

# **WASTE COMPOSITION OF MARION COUNTY**

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Prepared for:  
Marion County

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## ***EXECUTIVE SUMMARY***

During the week of February 9<sup>th</sup>-13<sup>th</sup>, 2026, students from the University of Florida, Florida Polytechnic University, and Florida Atlantic University performed a waste composition study at the Marion County Baseline Transfer Station and GFL Environmental Ocala Transfer Station. This study was funded by the Florida Department of Environmental Protection (FDEP) through the Solid Waste Infrastructure for Recycling (SWIFR) grant<sup>1</sup>. The goals of this project were to: 1) provide Marion County with a current evaluation of their municipal solid waste (MSW) composition; and 2) update FDEP's *WasteCalc* tool, which relies on current waste composition studies to calculate the material composition of MSW for each of Florida's 67 counties.

Throughout the study week, 40 samples were sorted, with waste originating from residences and businesses in both the municipalities and unincorporated areas of Marion County. Incoming garbage trucks were randomly selected from each category of the sampling plan until the desired number of samples were acquired. An approximately 200-pound sample of MSW was obtained from each truck, and the waste was manually sorted into 33 different categories by undergraduate researchers from the SWIFR team. After the sample was sorted, the contents of each category were weighed and discarded. The mass-based composition of each sample was calculated, then averaged across the 40 samples to determine the overall composition of the Marion County waste stream. The results found "Food Waste" to be the largest component of Marion County's waste stream at 15.3%. Typical contents placed into this category include food preparation wastes, food scraps, and spoiled food. The results of the Marion County waste composition will be integrated into *WasteCalc* to provide more accurate and representative results for this county and other similar counties in the state.

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## ***ABBREVIATIONS AND ACRONYMS***

|            |                                                |
|------------|------------------------------------------------|
| C&D Debris | Construction and Demolition Debris             |
| EPA        | US Environmental Protection Agency             |
| FDEP       | Florida Department of Environmental Protection |
| MSW        | Municipal Solid Waste                          |
| SWIFR      | Solid Waste Infrastructure for Recycling       |

## 1. INTRODUCTION

Marion County, located in North Central Florida, is the eighteenth most populous county in the state with an estimated 433,765 residents between the unincorporated areas and 5 municipalities<sup>2</sup>. The County owns and operates the Baseline Landfill and Transfer Facility, which accepts municipal solid waste (MSW) from various businesses, single-family homes, and multifamily complexes in the County. The Baseline Landfill site also includes a recycling center, household hazardous waste processing facility, and a transfer station.

The Marion County Solid Waste Department does not offer curbside collection for residents in unincorporated areas of the county<sup>3</sup>. Instead, residents living in these areas have the option to enter a contract with independent franchise haulers for curbside pickup or may take their waste to recycling centers throughout the County. Businesses in the unincorporated areas contract with waste collection services directly with the hauler, and “mom-and-pop” customers (who primarily bring in bulk waste in dump trailers) also utilize the Baseline Landfill and Transfer Station. The City of Ocala self-performs the collection of residential and commercial waste within their city limits. The City of Ocala has a contract with GFL Environmental so that all waste collection goes to their Ocala Transfer Station.

## 2. METHODOLOGY

### 2.1 Preparation

Experience from previous waste composition studies conducted by the researchers suggested that 40 samples could reasonably be selected and sorted over the course of a weeklong waste composition study. ASTM D5231-92: *Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste*<sup>4</sup> was followed for development of the sampling plan and protocol.

**Equation 1** was used to determine the proportion of the 40 samples that should come from residential and commercial sources. For this study’s purpose, commercial waste included businesses as well as multifamily residences (e.g., apartment complexes, condominiums). Residential waste strictly included curbside collection and recycling center waste from single-family homes. Based on the tons of commercial, multifamily residential, and single-family residential waste collected in Marion County in 2024 (from the 2024 FDEP annual solid waste report)<sup>5</sup>, it was determined that 30 samples should originate from commercial and multifamily sources and 10 samples should originate from single family residential sources.

#### Equation 1

$$\text{Number of Samples} = 40 * \frac{\text{Annual Tonnage of Residential or Commercial}}{\text{Total Annual Tonnage}}$$

Beyond separating residential and commercial waste, the sampling plan also accounted for waste originating from the unincorporated areas, as well as the County's various municipalities by going to two different transfer stations that each take waste from various areas. The sampling plan consisted of approximately 16 samples from the Marion County Transfer Station and 24 samples from the GFL Environmental Transfer Station. In the end 17 samples were taken from the Marion County Transfer Station (10 commercial and 7 residential samples) and 23 samples from the GFL Environmental Transfer Station (19 commercial and 4 residential samples).

## *2.2 Sampling Method*

During the composition study, samples were obtained from the transfer station floor of both the Marion County Transfer Station and GFL Environmental Transfer Station and identified based on the type of collection vehicle and hauler. Commercial waste was collected in front-end-loaders and compactors, while residential waste was collected in automatic side loaders, rear loaders, and closed-top roll-offs. Open-top roll-offs and "mom-and-pop" haulers disposing of C&D debris or other bulky wastes were excluded from this study due to the difficulty of manually sorting this material. The origin of the waste (i.e., unincorporated areas vs municipalities) was identified by the type of hauler, as well as conversations with the driver. For example, residential waste from the unincorporated areas was easily identifiable by the hauler (i.e., Florida Express, Waste Pro, Marion County Solid Waste), as was waste from the municipalities that self-perform their own collection. For commercial unincorporated waste and counties that contract their hauling, the driver was interviewed to determine the geographic origin of the waste.

The trucks carrying samples of interest were identified as they entered the transfer stations, and spotters directed the drivers to back into a specified area where samples could be safely obtained. Once the trucks were emptied, an excavator or skid steer was used to randomly select an approximately 200-lb sample of waste and load the sample into 96-gallon rolling carts, as seen in **Figure 1**. The rolling carts were then transported to the sorting location on-site.



**Figure 1** - Example of Students Returning from Sample Collection

### **2.3 Sorting Method**

The sorting table was staged at the away from the transfer station floor to provide the researchers with a safe space to work away from facility operations and vehicle traffic. Once the samples arrived, the sorting team weighed the carts on a floor scale until the contents reached approximately 200 pounds. Then, the carts were lifted onto a sorting table with a one-inch square mesh top, as shown in **Figure 2**. Any material which passed through the mesh was classified as “residuals” and remained unsorted; material remaining on top of the mesh was manually sorted into 33 material categories using the list in the *Material Categories* section of the appendix. The residuals were captured on a tarp and weighed separately. A lined bin was reserved for each of the material categories, and once the entire sample was sorted, the bin liners were removed, weighed, and disposed of back to the transfer station floor at the Marion County Transfer Station or in a roll-off container provided by GFL Environmental. The mass of each material category was recorded on the sampling sheet in the appendix so the overall mass-based composition could be determined. **Figure 3** shows how the mass of each material category was determined.



**Figure 2** – Set-up of Marion County Waste Composition study



**Figure 3 - Weighing of Materials Categories**

### **3. DATA AND RESULTS**

#### **3.1 Raw Data Collected**

Raw data refers to the fact that this data is presented in the 33 categories decided upon by the SWIFR team and Marion County. The next section organizes the data into broader categories to give a general breakdown of the MSW stream. Each table in this section is color-coded to match the general category it falls under in *Section 3.2*. The percentages were based on the averages of the mass fraction for each category. The equations used, as seen below, follow the ASTM D5231 method<sup>4</sup>.

**Equation 2** was used to determine the individual mass fraction of each category in a sample.

#### **Equation 2**

$$mf_i = \frac{w_i}{\sum_{i=1}^j w_i}$$

Where:

$mf_i$  = mass fraction of component  $i$   
 $w_i$  = weight of component  $i$   
 $j$  = number of components

Then, the category mass fraction for all 40 samples was averaged and multiplied by 100 to obtain a percentage, as seen in **Equation 3** and **Equation 4**.

### Equation 3

$$\bar{m}f_i = \frac{1}{n} \sum_{k=1}^n mf_i$$

### Equation 4

$$\text{Category Percentage} = \bar{m}f_i * 100$$

Raw data from the Marion County waste sort is shown in **Table 1**. The mass fraction of the total waste stream, commercial samples, and residential samples were calculated and recorded.

**Table 1 - Raw Data Collected in Marion County**

| WasteCalc Category   | Material Category                     | Total (n 40) | Residential (n 11) | Commercial (n 29) |
|----------------------|---------------------------------------|--------------|--------------------|-------------------|
| Newspaper            | Newspaper                             | 0.2%         | 0.2%               | 0.2%              |
| Corrugated Cardboard | Corrugated Cardboard (OCC)            | 7.4%         | 4.8%               | 8.4%              |
| Office Paper         | High Grade Paper (Office Type)        | 2.8%         | 1.9%               | 3.2%              |
| Other Papers         | Polycoated Aseptic Containers         | 2.3%         | 2.3%               | 2.4%              |
|                      | Boxboards                             | 2.5%         | 2.5%               | 2.5%              |
|                      | Other Paper                           | 9.7%         | 10.2%              | 9.5%              |
| Glass Packaging      | Green                                 | 0.4%         | 0.5%               | 0.3%              |
|                      | Clear                                 | 1.8%         | 1.7%               | 1.8%              |
|                      | Brown                                 | 0.5%         | 0.5%               | 0.6%              |
|                      | Other Glass/Ceramics                  | 0.6%         | 0.4%               | 0.7%              |
| Steel Cans           | Steel/Tin Cans                        | 0.9%         | 1.1%               | 0.9%              |
| Other Ferrous Metals | Other Ferrous Metals                  | 0.6%         | 0.5%               | 0.7%              |
| Aluminum Cans        | Aluminum Cans/Foil                    | 1.2%         | 1.3%               | 1.2%              |
| Non-Ferrous Metals   | Other Non-Ferrous                     | 0.6%         | 0.8%               | 0.5%              |
| Textiles             | Clothing, Footwear, Other Textiles    | 4.6%         | 6.2%               | 3.9%              |
| Yard Trash           | Yard Waste                            | 2.7%         | 5.5%               | 1.7%              |
| Food Waste           | Food Waste                            | 15.3%        | 14.7%              | 15.5%             |
| Plastic Containers   | #1 PET Bottles                        | 1.9%         | 2.6%               | 1.6%              |
|                      | #2 HDPE Bottles                       | 1.0%         | 1.0%               | 0.9%              |
| Other Plastics       | #3-7 (Other Plastic Bottles)          | 0.1%         | 0.1%               | 0.1%              |
|                      | Expanded Polystyrene                  | 1.3%         | 0.9%               | 1.4%              |
|                      | Rigid Plastic (Food Service Plastics) | 2.5%         | 2.4%               | 2.5%              |
|                      | Other Flexible Plastics               | 7.9%         | 8.7%               | 7.6%              |
|                      | Other Plastics                        | 2.2%         | 2.3%               | 2.1%              |
| C&D                  | C&D Debris                            | 4.9%         | 2.2%               | 5.9%              |
| Other Miscellaneous  | Rubber and Leather                    | 0.1%         | 0.1%               | 0.1%              |
|                      | Small Appliances/Electronics          | 1.0%         | 0.5%               | 1.1%              |
|                      | Hazardous Waste                       | 0.5%         | 0.4%               | 0.5%              |
|                      | Lithium-Ion Battery Products          | 0.0%         | 0.0%               | 0.0%              |
|                      | Residuals                             | 8.5%         | 9.5%               | 8.1%              |
|                      | Liquids                               | 3.1%         | 2.0%               | 3.5%              |
|                      | Other Organics                        | 9.9%         | 11.3%              | 9.3%              |
|                      | Other Miscellaneous                   | 1.2%         | 0.6%               | 1.5%              |

### 3.2 Processed Data

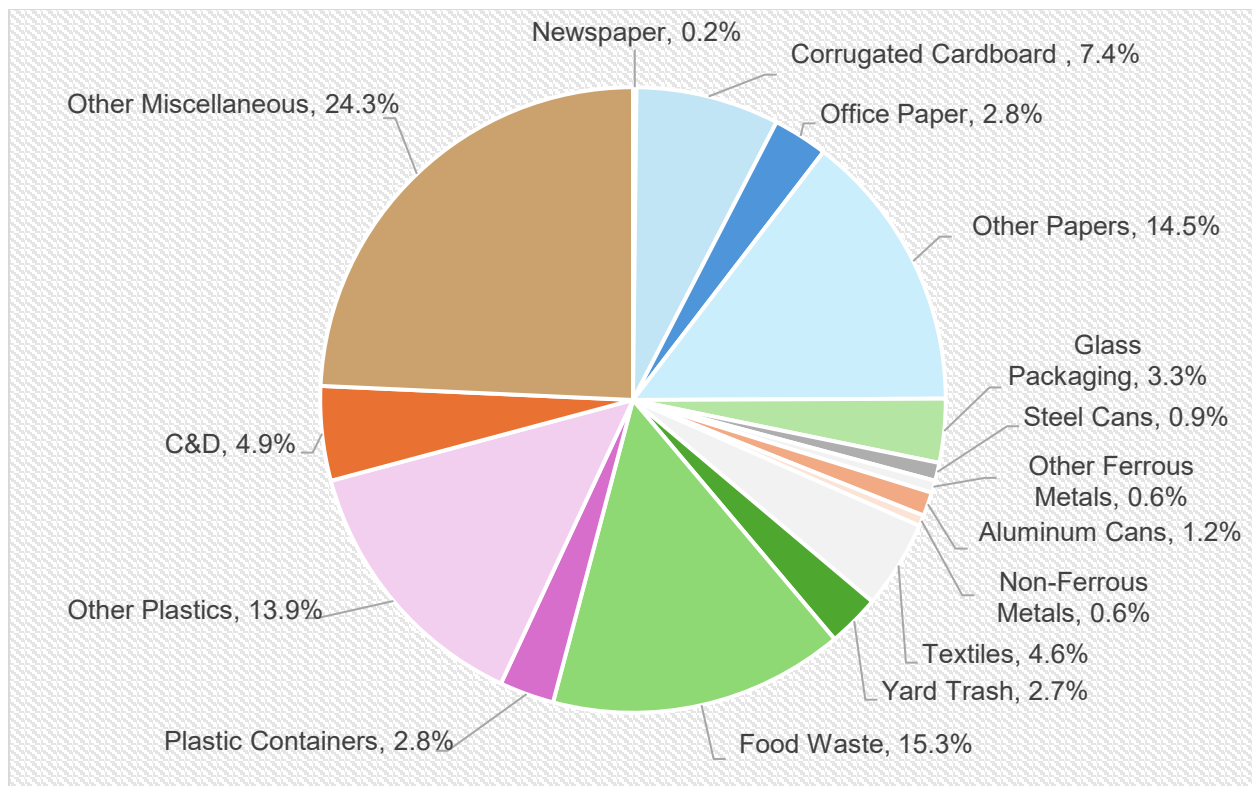
Data presented in this section has been compiled into more general groups, based on the 18 material categories in FDEP's *WasteCalc* tool. For example, the categories of "Other Paper", "Polycoated Aseptic Containers", and "Boxboards" were compiled into the general category "Other Paper". Presenting data in this manner provides a broad overview of Marion County's waste stream and allows for harmonization with the existing *WasteCalc* tool. Processed data from the Marion County waste sort is shown in **Table 2** below. Graphical representations of each waste sort can be found in **Figure 4 - Figure 6**

Besides "Other Miscellaneous" materials, the largest component of the overall waste stream in Marion County was "Food Waste" at 15.3%. This includes food preparation waste, scraps, and spoiled food. In the US Environmental Protection Agency's (EPA) Advancing Sustainable Material Management: 2018 Fact Sheet, the highest component of US MSW landfilled in 2018 was "Food" at 24.1%, so the results for Marion County are consistent with the rest of the country<sup>6</sup>. "Food Waste" is the highest component of commercial MSW stream at 15.5% and "Other Papers" was the highest component of residential MSW stream at 14.9%. The lowest material component in this study was "Newspaper" at 0.2%. Recyclable materials, including glass, aluminum cans, steel cans, plastic bottles, corrugated boxes, newspaper, and office paper sum to approximately 18.7% of the overall MSW stream.

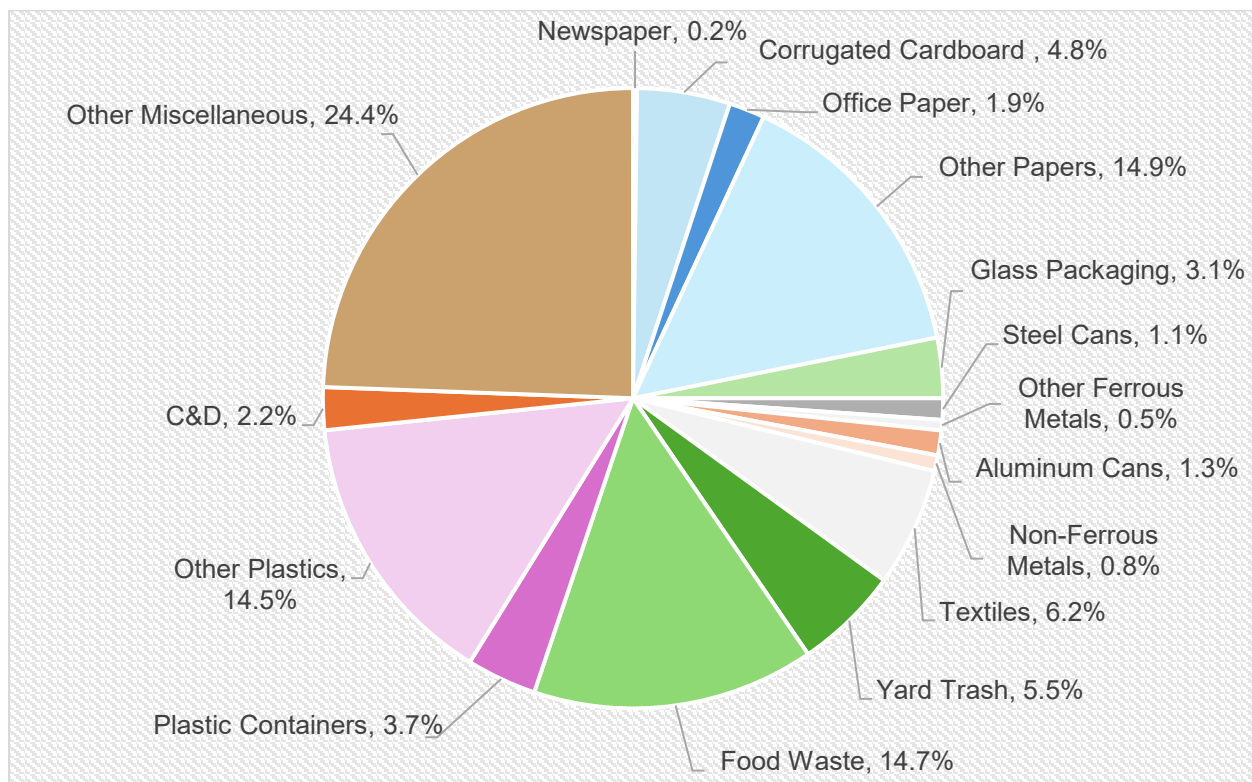
The **APPENDIX** contains data from the Marion County Baseline Landfill and Transfer Facility highlighting the waste composition from residential and commercial samples taken from the transfer station during the first two days of the week-long study.

**Table 2 - Processed Data in Marion County**

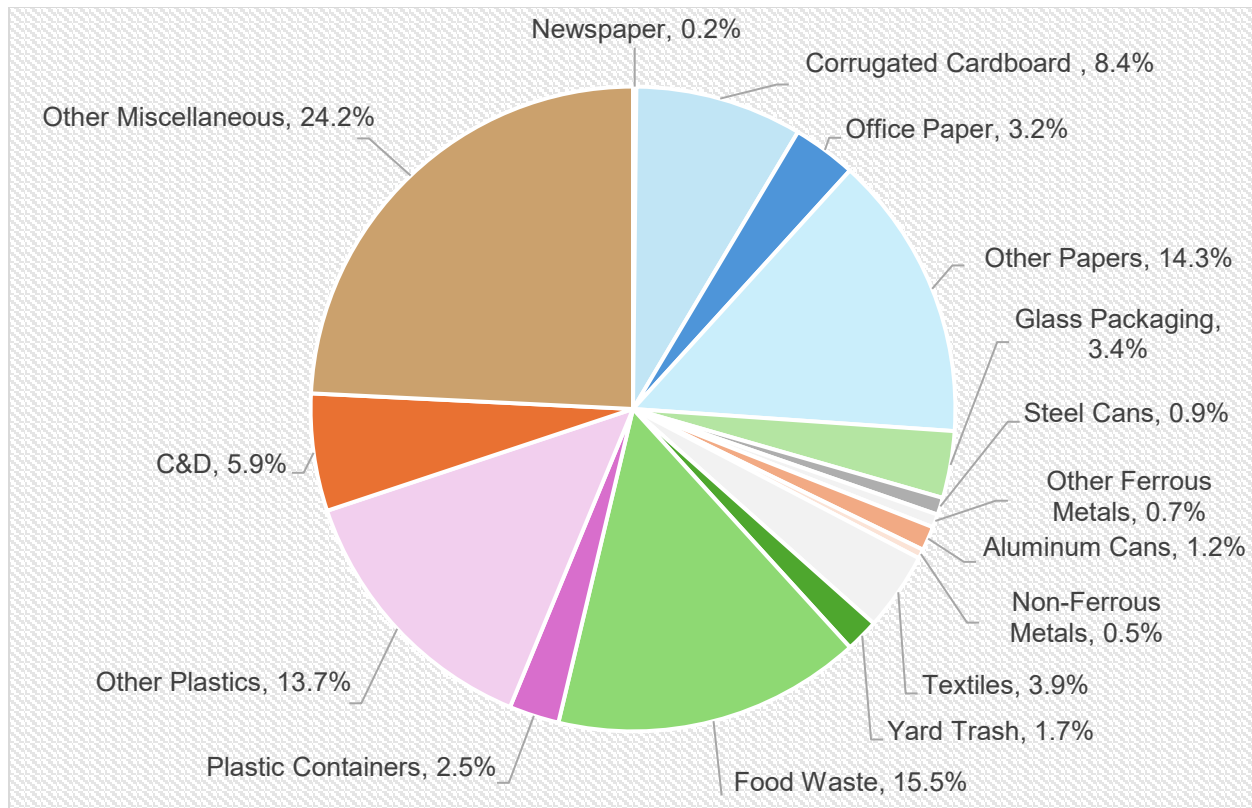
| WasteCalc Category   | Mass Percent    |                       |                      |
|----------------------|-----------------|-----------------------|----------------------|
|                      | Total<br>(n 40) | Residential<br>(n 11) | Commercial<br>(n 29) |
| Newspaper            | 0.2%            | 0.2%                  | 0.2%                 |
| Corrugated Cardboard | 7.4%            | 4.8%                  | 8.4%                 |
| Office Paper         | 2.8%            | 1.9%                  | 3.2%                 |
| Other Papers         | 14.5%           | 14.9%                 | 14.3%                |
| Glass Packaging      | 3.3%            | 3.1%                  | 3.4%                 |
| Steel Cans           | 0.9%            | 1.1%                  | 0.9%                 |
| Other Ferrous Metals | 0.6%            | 0.5%                  | 0.7%                 |
| Aluminum Cans        | 1.2%            | 1.3%                  | 1.2%                 |
| Non-Ferrous Metals   | 0.6%            | 0.8%                  | 0.5%                 |
| Textiles             | 4.6%            | 6.2%                  | 3.9%                 |
| Yard Trash           | 2.7%            | 5.5%                  | 1.7%                 |
| Food Waste           | 15.3%           | 14.7%                 | 15.5%                |
| Plastic Containers   | 2.8%            | 3.7%                  | 2.5%                 |
| Other Plastics       | 13.9%           | 14.5%                 | 13.7%                |
| C&D                  | 4.9%            | 2.2%                  | 5.9%                 |
| Other Miscellaneous  | 24.3%           | 24.4%                 | 24.2%                |



**Figure 4 – Total Waste Composition**



**Figure 5 - Residential Waste Composition**



**Figure 6 - Commercial Waste Composition**

### 3. CONCLUSION

Results of the Marion County waste composition study can now be incorporated into the *WasteCalc* program that's used in the statewide annual solid waste and recycling reports. *WasteCalc* is an online tool created by FDEP and outside contractors that allow any county in Florida to input information about the amount of waste landfilled, recycled, and combusted<sup>7</sup>. Currently, many counties in Florida have not had recent or any waste composition studies conducted. When this occurs, *WasteCalc* generates material composition percentages based on counties that are similar in population density to that specific county. However, it is important to conduct waste composition studies in various locations throughout Florida so *WasteCalc* can provide the counties with more accurate and representative information. The data obtained in this study will provide more accurate results for this county and counties similar to Marion County. The information provided may also help to make decisions about sustainable materials management in the future for Marion County.

## 4. REFERENCES

- (1) US EPA. *State and Territory Grant: Florida*; Investing in America through the Bipartisan Infrastructure Law Solid Waste Infrastructure for Recycling; EPA 530-F-23-008-FL; 2023. [https://www.epa.gov/system/files/documents/2023-09/Florida\\_SWIFR.pdf](https://www.epa.gov/system/files/documents/2023-09/Florida_SWIFR.pdf).
- (2) UF BEBR. *Recent Population Data*. <https://bebr.ufl.edu/population/population-data/> (accessed 2026-03-06).
- (3) Marion County. *Recycling & Trash Disposal*. <https://www.marionfl.org/agencies-departments/departments-facilities-offices/solid-waste/recycling-trash-disposal> (accessed 2026-03-12).
- (4) ASTM International. *ASTM D5231-92: Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste*. <https://store.astm.org/d5231-92r16.html>.
- (5) Florida Department of Environmental Protection. *2024 Solid Waste Management Report*. <https://floridadep.gov/waste/waste-reduction/content/2024-solid-waste-management-report> (accessed 2025-12-16).
- (6) US EPA, O. *Advancing Sustainable Materials Management: Facts and Figures Report*. <https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/advancing-sustainable-materials-management> (accessed 2025-12-16).
- (7) Florida Department of Environmental Protection. *Waste Calc Introduction*. <https://prodapps.dep.state.fl.us/wastecalc/> (accessed 2025-12-16).

## APPENDIX

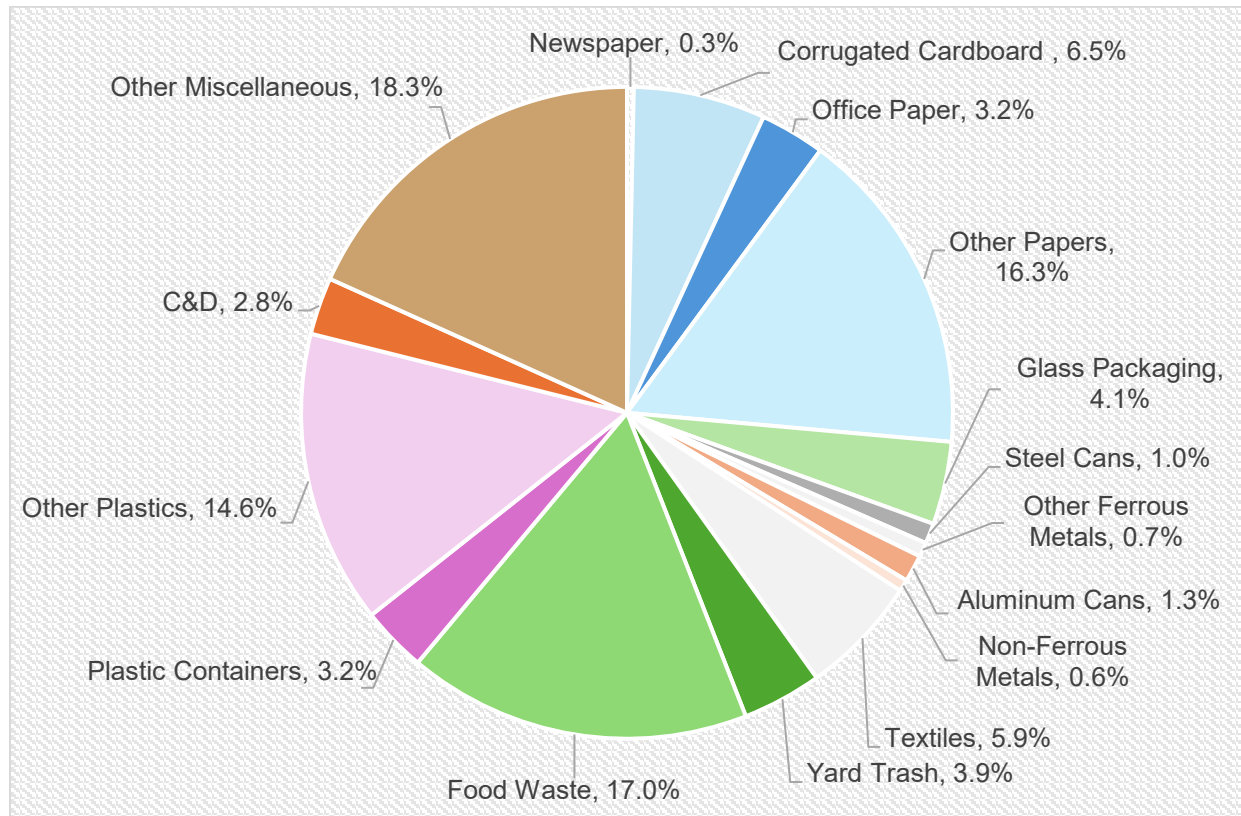
### *Data from the Baseline Landfill and Transfer Facility*

**Table 3 - Marion County Transfer Station Raw Data**

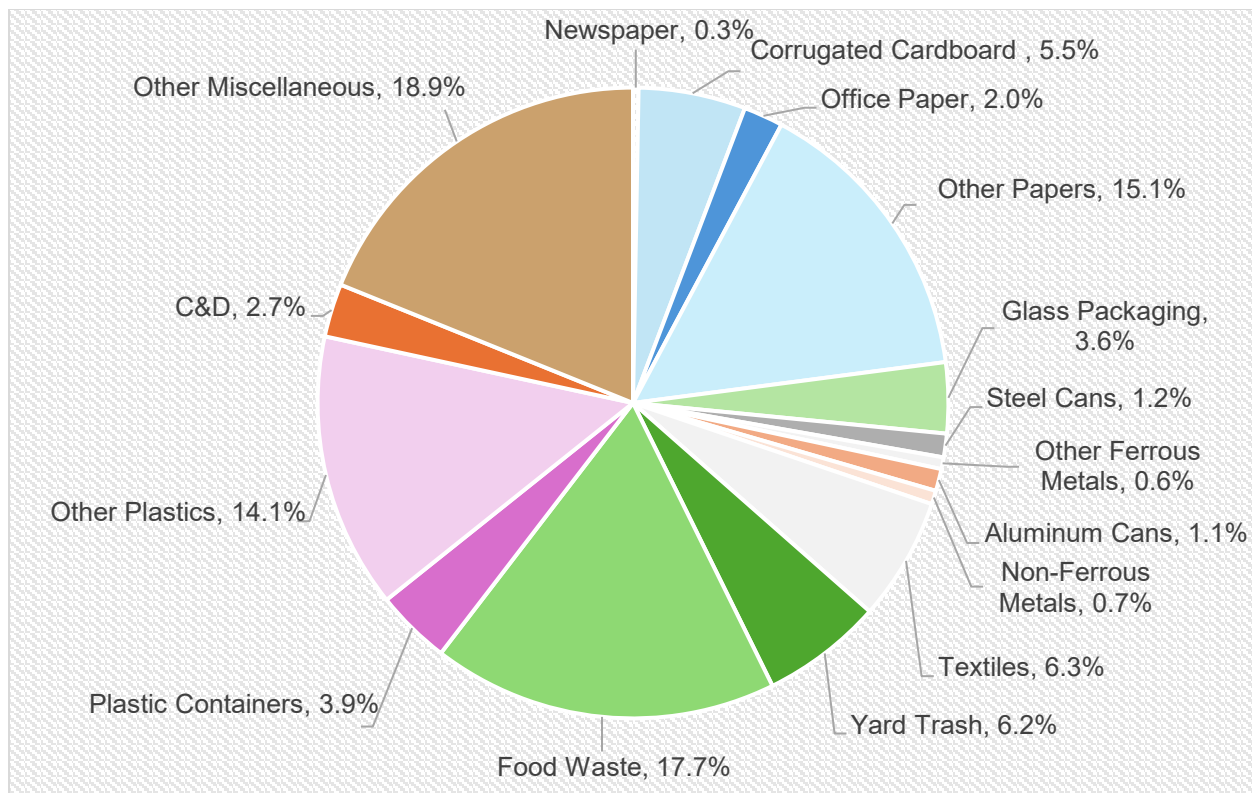
| WasteCalc Category   | Material Category                     | Total (n 17) | Mass Percent      |                   |
|----------------------|---------------------------------------|--------------|-------------------|-------------------|
|                      |                                       |              | Residential (n 7) | Commercial (n 10) |
| Newspaper            | Newspaper                             | 0.3%         | 0.3%              | 0.4%              |
| Corrugated Cardboard | Corrugated Cardboard (OCC)            | 6.5%         | 5.5%              | 7.3%              |
| Office Paper         | High Grade Paper (Office Type)        | 3.2%         | 2.0%              | 4.1%              |
| Other Papers         | Polycoated Aseptic Containers         | 2.4%         | 2.7%              | 2.2%              |
|                      | Boxboards                             | 2.6%         | 3.0%              | 2.3%              |
|                      | Other Paper                           | 11.3%        | 9.4%              | 12.6%             |
| Glass Packaging      | Green                                 | 0.6%         | 0.6%              | 0.5%              |
|                      | Clear                                 | 2.1%         | 2.2%              | 2.0%              |
|                      | Brown                                 | 0.8%         | 0.5%              | 1.0%              |
|                      | Other Glass/Ceramics                  | 0.7%         | 0.3%              | 1.0%              |
| Steel Cans           | Steel/Tin Cans                        | 1.0%         | 1.2%              | 0.9%              |
| Other Ferrous Metals | Other Ferrous Metals                  | 0.7%         | 0.6%              | 0.8%              |
| Aluminum Cans        | Aluminum Cans/Foil                    | 1.3%         | 1.1%              | 1.5%              |
| Non-Ferrous Metals   | Other Non-Ferrous                     | 0.6%         | 0.7%              | 0.5%              |
| Textiles             | Clothing, Footwear, Other Textiles    | 5.9%         | 6.3%              | 5.7%              |
| Yard Trash           | Yard Waste                            | 3.9%         | 6.2%              | 2.4%              |
| Food Waste           | Food Waste                            | 17.0%        | 17.7%             | 16.6%             |
| Plastic Containers   | #1 PET Bottles                        | 2.3%         | 3.0%              | 1.8%              |
|                      | #2 HDPE Bottles                       | 1.0%         | 0.9%              | 1.1%              |
| Other Plastics       | #3-7 (Other Plastic Bottles)          | 0.2%         | 0.2%              | 0.2%              |
|                      | Expanded Polystyrene                  | 1.2%         | 0.6%              | 1.7%              |
|                      | Rigid Plastic (Food Service Plastics) | 2.4%         | 2.2%              | 2.5%              |
|                      | Other Flexible Plastics               | 8.0%         | 8.0%              | 8.0%              |
|                      | Other Plastics                        | 2.7%         | 3.2%              | 2.4%              |
| C&D                  | C&D Debris                            | 2.8%         | 2.7%              | 2.9%              |
| Other Miscellaneous  | Rubber and Leather                    | 0.1%         | 0.0%              | 0.2%              |
|                      | Small Appliances/Electronics          | 0.8%         | 0.6%              | 0.9%              |
|                      | Hazardous Waste                       | 0.7%         | 0.2%              | 1.1%              |
|                      | Lithium-Ion Battery Products          | 0.1%         | 0.0%              | 0.1%              |
|                      | Residuals                             | 6.0%         | 5.7%              | 6.2%              |
|                      | Liquids                               | 2.5%         | 2.5%              | 2.6%              |
|                      | Other Organics                        | 7.5%         | 9.5%              | 6.1%              |
|                      | Other Miscellaneous                   | 0.5%         | 0.3%              | 0.6%              |

**Table 4 - Marion County Transfer Station Processed Data**

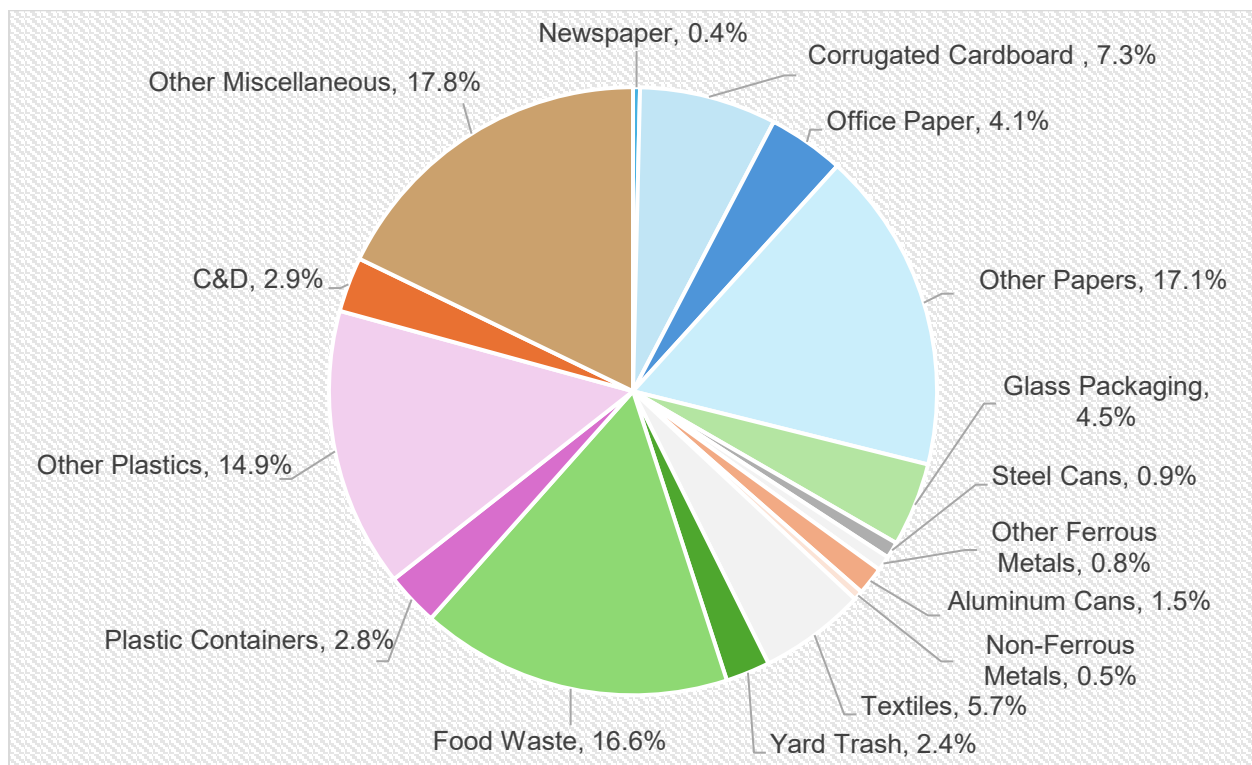
| WasteCalc Category   | Total (n 17) | Mass Percent      |                   |
|----------------------|--------------|-------------------|-------------------|
|                      |              | Residential (n 7) | Commercial (n 10) |
| Newspaper            | 0.3%         | 0.3%              | 0.4%              |
| Corrugated Cardboard | 6.5%         | 5.5%              | 7.3%              |
| Office Paper         | 3.2%         | 2.0%              | 4.1%              |
| Other Papers         | 16.3%        | 15.1%             | 17.1%             |
| Glass Packaging      | 4.1%         | 3.6%              | 4.5%              |
| Steel Cans           | 1.0%         | 1.2%              | 0.9%              |
| Other Ferrous Metals | 0.7%         | 0.6%              | 0.8%              |
| Aluminum Cans        | 1.3%         | 1.1%              | 1.5%              |
| Non-Ferrous Metals   | 0.6%         | 0.7%              | 0.5%              |
| Textiles             | 5.9%         | 6.3%              | 5.7%              |
| Yard Trash           | 3.9%         | 6.2%              | 2.4%              |
| Food Waste           | 17.0%        | 17.7%             | 16.6%             |
| Plastic Containers   | 3.2%         | 3.9%              | 2.8%              |
| Other Plastics       | 14.6%        | 14.1%             | 14.9%             |
| C&D                  | 2.8%         | 2.7%              | 2.9%              |
| Other Miscellaneous  | 18.3%        | 18.9%             | 17.8%             |



**Figure 7 - Marion County Transfer Station Total Waste Composition**



**Figure 8 - Marion County Transfer Station Residential Waste Composition**



**Figure 9 - Marion County Transfer Station Commercial Waste Composition**

## Material Categories

| Category |                                       | Detailed Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1        | Newspaper                             | High cellulose content, high photo degradation paper                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2        | Corrugated Cardboard (OCC)            | Corrugated cardboard packaging (e.g., Amazon boxes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 3        | High Grade Paper (Office Type)        | Manila envelopes, note cards, printer paper, tablets with binding, mail envelopes without a plastic window                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 4        | Polycoated Aseptic Containers         | Bleached and unbleached paperboard coated with HDPE used as food/beverage containers (e.g., ice cream cartons, milk cartons, juice boxes) as well as Takeout containers and cups with a waxy coating; does NOT include pizza boxes.                                                                                                                                                                                                                                                                                                                     |
| 5        | Boxboards                             | Cereal boxes, egg cartons (not coated with wax, plastic or metal).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 6        | Other Paper                           | Paper towels, paper plates, waxed paper, tissues, and other papers that are soiled with food during use (e.g., pizza boxes); brown paper bags and kraft paper; junk mail, carbonless paper, envelopes with and without windows, toilet paper cores and other mixed recyclable papers; magazines, phone books, glossy paper; any other containers composed mostly of paper with other materials attached (e.g., pringles cans, gum wrappers, tissue boxes, mail envelopes with a plastic window); anything that does not fall into the above categories. |
| 7        | #1 PET Bottles                        | Clear and colored bottles with necks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 8        | #2 HDPE Bottles                       | Milk, beverages, water bottles, liquid detergent bottles, some hair care bottles and cleaning products bottles with necks and other products with necks                                                                                                                                                                                                                                                                                                                                                                                                 |
| 9        | #3-#7 (Other Plastic Bottles)         | #3-#7 plastic bottles with necks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 10       | Expanded Polystyrene                  | Polystyrene drink cups, food containers, and styrofoam products such as packaging peanuts and blocks                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 11       | Rigid Plastic (Food Service Plastics) | Plates, bowls, takeout clamshells, salad trays, microwave trays, utensils, takeout cups and lids, straws and stirrers, wide mouth cups and tubs (without a neck) and lids (e.g., solo cups; yogurt or sour cream containers; fruit clamshells)                                                                                                                                                                                                                                                                                                          |
| 12       | Other Flexible Plastic                | Bags intended to contain produce, bread, newspapers and sandwiches (e.g., Ziploc bags); shopping bags used to transport merchandise from the place of purchase, given out by the store; films that contain multiple layers of film or other materials that have been fused together (e.g. potato chip bags, food wrappers such as candy-bar wrappers, metalized film); photographic negatives, shower curtains, mailing pouches, bank bags, x-ray film                                                                                                  |
| 13       | Other Plastics                        | Plastic such as toys, toothbrushes, vinyl hose, and lawn furniture; items are predominately plastic with other materials attached such as disposable razors, pens, lighters, toys, and binders; anything that does not fall into the above categories. Includes flexible packaging contaminated such that it cannot be sorted                                                                                                                                                                                                                           |
| 14       | Green Glass                           | Green glass bottles, containers, and green cullet (broken glass pieces)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 15       | Clear Glass                           | Clear glass bottles, containers, and clear cullet (glass pieces); mirrors, glassware, crystal, Pyrex and corning ware, laminated curved glass such as windshields, flat auto, clear or tinted window, door, shelf, tabletops                                                                                                                                                                                                                                                                                                                            |
| 16       | Brown Glass                           | Brown glass bottles, containers, and brown cullet (broken glass pieces)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

|    |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17 | Other Glass/Ceramics               | Glass not otherwise classified, ceramics, structural ceramics like pottery and porcelain, and engineered ceramics such as refractory and abrasive materials.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 18 | Aluminum Cans/Foil                 | Cans and bi metal cans (nonmagnetic); food containers, trays, pie tins, and foil pieces                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 19 | Steel/Tin Cans                     | Tin and steel food, pet food, and other containers, including bi-metal cans mostly of steel; does NOT include aluminum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 20 | Other Ferrous Metals               | Ferrous and alloyed ferrous scrap metals that a magnet will adhere to                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 21 | Other Non-Ferrous                  | Non-ferrous metal scrap such a brass, copper, or other non-magnetic metal; includes aluminum products such as window frames and cookware                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 22 | Yard Waste                         | Grass clippings, twigs, branches, leaves, etc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 23 | Food Waste                         | Food preparation wastes, food scraps, spoiled food                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 24 | Other Organics                     | Combustible materials including wax, bar soap, cigarette butts, feminine hygiene products, disposable diapers, vacuum cleaner bag contents, leather, briquettes, and fireplace, burn barrel, and fire-pit ash, and other organic material not classified elsewhere. As well as animal carcasses not resulting from food storage or preparation, animal wastes, and kitty litter                                                                                                                                                                                                                                  |
| 25 | C&D Debris                         | Includes asphalt roofing shingles, gypsum wallboard, rocks, concrete, and bricks; clean wood (e.g., 2 x 4's and 2 x 6's and sheets of plywood, strand board, and particleboard)                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 26 | Rubber and Leather                 | Rubber gloves; finished products and scrap materials made of natural and synthetic rubber, such as bathmats, inner tubes, rubber hoses, and foam rubber and leather items                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 27 | Clothing, Footwear, Other Textiles | Shoes, tennis shoes, fabric materials and clothing including natural and synthetic textiles such as cotton, wool, silk, woven nylon, rayon, and polyester; includes non-rag stock grade textiles such as heavy linens and draperies (e.g., pillows, blankets, towels, sheets)                                                                                                                                                                                                                                                                                                                                    |
| 28 | Small appliances/ Electronics      | Toasters, stereos, other small appliances and electronic equipment (non-refrigerant); computer related electronics (e.g., Laptops, monitors, printers, mouse, stereos) and personal portable products (e.g., cell phones, chargers, camcorders, gaming devices, cameras)                                                                                                                                                                                                                                                                                                                                         |
| 29 | Hazardous Waste                    | Automotive products and fluids (e.g., oil filter, motor oil/diesel oil, and containers contaminated with oil), paints and solvents, pesticides, herbicides and fungicides, household cleaners, lead acid batteries and other types of batteries (excluding lithium-ion), mercury containing products (e.g., fluorescent bulbs, barometers, thermostat switches, thermometers, car switches, blood pressure cuffs), cathode ray tubes (large monitors)pharmaceuticals, hypodermic needles, needle covers, medical tubing, articles contaminated with red (blood) colored substances, and medical device packaging |
| 30 | Lithium-Ion Battery Products       | Products which contain lithium-ion batteries, such as cell phones, tablets, laptops, electric scooters and hoverboards, e-cigarettes, handheld power tools, rechargeable power banks, and rechargeable headphones                                                                                                                                                                                                                                                                                                                                                                                                |
| 31 | Residuals                          | Unsorted materials which pass through the 1" x 1" mesh table                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 32 | Liquids                            | Bottled liquids                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 33 | Other Miscellaneous                | Other objects that do not fit into a previous described category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

### *Example Sampling Sheet*

|                                                   |  |
|---------------------------------------------------|--|
| Sample #                                          |  |
| Date and Time Pulled:                             |  |
| Date Sorted:                                      |  |
| Hauler:                                           |  |
| Hauler Truck #:                                   |  |
| Truck Weight (inbound):                           |  |
| Truck Weight (outbound):                          |  |
| Total Sample Weight (lbs):                        |  |
| Description of Sample:                            |  |
| Waste Stream (commercial or residential):         |  |
| Origin of Waste (incorporated or unincorporated): |  |

| Notes                                      |
|--------------------------------------------|
| Any bulky items or white goods?            |
| Approximate area of collection:            |
| Notes/observations from driver about load: |

### Example Data Collection Sheet

| Category             | Material |                                    | Weight (lbs) | Category            | Material |                                       | Weight (lbs) |
|----------------------|----------|------------------------------------|--------------|---------------------|----------|---------------------------------------|--------------|
| Newspaper            | 1        | Newspaper                          |              | Plastic Containers  | 18       | #1 PET Bottles                        |              |
| Corrugated Cardboard | 2        | Corrugated Cardboard (OCC)         |              |                     | 19       | #2 HDPE Bottles                       |              |
| Office Paper         | 3        | High Grade Paper (Office Type)     |              | Other Plastics      | 20       | #3-7 (Other Plastic Bottles)          |              |
| Other Papers         | 4        | Polycoated Aseptic Containers      |              |                     | 21       | Expanded Polystyrene                  |              |
|                      | 5        | Boxboards                          |              |                     | 22       | Rigid Plastic (Food Service Plastics) |              |
|                      | 6        | Other Paper                        |              |                     | 23       | Other Flexible Plastics               |              |
|                      | 7        | Green                              |              |                     | 24       | Other Plastics                        |              |
| Glass Packaging      | 8        | Clear                              |              | C&D                 | 25       | C&D Debris                            |              |
|                      | 9        | Brown                              |              | Other Miscellaneous | 26       | Rubber and Leather                    |              |
|                      | 10       | Other Glass/Ceramics               |              |                     | 27       | Small Appliances/Electronic           |              |
| Steel Cans           | 11       | Steel/Tin Cans                     |              |                     | 28       | Hazardous Waste                       |              |
| Other Ferrous Metals | 12       | Other Ferrous Metals               |              |                     | 29       | Lithium-Ion Battery Products          |              |
| Aluminum Cans        | 13       | Aluminum Cans/Foil                 |              |                     | 30       | Residuals                             |              |
| Non-Ferrous Metals   | 14       | Other Non-Ferrous                  |              |                     | 31       | Liquids                               |              |
| Textiles             | 15       | Clothing, Footwear, Other Textiles |              |                     | 32       | Other Organics                        |              |
| Yard Trash           | 16       | Yard Waste                         |              |                     | 33       | Other Miscellaneous                   |              |
| Food Waste           | 17       | Food Waste                         |              |                     |          |                                       |              |