3.3%	1.4%	3.8%
30	Other Non-Ferrous Scrap Metals	0.5%	0.9%	0.1%	0.8%
Total Metal		4.5%	3.5%	3.2%	5.8%
Glass					
31	Glass IA Deposit Containers	0.8%	0.8%	0.5%	1.1%
32	Clear Glass Containers	0.4%	0.4%	0.2%	0.5%
33	Green Glass Containers	0.1%	0.4%	<0.1%	0.3%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	0.1%	0.2%	<0.1%	0.2%
Total Glass		1.4%	1.2%	1.0%	1.9%
C&D					
36	Wood - Untreated	0.2%	0.6%	<0.1%	0.5%
37	Wood - Treated	2.9%	2.2%	2.1%	3.8%
38	Plastic Lumber	<0.1%	0.0%	<0.1%	<0.1%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
39	Insulation	<0.1%	0.1%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	3.6%	8.3%	0.6%	6.7%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.4%	1.4%	<0.1%	0.9%
43	Concrete	<0.1%	0.3%	<0.1%	<0.1%
44	Asphalt Roofing	<0.1%	0.2%	<0.1%	<0.1%
45	Drywall Gypsum Board	<0.1%	0.1%	<0.1%	<0.1%
46	Carpet and Carpet Padding	1.6%	2.8%	0.6%	2.6%
47	Mattresses	0.6%	2.9%	<0.1%	1.7%
48	Furniture	<0.1%	0.3%	<0.1%	<0.1%
Total C&D		9.7%	9.8%	6.1%	13.3%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	4.2%	3.9%	2.8%	5.7%
50	Food Waste - Loose	12.7%	5.0%	10.9%	14.6%
51	Food Waste - Packaged	3.8%	5.4%	1.8%	5.8%
Total Organics		20.7%	8.7%	17.6%	23.9%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	0.1%	0.5%	<0.1%	0.3%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.1%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.1%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.1%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.4%	0.6%	0.2%	0.7%
64	Other "Smart" Devices - with chip	<0.1%	0.1%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.3%	0.7%	<0.1%	0.5%
66	Textiles and Leather	6.1%	4.3%	4.5%	7.7%
67	Rubber	0.2%	0.3%	<0.1%	0.3%
Total Consumer Products		7.2%	4.5%	5.5%	8.8%
Household Hazardous Materials					
68	Automotive Products	<0.1%	0.0%	<0.1%	<0.1%
69	Household Cleaners	<0.1%	0.1%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.1%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.1%	<0.1%	<0.1%
Total Household Hazardous Materials		0.1%	0.2%	<0.1%	0.2%
Other					
78	Diapers	4.5%	3.5%	3.2%	5.8%
79	Other Organics	1.5%	1.7%	0.9%	2.1%
80	Other Inorganics	1.6%	2.9%	0.5%	2.6%
81	Other Consumer Products	0.9%	3.8%	<0.1%	2.3%
82	Other C&D	0.7%	1.4%	0.2%	1.3%
83	Other HHMs	<0.1%	0.2%	<0.1%	<0.1%
84	Fines	11.3%	6.4%	8.9%	13.7%
Total Other		20.6%	8.3%	17.5%	23.6%
Total of Residential Waste		100.0%			

Iowa Statewide Waste Sort
MPE
Institutional, Commercial, and Industrial Waste Composition

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	8.2%	7.3%	6.0%	10.4%
2	High Grade Office Paper	1.4%	2.0%	0.8%	2.0%
3	Mixed Recyclable Paper	3.5%	2.5%	2.8%	4.2%
4	Newsprint	<0.1%	0.2%	<0.1%	<0.1%
5	Magazines/Catalogs	0.5%	0.6%	0.3%	0.6%
6	OCC and Kraft Paper	12.8%	11.3%	9.4%	16.2%
7	Aseptic/Gable Top Containers	1.1%	2.0%	0.5%	1.7%
8	Polycoated Paper	1.0%	0.9%	0.8%	1.3%
9	Other Non-Recyclable Paper	0.9%	2.2%	0.2%	1.5%
Total Paper		29.4%	11.6%	25.9%	32.9%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.3%	0.3%	0.2%	0.4%
11	#1 PET Beverage Containers	1.0%	0.9%	0.8%	1.3%
12	#1 PET Other Non-Beverage Containers	0.5%	0.6%	0.3%	0.7%
13	#2 HDPE Natural Containers	0.4%	0.4%	0.3%	0.5%
14	#2 HDPE Colored Containers	0.6%	1.2%	0.2%	1.0%
15	#3 PVC	<0.1%	0.1%	<0.1%	<0.1%
16	#4 LDPE	<0.1%	0.0%	<0.1%	<0.1%
17	#5 PP	1.3%	0.8%	1.1%	1.6%
18	#6 PS	Thanks	0.8%	0.4%	0.9%
19	#7 Other/Unknown Plastic	0.2%	0.4%	0.1%	0.3%
20	Expanded Polystyrene	0.8%	1.2%	0.4%	1.1%
21	Retail Shopping Bags	0.4%	0.4%	0.3%	0.6%
22	Other Plastic Film	9.4%	8.7%	6.8%	12.1%
23	Other Plastic Products	1.9%	3.0%	1.0%	2.8%
Total Plastic		17.6%	11.9%	14.1%	21.2%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.7%	0.9%	0.4%	1.0%
25	Aluminum Beverage Containers	0.1%	0.4%	<0.1%	0.3%
26	Ferrous Food and Beverage Containers	0.4%	0.6%	0.2%	0.6%
27	Aluminum Foil and Foil Containers	0.1%	0.1%	<0.1%	0.1%
28	Other Aluminum Containers	<0.1%	0.2%	<0.1%	<0.1%
29	Other Ferrous Scrap Metals	3.3%	5.2%	1.8%	4.9%
30	Other Non-Ferrous Scrap Metals	0.2%	0.5%	<0.1%	0.3%
Total Metal		4.9%	5.4%	3.3%	6.5%
Glass					
31	Glass IA Deposit Containers	0.7%	1.3%	0.3%	1.1%
32	Clear Glass Containers	0.3%	0.6%	0.2%	0.5%
33	Green Glass Containers	<0.1%	0.0%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.3%	<0.1%	<0.1%
35	Other Mixed Glass	0.1%	0.4%	<0.1%	0.3%
Total Glass		1.3%	1.7%	0.8%	1.8%
C&D					
36	Wood - Untreated	1.9%	6.0%	0.1%	3.7%
37	Wood - Treated	8.9%	14.3%	4.6%	13.2%
38	Plastic Lumber	0.2%	0.8%	<0.1%	0.4%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
39	Insulation	<0.1%	0.0%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	0.2%	0.6%	<0.1%	0.3%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.1%	0.4%	<0.1%	0.3%
43	Concrete	1.0%	5.1%	<0.1%	2.6%
44	Asphalt Roofing	<0.1%	0.1%	<0.1%	<0.1%
45	Drywall Gypsum Board	0.3%	1.3%	<0.1%	0.7%
46	Carpet and Carpet Padding	1.7%	4.1%	0.4%	2.9%
47	Mattresses	<0.1%	0.0%	<0.1%	<0.1%
48	Furniture	0.5%	1.8%	<0.1%	1.0%
Total C&D		14.8%	16.6%	9.8%	19.7%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	1.2%	3.4%	0.2%	2.2%
50	Food Waste - Loose	13.6%	11.3%	10.2%	16.9%
51	Food Waste - Packaged	2.8%	3.4%	1.8%	3.8%
Total Organics		17.6%	11.5%	14.1%	21.0%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.0%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.1%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.0%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.1%	0.4%	<0.1%	0.3%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.5%	2.5%	<0.1%	1.2%
66	Textiles and Leather	3.4%	5.3%	1.9%	5.0%
67	Rubber	0.9%	2.2%	0.2%	1.5%
Total Consumer Products		5.0%	7.7%	2.6%	7.3%
Household Hazardous Materials					
68	Automotive Products	<0.1%	0.1%	<0.1%	<0.1%
69	Household Cleaners	<0.1%	0.2%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	0.1%	0.5%	<0.1%	0.3%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.1%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.1%	<0.1%	<0.1%
Total Household Hazardous Materials		0.2%	0.5%	<0.1%	0.4%
Other					
78	Diapers	1.8%	3.2%	0.9%	2.8%
79	Other Organics	1.0%	2.3%	0.3%	1.7%
80	Other Inorganics	0.3%	0.6%	<0.1%	0.4%
81	Other Consumer Products	0.1%	0.5%	<0.1%	0.3%
82	Other C&D	0.4%	1.5%	<0.1%	0.9%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	5.6%	3.8%	4.5%	6.8%
Total Other		9.3%	6.4%	7.3%	11.2%
Total of CI Waste		100.0%			

Notes for MPE

1 Based on 30 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Newton Landfill
Residential and Institutional, Commercial, and Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	2.8%	2.6%	2.2%	3.4%
2	High Grade Office Paper	1.5%	5.0%	0.4%	2.7%
3	Mixed Recyclable Paper	4.2%	2.7%	3.5%	4.8%
4	Newsprint	0.4%	0.6%	0.3%	0.6%
5	Magazines/Catalogs	0.6%	1.2%	0.3%	0.9%
6	OCC and Kraft Paper	6.2%	8.3%	4.2%	8.1%
7	Aseptic/Gable Top Containers	0.8%	1.9%	0.3%	1.2%
8	Polycoated Paper	0.8%	0.8%	0.6%	1.0%
9	Other Non-Recyclable Paper	0.7%	1.0%	0.4%	0.9%
Total Paper		18.0%	12.5%	15.1%	20.9%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.2%	0.2%	0.2%	0.3%
11	#1 PET Beverage Containers	0.8%	0.8%	0.6%	1.0%
12	#1 PET Other Non-Beverage Containers	0.4%	0.4%	0.3%	0.5%
13	#2 HDPE Natural Containers	0.4%	0.4%	0.3%	0.5%
14	#2 HDPE Colored Containers	0.7%	1.1%	0.4%	0.9%
15	#3 PVC	0.2%	0.5%	<0.1%	0.3%
16	#4 LDPE	<0.1%	0.0%	<0.1%	<0.1%
17	#5 PP	1.1%	0.8%	0.9%	1.3%
18	#6 PS	0.5%	0.7%	0.3%	0.6%
19	#7 Other/Unknown Plastic	0.4%	0.5%	0.3%	0.5%
20	Expanded Polystyrene	0.5%	0.4%	0.4%	0.6%
21	Retail Shopping Bags	0.6%	0.7%	0.5%	0.8%
22	Other Plastic Film	4.8%	3.0%	4.1%	5.5%
23	Other Plastic Products	2.5%	2.9%	1.8%	3.1%
Total Plastic		13.1%	6.5%	11.6%	14.6%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.3%	0.4%	0.2%	0.4%
25	Aluminum Beverage Containers	<0.1%	0.0%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.5%	0.6%	0.4%	0.6%
27	Aluminum Foil and Foil Containers	0.1%	0.2%	0.1%	0.2%
28	Other Aluminum Containers	0.3%	0.5%	0.2%	0.4%
29	Other Ferrous Scrap Metals	3.2%	5.8%	1.9%	4.6%
30	Other Non-Ferrous Scrap Metals	0.5%	1.7%	0.1%	0.9%
Total Metal		5.1%	5.9%	3.7%	6.5%
Glass					
31	Glass IA Deposit Containers	0.5%	0.7%	0.3%	0.6%
32	Clear Glass Containers	0.7%	0.8%	0.5%	0.9%
33	Green Glass Containers	<0.1%	0.0%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	0.6%	2.4%	<0.1%	1.2%
Total Glass		1.8%	2.6%	1.2%	2.4%
C&D					
36	Wood - Untreated	0.3%	0.8%	0.1%	0.5%
37	Wood - Treated	6.2%	12.7%	3.2%	9.1%
38	Plastic Lumber	<0.1%	0.0%	<0.1%	<0.1%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
39	Insulation	<0.1%	0.3%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	0.9%	4.0%	<0.1%	1.8%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.8%	2.8%	0.1%	1.4%
43	Concrete	0.3%	1.9%	<0.1%	0.8%
44	Asphalt Roofing	1.6%	8.0%	<0.1%	3.4%
45	Drywall Gypsum Board	0.5%	3.0%	<0.1%	1.2%
46	Carpet and Carpet Padding	1.2%	4.7%	0.1%	2.3%
47	Mattresses	0.3%	1.9%	<0.1%	0.7%
48	Furniture	3.7%	8.9%	1.7%	5.8%
Total C&D		15.8%	22.1%	10.7%	20.9%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	2.4%	6.5%	0.9%	3.9%
50	Food Waste - Loose	14.9%	17.7%	10.8%	19.0%
51	Food Waste - Packaged	4.0%	5.0%	2.9%	5.2%
Total Organics		21.4%	18.5%	17.1%	25.7%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.3%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.0%	<0.1%	<0.1%
60	Audio Equipment	0.1%	0.4%	<0.1%	0.2%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.5%	1.4%	0.2%	0.8%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	1.6%	4.0%	0.7%	2.5%
66	Textiles and Leather	6.3%	6.4%	4.8%	7.8%
67	Rubber	1.3%	2.8%	0.6%	1.9%
Total Consumer Products		9.9%	7.7%	8.1%	11.7%
Household Hazardous Materials					
68	Automotive Products	<0.1%	0.3%	<0.1%	<0.1%
69	Household Cleaners	<0.1%	0.1%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.0%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.1%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.1%	<0.1%	<0.1%
Total Household Hazardous Materials		0.2%	0.4%	<0.1%	0.3%
Other					
78	Diapers	2.7%	3.7%	1.8%	3.6%
79	Other Organics	0.6%	1.7%	0.2%	1.0%
80	Other Inorganics	3.3%	5.6%	2.0%	4.7%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	1.8%	5.6%	0.5%	3.1%
83	Other HHMs	<0.1%	0.1%	<0.1%	<0.1%
84	Fines	6.3%	3.8%	5.4%	7.2%
Total Other		14.7%	10.4%	12.3%	17.2%
Total of Residential and CI Waste		100.0%			

Notes for Newton Landfill

1 Based on 50 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Newton Landfill
Residential Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	2.4%	1.7%	1.9%	2.8%
2	High Grade Office Paper	2.0%	6.1%	0.3%	3.7%
3	Mixed Recyclable Paper	4.3%	2.8%	3.5%	5.1%
4	Newsprint	0.5%	0.7%	0.3%	0.7%
5	Magazines/Catalogs	0.9%	1.4%	0.5%	1.3%
6	OCC and Kraft Paper	4.4%	7.6%	2.3%	6.6%
7	Aseptic/Gable Top Containers	0.3%	0.7%	0.1%	0.5%
8	Polycoated Paper	0.9%	0.8%	0.6%	1.1%
9	Other Non-Recyclable Paper	0.6%	0.5%	0.4%	0.7%
Total Paper		16.3%	12.4%	12.8%	19.8%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.2%	0.2%	0.2%	0.3%
11	#1 PET Beverage Containers	0.7%	0.5%	0.5%	0.8%
12	#1 PET Other Non-Beverage Containers	0.5%	0.4%	0.3%	0.6%
13	#2 HDPE Natural Containers	0.3%	0.4%	0.2%	0.4%
14	#2 HDPE Colored Containers	0.8%	1.3%	0.4%	1.2%
15	#3 PVC	0.2%	0.6%	<0.1%	0.4%
16	#4 LDPE	<0.1%	0.0%	<0.1%	<0.1%
17	#5 PP	1.2%	0.9%	1.0%	1.5%
18	#6 PS	0.5%	0.9%	0.3%	0.7%
19	#7 Other/Unknown Plastic	0.4%	0.5%	0.3%	0.6%
20	Expanded Polystyrene	0.5%	0.3%	0.4%	0.6%
21	Retail Shopping Bags	0.8%	0.7%	0.5%	1.0%
22	Other Plastic Film	4.4%	3.2%	3.5%	5.3%
23	Other Plastic Products	2.8%	3.1%	1.9%	3.6%
Total Plastic		13.3%	6.9%	11.4%	15.2%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.3%	0.3%	0.2%	0.4%
25	Aluminum Beverage Containers	<0.1%	0.0%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.5%	0.6%	0.4%	0.7%
27	Aluminum Foil and Foil Containers	0.2%	0.2%	0.1%	0.2%
28	Other Aluminum Containers	0.3%	0.4%	0.2%	0.4%
29	Other Ferrous Scrap Metals	3.4%	6.1%	1.7%	5.1%
30	Other Non-Ferrous Scrap Metals	0.8%	2.1%	0.2%	1.3%
Total Metal		5.5%	6.1%	3.8%	7.2%
Glass					
31	Glass IA Deposit Containers	0.5%	0.8%	0.3%	0.8%
32	Clear Glass Containers	0.7%	0.7%	0.5%	0.9%
33	Green Glass Containers	<0.1%	0.0%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	0.8%	2.9%	<0.1%	1.6%
Total Glass		2.0%	2.9%	1.2%	2.9%
C&D					
36	Wood - Untreated	0.2%	0.4%	0.1%	0.4%
37	Wood - Treated	7.6%	14.8%	3.5%	11.8%
38	Plastic Lumber	<0.1%	0.0%	<0.1%	<0.1%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
39	Insulation	<0.1%	0.3%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	1.2%	4.8%	<0.1%	2.6%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	1.0%	3.3%	<0.1%	1.9%
43	Concrete	0.4%	2.3%	<0.1%	1.0%
44	Asphalt Roofing	2.3%	9.6%	<0.1%	5.0%
45	Drywall Gypsum Board	0.7%	3.7%	<0.1%	1.7%
46	Carpet and Carpet Padding	1.0%	4.4%	<0.1%	2.3%
47	Mattresses	0.4%	2.3%	<0.1%	1.1%
48	Furniture	4.0%	9.0%	1.5%	6.6%
Total C&D		19.0%	25.3%	11.9%	26.1%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	3.3%	7.7%	1.2%	5.5%
50	Food Waste - Loose	9.3%	7.9%	7.1%	11.6%
51	Food Waste - Packaged	3.6%	4.9%	2.2%	4.9%
Total Organics		16.2%	12.1%	12.8%	19.6%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.2%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.0%	<0.1%	<0.1%
60	Audio Equipment	0.1%	0.4%	<0.1%	0.3%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.4%	1.0%	0.1%	0.7%
64	Other "Smart" Devices - with chip	<0.1%	0.1%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	2.2%	4.6%	0.9%	3.5%
66	Textiles and Leather	7.7%	6.8%	5.8%	9.6%
67	Rubber	0.9%	1.8%	0.3%	1.4%
Total Consumer Products		11.4%	7.8%	9.2%	13.6%
Household Hazardous Materials					
68	Automotive Products	0.1%	0.4%	<0.1%	0.2%
69	Household Cleaners	<0.1%	0.1%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.0%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.1%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.1%	<0.1%	<0.1%
Total Household Hazardous Materials		0.2%	0.4%	0.1%	0.3%
Other					
78	Diapers	2.9%	3.7%	1.8%	3.9%
79	Other Organics	0.7%	1.9%	0.2%	1.2%
80	Other Inorganics	3.5%	4.9%	2.1%	4.9%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	2.6%	6.6%	0.7%	4.5%
83	Other HHMs	<0.1%	0.1%	<0.1%	<0.1%
84	Fines	6.3%	4.0%	5.2%	7.5%
Total Other		16.1%	10.8%	13.0%	19.1%
Total of Residential Waste		100.0%			

**Iowa Statewide Waste Sort
Newton Landfill
Institutional, Commercial, and Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	3.8%	3.7%	2.3%	5.3%
2	High Grade Office Paper	0.6%	1.0%	0.2%	1.0%
3	Mixed Recyclable Paper	3.9%	2.7%	2.7%	5.0%
4	Newsprint	0.2%	0.4%	<0.1%	0.4%
5	Magazines/Catalogs	<0.1%	0.1%	<0.1%	<0.1%
6	OCC and Kraft Paper	9.8%	8.8%	6.2%	13.4%
7	Aseptic/Gable Top Containers	1.7%	3.1%	0.5%	3.0%
8	Polycoated Paper	0.7%	0.6%	0.5%	1.0%
9	Other Non-Recyclable Paper	0.9%	1.6%	0.3%	1.6%
Total Paper		21.8%	12.3%	16.7%	26.8%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.3%	0.2%	0.2%	0.4%
11	#1 PET Beverage Containers	1.0%	1.2%	0.5%	1.4%
12	#1 PET Other Non-Beverage Containers	0.3%	0.3%	0.2%	0.4%
13	#2 HDPE Natural Containers	0.5%	0.6%	0.3%	0.8%
14	#2 HDPE Colored Containers	0.4%	0.6%	0.2%	0.7%
15	#3 PVC	0.2%	0.5%	<0.1%	0.4%
16	#4 LDPE	<0.1%	0.0%	<0.1%	<0.1%
17	#5 PP	0.9%	0.6%	0.7%	1.2%
18	#6 PS	0.4%	0.4%	0.2%	0.5%
19	#7 Other/Unknown Plastic	0.3%	0.3%	0.2%	0.5%
20	Expanded Polystyrene	0.6%	0.6%	0.3%	0.8%
21	Retail Shopping Bags	0.4%	0.4%	0.2%	0.5%
22	Other Plastic Film	5.7%	2.2%	4.8%	6.6%
23	Other Plastic Products	1.8%	2.3%	0.9%	2.7%
Total Plastic		12.7%	5.7%	10.4%	15.1%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.3%	0.4%	0.1%	0.5%
25	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.4%	0.7%	0.2%	0.7%
27	Aluminum Foil and Foil Containers	0.1%	0.1%	<0.1%	0.2%
28	Other Aluminum Containers	0.3%	0.6%	<0.1%	0.6%
29	Other Ferrous Scrap Metals	2.9%	5.1%	0.8%	5.0%
30	Other Non-Ferrous Scrap Metals	0.1%	0.2%	<0.1%	0.2%
Total Metal		4.2%	5.7%	1.9%	6.6%
Glass					
31	Glass IA Deposit Containers	0.3%	0.4%	0.2%	0.5%
32	Clear Glass Containers	0.6%	1.1%	0.1%	1.0%
33	Green Glass Containers	<0.1%	0.0%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	0.1%	0.2%	<0.1%	0.2%
35	Other Mixed Glass	0.2%	0.6%	<0.1%	0.5%
Total Glass		1.3%	1.6%	0.6%	1.9%
C&D					
36	Wood - Untreated	0.5%	1.3%	<0.1%	1.1%
37	Wood - Treated	3.0%	5.7%	0.7%	5.4%
38	Plastic Lumber	<0.1%	0.0%	<0.1%	<0.1%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
39	Insulation	<0.1%	0.4%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	<0.1%	0.3%	<0.1%	<0.1%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.3%	0.8%	<0.1%	0.6%
43	Concrete	0.2%	0.6%	<0.1%	0.4%
44	Asphalt Roofing	<0.1%	0.0%	<0.1%	<0.1%
45	Drywall Gypsum Board	<0.1%	0.1%	<0.1%	<0.1%
46	Carpet and Carpet Padding	1.6%	5.6%	<0.1%	3.9%
47	Mattresses	<0.1%	0.0%	<0.1%	<0.1%
48	Furniture	3.1%	8.9%	<0.1%	6.8%
Total C&D		9.0%	10.6%	4.7%	13.4%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	0.6%	1.3%	<0.1%	1.1%
50	Food Waste - Loose	26.7%	25.9%	16.1%	37.4%
51	Food Waste - Packaged	5.0%	5.4%	2.8%	7.2%
Total Organics		32.3%	24.7%	22.2%	42.5%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	0.1%	0.4%	<0.1%	0.3%
59	Computer Printers	<0.1%	0.0%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.2%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.6%	2.0%	<0.1%	1.4%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.4%	1.6%	<0.1%	1.1%
66	Textiles and Leather	3.3%	4.2%	1.6%	5.0%
67	Rubber	2.1%	4.2%	0.4%	3.9%
Total Consumer Products		6.7%	6.7%	3.9%	9.4%
Household Hazardous Materials					
68	Automotive Products	<0.1%	0.0%	<0.1%	<0.1%
69	Household Cleaners	<0.1%	0.0%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.0%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.1%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.1%	<0.1%	<0.1%
Total Household Hazardous Materials		0.1%	0.2%	<0.1%	0.1%
Other					
78	Diapers	2.3%	3.9%	0.7%	3.9%
79	Other Organics	0.4%	1.3%	<0.1%	0.9%
80	Other Inorganics	3.0%	7.0%	0.1%	5.8%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	<0.1%	0.2%	<0.1%	<0.1%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	6.2%	3.3%	4.8%	7.5%
Total Other		11.9%	9.3%	8.1%	15.8%
Total of CI Waste		100.0%			

Notes for Newton Landfill

1 Based on 16 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Iowa City
Residential and Institutional, Commercial, and Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	4.7%	4.1%	3.8%	5.7%
2	High Grade Office Paper	1.6%	4.6%	0.5%	2.7%
3	Mixed Recyclable Paper	3.3%	2.0%	2.9%	3.8%
4	Newsprint	0.3%	0.7%	0.2%	0.5%
5	Magazines/Catalogs	0.7%	2.3%	0.2%	1.3%
6	OCC and Kraft Paper	4.2%	4.8%	3.1%	5.3%
7	Aseptic/Gable Top Containers	1.0%	1.8%	0.6%	1.5%
8	Polycoated Paper	1.1%	1.0%	0.9%	1.3%
9	Other Non-Recyclable Paper	1.1%	1.2%	0.8%	1.3%
Total Paper		18.1%	10.7%	15.7%	20.6%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.2%	0.2%	0.1%	0.3%
11	#1 PET Beverage Containers	0.5%	0.5%	0.4%	0.6%
12	#1 PET Other Non-Beverage Containers	0.3%	0.4%	0.3%	0.4%
13	#2 HDPE Natural Containers	0.2%	0.4%	0.1%	0.3%
14	#2 HDPE Colored Containers	0.7%	1.3%	0.4%	1.0%
15	#3 PVC	0.1%	0.6%	<0.1%	0.2%
16	#4 LDPE	<0.1%	0.2%	<0.1%	<0.1%
17	#5 PP	1.4%	1.1%	1.1%	1.6%
18	#6 PS	0.6%	1.4%	0.3%	0.9%
19	#7 Other/Unknown Plastic	0.2%	0.2%	<0.1%	0.2%
20	Expanded Polystyrene	0.7%	1.7%	0.3%	1.1%
21	Retail Shopping Bags	0.4%	0.3%	0.3%	0.5%
22	Other Plastic Film	7.0%	4.6%	5.9%	8.0%
23	Other Plastic Products	1.7%	2.0%	1.2%	2.1%
Total Plastic		14.0%	8.0%	12.1%	15.9%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.3%	0.3%	0.2%	0.4%
25	Aluminum Beverage Containers	<0.1%	0.0%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.5%	0.8%	0.3%	0.6%
27	Aluminum Foil and Foil Containers	0.2%	0.3%	0.1%	0.3%
28	Other Aluminum Containers	0.1%	0.3%	<0.1%	0.2%
29	Other Ferrous Scrap Metals	3.7%	7.0%	2.1%	5.3%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.2%	<0.1%	<0.1%
Total Metal		4.9%	6.8%	3.3%	6.5%
Glass					
31	Glass IA Deposit Containers	1.0%	1.3%	0.7%	1.3%
32	Clear Glass Containers	0.6%	0.8%	0.4%	0.8%
33	Green Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	0.2%	0.4%	0.1%	0.3%
Total Glass		1.8%	2.2%	1.3%	2.3%
C&D					
36	Wood - Untreated	1.5%	3.4%	0.7%	2.3%
37	Wood - Treated	3.9%	7.6%	2.2%	5.7%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	0.1%	0.7%	<0.1%	0.3%
39	Insulation	<0.1%	0.1%	<0.1%	<0.1%
40	Asphalt Paving	0.1%	0.7%	<0.1%	0.3%
41	Soil, Rock, Sand	1.8%	5.0%	0.6%	3.0%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.8%	3.2%	<0.1%	1.5%
43	Concrete	1.0%	4.6%	<0.1%	2.1%
44	Asphalt Roofing	0.3%	2.4%	<0.1%	0.9%
45	Drywall Gypsum Board	1.3%	7.2%	<0.1%	2.9%
46	Carpet and Carpet Padding	2.9%	7.9%	1.1%	4.7%
47	Mattresses	0.4%	3.0%	<0.1%	1.1%
48	Furniture	4.2%	11.6%	1.5%	6.9%
Total C&D		18.4%	23.6%	12.9%	23.8%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	4.1%	15.1%	0.6%	7.6%
50	Food Waste - Loose	16.8%	11.6%	14.1%	19.5%
51	Food Waste - Packaged	3.6%	4.9%	2.4%	4.7%
Total Organics		24.4%	17.0%	20.5%	28.4%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.6%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.2%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.1%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.2%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.2%	1.1%	<0.1%	0.5%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.4%	0.9%	0.2%	0.6%
66	Textiles and Leather	3.5%	4.9%	2.4%	4.6%
67	Rubber	0.8%	1.6%	0.4%	1.2%
Total Consumer Products		5.1%	5.6%	3.8%	6.4%
Household Hazardous Materials					
68	Automotive Products	0.5%	2.9%	<0.1%	1.2%
69	Household Cleaners	0.2%	0.7%	<0.1%	0.3%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.3%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.7%	3.0%	<0.1%	1.4%
Other					
78	Diapers	2.3%	2.9%	1.6%	3.0%
79	Other Organics	0.9%	3.1%	0.2%	1.6%
80	Other Inorganics	2.0%	3.4%	1.2%	2.8%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	1.7%	9.3%	<0.1%	3.8%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	5.6%	3.5%	4.8%	6.5%
Total Other		12.6%	10.5%	10.1%	15.0%
Total of Residential and CI Waste		100.0%			

Notes for Iowa City

1 Based on 50 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Iowa City
Residential Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	3.8%	3.7%	2.4%	5.3%
2	High Grade Office Paper	0.8%	1.7%	0.1%	1.5%
3	Mixed Recyclable Paper	2.7%	2.1%	1.9%	3.5%
4	Newsprint	0.6%	1.0%	0.2%	1.0%
5	Magazines/Catalogs	0.8%	0.9%	0.4%	1.2%
6	OCC and Kraft Paper	1.2%	1.3%	0.7%	1.8%
7	Aseptic/Gable Top Containers	0.3%	0.3%	0.2%	0.4%
8	Polycoated Paper	0.9%	1.1%	0.5%	1.3%
9	Other Non-Recyclable Paper	0.6%	0.8%	0.3%	0.9%
Total Paper		11.8%	8.5%	8.5%	15.1%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.1%	0.2%	<0.1%	0.2%
11	#1 PET Beverage Containers	0.3%	0.4%	0.1%	0.4%
12	#1 PET Other Non-Beverage Containers	0.4%	0.5%	0.2%	0.6%
13	#2 HDPE Natural Containers	<0.1%	0.1%	<0.1%	<0.1%
14	#2 HDPE Colored Containers	0.6%	1.0%	0.2%	1.0%
15	#3 PVC	<0.1%	0.1%	<0.1%	<0.1%
16	#4 LDPE	<0.1%	0.3%	<0.1%	<0.1%
17	#5 PP	1.1%	1.1%	0.7%	1.6%
18	#6 PS	0.2%	0.2%	0.1%	0.3%
19	#7 Other/Unknown Plastic	0.3%	0.4%	0.1%	0.4%
20	Expanded Polystyrene	0.4%	0.4%	0.2%	0.6%
21	Retail Shopping Bags	0.5%	0.5%	0.3%	0.7%
22	Other Plastic Film	4.2%	3.7%	2.7%	5.6%
23	Other Plastic Products	1.6%	1.7%	1.0%	2.3%
Total Plastic		9.8%	7.5%	6.9%	12.7%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.2%	0.2%	<0.1%	0.2%
25	Aluminum Beverage Containers	<0.1%	0.0%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.5%	0.5%	0.2%	0.7%
27	Aluminum Foil and Foil Containers	0.2%	0.2%	<0.1%	0.3%
28	Other Aluminum Containers	0.1%	0.2%	<0.1%	0.2%
29	Other Ferrous Scrap Metals	5.4%	9.3%	1.8%	9.0%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.1%	<0.1%	<0.1%
Total Metal		6.3%	8.8%	2.9%	9.7%
Glass					
31	Glass IA Deposit Containers	0.8%	1.1%	0.3%	1.2%
32	Clear Glass Containers	0.5%	0.8%	0.2%	0.8%
33	Green Glass Containers	<0.1%	0.0%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.0%	<0.1%	<0.1%
35	Other Mixed Glass	0.2%	0.4%	<0.1%	0.3%
Total Glass		1.5%	2.0%	0.7%	2.2%
C&D					
36	Wood - Untreated	2.4%	4.7%	0.6%	4.3%
37	Wood - Treated	5.6%	10.7%	1.4%	9.7%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	0.3%	1.0%	<0.1%	0.7%
39	Insulation	<0.1%	0.1%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	1.2%	3.5%	<0.1%	2.5%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.7%	1.9%	<0.1%	1.5%
43	Concrete	2.6%	7.4%	<0.1%	5.5%
44	Asphalt Roofing	<0.1%	0.0%	<0.1%	<0.1%
45	Drywall Gypsum Board	2.8%	12.0%	<0.1%	7.5%
46	Carpet and Carpet Padding	6.2%	12.0%	1.5%	10.8%
47	Mattresses	<0.1%	0.0%	<0.1%	<0.1%
48	Furniture	7.9%	17.0%	1.3%	14.5%
Total C&D		29.8%	31.9%	17.4%	42.1%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	4.3%	9.2%	0.8%	7.9%
50	Food Waste - Loose	10.6%	10.8%	6.4%	14.9%
51	Food Waste - Packaged	2.7%	5.4%	0.6%	4.8%
Total Organics		17.7%	14.8%	11.9%	23.4%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	0.2%	1.0%	<0.1%	0.6%
58	Computer Peripherals	0.1%	0.3%	<0.1%	0.2%
59	Computer Printers	<0.1%	0.0%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.1%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.5%	1.8%	<0.1%	1.2%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.3%	0.7%	<0.1%	0.5%
66	Textiles and Leather	4.1%	3.3%	2.8%	5.4%
67	Rubber	1.1%	2.2%	0.3%	2.0%
Total Consumer Products		6.3%	4.7%	4.5%	8.1%
Household Hazardous Materials					
68	Automotive Products	0.2%	0.9%	<0.1%	0.6%
69	Household Cleaners	0.2%	0.8%	<0.1%	0.5%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.1%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.5%	1.7%	<0.1%	1.1%
Other					
78	Diapers	2.7%	3.5%	1.3%	4.1%
79	Other Organics	1.8%	5.0%	<0.1%	3.8%
80	Other Inorganics	2.2%	3.5%	0.9%	3.6%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	4.2%	15.3%	<0.1%	10.2%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	5.4%	5.2%	3.4%	7.4%
Total Other		16.4%	15.5%	10.3%	22.4%
Total of Residential Waste		100.0%			

Notes for Iowa City

1 Based on 18 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Iowa City
Institutional, Commercial, and Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	5.2%	4.3%	4.0%	6.5%
2	High Grade Office Paper	2.1%	5.6%	0.4%	3.7%
3	Mixed Recyclable Paper	3.7%	1.8%	3.1%	4.2%
4	Newsprint	0.2%	0.2%	<0.1%	0.2%
5	Magazines/Catalogs	0.7%	2.9%	<0.1%	1.6%
6	OCC and Kraft Paper	5.8%	5.2%	4.3%	7.4%
7	Aseptic/Gable Top Containers	1.5%	2.2%	0.8%	2.1%
8	Polycoated Paper	1.2%	0.9%	0.9%	1.5%
9	Other Non-Recyclable Paper	1.3%	1.3%	0.9%	1.7%
Total Paper		21.7%	10.2%	18.7%	24.7%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.2%	0.3%	0.2%	0.3%
11	#1 PET Beverage Containers	0.7%	0.5%	0.5%	0.8%
12	#1 PET Other Non-Beverage Containers	0.3%	0.3%	0.2%	0.4%
13	#2 HDPE Natural Containers	0.3%	0.5%	0.2%	0.5%
14	#2 HDPE Colored Containers	0.7%	1.5%	0.3%	1.2%
15	#3 PVC	0.1%	0.8%	<0.1%	0.4%
16	#4 LDPE	<0.1%	0.1%	<0.1%	<0.1%
17	#5 PP	1.5%	1.0%	1.2%	1.8%
18	#6 PS	0.8%	1.7%	0.3%	1.3%
19	#7 Other/Unknown Plastic	<0.1%	0.1%	<0.1%	<0.1%
20	Expanded Polystyrene	0.9%	2.1%	0.3%	1.5%
21	Retail Shopping Bags	0.3%	0.2%	0.3%	0.4%
22	Other Plastic Film	8.6%	4.4%	7.3%	9.8%
23	Other Plastic Products	1.7%	2.3%	1.0%	2.3%
Total Plastic		16.3%	7.5%	14.2%	18.5%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.4%	0.4%	0.3%	0.5%
25	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.5%	0.9%	0.2%	0.7%
27	Aluminum Foil and Foil Containers	0.2%	0.4%	0.1%	0.3%
28	Other Aluminum Containers	0.1%	0.4%	<0.1%	0.2%
29	Other Ferrous Scrap Metals	2.8%	5.3%	1.2%	4.3%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.2%	<0.1%	<0.1%
Total Metal		4.1%	5.3%	2.5%	5.6%
Glass					
31	Glass IA Deposit Containers	1.1%	1.4%	0.7%	1.5%
32	Clear Glass Containers	0.6%	0.9%	0.4%	0.9%
33	Green Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	0.2%	0.4%	<0.1%	0.3%
Total Glass		2.0%	2.3%	1.4%	2.7%
C&D					
36	Wood - Untreated	1.0%	2.3%	0.3%	1.6%
37	Wood - Treated	3.0%	5.0%	1.6%	4.5%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	<0.1%	0.3%	<0.1%	<0.1%
39	Insulation	<0.1%	0.1%	<0.1%	<0.1%
40	Asphalt Paving	0.2%	0.9%	<0.1%	0.4%
41	Soil, Rock, Sand	2.2%	5.7%	0.5%	3.8%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.8%	3.8%	<0.1%	1.9%
43	Concrete	<0.1%	0.3%	<0.1%	<0.1%
44	Asphalt Roofing	0.5%	2.9%	<0.1%	1.4%
45	Drywall Gypsum Board	0.4%	1.3%	<0.1%	0.8%
46	Carpet and Carpet Padding	1.0%	3.0%	0.2%	1.9%
47	Mattresses	0.7%	3.8%	<0.1%	1.8%
48	Furniture	2.1%	6.5%	0.2%	4.0%
Total C&D		11.9%	14.3%	7.8%	16.1%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	4.0%	17.7%	<0.1%	9.1%
50	Food Waste - Loose	20.3%	10.7%	17.2%	23.4%
51	Food Waste - Packaged	4.1%	4.6%	2.7%	5.4%
Total Organics		28.3%	17.2%	23.3%	33.3%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.1%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.1%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.2%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	<0.1%	0.4%	<0.1%	<0.1%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.4%	1.0%	0.1%	0.7%
66	Textiles and Leather	3.2%	5.6%	1.5%	4.8%
67	Rubber	0.7%	1.3%	0.3%	1.0%
Total Consumer Products		4.4%	6.0%	2.6%	6.1%
Household Hazardous Materials					
68	Automotive Products	0.6%	3.6%	<0.1%	1.7%
69	Household Cleaners	0.1%	0.7%	<0.1%	0.3%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.0%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.4%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.9%	3.6%	<0.1%	1.9%
Other					
78	Diapers	2.1%	2.5%	1.4%	2.8%
79	Other Organics	0.4%	0.6%	0.2%	0.6%
80	Other Inorganics	1.9%	3.4%	0.9%	2.9%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	0.3%	1.4%	<0.1%	0.7%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	5.8%	2.3%	5.1%	6.4%
Total Other		10.4%	5.4%	8.9%	12.0%
Total of CI Waste		100.0%			

Notes for Iowa City

1 Based on 32 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Cherokee County
Residential and Institutional, Commercial, and Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	4.3%	2.7%	3.7%	4.9%
2	High Grade Office Paper	0.7%	1.1%	0.4%	0.9%
3	Mixed Recyclable Paper	4.6%	2.7%	4.0%	5.3%
4	Newsprint	0.7%	1.0%	0.4%	0.9%
5	Magazines/Catalogs	0.7%	1.0%	0.5%	0.9%
6	OCC and Kraft Paper	5.8%	6.6%	4.2%	7.3%
7	Aseptic/Gable Top Containers	0.5%	0.4%	0.4%	0.6%
8	Polycoated Paper	1.7%	1.9%	1.2%	2.1%
9	Other Non-Recyclable Paper	1.7%	1.4%	1.4%	2.1%
Total Paper		20.6%	9.1%	18.5%	22.7%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.3%	0.3%	0.2%	0.3%
11	#1 PET Beverage Containers	0.8%	0.6%	0.7%	1.0%
12	#1 PET Other Non-Beverage Containers	0.6%	0.4%	0.5%	0.7%
13	#2 HDPE Natural Containers	0.4%	0.4%	0.3%	0.5%
14	#2 HDPE Colored Containers	0.8%	1.3%	0.5%	1.1%
15	#3 PVC	<0.1%	0.2%	<0.1%	<0.1%
16	#4 LDPE	<0.1%	0.1%	<0.1%	<0.1%
17	#5 PP	1.2%	0.7%	1.0%	1.3%
18	#6 PS	0.4%	0.3%	0.3%	0.5%
19	#7 Other/Unknown Plastic	0.1%	0.2%	0.1%	0.2%
20	Expanded Polystyrene	0.5%	0.4%	0.4%	0.6%
21	Retail Shopping Bags	0.5%	0.3%	0.4%	0.5%
22	Other Plastic Film	5.8%	3.6%	4.9%	6.6%
23	Other Plastic Products	3.1%	4.8%	2.0%	4.2%
Total Plastic		14.6%	6.0%	13.2%	16.0%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.4%	0.3%	0.3%	0.5%
25	Aluminum Beverage Containers	<0.1%	0.0%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.8%	1.1%	0.5%	1.0%
27	Aluminum Foil and Foil Containers	0.2%	0.2%	0.1%	0.2%
28	Other Aluminum Containers	0.2%	0.2%	0.1%	0.3%
29	Other Ferrous Scrap Metals	1.1%	1.2%	0.8%	1.4%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.1%	<0.1%	<0.1%
Total Metal		2.8%	1.8%	2.3%	3.2%
Glass					
31	Glass IA Deposit Containers	0.7%	1.4%	0.4%	1.0%
32	Clear Glass Containers	0.7%	0.9%	0.4%	0.9%
33	Green Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	0.5%	0.9%	0.3%	0.7%
Total Glass		1.9%	2.3%	1.4%	2.5%
C&D					
36	Wood - Untreated	2.9%	5.9%	1.5%	4.2%
37	Wood - Treated	7.0%	18.7%	2.7%	11.4%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	<0.1%	0.0%	<0.1%	<0.1%
39	Insulation	<0.1%	0.3%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.5%	<0.1%	<0.1%
41	Soil, Rock, Sand	0.9%	3.3%	0.1%	1.7%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.7%	1.7%	0.3%	1.1%
43	Concrete	<0.1%	0.0%	<0.1%	<0.1%
44	Asphalt Roofing	0.2%	0.7%	<0.1%	0.3%
45	Drywall Gypsum Board	<0.1%	0.4%	<0.1%	<0.1%
46	Carpet and Carpet Padding	0.3%	2.3%	<0.1%	0.9%
47	Mattresses	0.1%	0.7%	<0.1%	0.3%
48	Furniture	1.6%	3.3%	0.8%	2.3%
Total C&D		13.9%	18.6%	9.6%	18.2%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	3.0%	6.4%	1.5%	4.5%
50	Food Waste - Loose	13.0%	10.9%	10.4%	15.5%
51	Food Waste - Packaged	4.7%	5.2%	3.5%	5.9%
Total Organics		20.7%	13.8%	17.5%	23.9%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.1%	<0.1%	<0.1%
55	Computer Monitor - LCD	0.1%	0.9%	<0.1%	0.3%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	0.1%	0.6%	<0.1%	0.3%
58	Computer Peripherals	<0.1%	0.2%	<0.1%	<0.1%
59	Computer Printers	0.3%	1.6%	<0.1%	0.7%
60	Audio Equipment	<0.1%	0.0%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.5%	1.4%	0.2%	0.8%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.9%	2.2%	0.4%	1.4%
66	Textiles and Leather	3.6%	3.6%	2.8%	4.5%
67	Rubber	1.1%	1.7%	0.7%	1.5%
Total Consumer Products		6.8%	5.6%	5.5%	8.1%
Household Hazardous Materials					
68	Automotive Products	0.5%	2.3%	<0.1%	1.1%
69	Household Cleaners	<0.1%	0.2%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	0.1%	0.6%	<0.1%	0.3%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.5%	<0.1%	<0.1%
Total Household Hazardous Materials		0.9%	2.8%	0.3%	1.6%
Other					
78	Diapers	4.0%	4.3%	3.0%	5.1%
79	Other Organics	1.5%	2.7%	0.9%	2.1%
80	Other Inorganics	3.0%	4.8%	1.8%	4.1%
81	Other Consumer Products	<0.1%	0.2%	<0.1%	<0.1%
82	Other C&D	3.5%	12.1%	0.6%	6.3%
83	Other HHMs	<0.1%	0.1%	<0.1%	<0.1%
84	Fines	5.8%	3.2%	5.1%	6.6%
Total Other		17.8%	12.3%	15.0%	20.7%
Total of Residential and CI Waste		100.0%			

Notes for Cherokee County

1 Based on 50 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Cherokee County
Residential Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	4.0%	1.3%	3.6%	4.5%
2	High Grade Office Paper	0.5%	0.4%	0.3%	0.6%
3	Mixed Recyclable Paper	5.5%	2.0%	4.8%	6.1%
4	Newsprint	0.8%	1.0%	0.5%	1.1%
5	Magazines/Catalogs	0.8%	1.0%	0.5%	1.1%
6	OCC and Kraft Paper	4.8%	3.9%	3.6%	6.0%
7	Aseptic/Gable Top Containers	0.5%	0.3%	0.4%	0.6%
8	Polycoated Paper	2.1%	0.8%	1.8%	2.3%
9	Other Non-Recyclable Paper	2.1%	1.3%	1.7%	2.5%
Total Paper		21.0%	5.8%	19.2%	22.8%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.3%	0.2%	0.2%	0.4%
11	#1 PET Beverage Containers	1.0%	0.4%	0.9%	1.1%
12	#1 PET Other Non-Beverage Containers	0.7%	0.4%	0.6%	0.8%
13	#2 HDPE Natural Containers	0.5%	0.4%	0.4%	0.6%
14	#2 HDPE Colored Containers	0.8%	0.7%	0.6%	1.0%
15	#3 PVC	<0.1%	0.0%	<0.1%	<0.1%
16	#4 LDPE	<0.1%	0.1%	<0.1%	<0.1%
17	#5 PP	1.5%	0.5%	1.3%	1.7%
18	#6 PS	0.4%	0.3%	0.3%	0.5%
19	#7 Other/Unknown Plastic	0.2%	0.2%	0.1%	0.2%
20	Expanded Polystyrene	0.5%	0.3%	0.4%	0.6%
21	Retail Shopping Bags	0.6%	0.3%	0.6%	0.7%
22	Other Plastic Film	5.6%	2.4%	4.8%	6.3%
23	Other Plastic Products	2.6%	4.2%	1.3%	3.9%
Total Plastic		14.7%	5.3%	13.1%	16.4%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.5%	0.3%	0.4%	0.6%
25	Aluminum Beverage Containers	<0.1%	0.0%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.7%	0.5%	0.5%	0.9%
27	Aluminum Foil and Foil Containers	0.2%	0.2%	0.1%	0.3%
28	Other Aluminum Containers	0.3%	0.3%	0.2%	0.3%
29	Other Ferrous Scrap Metals	1.4%	1.3%	1.0%	1.8%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.1%	<0.1%	<0.1%
Total Metal		3.1%	1.3%	2.7%	3.5%
Glass					
31	Glass IA Deposit Containers	0.8%	1.3%	0.4%	1.2%
32	Clear Glass Containers	0.8%	0.7%	0.6%	1.0%
33	Green Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.0%	<0.1%	<0.1%
35	Other Mixed Glass	0.6%	0.7%	0.3%	0.8%
Total Glass		2.3%	2.0%	1.7%	2.9%
C&D					
36	Wood - Untreated	1.6%	2.6%	0.7%	2.4%
37	Wood - Treated	1.1%	1.7%	0.5%	1.6%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	<0.1%	0.0%	<0.1%	<0.1%
39	Insulation	<0.1%	0.4%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	0.9%	3.4%	<0.1%	2.0%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	1.0%	2.2%	0.3%	1.7%
43	Concrete	<0.1%	0.0%	<0.1%	<0.1%
44	Asphalt Roofing	0.3%	0.9%	<0.1%	0.6%
45	Drywall Gypsum Board	<0.1%	0.4%	<0.1%	<0.1%
46	Carpet and Carpet Padding	0.6%	3.0%	<0.1%	1.5%
47	Mattresses	0.2%	1.0%	<0.1%	0.5%
48	Furniture	1.6%	3.5%	0.6%	2.7%
Total C&D		7.5%	6.2%	5.5%	9.4%

Material Components	Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
			Lower ²	Upper ²
Organics				
49 Yard Waste	4.6%	8.0%	2.1%	7.1%
50 Food Waste - Loose	13.6%	7.1%	11.4%	15.9%
51 Food Waste - Packaged	4.3%	2.0%	3.6%	4.9%
Total Organics	22.5%	9.4%	19.6%	25.4%
Consumer Products				
52 Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53 Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54 Television Peripherals	<0.1%	0.2%	<0.1%	<0.1%
55 Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56 Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57 Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58 Computer Peripherals	<0.1%	0.2%	<0.1%	<0.1%
59 Computer Printers	0.2%	0.8%	<0.1%	0.4%
60 Audio Equipment	<0.1%	0.0%	<0.1%	<0.1%
61 Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62 Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63 Other Plug-in Electronics	0.8%	1.7%	0.3%	1.3%
64 Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65 Other Electrical and Household Appliances	1.1%	2.4%	0.3%	1.8%
66 Textiles and Leather	5.0%	3.2%	4.0%	6.0%
67 Rubber	1.3%	1.9%	0.7%	1.9%
Total Consumer Products	8.5%	5.0%	6.9%	10.0%
Household Hazardous Materials				
68 Automotive Products	0.4%	1.8%	<0.1%	0.9%
69 Household Cleaners	<0.1%	0.2%	<0.1%	<0.1%
70 Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71 Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72 Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73 Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74 Paints and Solvents	<0.1%	0.0%	<0.1%	<0.1%
75 Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.1%	<0.1%	<0.1%
76 Sharps	<0.1%	0.0%	<0.1%	<0.1%
77 Prescription Medications	0.1%	0.7%	<0.1%	0.4%
Total Household Hazardous Materials	0.7%	2.6%	<0.1%	1.5%
Other				
78 Diapers	5.6%	4.5%	4.2%	7.0%
79 Other Organics	2.0%	3.0%	1.1%	3.0%
80 Other Inorganics	4.4%	5.9%	2.6%	6.2%
81 Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82 Other C&D	0.6%	2.0%	<0.1%	1.3%
83 Other HHMs	<0.1%	0.1%	<0.1%	<0.1%
84 Fines	6.9%	2.4%	6.2%	7.7%
Total Other	19.6%	8.8%	16.9%	22.4%
Total of Residential Waste	100.0%			

Notes for Cherokee County

1 Based on 28 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Cherokee County
Institutional, Commercial, and Industrial (CI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	4.7%	3.9%	3.3%	6.0%
2	High Grade Office Paper	0.9%	1.5%	0.4%	1.4%
3	Mixed Recyclable Paper	3.6%	3.0%	2.5%	4.6%
4	Newsprint	0.5%	1.0%	0.2%	0.9%
5	Magazines/Catalogs	0.6%	1.1%	0.2%	0.9%
6	OCC and Kraft Paper	7.0%	8.9%	3.9%	10.1%
7	Aseptic/Gable Top Containers	0.4%	0.5%	0.2%	0.6%
8	Polycoated Paper	1.1%	2.6%	0.2%	2.0%
9	Other Non-Recyclable Paper	1.3%	1.3%	0.8%	1.8%
Total Paper		20.1%	12.2%	15.8%	24.3%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.3%	0.3%	0.2%	0.4%
11	#1 PET Beverage Containers	0.7%	0.7%	0.4%	0.9%
12	#1 PET Other Non-Beverage Containers	0.4%	0.5%	0.2%	0.6%
13	#2 HDPE Natural Containers	0.3%	0.4%	0.2%	0.4%
14	#2 HDPE Colored Containers	0.9%	1.8%	0.3%	1.5%
15	#3 PVC	<0.1%	0.2%	<0.1%	<0.1%
16	#4 LDPE	<0.1%	0.1%	<0.1%	<0.1%
17	#5 PP	0.8%	0.6%	0.6%	1.0%
18	#6 PS	0.4%	0.3%	0.2%	0.5%
19	#7 Other/Unknown Plastic	<0.1%	0.2%	<0.1%	<0.1%
20	Expanded Polystyrene	0.5%	0.5%	0.3%	0.6%
21	Retail Shopping Bags	0.2%	0.2%	0.1%	0.3%
22	Other Plastic Film	6.0%	4.7%	4.4%	7.7%
23	Other Plastic Products	3.9%	5.4%	2.0%	5.7%
Total Plastic		14.4%	6.8%	12.0%	16.7%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.3%	0.3%	0.2%	0.4%
25	Aluminum Beverage Containers	<0.1%	0.0%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.9%	1.5%	0.4%	1.5%
27	Aluminum Foil and Foil Containers	0.1%	0.2%	<0.1%	0.2%
28	Other Aluminum Containers	0.1%	0.2%	<0.1%	0.2%
29	Other Ferrous Scrap Metals	0.8%	0.9%	0.4%	1.1%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.1%	<0.1%	<0.1%
Total Metal		2.3%	2.2%	1.5%	3.1%
Glass					
31	Glass IA Deposit Containers	0.6%	1.5%	<0.1%	1.1%
32	Clear Glass Containers	0.5%	1.1%	<0.1%	0.8%
33	Green Glass Containers	<0.1%	0.0%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	0.4%	1.1%	<0.1%	0.7%
Total Glass		1.5%	2.6%	0.6%	2.4%
C&D					
36	Wood - Untreated	4.5%	8.2%	1.6%	7.4%
37	Wood - Treated	14.6%	26.5%	5.3%	23.9%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	<0.1%	0.0%	<0.1%	<0.1%
39	Insulation	<0.1%	0.1%	<0.1%	<0.1%
40	Asphalt Paving	0.2%	0.8%	<0.1%	0.4%
41	Soil, Rock, Sand	0.9%	3.3%	<0.1%	2.0%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.3%	0.6%	<0.1%	0.5%
43	Concrete	<0.1%	0.0%	<0.1%	<0.1%
44	Asphalt Roofing	<0.1%	0.2%	<0.1%	<0.1%
45	Drywall Gypsum Board	0.1%	0.4%	<0.1%	0.2%
46	Carpet and Carpet Padding	<0.1%	0.0%	<0.1%	<0.1%
47	Mattresses	<0.1%	0.0%	<0.1%	<0.1%
48	Furniture	1.5%	3.1%	0.4%	2.6%
Total C&D		22.1%	25.1%	13.3%	30.9%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	1.0%	2.1%	0.3%	1.7%
50	Food Waste - Loose	12.1%	14.6%	7.0%	17.3%
51	Food Waste - Packaged	5.2%	7.6%	2.5%	7.8%
Total Organics		18.3%	17.9%	12.0%	24.6%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	0.3%	1.3%	<0.1%	0.8%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	0.3%	0.9%	<0.1%	0.6%
58	Computer Peripherals	<0.1%	0.1%	<0.1%	<0.1%
59	Computer Printers	0.5%	2.2%	<0.1%	1.2%
60	Audio Equipment	<0.1%	0.0%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.1%	0.5%	<0.1%	0.3%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.7%	2.1%	<0.1%	1.5%
66	Textiles and Leather	1.9%	3.4%	0.8%	3.1%
67	Rubber	0.9%	1.4%	0.4%	1.3%
Total Consumer Products		4.8%	5.7%	2.7%	6.8%
Household Hazardous Materials					
68	Automotive Products	0.8%	2.9%	<0.1%	1.8%
69	Household Cleaners	<0.1%	0.2%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.0%	<0.1%	<0.1%
74	Paints and Solvents	0.3%	0.8%	<0.1%	0.6%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		1.2%	3.1%	0.1%	2.3%
Other					
78	Diapers	2.1%	3.3%	0.9%	3.2%
79	Other Organics	0.8%	2.2%	<0.1%	1.6%
80	Other Inorganics	1.1%	1.6%	0.6%	1.7%
81	Other Consumer Products	<0.1%	0.3%	<0.1%	<0.1%
82	Other C&D	7.0%	17.6%	0.9%	13.2%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	4.4%	3.5%	3.1%	5.6%
Total Other		15.5%	15.6%	10.0%	20.9%
Total of CI Waste		100.0%			

Notes for Cherokee County

1 Based on 22 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Landfill of North Iowa
Residential and Institutional, Commercial, and Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	3.1%	2.6%	2.5%	3.7%
2	High Grade Office Paper	0.9%	4.0%	<0.1%	1.9%
3	Mixed Recyclable Paper	8.6%	14.4%	5.2%	11.9%
4	Newsprint	0.5%	0.5%	0.4%	0.7%
5	Magazines/Catalogs	0.3%	0.6%	0.2%	0.4%
6	OCC and Kraft Paper	2.7%	3.1%	2.0%	3.4%
7	Aseptic/Gable Top Containers	0.4%	0.4%	0.3%	0.5%
8	Polycoated Paper	1.5%	1.6%	1.1%	1.9%
9	Other Non-Recyclable Paper	2.1%	3.5%	1.2%	2.9%
Total Paper		20.0%	15.0%	16.5%	23.5%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.3%	0.3%	0.2%	0.4%
11	#1 PET Beverage Containers	0.8%	0.6%	0.7%	1.0%
12	#1 PET Other Non-Beverage Containers	0.4%	0.4%	0.3%	0.5%
13	#2 HDPE Natural Containers	0.3%	0.3%	0.3%	0.4%
14	#2 HDPE Colored Containers	0.5%	0.5%	0.4%	0.6%
15	#3 PVC	<0.1%	0.1%	<0.1%	<0.1%
16	#4 LDPE	<0.1%	0.2%	<0.1%	<0.1%
17	#5 PP	1.2%	0.8%	1.0%	1.4%
18	#6 PS	0.3%	0.3%	0.3%	0.4%
19	#7 Other/Unknown Plastic	0.2%	0.3%	0.1%	0.3%
20	Expanded Polystyrene	0.6%	1.9%	0.2%	1.1%
21	Retail Shopping Bags	0.6%	0.7%	0.5%	0.8%
22	Other Plastic Film	7.9%	9.2%	5.8%	10.1%
23	Other Plastic Products	4.1%	7.4%	2.4%	5.9%
Total Plastic		17.5%	12.7%	14.5%	20.4%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.6%	0.8%	0.5%	0.8%
25	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.5%	0.5%	0.3%	0.6%
27	Aluminum Foil and Foil Containers	0.2%	0.2%	0.1%	0.2%
28	Other Aluminum Containers	0.2%	0.5%	<0.1%	0.3%
29	Other Ferrous Scrap Metals	2.8%	5.2%	1.6%	4.0%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.0%	<0.1%	<0.1%
Total Metal		4.2%	5.2%	3.0%	5.4%
Glass					
31	Glass IA Deposit Containers	0.6%	1.0%	0.4%	0.9%
32	Clear Glass Containers	0.4%	0.5%	0.3%	0.5%
33	Green Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.0%	<0.1%	<0.1%
35	Other Mixed Glass	0.3%	0.5%	0.2%	0.4%
Total Glass		1.3%	1.5%	0.9%	1.6%
C&D					
36	Wood - Untreated	3.4%	12.1%	0.6%	6.2%
37	Wood - Treated	3.6%	10.5%	1.1%	6.0%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	1.0%	6.5%	<0.1%	2.5%
39	Insulation	0.3%	1.6%	<0.1%	0.7%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	3.6%	13.7%	0.4%	6.7%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.2%	0.5%	<0.1%	0.3%
43	Concrete	0.1%	0.7%	<0.1%	0.3%
44	Asphalt Roofing	<0.1%	0.5%	<0.1%	<0.1%
45	Drywall Gypsum Board	<0.1%	0.1%	<0.1%	<0.1%
46	Carpet and Carpet Padding	1.2%	6.2%	<0.1%	2.7%
47	Mattresses	0.1%	0.7%	<0.1%	0.3%
48	Furniture	1.4%	3.8%	0.5%	2.3%
Total C&D		14.9%	24.3%	9.3%	20.6%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	1.9%	4.3%	0.9%	2.9%
50	Food Waste - Loose	15.1%	16.6%	11.2%	18.9%
51	Food Waste - Packaged	4.5%	7.6%	2.7%	6.3%
Total Organics		21.5%	18.6%	17.2%	25.8%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.2%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	0.2%	1.1%	<0.1%	0.4%
59	Computer Printers	0.1%	0.7%	<0.1%	0.3%
60	Audio Equipment	<0.1%	0.1%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.3%	1.1%	<0.1%	0.6%
64	Other "Smart" Devices - with chip	<0.1%	0.2%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.9%	3.8%	<0.1%	1.8%
66	Textiles and Leather	4.6%	7.0%	2.9%	6.2%
67	Rubber	0.7%	1.2%	0.4%	1.0%
Total Consumer Products		6.9%	8.6%	4.9%	8.9%
Household Hazardous Materials					
68	Automotive Products	<0.1%	0.2%	<0.1%	<0.1%
69	Household Cleaners	<0.1%	0.0%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.5%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.2%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.2%	0.6%	<0.1%	0.4%
Other					
78	Diapers	2.9%	3.4%	2.1%	3.7%
79	Other Organics	2.5%	9.3%	0.3%	4.6%
80	Other Inorganics	3.6%	5.0%	2.4%	4.7%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	0.5%	2.4%	<0.1%	1.1%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	4.0%	2.9%	3.3%	4.7%
Total Other		13.4%	12.0%	10.6%	16.2%
Total of Residential and CI Waste		100.0%			

Notes for Landfill of North Iowa

1 Based on 50 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Landfill of North Iowa
Residential Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	3.9%	2.1%	3.2%	4.7%
2	High Grade Office Paper	1.8%	6.2%	<0.1%	4.1%
3	Mixed Recyclable Paper	5.6%	2.2%	4.8%	6.4%
4	Newsprint	0.8%	0.6%	0.6%	1.0%
5	Magazines/Catalogs	0.4%	0.6%	0.1%	0.6%
6	OCC and Kraft Paper	2.5%	3.0%	1.4%	3.6%
7	Aseptic/Gable Top Containers	0.5%	0.3%	0.4%	0.6%
8	Polycoated Paper	2.2%	1.3%	1.7%	2.6%
9	Other Non-Recyclable Paper	1.7%	1.1%	1.3%	2.1%
Total Paper		19.4%	9.4%	15.9%	22.8%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.4%	0.2%	0.4%	0.5%
11	#1 PET Beverage Containers	1.1%	0.5%	0.9%	1.3%
12	#1 PET Other Non-Beverage Containers	0.6%	0.3%	0.5%	0.8%
13	#2 HDPE Natural Containers	0.4%	0.2%	0.3%	0.5%
14	#2 HDPE Colored Containers	0.6%	0.6%	0.4%	0.8%
15	#3 PVC	<0.1%	0.2%	<0.1%	<0.1%
16	#4 LDPE	0.1%	0.3%	<0.1%	0.2%
17	#5 PP	1.7%	0.7%	1.4%	1.9%
18	#6 PS	0.4%	0.2%	0.3%	0.5%
19	#7 Other/Unknown Plastic	0.3%	0.3%	0.2%	0.4%
20	Expanded Polystyrene	0.5%	0.3%	0.4%	0.6%
21	Retail Shopping Bags	1.1%	0.7%	0.9%	1.4%
22	Other Plastic Film	5.6%	2.3%	4.7%	6.4%
23	Other Plastic Products	2.2%	2.4%	1.3%	3.0%
Total Plastic		15.1%	4.0%	13.6%	16.5%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.9%	0.9%	0.5%	1.2%
25	Aluminum Beverage Containers	<0.1%	0.0%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.7%	0.5%	0.5%	0.9%
27	Aluminum Foil and Foil Containers	0.3%	0.2%	0.2%	0.3%
28	Other Aluminum Containers	0.3%	0.7%	<0.1%	0.6%
29	Other Ferrous Scrap Metals	1.6%	3.1%	0.5%	2.7%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.0%	<0.1%	<0.1%
Total Metal		3.8%	3.4%	2.5%	5.1%
Glass					
31	Glass IA Deposit Containers	1.1%	1.3%	0.7%	1.6%
32	Clear Glass Containers	0.7%	0.5%	0.5%	0.9%
33	Green Glass Containers	<0.1%	0.0%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	0.5%	0.6%	0.2%	0.7%
Total Glass		2.3%	1.6%	1.7%	2.9%
C&D					
36	Wood - Untreated	0.7%	1.4%	0.2%	1.2%
37	Wood - Treated	6.2%	15.3%	0.6%	11.8%
38	Plastic Lumber	<0.1%	0.1%	<0.1%	<0.1%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
39	Insulation	<0.1%	0.4%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	3.5%	14.4%	<0.1%	8.8%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.2%	0.6%	<0.1%	0.5%
43	Concrete	<0.1%	0.1%	<0.1%	<0.1%
44	Asphalt Roofing	<0.1%	0.0%	<0.1%	<0.1%
45	Drywall Gypsum Board	<0.1%	0.2%	<0.1%	<0.1%
46	Carpet and Carpet Padding	2.2%	9.5%	<0.1%	5.7%
47	Mattresses	0.2%	1.0%	<0.1%	0.6%
48	Furniture	0.6%	1.8%	<0.1%	1.2%
Total C&D		13.7%	23.5%	5.1%	22.4%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	2.4%	5.3%	0.5%	4.4%
50	Food Waste - Loose	15.2%	7.2%	12.6%	17.9%
51	Food Waste - Packaged	4.3%	3.0%	3.2%	5.4%
Total Organics		22.0%	10.2%	18.2%	25.7%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.2%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	0.4%	1.8%	<0.1%	1.1%
59	Computer Printers	0.3%	1.1%	<0.1%	0.7%
60	Audio Equipment	<0.1%	0.1%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.7%	1.6%	0.1%	1.3%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.6%	1.8%	<0.1%	1.2%
66	Textiles and Leather	3.7%	3.3%	2.6%	4.9%
67	Rubber	0.6%	1.0%	0.3%	1.0%
Total Consumer Products		6.5%	5.3%	4.5%	8.5%
Household Hazardous Materials					
68	Automotive Products	<0.1%	0.1%	<0.1%	<0.1%
69	Household Cleaners	<0.1%	0.0%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.1%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.1%	0.1%	<0.1%	0.2%
Other					
78	Diapers	4.9%	3.7%	3.6%	6.3%
79	Other Organics	1.6%	2.3%	0.8%	2.5%
80	Other Inorganics	4.5%	4.8%	2.8%	6.3%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	0.1%	0.6%	<0.1%	0.4%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	5.9%	2.8%	4.9%	6.9%
Total Other		17.1%	9.0%	13.8%	20.4%
Total of Residential Waste		100.0%			

**Iowa Statewide Waste Sort
Landfill of North Iowa
Institutional, Commercial, and Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	2.5%	2.8%	1.7%	3.4%
2	High Grade Office Paper	0.3%	0.6%	0.2%	0.5%
3	Mixed Recyclable Paper	10.6%	18.4%	5.1%	16.1%
4	Newsprint	0.3%	0.4%	0.2%	0.5%
5	Magazines/Catalogs	0.2%	0.5%	<0.1%	0.4%
6	OCC and Kraft Paper	2.8%	3.2%	1.9%	3.8%
7	Aseptic/Gable Top Containers	0.3%	0.4%	0.2%	0.4%
8	Polycoated Paper	1.0%	1.6%	0.6%	1.5%
9	Other Non-Recyclable Paper	2.3%	4.4%	1.0%	3.6%
Total Paper		20.5%	17.9%	15.1%	25.9%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.2%	0.3%	0.1%	0.3%
11	#1 PET Beverage Containers	0.6%	0.6%	0.4%	0.8%
12	#1 PET Other Non-Beverage Containers	0.3%	0.4%	0.1%	0.4%
13	#2 HDPE Natural Containers	0.3%	0.4%	0.2%	0.4%
14	#2 HDPE Colored Containers	0.4%	0.4%	0.3%	0.5%
15	#3 PVC	<0.1%	0.0%	<0.1%	<0.1%
16	#4 LDPE	<0.1%	0.1%	<0.1%	<0.1%
17	#5 PP	0.9%	0.7%	0.7%	1.1%
18	#6 PS	0.3%	0.3%	0.2%	0.4%
19	#7 Other/Unknown Plastic	0.1%	0.2%	<0.1%	0.2%
20	Expanded Polystyrene	0.7%	2.4%	<0.1%	1.4%
21	Retail Shopping Bags	0.3%	0.3%	0.2%	0.4%
22	Other Plastic Film	9.5%	11.6%	6.0%	13.0%
23	Other Plastic Products	5.5%	9.2%	2.7%	8.2%
Total Plastic		19.1%	16.0%	14.3%	23.9%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.5%	0.6%	0.3%	0.7%
25	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.3%	0.5%	0.1%	0.5%
27	Aluminum Foil and Foil Containers	0.1%	0.2%	<0.1%	0.2%
28	Other Aluminum Containers	<0.1%	0.1%	<0.1%	<0.1%
29	Other Ferrous Scrap Metals	3.6%	6.1%	1.7%	5.4%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.0%	<0.1%	<0.1%
Total Metal		4.5%	6.1%	2.7%	6.4%
Glass					
31	Glass IA Deposit Containers	0.3%	0.5%	0.1%	0.4%
32	Clear Glass Containers	0.2%	0.2%	<0.1%	0.2%
33	Green Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.0%	<0.1%	<0.1%
35	Other Mixed Glass	0.2%	0.4%	<0.1%	0.3%
Total Glass		0.6%	0.8%	0.4%	0.8%
C&D					
36	Wood - Untreated	5.2%	15.4%	0.6%	9.8%
37	Wood - Treated	1.8%	4.8%	0.4%	3.3%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	1.6%	8.3%	<0.1%	4.1%
39	Insulation	0.4%	2.0%	<0.1%	1.0%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	3.6%	13.5%	<0.1%	7.6%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.1%	0.4%	<0.1%	0.2%
43	Concrete	0.2%	0.9%	<0.1%	0.4%
44	Asphalt Roofing	0.1%	0.6%	<0.1%	0.3%
45	Drywall Gypsum Board	<0.1%	0.1%	<0.1%	<0.1%
46	Carpet and Carpet Padding	0.6%	2.0%	<0.1%	1.2%
47	Mattresses	<0.1%	0.4%	<0.1%	<0.1%
48	Furniture	2.0%	4.7%	0.6%	3.4%
Total C&D		15.8%	25.1%	8.2%	23.3%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	1.6%	3.6%	0.5%	2.7%
50	Food Waste - Loose	14.9%	20.8%	8.7%	21.2%
51	Food Waste - Packaged	4.6%	9.6%	1.7%	7.5%
Total Organics		21.2%	22.7%	14.3%	28.0%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.1%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.0%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.1%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.0%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	<0.1%	0.2%	<0.1%	<0.1%
64	Other "Smart" Devices - with chip	<0.1%	0.3%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	1.1%	4.7%	<0.1%	2.5%
66	Textiles and Leather	5.1%	8.7%	2.5%	7.7%
67	Rubber	0.8%	1.3%	0.4%	1.2%
Total Consumer Products		7.2%	10.2%	4.1%	10.2%
Household Hazardous Materials					
68	Automotive Products	<0.1%	0.3%	<0.1%	<0.1%
69	Household Cleaners	<0.1%	0.0%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	0.1%	0.7%	<0.1%	0.3%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.0%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.3%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.3%	0.7%	<0.1%	0.5%
Other					
78	Diapers	1.5%	2.4%	0.8%	2.2%
79	Other Organics	3.1%	11.9%	<0.1%	6.6%
80	Other Inorganics	2.9%	5.1%	1.4%	4.4%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	0.7%	3.1%	<0.1%	1.7%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	2.7%	2.3%	2.0%	3.4%
Total Other		10.9%	13.3%	7.0%	14.9%
Total of CI Waste		100.0%			

**Iowa Statewide Waste Sort
Cedar Rapids Linn County
Residential and Institutional, Commercial, and Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	3.8%	3.8%	2.9%	4.7%
2	High Grade Office Paper	0.2%	0.4%	0.1%	0.3%
3	Mixed Recyclable Paper	4.0%	4.4%	2.9%	5.0%
4	Newsprint	0.2%	0.3%	0.1%	0.3%
5	Magazines/Catalogs	0.2%	0.5%	<0.1%	0.3%
6	OCC and Kraft Paper	6.5%	14.9%	3.0%	10.0%
7	Aseptic/Gable Top Containers	0.2%	0.3%	0.1%	0.3%
8	Polycoated Paper	1.5%	4.4%	0.5%	2.5%
9	Other Non-Recyclable Paper	1.1%	1.4%	0.8%	1.5%
Total Paper		17.7%	17.6%	13.6%	21.8%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.1%	0.2%	<0.1%	0.2%
11	#1 PET Beverage Containers	0.5%	0.6%	0.3%	0.6%
12	#1 PET Other Non-Beverage Containers	0.3%	0.4%	0.2%	0.4%
13	#2 HDPE Natural Containers	0.2%	0.3%	0.2%	0.3%
14	#2 HDPE Colored Containers	0.4%	0.6%	0.3%	0.6%
15	#3 PVC	<0.1%	0.1%	<0.1%	<0.1%
16	#4 LDPE	0.2%	0.5%	<0.1%	0.3%
17	#5 PP	1.2%	1.4%	0.8%	1.5%
18	#6 PS	0.3%	0.5%	0.2%	0.5%
19	#7 Other/Unknown Plastic	<0.1%	0.2%	<0.1%	<0.1%
20	Expanded Polystyrene	0.4%	0.7%	0.3%	0.6%
21	Retail Shopping Bags	0.5%	0.6%	0.4%	0.6%
22	Other Plastic Film	4.2%	3.9%	3.3%	5.2%
23	Other Plastic Products	2.7%	4.8%	1.6%	3.8%
Total Plastic		11.2%	8.0%	9.4%	13.1%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.2%	0.3%	0.2%	0.3%
25	Aluminum Beverage Containers	<0.1%	0.0%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.5%	1.4%	0.2%	0.8%
27	Aluminum Foil and Foil Containers	0.2%	0.3%	0.1%	0.3%
28	Other Aluminum Containers	0.1%	0.2%	<0.1%	0.1%
29	Other Ferrous Scrap Metals	3.4%	8.5%	1.4%	5.4%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.1%	<0.1%	<0.1%
Total Metal		4.5%	8.5%	2.5%	6.4%
Glass					
31	Glass IA Deposit Containers	0.6%	1.2%	0.3%	0.9%
32	Clear Glass Containers	0.4%	0.7%	0.3%	0.6%
33	Green Glass Containers	<0.1%	0.3%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
35	Other Mixed Glass	0.2%	0.6%	<0.1%	0.4%
Total Glass		1.4%	2.0%	0.9%	1.9%
C&D					
36	Wood - Untreated	8.4%	17.8%	4.2%	12.5%
37	Wood - Treated	1.9%	4.9%	0.8%	3.0%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	0.7%	1.9%	0.3%	1.2%
39	Insulation	<0.1%	0.0%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	2.0%	6.7%	0.4%	3.5%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.3%	1.8%	<0.1%	0.7%
43	Concrete	1.5%	8.0%	<0.1%	3.4%
44	Asphalt Roofing	<0.1%	0.3%	<0.1%	<0.1%
45	Drywall Gypsum Board	0.3%	2.1%	<0.1%	0.8%
46	Carpet and Carpet Padding	3.2%	9.9%	0.9%	5.5%
47	Mattresses	<0.1%	0.0%	<0.1%	<0.1%
48	Furniture	2.1%	8.7%	0.1%	4.2%
Total C&D		20.6%	26.3%	14.5%	26.7%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	2.3%	10.1%	<0.1%	4.7%
50	Food Waste - Loose	10.8%	11.0%	8.2%	13.3%
51	Food Waste - Packaged	9.1%	18.1%	4.8%	13.3%
Total Organics		22.1%	24.7%	16.4%	27.9%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.1%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.1%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.0%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.3%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.1%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.2%	0.5%	<0.1%	0.3%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	1.1%	3.6%	0.2%	1.9%
66	Textiles and Leather	6.5%	15.9%	2.8%	10.2%
67	Rubber	4.3%	10.9%	1.7%	6.8%
Total Consumer Products		12.1%	21.2%	7.2%	17.1%
Household Hazardous Materials					
68	Automotive Products	<0.1%	0.3%	<0.1%	<0.1%
69	Household Cleaners	<0.1%	0.1%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.3%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.2%	0.5%	0.1%	0.3%
Other					
78	Diapers	2.2%	3.9%	1.3%	3.1%
79	Other Organics	1.8%	7.3%	<0.1%	3.5%
80	Other Inorganics	2.5%	3.5%	1.7%	3.3%
81	Other Consumer Products	<0.1%	0.4%	<0.1%	<0.1%
82	Other C&D	0.7%	2.6%	<0.1%	1.3%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	2.9%	3.2%	2.1%	3.6%
Total Other		10.1%	11.7%	7.4%	12.8%
Total of Residential and CI Waste		100.0%			

Notes for Cedar Rapids Linn County

1 Based on 50 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Cedar Rapids Linn County
Residential Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	6.8%	2.0%	5.9%	7.6%
2	High Grade Office Paper	0.1%	0.2%	<0.1%	0.2%
3	Mixed Recyclable Paper	4.6%	2.4%	3.6%	5.7%
4	Newsprint	0.5%	0.4%	0.3%	0.6%
5	Magazines/Catalogs	0.3%	0.4%	0.2%	0.5%
6	OCC and Kraft Paper	1.3%	1.5%	0.6%	1.9%
7	Aseptic/Gable Top Containers	0.4%	0.3%	0.2%	0.5%
8	Polycoated Paper	2.0%	0.9%	1.6%	2.4%
9	Other Non-Recyclable Paper	1.6%	0.5%	1.4%	1.8%
Total Paper		17.6%	5.1%	15.3%	19.8%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.1%	0.1%	<0.1%	0.2%
11	#1 PET Beverage Containers	0.4%	0.2%	0.3%	0.5%
12	#1 PET Other Non-Beverage Containers	0.7%	0.4%	0.5%	0.8%
13	#2 HDPE Natural Containers	0.3%	0.3%	0.2%	0.4%
14	#2 HDPE Colored Containers	0.5%	0.5%	0.3%	0.7%
15	#3 PVC	<0.1%	0.2%	<0.1%	<0.1%
16	#4 LDPE	0.3%	0.4%	<0.1%	0.4%
17	#5 PP	2.0%	1.9%	1.2%	2.9%
18	#6 PS	0.4%	0.1%	0.3%	0.4%
19	#7 Other/Unknown Plastic	0.2%	0.2%	0.1%	0.3%
20	Expanded Polystyrene	0.6%	0.3%	0.5%	0.7%
21	Retail Shopping Bags	1.1%	0.4%	0.9%	1.3%
22	Other Plastic Film	5.4%	2.1%	4.5%	6.3%
23	Other Plastic Products	1.9%	1.1%	1.4%	2.4%
Total Plastic		13.9%	4.6%	11.8%	15.9%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.3%	0.3%	0.2%	0.4%
25	Aluminum Beverage Containers	<0.1%	0.0%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.6%	0.3%	0.5%	0.7%
27	Aluminum Foil and Foil Containers	0.5%	0.3%	0.4%	0.6%
28	Other Aluminum Containers	0.2%	0.2%	0.1%	0.3%
29	Other Ferrous Scrap Metals	1.0%	0.6%	0.7%	1.2%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.1%	<0.1%	<0.1%
Total Metal		2.7%	1.0%	2.3%	3.1%
Glass					
31	Glass IA Deposit Containers	1.8%	1.7%	1.0%	2.5%
32	Clear Glass Containers	1.3%	0.9%	1.0%	1.7%
33	Green Glass Containers	0.2%	0.6%	<0.1%	0.5%
34	Brown/Other Colored Glass Containers	0.1%	0.3%	<0.1%	0.2%
35	Other Mixed Glass	0.4%	0.6%	0.1%	0.7%
Total Glass		3.8%	2.3%	2.8%	4.8%
C&D					
36	Wood - Untreated	0.7%	1.5%	<0.1%	1.4%
37	Wood - Treated	0.5%	0.7%	0.2%	0.8%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	1.0%	2.0%	0.1%	1.9%
39	Insulation	<0.1%	0.0%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	0.8%	2.0%	<0.1%	1.7%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	<0.1%	0.2%	<0.1%	<0.1%
43	Concrete	<0.1%	0.1%	<0.1%	<0.1%
44	Asphalt Roofing	0.1%	0.4%	<0.1%	0.3%
45	Drywall Gypsum Board	<0.1%	0.0%	<0.1%	<0.1%
46	Carpet and Carpet Padding	0.5%	1.4%	<0.1%	1.1%
47	Mattresses	<0.1%	0.0%	<0.1%	<0.1%
48	Furniture	<0.1%	0.1%	<0.1%	<0.1%
Total C&D		3.9%	3.6%	2.3%	5.4%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	4.4%	13.4%	<0.1%	10.3%
50	Food Waste - Loose	16.5%	4.0%	14.8%	18.3%
51	Food Waste - Packaged	6.9%	3.3%	5.4%	8.3%
Total Organics		27.8%	10.6%	23.1%	32.4%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.1%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.0%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.0%	<0.1%	<0.1%
60	Audio Equipment	0.1%	0.5%	<0.1%	0.3%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.1%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.4%	0.7%	<0.1%	0.7%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	<0.1%	0.2%	<0.1%	<0.1%
66	Textiles and Leather	3.3%	2.3%	2.3%	4.3%
67	Rubber	3.4%	7.2%	0.2%	6.6%
Total Consumer Products		7.4%	7.3%	4.2%	10.6%
Household Hazardous Materials					
68	Automotive Products	<0.1%	0.1%	<0.1%	<0.1%
69	Household Cleaners	<0.1%	0.1%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	0.1%	0.4%	<0.1%	0.3%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.1%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.3%	0.4%	0.2%	0.5%
Other					
78	Diapers	6.8%	5.0%	4.6%	9.0%
79	Other Organics	2.0%	1.2%	1.5%	2.5%
80	Other Inorganics	6.7%	3.9%	5.0%	8.4%
81	Other Consumer Products	0.2%	0.8%	<0.1%	0.6%
82	Other C&D	<0.1%	0.0%	<0.1%	<0.1%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	6.8%	2.4%	5.7%	7.9%
Total Other		22.6%	5.8%	20.1%	25.2%
Total of Residential Waste		100.0%			

**Iowa Statewide Waste Sort
Cedar Rapids Linn County
Institutional, Commercial, and Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	2.6%	3.7%	1.6%	3.6%
2	High Grade Office Paper	0.2%	0.5%	0.1%	0.4%
3	Mixed Recyclable Paper	3.7%	5.0%	2.3%	5.1%
4	Newsprint	0.1%	0.3%	<0.1%	0.2%
5	Magazines/Catalogs	0.2%	0.6%	<0.1%	0.3%
6	OCC and Kraft Paper	8.5%	17.2%	3.8%	13.2%
7	Aseptic/Gable Top Containers	0.2%	0.4%	<0.1%	0.3%
8	Polycoated Paper	1.3%	5.1%	<0.1%	2.7%
9	Other Non-Recyclable Paper	0.9%	1.6%	0.5%	1.4%
Total Paper		17.8%	20.6%	12.2%	23.5%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.1%	0.3%	<0.1%	0.2%
11	#1 PET Beverage Containers	0.5%	0.7%	0.3%	0.7%
12	#1 PET Other Non-Beverage Containers	0.2%	0.3%	0.1%	0.3%
13	#2 HDPE Natural Containers	0.2%	0.3%	0.1%	0.3%
14	#2 HDPE Colored Containers	0.4%	0.7%	0.2%	0.6%
15	#3 PVC	<0.1%	0.0%	<0.1%	<0.1%
16	#4 LDPE	0.1%	0.5%	<0.1%	0.3%
17	#5 PP	0.9%	1.1%	0.5%	1.2%
18	#6 PS	0.3%	0.6%	0.2%	0.5%
19	#7 Other/Unknown Plastic	<0.1%	0.1%	<0.1%	<0.1%
20	Expanded Polystyrene	0.3%	0.8%	0.1%	0.6%
21	Retail Shopping Bags	0.3%	0.4%	0.1%	0.4%
22	Other Plastic Film	3.8%	4.3%	2.6%	5.0%
23	Other Plastic Products	3.0%	5.7%	1.5%	4.6%
Total Plastic		10.2%	8.8%	7.8%	12.6%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.2%	0.2%	0.1%	0.2%
25	Aluminum Beverage Containers	<0.1%	0.0%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.5%	1.6%	<0.1%	0.9%
27	Aluminum Foil and Foil Containers	<0.1%	0.2%	<0.1%	<0.1%
28	Other Aluminum Containers	<0.1%	0.1%	<0.1%	<0.1%
29	Other Ferrous Scrap Metals	4.3%	9.9%	1.6%	7.1%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.1%	<0.1%	<0.1%
Total Metal		5.2%	9.9%	2.4%	7.9%
Glass					
31	Glass IA Deposit Containers	0.2%	0.5%	<0.1%	0.3%
32	Clear Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
33	Green Glass Containers	<0.1%	0.0%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
35	Other Mixed Glass	0.1%	0.6%	<0.1%	0.3%
Total Glass		0.5%	0.8%	0.2%	0.7%
C&D					
36	Wood - Untreated	11.4%	20.3%	5.8%	16.9%
37	Wood - Treated	2.4%	5.6%	0.9%	4.0%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	0.6%	1.8%	<0.1%	1.1%
39	Insulation	<0.1%	0.0%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	2.4%	7.8%	0.3%	4.6%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.4%	2.1%	<0.1%	1.0%
43	Concrete	2.1%	9.4%	<0.1%	4.7%
44	Asphalt Roofing	<0.1%	0.3%	<0.1%	<0.1%
45	Drywall Gypsum Board	0.4%	2.4%	<0.1%	1.1%
46	Carpet and Carpet Padding	4.3%	11.5%	1.2%	7.4%
47	Mattresses	<0.1%	0.0%	<0.1%	<0.1%
48	Furniture	3.0%	10.1%	0.2%	5.7%
Total C&D		27.1%	28.5%	19.3%	34.9%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	1.5%	8.6%	<0.1%	3.8%
50	Food Waste - Loose	8.5%	12.1%	5.2%	11.8%
51	Food Waste - Packaged	9.9%	21.3%	4.1%	15.7%
Total Organics		19.9%	28.2%	12.2%	27.7%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.1%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.0%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.2%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.1%	0.4%	<0.1%	0.2%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	1.5%	4.2%	0.3%	2.6%
66	Textiles and Leather	7.7%	18.6%	2.6%	12.8%
67	Rubber	4.6%	12.1%	1.3%	8.0%
Total Consumer Products		14.0%	24.5%	7.2%	20.7%
Household Hazardous Materials					
68	Automotive Products	<0.1%	0.3%	<0.1%	<0.1%
69	Household Cleaners	<0.1%	0.1%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.0%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.3%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.2%	0.6%	<0.1%	0.3%
Other					
78	Diapers	0.4%	0.8%	0.2%	0.6%
79	Other Organics	1.7%	8.6%	<0.1%	4.0%
80	Other Inorganics	0.8%	1.4%	0.5%	1.2%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	1.0%	3.0%	0.1%	1.8%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	1.4%	1.9%	0.8%	1.9%
Total Other		5.2%	9.6%	2.6%	7.9%
Total of CI Waste		100.0%			

**Iowa Statewide Waste Sort
Carroll County Landfill
Residential and Institutional, Commercial, and Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	2.8%	2.2%	2.3%	3.3%
2	High Grade Office Paper	1.2%	6.3%	<0.1%	2.7%
3	Mixed Recyclable Paper	5.7%	5.0%	4.5%	6.8%
4	Newsprint	0.6%	0.8%	0.4%	0.8%
5	Magazines/Catalogs	0.7%	2.4%	0.2%	1.3%
6	OCC and Kraft Paper	5.0%	5.6%	3.7%	6.3%
7	Aseptic/Gable Top Containers	0.2%	0.2%	0.1%	0.2%
8	Polycoated Paper	1.0%	1.2%	0.8%	1.3%
9	Other Non-Recyclable Paper	1.0%	1.0%	0.8%	1.2%
Total Paper		18.3%	11.9%	15.5%	21.0%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.2%	0.3%	0.2%	0.3%
11	#1 PET Beverage Containers	0.9%	0.7%	0.7%	1.0%
12	#1 PET Other Non-Beverage Containers	0.5%	0.5%	0.4%	0.6%
13	#2 HDPE Natural Containers	0.4%	0.5%	0.3%	0.5%
14	#2 HDPE Colored Containers	1.0%	1.8%	0.6%	1.4%
15	#3 PVC	0.1%	0.3%	<0.1%	0.2%
16	#4 LDPE	0.5%	2.9%	<0.1%	1.2%
17	#5 PP	1.0%	0.7%	0.8%	1.1%
18	#6 PS	0.5%	0.7%	0.3%	0.7%
19	#7 Other/Unknown Plastic	0.2%	0.5%	<0.1%	0.3%
20	Expanded Polystyrene	0.5%	0.6%	0.4%	0.7%
21	Retail Shopping Bags	0.5%	0.4%	0.4%	0.6%
22	Other Plastic Film	5.3%	6.1%	3.9%	6.8%
23	Other Plastic Products	1.6%	2.1%	1.2%	2.1%
Total Plastic		13.2%	9.3%	11.1%	15.4%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.5%	0.5%	0.3%	0.6%
25	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.5%	0.7%	0.3%	0.6%
27	Aluminum Foil and Foil Containers	0.1%	0.2%	<0.1%	0.2%
28	Other Aluminum Containers	0.1%	0.2%	<0.1%	0.2%
29	Other Ferrous Scrap Metals	3.2%	4.9%	2.0%	4.3%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.1%	<0.1%	<0.1%
Total Metal		4.5%	4.9%	3.3%	5.6%
Glass					
31	Glass IA Deposit Containers	1.0%	1.9%	0.6%	1.5%
32	Clear Glass Containers	0.4%	0.6%	0.3%	0.6%
33	Green Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.3%	<0.1%	<0.1%
35	Other Mixed Glass	1.1%	4.7%	<0.1%	2.2%
Total Glass		2.7%	5.3%	1.4%	3.9%
C&D					
36	Wood - Untreated	2.9%	9.2%	0.7%	5.0%
37	Wood - Treated	6.2%	10.6%	3.8%	8.7%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	<0.1%	0.1%	<0.1%	<0.1%
39	Insulation	<0.1%	0.6%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	0.5%	1.5%	0.1%	0.8%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.5%	1.9%	0.1%	1.0%
43	Concrete	0.3%	1.0%	<0.1%	0.5%
44	Asphalt Roofing	1.7%	9.0%	<0.1%	3.8%
45	Drywall Gypsum Board	0.7%	4.5%	<0.1%	1.8%
46	Carpet and Carpet Padding	4.9%	14.7%	1.5%	8.3%
47	Mattresses	<0.1%	0.0%	<0.1%	<0.1%
48	Furniture	0.8%	2.7%	0.2%	1.4%
Total C&D		18.6%	25.1%	12.7%	24.4%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	1.6%	4.2%	0.6%	2.5%
50	Food Waste - Loose	12.7%	14.9%	9.2%	16.2%
51	Food Waste - Packaged	6.0%	14.9%	2.5%	9.5%
Total Organics		20.3%	20.3%	15.6%	25.0%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.3%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.1%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.1%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.1%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.1%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.4%	1.5%	<0.1%	0.7%
64	Other "Smart" Devices - with chip	<0.1%	0.2%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.3%	1.2%	<0.1%	0.6%
66	Textiles and Leather	4.9%	7.2%	3.3%	6.6%
67	Rubber	0.9%	2.0%	0.5%	1.4%
Total Consumer Products		6.8%	8.4%	4.8%	8.7%
Household Hazardous Materials					
68	Automotive Products	1.1%	3.7%	0.3%	2.0%
69	Household Cleaners	<0.1%	0.1%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.3%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.1%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.2%	<0.1%	<0.1%
74	Paints and Solvents	0.6%	2.6%	<0.1%	1.2%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		1.9%	4.4%	0.9%	2.9%
Other					
78	Diapers	3.8%	4.0%	2.9%	4.7%
79	Other Organics	0.6%	0.7%	0.4%	0.7%
80	Other Inorganics	2.4%	3.5%	1.6%	3.3%
81	Other Consumer Products	<0.1%	0.1%	<0.1%	<0.1%
82	Other C&D	2.6%	9.4%	0.5%	4.8%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	4.3%	3.6%	3.4%	5.1%
Total Other		13.8%	11.1%	11.2%	16.4%
Total of Residential and CI Waste		100.0%			

Notes for Carroll County Landfill

1 Based on 50 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Carroll County Landfill
Residential Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	3.4%	1.7%	2.8%	4.0%
2	High Grade Office Paper	0.2%	0.3%	<0.1%	0.3%
3	Mixed Recyclable Paper	5.9%	2.4%	5.1%	6.8%
4	Newsprint	1.0%	0.9%	0.6%	1.3%
5	Magazines/Catalogs	1.2%	3.4%	<0.1%	2.4%
6	OCC and Kraft Paper	4.1%	3.9%	2.8%	5.4%
7	Aseptic/Gable Top Containers	0.2%	0.1%	0.1%	0.2%
8	Polycoated Paper	1.4%	1.0%	1.0%	1.7%
9	Other Non-Recyclable Paper	1.2%	0.6%	1.0%	1.4%
Total Paper		18.6%	9.5%	15.3%	21.9%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.3%	0.2%	0.2%	0.4%
11	#1 PET Beverage Containers	1.0%	0.6%	0.8%	1.2%
12	#1 PET Other Non-Beverage Containers	0.7%	0.4%	0.6%	0.8%
13	#2 HDPE Natural Containers	0.6%	0.7%	0.4%	0.8%
14	#2 HDPE Colored Containers	1.7%	2.3%	0.9%	2.5%
15	#3 PVC	<0.1%	0.1%	<0.1%	<0.1%
16	#4 LDPE	0.1%	0.2%	<0.1%	0.2%
17	#5 PP	1.3%	0.7%	1.1%	1.5%
18	#6 PS	0.4%	0.2%	0.3%	0.4%
19	#7 Other/Unknown Plastic	0.2%	0.1%	0.1%	0.2%
20	Expanded Polystyrene	0.5%	0.4%	0.4%	0.7%
21	Retail Shopping Bags	0.7%	0.5%	0.6%	0.9%
22	Other Plastic Film	5.2%	2.9%	4.2%	6.2%
23	Other Plastic Products	1.9%	1.6%	1.3%	2.4%
Total Plastic		14.6%	4.2%	13.2%	16.0%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.5%	0.3%	0.4%	0.7%
25	Aluminum Beverage Containers	<0.1%	0.0%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.6%	0.4%	0.4%	0.7%
27	Aluminum Foil and Foil Containers	0.2%	0.2%	0.1%	0.2%
28	Other Aluminum Containers	0.1%	0.1%	0.1%	0.2%
29	Other Ferrous Scrap Metals	2.8%	4.2%	1.3%	4.2%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.1%	<0.1%	<0.1%
Total Metal		4.2%	3.9%	2.9%	5.6%
Glass					
31	Glass IA Deposit Containers	0.8%	0.9%	0.5%	1.2%
32	Clear Glass Containers	0.7%	0.7%	0.4%	0.9%
33	Green Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	0.1%	0.5%	<0.1%	0.3%
35	Other Mixed Glass	0.5%	0.5%	0.3%	0.6%
Total Glass		2.1%	1.7%	1.6%	2.7%
C&D					
36	Wood - Untreated	0.4%	0.6%	0.2%	0.6%
37	Wood - Treated	3.1%	5.8%	1.1%	5.1%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	<0.1%	0.1%	<0.1%	<0.1%
39	Insulation	<0.1%	0.0%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	0.2%	0.5%	<0.1%	0.4%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	1.0%	2.6%	<0.1%	1.9%
43	Concrete	0.1%	0.7%	<0.1%	0.4%
44	Asphalt Roofing	1.1%	4.7%	<0.1%	2.7%
45	Drywall Gypsum Board	<0.1%	0.2%	<0.1%	<0.1%
46	Carpet and Carpet Padding	2.0%	6.6%	<0.1%	4.3%
47	Mattresses	<0.1%	0.0%	<0.1%	<0.1%
48	Furniture	1.6%	3.8%	0.3%	2.9%
Total C&D		9.7%	13.9%	4.9%	14.4%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	2.9%	5.8%	0.9%	4.9%
50	Food Waste - Loose	13.7%	8.9%	10.6%	16.7%
51	Food Waste - Packaged	4.4%	3.7%	3.1%	5.6%
Total Organics		20.9%	11.5%	17.0%	24.9%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.2%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.2%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.2%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.2%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.8%	2.1%	<0.1%	1.5%
64	Other "Smart" Devices - with chip	<0.1%	0.1%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.5%	1.8%	<0.1%	1.1%
66	Textiles and Leather	8.4%	8.9%	5.4%	11.4%
67	Rubber	1.1%	1.5%	0.6%	1.6%
Total Consumer Products		11.0%	10.2%	7.6%	14.5%
Household Hazardous Materials					
68	Automotive Products	0.7%	1.7%	0.1%	1.3%
69	Household Cleaners	<0.1%	0.0%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.1%	<0.1%	<0.1%
73	Other Batteries	0.1%	0.2%	<0.1%	0.2%
74	Paints and Solvents	0.9%	3.4%	<0.1%	2.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.1%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		1.8%	3.7%	0.5%	3.0%
Other					
78	Diapers	5.6%	3.9%	4.3%	7.0%
79	Other Organics	0.8%	0.7%	0.5%	1.0%
80	Other Inorganics	3.7%	4.4%	2.2%	5.2%
81	Other Consumer Products	<0.1%	0.2%	<0.1%	<0.1%
82	Other C&D	1.0%	4.4%	<0.1%	2.5%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	5.8%	3.3%	4.7%	6.9%
Total Other		17.0%	6.7%	14.7%	19.3%
Total of Residential Waste		100.0%			

**Iowa Statewide Waste Sort
Carroll County Landfill
Institutional, Commercial, Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	2.2%	2.4%	1.5%	3.0%
2	High Grade Office Paper	2.1%	8.5%	<0.1%	4.8%
3	Mixed Recyclable Paper	5.4%	6.5%	3.4%	7.5%
4	Newsprint	0.4%	0.6%	0.2%	0.6%
5	Magazines/Catalogs	0.3%	1.0%	<0.1%	0.7%
6	OCC and Kraft Paper	5.8%	6.8%	3.7%	7.9%
7	Aseptic/Gable Top Containers	0.1%	0.2%	<0.1%	0.2%
8	Polycoated Paper	0.8%	1.4%	0.4%	1.2%
9	Other Non-Recyclable Paper	0.8%	1.1%	0.4%	1.1%
Total Paper		18.0%	13.8%	13.6%	22.3%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.2%	0.3%	<0.1%	0.3%
11	#1 PET Beverage Containers	0.7%	0.7%	0.5%	0.9%
12	#1 PET Other Non-Beverage Containers	0.3%	0.6%	0.2%	0.5%
13	#2 HDPE Natural Containers	0.2%	0.3%	0.1%	0.3%
14	#2 HDPE Colored Containers	0.4%	1.0%	<0.1%	0.7%
15	#3 PVC	0.2%	0.4%	<0.1%	0.3%
16	#4 LDPE	0.9%	3.9%	<0.1%	2.1%
17	#5 PP	0.7%	0.6%	0.5%	0.9%
18	#6 PS	0.6%	0.9%	0.3%	0.9%
19	#7 Other/Unknown Plastic	0.2%	0.6%	<0.1%	0.4%
20	Expanded Polystyrene	0.5%	0.8%	0.3%	0.8%
21	Retail Shopping Bags	0.3%	0.3%	0.2%	0.4%
22	Other Plastic Film	5.5%	8.0%	2.9%	8.0%
23	Other Plastic Products	1.4%	2.4%	0.7%	2.2%
Total Plastic		12.1%	12.0%	8.3%	15.9%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.4%	0.7%	0.2%	0.6%
25	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.4%	0.8%	0.2%	0.7%
27	Aluminum Foil and Foil Containers	<0.1%	0.2%	<0.1%	<0.1%
28	Other Aluminum Containers	0.1%	0.3%	<0.1%	0.2%
29	Other Ferrous Scrap Metals	3.5%	5.4%	1.8%	5.2%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.0%	<0.1%	<0.1%
Total Metal		4.6%	5.7%	2.9%	6.4%
Glass					
31	Glass IA Deposit Containers	1.2%	2.5%	0.4%	1.9%
32	Clear Glass Containers	0.2%	0.4%	0.1%	0.4%
33	Green Glass Containers	<0.1%	0.0%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	1.7%	6.4%	<0.1%	3.8%
Total Glass		3.1%	7.0%	0.9%	5.4%
C&D					
36	Wood - Untreated	4.9%	12.2%	1.0%	8.8%
37	Wood - Treated	8.9%	12.9%	4.8%	13.0%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	<0.1%	0.1%	<0.1%	<0.1%
39	Insulation	0.1%	0.8%	<0.1%	0.4%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	0.7%	2.0%	<0.1%	1.3%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.2%	0.6%	<0.1%	0.4%
43	Concrete	0.4%	1.2%	<0.1%	0.7%
44	Asphalt Roofing	2.3%	11.5%	<0.1%	5.9%
45	Drywall Gypsum Board	1.2%	6.2%	<0.1%	3.2%
46	Carpet and Carpet Padding	7.3%	18.9%	1.3%	13.3%
47	Mattresses	<0.1%	0.0%	<0.1%	<0.1%
48	Furniture	0.1%	0.8%	<0.1%	0.4%
Total C&D		26.2%	29.9%	16.7%	35.7%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	0.4%	1.1%	<0.1%	0.8%
50	Food Waste - Loose	11.9%	18.8%	5.9%	17.8%
51	Food Waste - Packaged	7.4%	20.1%	1.1%	13.8%
Total Organics		19.8%	25.8%	11.6%	27.9%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.3%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.0%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.0%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.1%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.1%	<0.1%	<0.1%
63	Other Plug-in Electronics	<0.1%	0.1%	<0.1%	<0.1%
64	Other "Smart" Devices - with chip	<0.1%	0.2%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.1%	0.5%	<0.1%	0.3%
66	Textiles and Leather	2.0%	3.2%	1.0%	3.0%
67	Rubber	0.8%	2.3%	<0.1%	1.5%
Total Consumer Products		3.1%	4.1%	1.9%	4.4%
Household Hazardous Materials					
68	Automotive Products	1.5%	4.8%	<0.1%	3.0%
69	Household Cleaners	<0.1%	0.1%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.4%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	0.4%	1.7%	<0.1%	1.0%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		2.1%	5.0%	0.5%	3.6%
Other					
78	Diapers	2.3%	3.5%	1.1%	3.4%
79	Other Organics	0.4%	0.6%	0.2%	0.6%
80	Other Inorganics	1.4%	2.1%	0.7%	2.0%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	4.0%	12.0%	0.2%	7.9%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	3.0%	3.4%	1.9%	4.1%
Total Other		11.0%	13.4%	6.8%	15.3%
Total of CI Waste		100.0%			

**Iowa Statewide Waste Sort
Black Hawk Landfill
Residential and Institutional, Commercial, Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	3.6%	2.3%	3.1%	4.2%
2	High Grade Office Paper	0.4%	1.2%	<0.1%	0.6%
3	Mixed Recyclable Paper	7.9%	9.5%	5.7%	10.1%
4	Newsprint	0.4%	0.5%	0.3%	0.5%
5	Magazines/Catalogs	0.4%	0.8%	0.3%	0.6%
6	OCC and Kraft Paper	5.9%	5.9%	4.5%	7.3%
7	Aseptic/Gable Top Containers	0.2%	0.2%	0.1%	0.2%
8	Polycoated Paper	1.7%	2.5%	1.2%	2.3%
9	Other Non-Recyclable Paper	0.9%	1.0%	0.7%	1.1%
Total Paper		21.4%	11.5%	18.8%	24.1%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.3%	0.3%	0.3%	0.4%
11	#1 PET Beverage Containers	0.9%	0.6%	0.8%	1.0%
12	#1 PET Other Non-Beverage Containers	0.5%	0.4%	0.4%	0.6%
13	#2 HDPE Natural Containers	0.5%	0.4%	0.4%	0.6%
14	#2 HDPE Colored Containers	0.8%	1.3%	0.5%	1.1%
15	#3 PVC	0.1%	0.8%	<0.1%	0.3%
16	#4 LDPE	<0.1%	0.0%	<0.1%	<0.1%
17	#5 PP	1.2%	0.8%	1.0%	1.4%
18	#6 PS	0.4%	0.4%	0.3%	0.5%
19	#7 Other/Unknown Plastic	0.2%	0.3%	0.2%	0.3%
20	Expanded Polystyrene	0.4%	0.4%	0.3%	0.5%
21	Retail Shopping Bags	0.6%	0.4%	0.5%	0.7%
22	Other Plastic Film	6.0%	4.3%	5.0%	7.0%
23	Other Plastic Products	3.0%	5.0%	1.8%	4.1%
Total Plastic		14.9%	7.4%	13.2%	16.6%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.7%	0.7%	0.6%	0.9%
25	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.7%	0.7%	0.5%	0.9%
27	Aluminum Foil and Foil Containers	0.2%	0.3%	<0.1%	0.2%
28	Other Aluminum Containers	0.3%	0.3%	0.2%	0.3%
29	Other Ferrous Scrap Metals	3.2%	4.4%	2.1%	4.2%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.1%	<0.1%	<0.1%
Total Metal		5.1%	4.1%	4.1%	6.0%
Glass					
31	Glass IA Deposit Containers	0.7%	1.2%	0.4%	1.0%
32	Clear Glass Containers	0.7%	0.8%	0.6%	0.9%
33	Green Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	1.0%	5.7%	<0.1%	2.4%
Total Glass		2.6%	6.2%	1.1%	4.0%
C&D					
36	Wood - Untreated	2.2%	5.8%	0.8%	3.5%
37	Wood - Treated	2.9%	7.0%	1.3%	4.6%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	0.2%	0.8%	<0.1%	0.4%
39	Insulation	<0.1%	0.1%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.5%	<0.1%	<0.1%
41	Soil, Rock, Sand	1.3%	7.3%	<0.1%	3.0%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.8%	2.8%	0.1%	1.4%
43	Concrete	0.6%	3.6%	<0.1%	1.5%
44	Asphalt Roofing	0.4%	3.0%	<0.1%	1.1%
45	Drywall Gypsum Board	0.1%	1.0%	<0.1%	0.4%
46	Carpet and Carpet Padding	0.3%	1.2%	<0.1%	0.5%
47	Mattresses	<0.1%	0.0%	<0.1%	<0.1%
48	Furniture	1.7%	6.8%	0.1%	3.3%
Total C&D		10.7%	14.4%	7.3%	14.0%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	1.1%	3.3%	0.3%	1.9%
50	Food Waste - Loose	15.7%	11.8%	13.0%	18.5%
51	Food Waste - Packaged	6.0%	9.8%	3.7%	8.3%
Total Organics		22.9%	16.2%	19.1%	26.6%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.1%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	0.1%	0.7%	<0.1%	0.3%
59	Computer Printers	<0.1%	0.1%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.3%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.3%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.1%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.4%	1.1%	<0.1%	0.6%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.4%	1.5%	<0.1%	0.7%
66	Textiles and Leather	5.0%	5.1%	3.8%	6.2%
67	Rubber	1.2%	3.1%	0.5%	1.9%
Total Consumer Products		7.2%	6.3%	5.8%	8.7%
Household Hazardous Materials					
68	Automotive Products	0.1%	0.4%	<0.1%	0.2%
69	Household Cleaners	<0.1%	0.0%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.1%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	0.2%	1.1%	<0.1%	0.5%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.4%	1.2%	0.1%	0.7%
Other					
78	Diapers	3.9%	4.3%	2.9%	4.9%
79	Other Organics	3.8%	10.4%	1.4%	6.2%
80	Other Inorganics	3.6%	5.8%	2.3%	5.0%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	0.4%	1.6%	<0.1%	0.8%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	3.1%	2.4%	2.6%	3.7%
Total Other		14.8%	12.0%	12.0%	17.6%
Total of Residential and CI Waste		100.0%			

Notes for Black Hawk Landfill

1 Based on 50 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Black Hawk Landfill
Residential Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	4.5%	2.0%	3.8%	5.1%
2	High Grade Office Paper	0.1%	0.2%	<0.1%	0.2%
3	Mixed Recyclable Paper	7.2%	2.4%	6.4%	8.0%
4	Newsprint	0.5%	0.5%	0.4%	0.7%
5	Magazines/Catalogs	0.5%	0.7%	0.3%	0.8%
6	OCC and Kraft Paper	4.2%	5.0%	2.5%	5.9%
7	Aseptic/Gable Top Containers	0.2%	0.2%	0.2%	0.3%
8	Polycoated Paper	2.1%	1.3%	1.7%	2.6%
9	Other Non-Recyclable Paper	0.9%	0.6%	0.7%	1.1%
Total Paper		20.3%	7.3%	17.8%	22.7%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.3%	0.2%	0.3%	0.4%
11	#1 PET Beverage Containers	1.0%	0.5%	0.8%	1.2%
12	#1 PET Other Non-Beverage Containers	0.8%	0.4%	0.7%	0.9%
13	#2 HDPE Natural Containers	0.5%	0.3%	0.4%	0.6%
14	#2 HDPE Colored Containers	0.8%	0.8%	0.5%	1.1%
15	#3 PVC	<0.1%	0.2%	<0.1%	<0.1%
16	#4 LDPE	<0.1%	0.0%	<0.1%	<0.1%
17	#5 PP	1.6%	0.6%	1.4%	1.8%
18	#6 PS	0.4%	0.2%	0.3%	0.5%
19	#7 Other/Unknown Plastic	0.3%	0.2%	0.2%	0.3%
20	Expanded Polystyrene	0.5%	0.5%	0.3%	0.6%
21	Retail Shopping Bags	0.9%	0.4%	0.7%	1.0%
22	Other Plastic Film	5.6%	2.1%	4.9%	6.3%
23	Other Plastic Products	3.4%	5.9%	1.4%	5.4%
Total Plastic		16.1%	5.6%	14.2%	18.0%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.8%	0.5%	0.6%	1.0%
25	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.9%	0.6%	0.7%	1.1%
27	Aluminum Foil and Foil Containers	0.2%	0.4%	<0.1%	0.4%
28	Other Aluminum Containers	0.3%	0.4%	0.2%	0.5%
29	Other Ferrous Scrap Metals	2.4%	4.3%	1.0%	3.9%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.0%	<0.1%	<0.1%
Total Metal		4.8%	3.9%	3.4%	6.1%
Glass					
31	Glass IA Deposit Containers	0.6%	0.7%	0.3%	0.8%
32	Clear Glass Containers	1.3%	0.8%	1.0%	1.5%
33	Green Glass Containers	<0.1%	0.3%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	0.3%	0.5%	0.2%	0.5%
Total Glass		2.3%	1.4%	1.8%	2.8%
C&D					
36	Wood - Untreated	0.7%	2.4%	<0.1%	1.5%
37	Wood - Treated	3.1%	9.0%	<0.1%	6.1%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	0.4%	1.0%	<0.1%	0.7%
39	Insulation	<0.1%	0.1%	<0.1%	<0.1%
40	Asphalt Paving	0.2%	0.7%	<0.1%	0.4%
41	Soil, Rock, Sand	2.3%	10.4%	<0.1%	5.8%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.2%	0.3%	<0.1%	0.3%
43	Concrete	0.3%	1.2%	<0.1%	0.7%
44	Asphalt Roofing	<0.1%	0.1%	<0.1%	<0.1%
45	Drywall Gypsum Board	<0.1%	0.0%	<0.1%	<0.1%
46	Carpet and Carpet Padding	0.3%	1.2%	<0.1%	0.6%
47	Mattresses	<0.1%	0.0%	<0.1%	<0.1%
48	Furniture	0.6%	2.0%	<0.1%	1.3%
Total C&D		8.1%	14.5%	3.2%	12.9%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	0.8%	1.8%	0.2%	1.4%
50	Food Waste - Loose	15.6%	5.8%	13.7%	17.6%
51	Food Waste - Packaged	6.1%	4.7%	4.5%	7.6%
Total Organics		22.5%	9.1%	19.4%	25.5%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.1%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.3%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.0%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.0%	<0.1%	<0.1%
61	Electronic Gaming Equipment	0.1%	0.4%	<0.1%	0.2%
62	Cell Phone and Chargers	<0.1%	0.1%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.4%	0.7%	0.1%	0.6%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.5%	2.0%	<0.1%	1.2%
66	Textiles and Leather	5.2%	3.5%	4.0%	6.4%
67	Rubber	1.0%	1.4%	0.5%	1.4%
Total Consumer Products		7.4%	5.0%	5.7%	9.1%
Household Hazardous Materials					
68	Automotive Products	0.1%	0.3%	<0.1%	0.2%
69	Household Cleaners	<0.1%	0.0%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	0.1%	0.2%	<0.1%	0.2%
74	Paints and Solvents	0.4%	1.6%	<0.1%	1.0%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.7%	1.6%	0.1%	1.2%
Other					
78	Diapers	5.6%	4.2%	4.2%	7.0%
79	Other Organics	3.1%	4.0%	1.8%	4.4%
80	Other Inorganics	3.8%	3.8%	2.6%	5.1%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	0.9%	2.3%	<0.1%	1.6%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	4.6%	2.3%	3.8%	5.4%
Total Other		18.0%	6.5%	15.8%	20.2%
Total of Residential Waste		100.0%			

**Iowa Statewide Waste Sort
Black Hawk Landfill
Institutional, Commercial, and Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	2.9%	2.4%	2.1%	3.7%
2	High Grade Office Paper	0.6%	1.6%	<0.1%	1.1%
3	Mixed Recyclable Paper	8.6%	13.1%	4.4%	12.8%
4	Newsprint	0.2%	0.4%	<0.1%	0.3%
5	Magazines/Catalogs	0.4%	0.9%	<0.1%	0.7%
6	OCC and Kraft Paper	7.5%	6.4%	5.5%	9.6%
7	Aseptic/Gable Top Containers	0.1%	0.1%	<0.1%	0.2%
8	Polycoated Paper	1.4%	3.2%	0.3%	2.4%
9	Other Non-Recyclable Paper	0.9%	1.3%	0.5%	1.4%
Total Paper		22.6%	14.4%	17.9%	27.2%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.3%	0.3%	0.2%	0.4%
11	#1 PET Beverage Containers	0.8%	0.6%	0.6%	1.0%
12	#1 PET Other Non-Beverage Containers	0.3%	0.3%	0.2%	0.4%
13	#2 HDPE Natural Containers	0.4%	0.5%	0.3%	0.6%
14	#2 HDPE Colored Containers	0.8%	1.7%	0.2%	1.3%
15	#3 PVC	0.2%	1.0%	<0.1%	0.6%
16	#4 LDPE	<0.1%	0.0%	<0.1%	<0.1%
17	#5 PP	0.9%	0.8%	0.6%	1.1%
18	#6 PS	0.4%	0.4%	0.3%	0.6%
19	#7 Other/Unknown Plastic	0.2%	0.3%	<0.1%	0.3%
20	Expanded Polystyrene	0.3%	0.3%	0.2%	0.3%
21	Retail Shopping Bags	0.3%	0.3%	0.2%	0.4%
22	Other Plastic Film	6.3%	5.6%	4.5%	8.1%
23	Other Plastic Products	2.6%	4.0%	1.3%	3.9%
Total Plastic		13.8%	8.7%	11.0%	16.6%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.7%	0.8%	0.4%	0.9%
25	Aluminum Beverage Containers	<0.1%	0.0%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.5%	0.8%	0.2%	0.7%
27	Aluminum Foil and Foil Containers	0.1%	0.1%	<0.1%	0.2%
28	Other Aluminum Containers	0.2%	0.2%	0.1%	0.2%
29	Other Ferrous Scrap Metals	3.8%	4.5%	2.4%	5.3%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.1%	<0.1%	<0.1%
Total Metal		5.3%	4.4%	3.9%	6.8%
Glass					
31	Glass IA Deposit Containers	0.8%	1.5%	0.3%	1.3%
32	Clear Glass Containers	0.3%	0.4%	0.2%	0.4%
33	Green Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	1.7%	7.9%	<0.1%	4.3%
Total Glass		2.8%	8.6%	<0.1%	5.6%
C&D					
36	Wood - Untreated	3.6%	7.6%	1.1%	6.0%
37	Wood - Treated	2.8%	4.7%	1.3%	4.3%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	<0.1%	0.4%	<0.1%	<0.1%
39	Insulation	<0.1%	0.0%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	0.4%	1.6%	<0.1%	0.9%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	1.3%	3.8%	<0.1%	2.5%
43	Concrete	1.0%	4.9%	<0.1%	2.6%
44	Asphalt Roofing	0.8%	4.1%	<0.1%	2.1%
45	Drywall Gypsum Board	0.3%	1.4%	<0.1%	0.7%
46	Carpet and Carpet Padding	0.3%	1.3%	<0.1%	0.7%
47	Mattresses	<0.1%	0.0%	<0.1%	<0.1%
48	Furniture	2.7%	9.2%	<0.1%	5.7%
Total C&D		13.1%	14.2%	8.5%	17.6%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	1.4%	4.3%	<0.1%	2.8%
50	Food Waste - Loose	15.8%	15.6%	10.8%	20.8%
51	Food Waste - Packaged	6.0%	13.0%	1.8%	10.2%
Total Organics		23.2%	20.8%	16.5%	29.9%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	0.2%	0.9%	<0.1%	0.5%
59	Computer Printers	<0.1%	0.1%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.4%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.1%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.3%	1.4%	<0.1%	0.8%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.2%	0.8%	<0.1%	0.5%
66	Textiles and Leather	4.8%	6.4%	2.7%	6.9%
67	Rubber	1.4%	4.2%	<0.1%	2.7%
Total Consumer Products		7.1%	7.3%	4.7%	9.5%
Household Hazardous Materials					
68	Automotive Products	0.1%	0.6%	<0.1%	0.3%
69	Household Cleaners	<0.1%	0.0%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.1%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.0%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.2%	0.6%	<0.1%	0.4%
Other					
78	Diapers	2.2%	3.7%	1.1%	3.4%
79	Other Organics	4.4%	14.0%	<0.1%	8.9%
80	Other Inorganics	3.5%	7.2%	1.1%	5.8%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	<0.1%	0.1%	<0.1%	<0.1%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	1.8%	1.6%	1.3%	2.3%
Total Other		11.9%	15.0%	7.1%	16.8%
Total of CI Waste		100.0%			

**Iowa Statewide Waste Sort
Dubuque
Residential and Institutional, Commercial, and Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	3.5%	2.8%	2.9%	4.2%
2	High Grade Office Paper	0.5%	0.8%	0.3%	0.7%
3	Mixed Recyclable Paper	4.5%	2.4%	4.0%	5.1%
4	Newsprint	0.6%	1.0%	0.3%	0.8%
5	Magazines/Catalogs	0.4%	0.7%	0.3%	0.6%
6	OCC and Kraft Paper	7.4%	12.7%	4.5%	10.3%
7	Aseptic/Gable Top Containers	0.4%	0.9%	0.2%	0.6%
8	Polycoated Paper	1.3%	1.2%	1.0%	1.6%
9	Other Non-Recyclable Paper	1.3%	1.3%	1.0%	1.6%
Total Paper		19.9%	12.7%	17.0%	22.8%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.2%	0.2%	0.2%	0.3%
11	#1 PET Beverage Containers	0.7%	0.5%	0.6%	0.9%
12	#1 PET Other Non-Beverage Containers	0.3%	0.4%	0.2%	0.3%
13	#2 HDPE Natural Containers	0.3%	0.4%	0.2%	0.4%
14	#2 HDPE Colored Containers	0.6%	1.1%	0.4%	0.9%
15	#3 PVC	0.8%	4.7%	<0.1%	1.9%
16	#4 LDPE	<0.1%	0.1%	<0.1%	<0.1%
17	#5 PP	1.4%	1.1%	1.2%	1.6%
18	#6 PS	0.4%	0.4%	0.3%	0.5%
19	#7 Other/Unknown Plastic	0.1%	0.1%	<0.1%	0.1%
20	Expanded Polystyrene	0.4%	0.4%	0.3%	0.5%
21	Retail Shopping Bags	0.4%	0.5%	0.3%	0.5%
22	Other Plastic Film	5.7%	4.4%	4.7%	6.7%
23	Other Plastic Products	2.7%	3.1%	1.9%	3.4%
Total Plastic		14.0%	8.7%	12.0%	16.0%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.5%	0.5%	0.3%	0.6%
25	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.4%	0.6%	0.3%	0.5%
27	Aluminum Foil and Foil Containers	<0.1%	0.2%	<0.1%	<0.1%
28	Other Aluminum Containers	0.2%	0.2%	0.2%	0.3%
29	Other Ferrous Scrap Metals	1.7%	3.4%	0.9%	2.5%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.1%	<0.1%	<0.1%
Total Metal		2.9%	3.6%	2.1%	3.8%
Glass					
31	Glass IA Deposit Containers	0.8%	1.2%	0.5%	1.1%
32	Clear Glass Containers	0.5%	0.7%	0.3%	0.6%
33	Green Glass Containers	<0.1%	0.3%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	0.4%	0.8%	0.2%	0.6%
Total Glass		1.8%	1.9%	1.4%	2.2%
C&D					
36	Wood - Untreated	2.9%	9.6%	0.7%	5.1%
37	Wood - Treated	6.0%	13.5%	2.9%	9.1%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	0.1%	0.5%	<0.1%	0.2%
39	Insulation	0.2%	0.7%	<0.1%	0.3%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	0.2%	0.7%	<0.1%	0.3%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.6%	2.5%	<0.1%	1.2%
43	Concrete	0.4%	2.1%	<0.1%	0.9%
44	Asphalt Roofing	0.9%	6.4%	<0.1%	2.4%
45	Drywall Gypsum Board	1.3%	7.4%	<0.1%	3.0%
46	Carpet and Carpet Padding	3.0%	12.2%	0.2%	5.8%
47	Mattresses	1.2%	5.6%	<0.1%	2.5%
48	Furniture	3.2%	7.2%	1.5%	4.8%
Total C&D		20.0%	23.7%	14.5%	25.4%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	2.1%	4.8%	1.0%	3.3%
50	Food Waste - Loose	17.5%	14.1%	14.3%	20.8%
51	Food Waste - Packaged	4.0%	9.1%	1.9%	6.1%
Total Organics		23.7%	16.1%	20.0%	27.3%
Consumer Products					
52	Television - LCD	<0.1%	0.4%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.4%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.1%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.4%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.3%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.1%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.1%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.3%	0.9%	<0.1%	0.5%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.5%	2.0%	<0.1%	0.9%
66	Textiles and Leather	4.8%	9.7%	2.6%	7.1%
67	Rubber	2.8%	12.3%	<0.1%	5.6%
Total Consumer Products		8.7%	16.2%	5.0%	12.4%
Household Hazardous Materials					
68	Automotive Products	<0.1%	0.2%	<0.1%	<0.1%
69	Household Cleaners	0.1%	0.6%	<0.1%	0.3%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.3%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.2%	<0.1%	<0.1%
Total Household Hazardous Materials		0.3%	0.7%	0.2%	0.5%
Other					
78	Diapers	3.5%	4.7%	2.4%	4.6%
79	Other Organics	1.0%	2.0%	0.5%	1.4%
80	Other Inorganics	1.9%	2.2%	1.4%	2.4%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	0.4%	1.9%	<0.1%	0.9%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	1.9%	1.7%	1.5%	2.3%
Total Other		8.7%	7.0%	7.1%	10.3%
Total of Residential and CI Waste		100.0%			

Notes for Dubuque

1 Based on 51 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Dubuque
Residential Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	4.6%	1.5%	4.0%	5.2%
2	High Grade Office Paper	0.3%	0.6%	0.1%	0.6%
3	Mixed Recyclable Paper	5.7%	2.1%	4.9%	6.6%
4	Newsprint	0.7%	0.9%	0.4%	1.1%
5	Magazines/Catalogs	0.5%	0.4%	0.3%	0.6%
6	OCC and Kraft Paper	1.6%	0.9%	1.3%	2.0%
7	Aseptic/Gable Top Containers	0.2%	0.2%	0.1%	0.3%
8	Polycoated Paper	2.3%	1.4%	1.7%	2.9%
9	Other Non-Recyclable Paper	1.5%	0.8%	1.2%	1.9%
Total Paper		17.6%	3.6%	16.1%	19.1%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.2%	0.2%	0.1%	0.3%
11	#1 PET Beverage Containers	0.8%	0.5%	0.6%	1.0%
12	#1 PET Other Non-Beverage Containers	0.3%	0.2%	0.2%	0.4%
13	#2 HDPE Natural Containers	0.3%	0.2%	0.2%	0.4%
14	#2 HDPE Colored Containers	0.4%	0.3%	0.3%	0.6%
15	#3 PVC	<0.1%	0.2%	<0.1%	<0.1%
16	#4 LDPE	<0.1%	0.1%	<0.1%	<0.1%
17	#5 PP	1.8%	0.7%	1.6%	2.1%
18	#6 PS	0.3%	0.2%	0.2%	0.4%
19	#7 Other/Unknown Plastic	0.2%	0.2%	0.1%	0.3%
20	Expanded Polystyrene	0.6%	0.3%	0.4%	0.7%
21	Retail Shopping Bags	0.9%	0.5%	0.7%	1.1%
22	Other Plastic Film	5.5%	2.4%	4.5%	6.5%
23	Other Plastic Products	2.3%	1.5%	1.6%	2.9%
Total Plastic		13.8%	4.6%	11.9%	15.8%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.8%	0.4%	0.6%	1.0%
25	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.5%	0.4%	0.3%	0.6%
27	Aluminum Foil and Foil Containers	0.2%	0.2%	<0.1%	0.3%
28	Other Aluminum Containers	0.3%	0.2%	0.2%	0.4%
29	Other Ferrous Scrap Metals	2.1%	3.4%	0.7%	3.6%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.1%	<0.1%	<0.1%
Total Metal		3.9%	3.5%	2.4%	5.4%
Glass					
31	Glass IA Deposit Containers	1.4%	1.4%	0.8%	2.0%
32	Clear Glass Containers	0.9%	1.1%	0.4%	1.4%
33	Green Glass Containers	0.3%	0.6%	<0.1%	0.5%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	0.9%	1.1%	0.4%	1.4%
Total Glass		3.5%	2.2%	2.6%	4.4%
C&D					
36	Wood - Untreated	<0.1%	0.0%	<0.1%	<0.1%
37	Wood - Treated	4.0%	10.8%	<0.1%	8.6%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	0.1%	0.6%	<0.1%	0.4%
39	Insulation	0.3%	0.8%	<0.1%	0.6%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	0.2%	0.6%	<0.1%	0.4%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.3%	0.4%	<0.1%	0.4%
43	Concrete	<0.1%	0.0%	<0.1%	<0.1%
44	Asphalt Roofing	<0.1%	0.0%	<0.1%	<0.1%
45	Drywall Gypsum Board	0.2%	0.7%	<0.1%	0.5%
46	Carpet and Carpet Padding	<0.1%	0.1%	<0.1%	<0.1%
47	Mattresses	1.8%	6.9%	<0.1%	4.7%
48	Furniture	2.7%	5.0%	0.5%	4.8%
Total C&D		9.5%	14.3%	3.4%	15.6%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	1.6%	2.4%	0.6%	2.6%
50	Food Waste - Loose	22.8%	6.9%	19.9%	25.8%
51	Food Waste - Packaged	3.6%	2.3%	2.7%	4.6%
Total Organics		28.1%	8.5%	24.5%	31.6%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	0.1%	0.5%	<0.1%	0.3%
58	Computer Peripherals	<0.1%	0.0%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.0%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.0%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.4%	1.2%	<0.1%	0.9%
64	Other "Smart" Devices - with chip	<0.1%	0.1%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	<0.1%	0.1%	<0.1%	<0.1%
66	Textiles and Leather	6.9%	6.8%	4.0%	9.8%
67	Rubber	1.6%	3.0%	0.3%	2.8%
Total Consumer Products		9.1%	6.6%	6.3%	12.0%
Household Hazardous Materials					
68	Automotive Products	<0.1%	0.3%	<0.1%	<0.1%
69	Household Cleaners	0.1%	0.4%	<0.1%	0.3%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.1%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.4%	<0.1%	<0.1%
Total Household Hazardous Materials		0.5%	0.6%	0.2%	0.7%
Other					
78	Diapers	4.7%	2.8%	3.5%	5.9%
79	Other Organics	1.4%	2.6%	0.4%	2.5%
80	Other Inorganics	3.8%	3.1%	2.5%	5.1%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	0.6%	1.9%	<0.1%	1.4%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	3.5%	2.1%	2.6%	4.4%
Total Other		14.1%	6.5%	11.3%	16.8%
Total of Residential Waste		100.0%			

**Iowa Statewide Waste Sort
Dubuque
Institutional, Commercial, and Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	3.1%	3.0%	2.2%	3.9%
2	High Grade Office Paper	0.5%	0.9%	0.3%	0.8%
3	Mixed Recyclable Paper	4.0%	2.4%	3.3%	4.6%
4	Newsprint	0.5%	1.1%	0.2%	0.8%
5	Magazines/Catalogs	0.4%	0.8%	0.2%	0.6%
6	OCC and Kraft Paper	9.8%	14.5%	5.8%	13.8%
7	Aseptic/Gable Top Containers	0.4%	1.0%	0.1%	0.7%
8	Polycoated Paper	0.9%	0.8%	0.6%	1.1%
9	Other Non-Recyclable Paper	1.3%	1.5%	0.9%	1.7%
Total Paper		20.9%	14.9%	16.8%	24.9%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.2%	0.2%	0.2%	0.3%
11	#1 PET Beverage Containers	0.7%	0.6%	0.6%	0.9%
12	#1 PET Other Non-Beverage Containers	0.2%	0.4%	0.1%	0.4%
13	#2 HDPE Natural Containers	0.3%	0.4%	0.2%	0.4%
14	#2 HDPE Colored Containers	0.7%	1.3%	0.3%	1.0%
15	#3 PVC	1.1%	5.6%	<0.1%	2.6%
16	#4 LDPE	<0.1%	0.0%	<0.1%	<0.1%
17	#5 PP	1.2%	1.1%	0.9%	1.5%
18	#6 PS	0.4%	0.5%	0.3%	0.5%
19	#7 Other/Unknown Plastic	<0.1%	0.1%	<0.1%	<0.1%
20	Expanded Polystyrene	0.3%	0.4%	0.2%	0.4%
21	Retail Shopping Bags	0.2%	0.2%	0.2%	0.3%
22	Other Plastic Film	5.8%	5.0%	4.4%	7.1%
23	Other Plastic Products	2.8%	3.6%	1.8%	3.8%
Total Plastic		14.1%	10.0%	11.4%	16.8%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.3%	0.4%	0.2%	0.4%
25	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.4%	0.7%	0.2%	0.6%
27	Aluminum Foil and Foil Containers	<0.1%	0.1%	<0.1%	<0.1%
28	Other Aluminum Containers	0.2%	0.2%	0.1%	0.2%
29	Other Ferrous Scrap Metals	1.5%	3.4%	0.6%	2.5%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.0%	<0.1%	<0.1%
Total Metal		2.5%	3.6%	1.5%	3.5%
Glass					
31	Glass IA Deposit Containers	0.6%	1.1%	0.3%	0.9%
32	Clear Glass Containers	0.3%	0.4%	0.2%	0.4%
33	Green Glass Containers	<0.1%	0.0%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	0.2%	0.5%	<0.1%	0.4%
Total Glass		1.1%	1.3%	0.7%	1.5%
C&D					
36	Wood - Untreated	4.1%	11.2%	1.0%	7.2%
37	Wood - Treated	6.8%	14.5%	2.9%	10.8%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	<0.1%	0.5%	<0.1%	<0.1%
39	Insulation	0.1%	0.7%	<0.1%	0.3%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	0.2%	0.7%	<0.1%	0.4%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.7%	3.0%	<0.1%	1.5%
43	Concrete	0.6%	2.5%	<0.1%	1.3%
44	Asphalt Roofing	1.3%	7.6%	<0.1%	3.4%
45	Drywall Gypsum Board	1.8%	8.8%	<0.1%	4.2%
46	Carpet and Carpet Padding	4.3%	14.4%	0.3%	8.2%
47	Mattresses	1.0%	5.1%	<0.1%	2.4%
48	Furniture	3.4%	8.0%	1.2%	5.6%
Total C&D		24.3%	25.6%	17.3%	31.3%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	2.4%	5.6%	0.8%	3.9%
50	Food Waste - Loose	15.3%	15.8%	11.0%	19.6%
51	Food Waste - Packaged	4.1%	10.8%	1.2%	7.1%
Total Organics		21.8%	18.1%	16.9%	26.8%
Consumer Products					
52	Television - LCD	<0.1%	0.5%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.4%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.1%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.5%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.3%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.1%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.1%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.2%	0.7%	<0.1%	0.4%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.7%	2.4%	<0.1%	1.3%
66	Textiles and Leather	4.0%	10.7%	1.0%	6.9%
67	Rubber	3.3%	14.5%	<0.1%	7.3%
Total Consumer Products		8.5%	18.8%	3.3%	13.7%
Household Hazardous Materials					
68	Automotive Products	<0.1%	0.2%	<0.1%	<0.1%
69	Household Cleaners	0.1%	0.6%	<0.1%	0.3%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.1%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.3%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.3%	0.7%	<0.1%	0.5%
Other					
78	Diapers	3.0%	5.2%	1.6%	4.4%
79	Other Organics	0.8%	1.7%	0.3%	1.3%
80	Other Inorganics	1.1%	1.1%	0.8%	1.5%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	0.4%	1.9%	<0.1%	0.9%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	1.2%	0.8%	1.0%	1.4%
Total Other		6.5%	6.0%	4.9%	8.2%
Total of CI Waste		100.0%			

Notes for Dubuque

1 Based on 36 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Waste Commission of Scott County
Residential and Institutional, Commercial, and Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	3.9%	2.1%	3.5%	4.4%
2	High Grade Office Paper	0.4%	1.2%	0.1%	0.7%
3	Mixed Recyclable Paper	4.3%	2.1%	3.8%	4.8%
4	Newsprint	0.6%	0.7%	0.5%	0.8%
5	Magazines/Catalogs	0.4%	0.5%	0.3%	0.5%
6	OCC and Kraft Paper	5.9%	10.6%	3.4%	8.3%
7	Aseptic/Gable Top Containers	0.2%	0.2%	0.2%	0.2%
8	Polycoated Paper	1.4%	0.8%	1.2%	1.6%
9	Other Non-Recyclable Paper	0.9%	0.6%	0.7%	1.0%
Total Paper		18.0%	10.8%	15.5%	20.5%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.3%	0.2%	0.2%	0.3%
11	#1 PET Beverage Containers	0.9%	0.6%	0.7%	1.0%
12	#1 PET Other Non-Beverage Containers	0.6%	0.5%	0.5%	0.7%
13	#2 HDPE Natural Containers	0.3%	0.3%	0.3%	0.4%
14	#2 HDPE Colored Containers	0.5%	0.3%	0.4%	0.5%
15	#3 PVC	<0.1%	0.1%	<0.1%	<0.1%
16	#4 LDPE	<0.1%	0.1%	<0.1%	<0.1%
17	#5 PP	1.1%	0.9%	0.9%	1.3%
18	#6 PS	0.3%	0.2%	0.3%	0.4%
19	#7 Other/Unknown Plastic	0.2%	0.2%	0.2%	0.3%
20	Expanded Polystyrene	0.4%	0.3%	0.4%	0.5%
21	Retail Shopping Bags	0.6%	0.3%	0.5%	0.7%
22	Other Plastic Film	7.2%	13.5%	4.1%	10.3%
23	Other Plastic Products	2.3%	2.0%	1.9%	2.8%
Total Plastic		14.9%	12.7%	11.9%	17.8%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.6%	0.4%	0.5%	0.6%
25	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.7%	0.8%	0.5%	0.9%
27	Aluminum Foil and Foil Containers	<0.1%	0.1%	<0.1%	<0.1%
28	Other Aluminum Containers	0.3%	0.4%	0.2%	0.4%
29	Other Ferrous Scrap Metals	1.9%	4.5%	0.8%	2.9%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.4%	<0.1%	<0.1%
Total Metal		3.6%	4.6%	2.5%	4.7%
Glass					
31	Glass IA Deposit Containers	0.7%	0.8%	0.6%	0.9%
32	Clear Glass Containers	0.6%	0.5%	0.5%	0.7%
33	Green Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
35	Other Mixed Glass	0.4%	0.5%	0.3%	0.6%
Total Glass		1.9%	1.4%	1.5%	2.2%
C&D					
36	Wood - Untreated	0.3%	1.9%	<0.1%	0.7%
37	Wood - Treated	3.3%	7.2%	1.6%	4.9%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	<0.1%	0.4%	<0.1%	<0.1%
39	Insulation	<0.1%	0.3%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	0.5%	1.4%	0.1%	0.8%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	1.2%	3.5%	0.4%	2.0%
43	Concrete	0.1%	0.8%	<0.1%	0.3%
44	Asphalt Roofing	0.3%	1.0%	<0.1%	0.5%
45	Drywall Gypsum Board	0.2%	0.7%	<0.1%	0.3%
46	Carpet and Carpet Padding	1.8%	7.3%	<0.1%	3.5%
47	Mattresses	0.1%	0.8%	<0.1%	0.3%
48	Furniture	1.4%	5.8%	<0.1%	2.8%
Total C&D		9.2%	13.8%	6.0%	12.4%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	3.9%	7.1%	2.3%	5.6%
50	Food Waste - Loose	19.3%	9.6%	17.1%	21.5%
51	Food Waste - Packaged	3.6%	3.3%	2.8%	4.3%
Total Organics		26.8%	13.2%	23.7%	29.9%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.2%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.0%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.2%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.3%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.4%	0.8%	0.3%	0.6%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.4%	1.6%	<0.1%	0.7%
66	Textiles and Leather	8.2%	10.4%	5.7%	10.6%
67	Rubber	0.9%	1.8%	0.5%	1.3%
Total Consumer Products		10.0%	10.7%	7.5%	12.5%
Household Hazardous Materials					
68	Automotive Products	0.4%	1.8%	<0.1%	0.8%
69	Household Cleaners	<0.1%	0.2%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.3%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	0.1%	0.4%	<0.1%	0.2%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.1%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.6%	2.1%	0.1%	1.1%
Other					
78	Diapers	3.5%	3.4%	2.7%	4.2%
79	Other Organics	2.5%	2.9%	1.8%	3.1%
80	Other Inorganics	4.2%	5.3%	2.9%	5.4%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	0.5%	1.4%	0.2%	0.8%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	4.4%	2.4%	3.8%	4.9%
Total Other		15.0%	8.7%	13.0%	17.0%
Total of Residential and CI Waste		100.0%			

Notes for Waste Commission of Scott County

1 Based on 50 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.

**Iowa Statewide Waste Sort
Waste Commission of Scott County
Residential Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	4.0%	1.7%	3.6%	4.5%
2	High Grade Office Paper	0.4%	1.3%	<0.1%	0.7%
3	Mixed Recyclable Paper	4.5%	1.9%	4.1%	5.0%
4	Newsprint	0.7%	0.7%	0.5%	0.9%
5	Magazines/Catalogs	0.4%	0.6%	0.3%	0.6%
6	OCC and Kraft Paper	2.6%	3.2%	1.8%	3.5%
7	Aseptic/Gable Top Containers	0.2%	0.2%	0.2%	0.2%
8	Polycoated Paper	1.6%	0.8%	1.4%	1.8%
9	Other Non-Recyclable Paper	1.0%	0.6%	0.8%	1.1%
Total Paper		15.4%	6.7%	13.7%	17.1%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.3%	0.2%	0.2%	0.4%
11	#1 PET Beverage Containers	0.9%	0.6%	0.7%	1.0%
12	#1 PET Other Non-Beverage Containers	0.6%	0.4%	0.5%	0.7%
13	#2 HDPE Natural Containers	0.3%	0.3%	0.3%	0.4%
14	#2 HDPE Colored Containers	0.5%	0.3%	0.4%	0.5%
15	#3 PVC	<0.1%	0.1%	<0.1%	<0.1%
16	#4 LDPE	<0.1%	0.1%	<0.1%	<0.1%
17	#5 PP	1.3%	0.9%	1.0%	1.5%
18	#6 PS	0.4%	0.2%	0.3%	0.4%
19	#7 Other/Unknown Plastic	0.3%	0.2%	0.2%	0.3%
20	Expanded Polystyrene	0.5%	0.3%	0.4%	0.6%
21	Retail Shopping Bags	0.7%	0.3%	0.6%	0.7%
22	Other Plastic Film	4.6%	1.7%	4.1%	5.0%
23	Other Plastic Products	2.5%	2.1%	2.0%	3.0%
Total Plastic		12.7%	3.3%	11.9%	13.5%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.6%	0.4%	0.5%	0.7%
25	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	0.6%	0.5%	0.5%	0.8%
27	Aluminum Foil and Foil Containers	<0.1%	0.1%	<0.1%	<0.1%
28	Other Aluminum Containers	0.3%	0.4%	0.2%	0.4%
29	Other Ferrous Scrap Metals	1.3%	1.6%	0.9%	1.7%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.4%	<0.1%	<0.1%
Total Metal		3.0%	2.0%	2.5%	3.5%
Glass					
31	Glass IA Deposit Containers	0.8%	0.8%	0.6%	1.0%
32	Clear Glass Containers	0.6%	0.5%	0.5%	0.8%
33	Green Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.2%	<0.1%	<0.1%
35	Other Mixed Glass	0.4%	0.5%	0.3%	0.5%
Total Glass		1.9%	1.3%	1.6%	2.3%
C&D					
36	Wood - Untreated	0.3%	2.1%	<0.1%	0.8%
37	Wood - Treated	3.2%	7.6%	1.2%	5.1%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	<0.1%	0.4%	<0.1%	<0.1%
39	Insulation	<0.1%	0.3%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	0.4%	1.4%	<0.1%	0.8%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	1.4%	3.8%	0.4%	2.3%
43	Concrete	0.1%	0.8%	<0.1%	0.3%
44	Asphalt Roofing	0.3%	1.1%	<0.1%	0.6%
45	Drywall Gypsum Board	0.2%	0.7%	<0.1%	0.4%
46	Carpet and Carpet Padding	2.0%	7.9%	<0.1%	4.0%
47	Mattresses	<0.1%	0.0%	<0.1%	<0.1%
48	Furniture	1.7%	6.3%	<0.1%	3.3%
Total C&D		9.8%	14.6%	6.0%	13.5%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	4.6%	7.6%	2.7%	6.6%
50	Food Waste - Loose	19.9%	8.2%	17.8%	22.0%
51	Food Waste - Packaged	3.8%	3.3%	3.0%	4.7%
Total Organics		28.4%	11.8%	25.4%	31.4%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.2%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.0%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.2%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.0%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.3%	<0.1%	<0.1%
63	Other Plug-in Electronics	0.5%	0.8%	0.3%	0.7%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	0.4%	1.7%	<0.1%	0.9%
66	Textiles and Leather	9.4%	10.9%	6.6%	12.2%
67	Rubber	1.0%	2.0%	0.5%	1.5%
Total Consumer Products		11.6%	11.0%	8.8%	14.4%
Household Hazardous Materials					
68	Automotive Products	0.4%	2.0%	<0.1%	0.9%
69	Household Cleaners	<0.1%	0.2%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.3%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.1%	<0.1%	<0.1%
74	Paints and Solvents	0.2%	0.5%	<0.1%	0.3%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.1%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.8%	2.3%	0.2%	1.3%
Other					
78	Diapers	4.0%	3.4%	3.2%	4.9%
79	Other Organics	2.3%	2.5%	1.6%	2.9%
80	Other Inorganics	4.9%	5.5%	3.4%	6.3%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	0.6%	1.5%	0.2%	1.0%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	4.6%	2.1%	4.1%	5.1%
Total Other		16.4%	8.1%	14.3%	18.4%
Total of Residential Waste		100.0%			

**Iowa Statewide Waste Sort
Waste Commission of Scott County
Institutional, Commercial, and Industrial (ICI) Waste Composition**

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Paper					
1	Compostable Paper	3.5%	3.6%	1.4%	5.6%
2	High Grade Office Paper	0.5%	0.7%	<0.1%	0.9%
3	Mixed Recyclable Paper	3.0%	3.1%	1.2%	4.7%
4	Newsprint	0.3%	0.6%	<0.1%	0.7%
5	Magazines/Catalogs	0.3%	0.4%	<0.1%	0.6%
6	OCC and Kraft Paper	22.8%	18.2%	12.2%	33.4%
7	Aseptic/Gable Top Containers	0.2%	0.1%	<0.1%	0.2%
8	Polycoated Paper	0.5%	0.6%	0.2%	0.9%
9	Other Non-Recyclable Paper	0.4%	0.4%	0.2%	0.6%
Total Paper		31.5%	17.5%	21.3%	41.7%
Plastic					
10	#1 PET IA Deposit Beverage Containers	0.2%	0.3%	<0.1%	0.4%
11	#1 PET Beverage Containers	0.8%	0.8%	0.3%	1.3%
12	#1 PET Other Non-Beverage Containers	0.6%	1.1%	<0.1%	1.3%
13	#2 HDPE Natural Containers	0.4%	0.6%	<0.1%	0.7%
14	#2 HDPE Colored Containers	0.4%	0.4%	0.2%	0.6%
15	#3 PVC	<0.1%	0.0%	<0.1%	<0.1%
16	#4 LDPE	<0.1%	0.0%	<0.1%	<0.1%
17	#5 PP	0.4%	0.4%	0.2%	0.6%
18	#6 PS	0.2%	0.2%	0.1%	0.4%
19	#7 Other/Unknown Plastic	0.1%	0.1%	<0.1%	0.2%
20	Expanded Polystyrene	0.2%	0.2%	0.1%	0.4%
21	Retail Shopping Bags	0.3%	0.4%	0.1%	0.5%
22	Other Plastic Film	21.1%	31.4%	2.9%	39.4%
23	Other Plastic Products	1.5%	1.1%	0.8%	2.1%
Total Plastic		26.4%	29.8%	9.1%	43.7%
Metal					
24	Aluminum IA Deposit Beverage Containers	0.4%	0.4%	0.2%	0.6%
25	Aluminum Beverage Containers	<0.1%	0.1%	<0.1%	<0.1%
26	Ferrous Food and Beverage Containers	1.1%	1.7%	<0.1%	2.0%
27	Aluminum Foil and Foil Containers	0.2%	0.3%	<0.1%	0.3%
28	Other Aluminum Containers	<0.1%	0.1%	<0.1%	<0.1%
29	Other Ferrous Scrap Metals	4.9%	10.7%	<0.1%	11.1%
30	Other Non-Ferrous Scrap Metals	<0.1%	0.0%	<0.1%	<0.1%
Total Metal		6.7%	10.7%	0.5%	12.9%
Glass					
31	Glass IA Deposit Containers	0.4%	0.7%	<0.1%	0.8%
32	Clear Glass Containers	0.4%	0.5%	<0.1%	0.7%
33	Green Glass Containers	<0.1%	0.0%	<0.1%	<0.1%
34	Brown/Other Colored Glass Containers	<0.1%	0.1%	<0.1%	<0.1%
35	Other Mixed Glass	0.7%	0.8%	0.2%	1.1%
Total Glass		1.5%	1.7%	0.5%	2.5%
C&D					
36	Wood - Untreated	<0.1%	0.0%	<0.1%	<0.1%
37	Wood - Treated	3.7%	4.7%	0.9%	6.4%


Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
38	Plastic Lumber	<0.1%	0.0%	<0.1%	<0.1%
39	Insulation	<0.1%	0.1%	<0.1%	<0.1%
40	Asphalt Paving	<0.1%	0.0%	<0.1%	<0.1%
41	Soil, Rock, Sand	0.8%	1.4%	<0.1%	1.7%
42	Brick, Ceramics, Porcelain (fixtures, tile, etc.)	0.3%	0.8%	<0.1%	0.8%
43	Concrete	<0.1%	0.0%	<0.1%	<0.1%
44	Asphalt Roofing	<0.1%	0.0%	<0.1%	<0.1%
45	Drywall Gypsum Board	<0.1%	0.0%	<0.1%	<0.1%
46	Carpet and Carpet Padding	0.7%	1.9%	<0.1%	1.8%
47	Mattresses	0.7%	2.0%	<0.1%	1.9%
48	Furniture	<0.1%	0.0%	<0.1%	<0.1%
Total C&D		6.2%	8.2%	1.4%	11.0%

Material Components		Mean Composition (%) ¹	Standard Deviation (%)	90% Confidence Limits	
				Lower ²	Upper ²
Organics					
49	Yard Waste	<0.1%	0.2%	<0.1%	<0.1%
50	Food Waste - Loose	16.1%	15.2%	7.3%	24.9%
51	Food Waste - Packaged	2.1%	2.5%	0.7%	3.6%
Total Organics		18.3%	17.1%	8.3%	28.2%
Consumer Products					
52	Television - LCD	<0.1%	0.0%	<0.1%	<0.1%
53	Television - CRT	<0.1%	0.0%	<0.1%	<0.1%
54	Television Peripherals	<0.1%	0.0%	<0.1%	<0.1%
55	Computer Monitor - LCD	<0.1%	0.0%	<0.1%	<0.1%
56	Computer Monitor - CRT	<0.1%	0.0%	<0.1%	<0.1%
57	Computers - Desktop and Laptop	<0.1%	0.0%	<0.1%	<0.1%
58	Computer Peripherals	<0.1%	0.0%	<0.1%	<0.1%
59	Computer Printers	<0.1%	0.0%	<0.1%	<0.1%
60	Audio Equipment	<0.1%	0.1%	<0.1%	<0.1%
61	Electronic Gaming Equipment	<0.1%	0.1%	<0.1%	<0.1%
62	Cell Phone and Chargers	<0.1%	0.0%	<0.1%	<0.1%
63	Other Plug-in Electronics	<0.1%	0.0%	<0.1%	<0.1%
64	Other "Smart" Devices - with chip	<0.1%	0.0%	<0.1%	<0.1%
65	Other Electrical and Household Appliances	<0.1%	0.0%	<0.1%	<0.1%
66	Textiles and Leather	1.7%	2.4%	0.3%	3.1%
67	Rubber	<0.1%	0.1%	<0.1%	<0.1%
Total Consumer Products		1.9%	2.4%	0.4%	3.3%
Household Hazardous Materials					
68	Automotive Products	<0.1%	0.0%	<0.1%	<0.1%
69	Household Cleaners	<0.1%	0.0%	<0.1%	<0.1%
70	Lead Acid Batteries	<0.1%	0.0%	<0.1%	<0.1%
71	Mercury Containing Products	<0.1%	0.0%	<0.1%	<0.1%
72	Lithium Batteries	<0.1%	0.0%	<0.1%	<0.1%
73	Other Batteries	<0.1%	0.0%	<0.1%	<0.1%
74	Paints and Solvents	<0.1%	0.0%	<0.1%	<0.1%
75	Pesticides (insecticides, herbicides, fungicide)	<0.1%	0.0%	<0.1%	<0.1%
76	Sharps	<0.1%	0.0%	<0.1%	<0.1%
77	Prescription Medications	<0.1%	0.0%	<0.1%	<0.1%
Total Household Hazardous Materials		0.0%	0.0%	<0.1%	<0.1%
Other					
78	Diapers	0.4%	0.5%	0.1%	0.7%
79	Other Organics	3.3%	4.4%	0.8%	5.9%
80	Other Inorganics	0.5%	0.6%	0.2%	0.8%
81	Other Consumer Products	<0.1%	0.0%	<0.1%	<0.1%
82	Other C&D	<0.1%	0.0%	<0.1%	<0.1%
83	Other HHMs	<0.1%	0.0%	<0.1%	<0.1%
84	Fines	3.3%	3.6%	1.2%	5.4%
Total Other		7.6%	8.3%	2.8%	12.4%
Total of CI Waste		100.0%			

Notes for Waste Commission of Scott County

1 Based on 8 hand-sorted waste samples

2 Confidence interval is based off of a normal distribution. The confidence limits are determined by the mean percentage + or - the confidence interval.



Appendix C
Industry Acronyms

Industry Acronyms

C&D – Construction & Demolition Debris

HDPE – High Density Polyethylene

HHM – Household Hazardous Materials

ICI – Industrial, Commercial, & Institutional

ISWM – Integrated Solid Waste Management

LNI – Landfill of North Iowa

MPE – Metro Park East

MSW – Municipal Solid Waste

OCC – Old Corrugated Cardboard

PE – Polyethylene

PET – Polyethylene Terephthalate

PP - Polypropylene

PS – Polystyrene

PVC – Polyvinyl Chloride

WCSC – Waste Commission of Scott County