Maryland
Department of
the Environment

APPENDIX A

| WASTE CHARACTERIZATION STUDY

FINAL NEEDS ASSESSMENT | MARYLAND STATEWIDE RECYCLING NEEDS ASSESSMENT

HDR

MSW CONSULTANTS

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1. INTRODUCTION

1.1 BACKGROUND

Maryland is among the group of states actively pursuing the implementation of extended producer responsibility (EPR) policies and programs for managing the recycling of packaging material. In 2023, the Maryland Legislature passed Senate Bill 222 (SB0222), Statewide Recycling Needs Assessment and Producer Responsibility for Packaging Materials. Among other things, SB0222 established a producer responsibility advisory council to provide advice and make recommendations regarding establishing and implementing a producer responsibility program in the State for packaging materials.

In support of this legislation, the Maryland Department of Environment (MDE) has retained a consulting team to perform a Statewide Recycling Needs Assessment (Recycling Needs Assessment). This Recycling Needs Assessment encompasses multiple, parallel research tracks including but not limited to recycling stream analysis and economic opportunities; stakeholder engagement; recycling infrastructure and capacity review; worker conditions and equity within recycling systems; and EPR cost, benefits and environmental impacts. This research also includes updating Maryland's statewide characterization study of disposed municipal solid waste.

In 2016 MDE, in partnership with the Northeast Maryland Disposal Authority (NMWDA), performed the State's first waste characterization study. This inaugural study characterized a representative snapshot of disposed wastes from nine disposal facilities spread across Maryland, in accordance with a high-level study design provided by MDE. Since the conclusion of the 2016 waste characterization study (2016 Study), the disposed waste stream has changed due to a variety of macroeconomic factors.[1] Additionally, accurate waste composition data is foundational to the Recycling Needs Assessment. Accordingly, a follow-up to the 2016 Study is required to serve as an updated baseline.

MSW Consultants, working as a subcontractor, completed the 2024 waste characterization study update (2024 Study) for use in the Recycling Needs Assessment. As requested by MDE, the 2024 Study sought to largely duplicate the methodology and scope of the 2016 Study in order to provide highly comparable results to the prior study, while accurately informing the Recycling Needs Assessment.

This report summarizes the methodology and findings of the 2024 Study, with comparisons to the 2016 Study results.

1.2 OBJECTIVES

The objectives of the 2024 Study are comparable to those from the 2016 Study and are itemized below:

- To the greatest extent possible, replicate the 2016 Study methodology, which followed proven, industry-standard methods for sample acquisition and sorting protocol at landfills and transfer stations, to provide high comparability of the 2024 Study results.

[1] Examples include changes to cardboard and paper usage stemming from the ongoing migration from brick-and-mortar to online shopping and from print to digital media; continued lightweighting of packaging materials as plastics, aseptic containers, and flexible films increase market share; shifts in waste generation and disposal patterns from office-based to remote employment that spiked during the 2020 COVID pandemic; and increased focus on diverting organic wastes, e-wastes, and other hard-to-recycle materials that have arisen since the 2016 Study, to name a few.

- Expand the material categories to capture baseline data about disposed packaging materials for incorporation into the broader Recycling Needs Assessment.
- Update county-level population, recycling thresholds, and demographic stratification of rural, suburban and urban counties.
- Update Maryland waste disposal using data from the 2022 reporting year, as compiled by MDE, and apply the updated disposed waste composition results to this annual data set.
- Provide aggregate statewide composition data for the 2022 reporting year, including comparisons to the 2016 Study results (which reflected the 2014 reporting year).

In accordance with these objectives, the 2024 Study followed a virtually identical approach to the 2016 Study. However, it is important to note that the 2024 Study was only able to accommodate one seasonal field data collection event (fall 2024), compared to two seasonal events (summer and fall 2016) in the 2016 Study. As a result, the level of precision of the 2024 Study is lower than the 2016 Study. However, in the opinion of MSW Consultants, the 2024 Study is highly representative of Maryland's disposed waste stream in the aggregate, especially in capturing packaging materials, which do not exhibit as much seasonal variation relative to other constituents in the disposed waste stream such as green wastes, and renovation/bulky/clean-out wastes, which tend to fluctuate more significantly on a seasonal basis. Additional ramifications of the single season of data collection are addressed in the Conclusions.

1.3 MSW DISPOSAL

MDE provided the 2022 Maryland Solid Waste and Diversion Report for use as a basis for statewide municipal solid waste (MSW) disposal tonnages. Table 1-1 itemizes the reported MSW disposal quantities by county and includes supplemental data on county recycling and demography. Data for Baltimore City is also included in the table as the State's only urban demographic area. The demographic assignments for urban, suburban or rural were made in a consistent manner with those in the 2016 Study and reviewed by MDE in 2024.

Table 1-1 MSW Disposed by County of Origin

County	Population, 2023 [1]	MSW Destined for Disposal, 2022 (tons) [2]	Recycling Threshold	Current Recycling Rate	Demography
Allegany	67,273	62,038	20%	47%	Suburban
Anne Arundel	594,582	362,825	35%	42%	Suburban
Baltimore City	565,239	455,900	35%	17%	Urban
Baltimore County	844,703	846,273	35%	24%	Suburban
Calvert	94,728	60,214	20%	36%	Suburban
Carroll	176,639	154,693	35%	25%	Suburban
Cecil	105,672	83,553	20%	65%	Suburban
Charles	171,973	76,666	35%	46%	Suburban
Dorchester	32,879	38,955	20%	33%	Rural
Frederick	293,391	164,887	35%	46%	Suburban
Garrett	28,423	21,432	20%	41%	Rural
Harford	264,644	180,777	35%	48%	Suburban
Howard	336,001	270,393	35%	45%	Suburban
Mid-Shore [3]	138,782	111,349	20%	51%	Rural
Montgomery	1,058,474	553,429	35%	40%	Suburban
Prince George's	947,430	664,151	35%	46%	Suburban
Somerset	24,910	35,518	20%	6%	Rural
St. Mary's	115,281	46,669	20%	23%	Suburban
Washington	155,813	125,693	35%	30%	Suburban
Wicomico	104,800	133,614	20%	53%	Suburban
Worcester	54,171	59,296	20%	38%	Suburban
Total	**6,175,808**	**4,508,325**			

[1] Source: U.S. Census Bureau, 2023.

[2] Source: Maryland Solid Waste Management and Diversion Report, 2022.

[3] Mid-Shore Regional Recycling Program includes Caroline, Kent, Queen Anee's and Talbot Counties.

Table 1-2 summarizes the county-level data by demographic region. As shown, Maryland is predominantly comprised of suburban waste sheds, with over 85 percent of disposal tonnage originating from suburban areas. Of equal importance, and consistent with the 2016 Study, this table shows the basis for subdividing MSW into residential and institutional/commercial/industrial (ICI) generators. As shown, rural areas are weighted towards residential wastes, and urban areas are weighted toward ICI waste; suburban areas of the state are assumed to have a 50/50 split. These allocations are estimates only, but are based on other studies that have more rigorously investigated waste generation by demographic sector (Pennsylvania, 2022; Connecticut, 2015; Illinois, 2009), and are consistent with the 2016 Study.

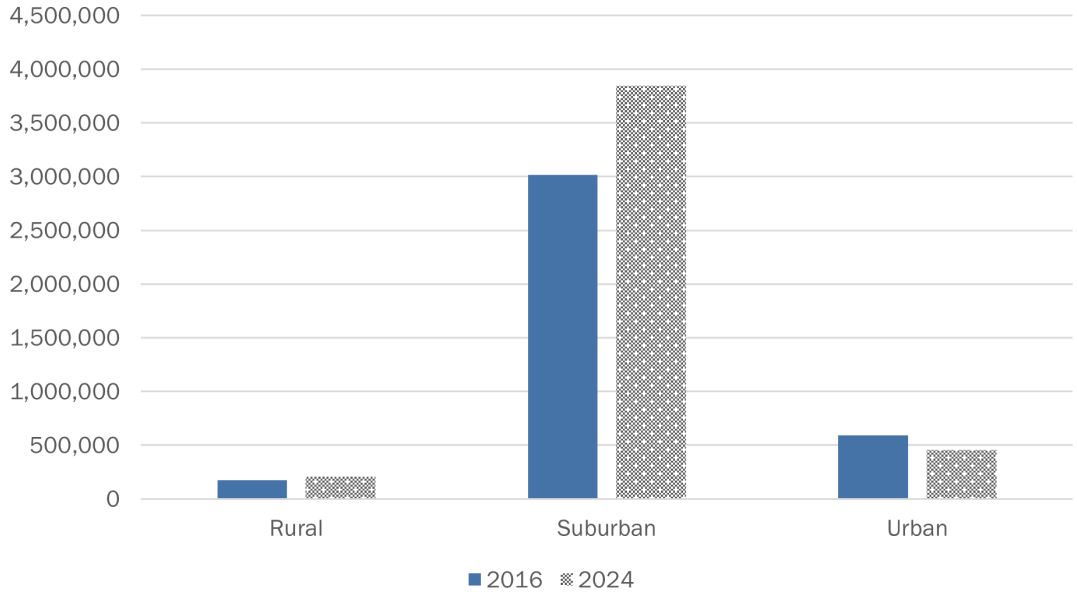
Table 1-2 Disposed MSW from Maryland Counties By Demographic Region

Demographic Region	MSW Destined for Disposal, 2022 (tons)	Percent of Statewide	Residential/ ICI Split [1]	Residential	ICI
Urban	455,900	10.1%	40%/60%	182,360	273,540
Suburban	3,845,172	85.3%	50%/50%	1,922,586	1,922,586
Rural	207,254	4.6%	60%/40%	124,352	82,901
Total	**4,508,325**	**100.0%**		**2,229,298**	**2,279,027**

[1] It was not possible to compile the breakdown of disposed waste by generator sector. These estimated percentages are consistent with other studies that have more rigorously investigated waste generation by demographic sector and were also used in the 2016 Study.

Figure 1-1 shows a graphical comparison of the implied MSW disposal by demographic region from 2016 to 2024. As shown, based on the above assumptions, MSW originating from suburban areas has increased, while urban wastes have decreased slightly, and rural wastes have remained roughly level.

Figure 1-1 Comparison of Disposed MSW Tons by Origin, 2016 v 2024



1.4 METHODOLOGY SUMMARY

Before deployment into the field for data collection, MSW Consultants developed a detailed Waste Characterization Study Design (Study Design), which was approved by MDE. This section summarizes the key technical specifications contained in the Study Design, and also summarizes the final sample acquisition in comparison to sampling targets.

- **Generator Sectors**: The 2024 Study separated wastes into Residential (from single family and multi-family residential households) and ICI (from commercial, industrial, and institutional establishments).

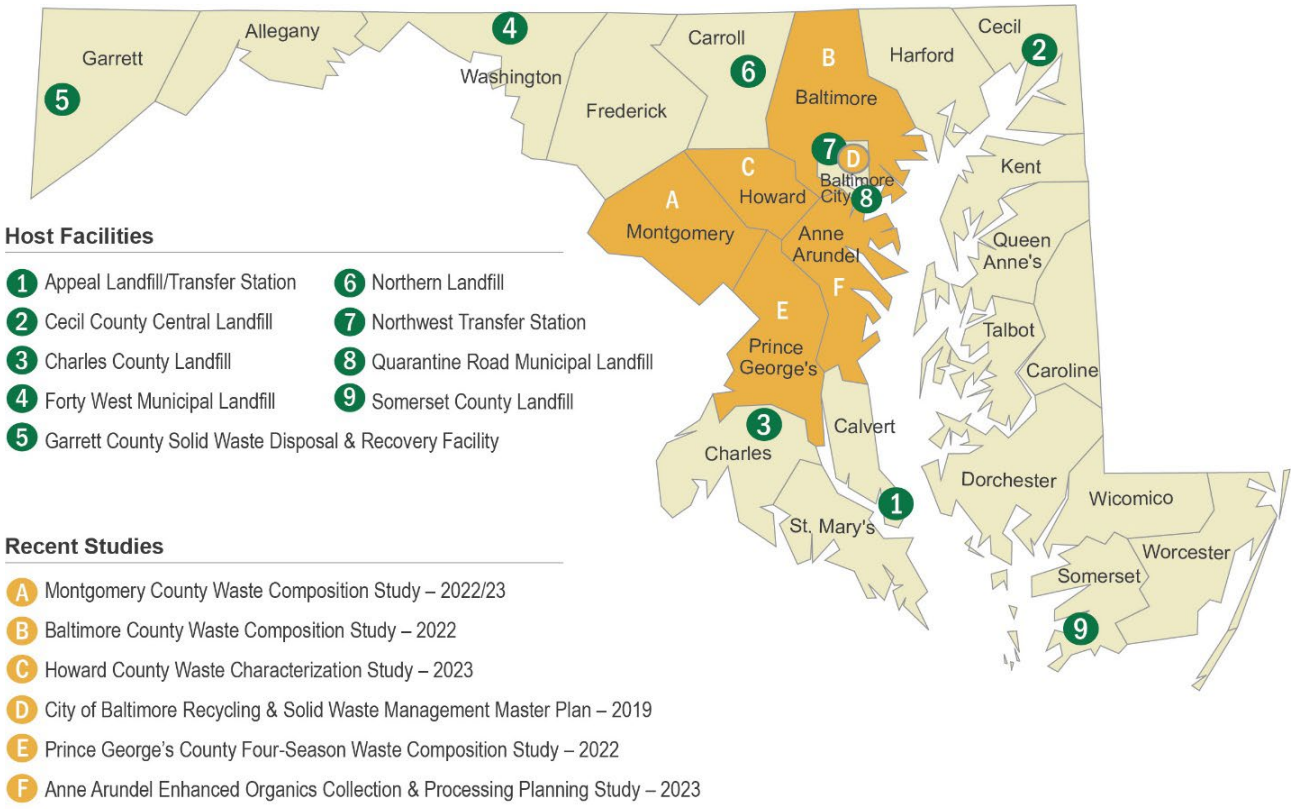
- **Host Facilities & Field Schedule**: MDE coordinated the recruitment of the host facilities for the 2024 Study. All nine facilities that participated in the 2016 Study agreed to participate in the 2024 Study. Following MDE recruitment, MSW Consultants led a kick-off call with each facility to confirm traffic flows, truck types, estimated Residential versus ICI tonnage splits, operating hours, site layout, site-specific safety needs and targeted field dates. Table 1-3 presents the field schedule for the 2024 field data collection. As shown, data were collected over only a single season in the 2024 Study, due to time constraints related to completing the Recycling Needs Assessment. Consistent with the 2016 Study, in 2024 the Northern Landfill in Carroll County served as the two-day kick-off site to orient the field crew with the project study design and provide ample time for training and setup.

Table 1-3 Field Data Collection Schedule by Host Facility

County	Host Facility	Field Dates
Carroll	Northern Landfill	November 4th – 5th
Baltimore	City of Baltimore - Northwest Transfer Station	November 6th
Washington	Forty West Municipal Landfill	November 7th
Garrett	Garrett County Landfill	November 8th
Charles	Charles County Landfill	November 11th
Somerset	Somerset County Landfill	November 12th
Cecil	Cecil County Central Landfill	November 13th
Baltimore	City of Baltimore - Quarantine Road Municipal Landfill	November 14th
Calvert	Appeal Landfill/Transfer Station	November 15th

- **Supplemental Waste Composition Data**: In addition to the host disposal facilities identified by MDE for participation in this 2024 Study update, multiple Maryland counties or cities have recently performed their own waste characterization studies. MDE provided recent studies for review by MSW Consultants. Figure 1-2 identifies the host facilities from which samples were captured as part of the 2024 Study; and also identifies the Maryland locations that have recently performed their own county or city waste composition studies. Consistent with the 2016 Study, and based on a detailed review of the methodology and results of these recent studies, the Prince George's County and Montgomery County studies were selected for inclusion in an adjusted estimate of Maryland's disposed MSW composition. Both of these studies conformed with ASTM standards and related best practices for waste composition sampling; incorporated a comprehensive set of material categories that could be readily mapped to the 2024 Study categories; and separately characterized both the residential and ICI generator sectors as well as the aggregate MSW stream.

Figure 1-2 Waste Composition Sources for Data Analysis



- **Health and Safety**: MSW Consultants adhered to its Safety and Health Plan for this project as included in the Study Design which maintains a high level of safety standards for waste characterization studies. No accidents or weather impacts occurred during the two-week study period in 2024.
- **Material Categories**: The material categories for the 2024 Study were predominantly the same as the 2016 Study, with a few additions to accommodate the EPR packaging focus of the broader Recycling Needs Assessment. Table 1-4 shows the 61 material categories used in the 2024 Study, which were expanded from 53 categories in the 2016 Study. .
- **Divertibility Classifications**: Consistent with the 2016 Study, the 2024 Study assigned "divertibility" classifications for each constituent to provide additional perspective on the ability to reduce wastes to landfill in the future. The divertibility classifications include the following designations:
    - **Curbside Recyclables:** Includes commonly accepted curbside/drop-off program recyclables such as recyclable fiber (e.g., newsprint, corrugated cardboard, magazines, paperboard, office paper and other mixed paper), recyclable containers (e.g., aluminum and steel cans and bottles, glass bottles and jars, plastic bottles and containers #1-#7) and other curbside recyclables (e.g., durable plastic).
    - **Compostables/Mulchables**: Includes organics – food waste, compostable paper, leaves, grass, pruning's and trimmings. Also included is clean lumber which can be chipped and composted, as well as other wood materials that can be used in composting/mulching of

wood products, such as canes, crutches, crates, barrels and wood found in furniture. Also included is land clearing debris, recycled earthen materials (i.e. clays, sands, gravels and silts), topsoil, tree stumps, roots mats, brush and branches, logs, vegetation and rock from land clearing operations, which if not recycled are typically discarded in land clearing debris, rubble or C&D landfills.

- **Other Non-Curbside Recyclables**: Includes recyclables other than curbside recyclables that can be accepted at municipal drop-off locations or third-party recyclers or retailers (e.g., wood pallets, lead acid/single-use/rechargeable batteries, C&D debris, scrap metal, lightbulbs, fluids/oils, paint, other HHW, textiles/leather products, clean film bags, computer/electronics, tires, etc.).
- **Not Currently/Widely Recyclable:** Includes all other materials that are not currently recyclable (e.g., mattresses/box springs, expanded polystyrene, non-container glass, rubber products, cosmetics, shampoos, lotions, disposable diapers/sanitary products, supermix-bottom fines and dirt smaller than 2'' (paper, plastic, glass, organic material etc.)).

- **Sampling Targets**: Table 1-5 compares the targeted sample counts by each facility from the Study Design to the actual sample counts captured during the fieldwork. As shown, the sample targets were exceeded in the 2024 Study, providing slightly higher precision of results than anticipated. The Residential/ICI split emerged from the systematic sampling protocol and facility provided estimates, resulting in a representative number of samples of both residential and ICI wastes being captured. Table 1-6 recasts the samples to reflect the underlying mix by generator type and demographic region.
- **Sample Weights**: Samples were targeted to be between 200 to 250 pounds. The average sample weight was 228.8 pounds.
- **Field Data Collection**: The Study Design contains a detailed description of truck selection, grab sampling, sorting and weighing methods applied in the field to intercept and measure the composition of samples of inbound residential and ICI wastes. These methods followed industry-standard practices as described in ASTM D5231-92 (2024), *Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste* and were applied similarly to the 2016 Study. Figure 1-3, Figure 1-4 and Figure 1-5 show photographs of different stages of the sampling, sorting and weighing process.

Table 1-4 Material Categories List with Divertibility Class

Material Category		Material Category	
Paper		**Glass**	
1	Newsprint	1	Clear Glass Containers
1	Corrugated Cardboard/Kraft Paper	1	Brown Glass Containers
1	Magazines	1	Green Glass Containers
1	Paperboard/Packaging	4	Non-Container/Other Glass
4	Polycoated/Aseptic Pkg	**Organics**	
1	High Grade Office Paper	3	Food Waste
2	Books	3	Grass
1	Other Recyclable Paper	3	Leaves
4	Paper Cups	3	Brush, Prunings, and Trimmings
3	Compostable Paper	4	Other/Non-Compostable Organics
4	Non-Recyclable Paper	**C&D**	
Plastic		3	Wood - Clean Lumber
1	PET (#1) Bottles/Jars	4	Wood - Painted/Treated
1	PET (#1) Other	2	Wood - Pallets
1	HDPE (#2) Bottles - Natural Only	4	Non-C&D Wood
1	HDPE (#2) Bottles - Colored Only	4	Drywall/Gypsum Board
1	HDPE (#2) Non-Bottle Containers	2	Concrete, Brick, Rock, Other C&D
1	PP (#5) Bottles and Containers	4	Carpet, Carpet Padding, & Rugs
1	PS (#6) Rigid Containers	**HHW**	
1	#3, #4, #7 Products	4	Medical Waste & Sharps
4	Compostable Plastic Pkg	2	Batteries - Lead Acid
1	Durable Plastic Products	2	Batteries - Other Rechargeable
4	EPS "Styrofoam" - Food Pkg	2	Batteries - All Other
4	EPS "Styrofoam" - Non-Food Pkg	2	Other Haz Waste/Other HHW
2	Clean Commercial Film	**Electronics**	
2	Clean Shopping Bags	2	Computers & Electronic Products
4	Contaminated/Other Film - Mono	**Other**	
4	Contaminated/Other Film - Multi	2	Textiles & Leather Products
4	Remainder/Composite Plastic	4	Diapers & Sanitary Products
Metal		4	Bulky Items
1	Aluminum Cans & Containers	2	Tires
2	Other Aluminum	4	Other/Not Elsewhere Classified
2	Other Non-Ferrous	4	Supermix - Bottom Fines & Dirt
1	Tin/Steel Containers		
2	Other Ferrous	**Total Samples**	
1	*Curbside Recyclables*	3	*Compostables/Mulchables*
2	*Other Non-Curbside Recyclables*	4	*Not Currently/Widely Recyclable*

Table 1-5 Sampling Targets – Planned vs. Actual

Host Facilities	City/County	Planned Samples	Actual Samples		Total
			Residential	ICI	
Appeal Landfill/Transfer Station	Calvert	10	7	5	12
Central Landfill	Cecil	10	6	4	10
Charles County Landfill	Charles	10	8	4	12
Quarantine Road Municipal Landfill	City of Baltimore	10	6	5	11
Forty West Municipal Landfill	Washington	10	6	6	12
Garrett County Landfill	Garrett	10	5	7	12
Northern Landfill	Carroll	20	11	10	21
Northwest Transfer Station	City of Baltimore	10	10	N/A	10
Somerset County Landfill	Somerset	10	7	3	10
Total		**100**	**66**	**44**	**110**

Table 1-6 Sample Detail by Generator and Demographic Region

Demographic	Residential	ICI	Total
Urban	16	5	**21**
Suburban	38	29	**67**
Rural	12	10	**22**
Total	**66**	**44**	**110**

Figure 1-3 Loader-Assisted Grab Sampling of Inbound MSW Sampling

Figure 1-4 Designated Sorting Work Area (Landfill & Transfer Station)

Figure 1-5 Queuing & Weigh-Out of Sorted Samples

- **Data Analysis by Residential and ICI Generator Sector**: The statistical methods used in this study follow the US EPA's guidance on solid (hazardous) waste sampling.[2] As a first step, to normalize the samples, each sample was converted from raw weights to percentages. The estimated composition percentage was then calculated for each material category in the residential stream, and separately for the ICI stream. This estimated composition percentage serves as the best estimate of the true composition by demographic. In this study, the sample mean was used as the estimated composition percentage and was calculated as the average of the sample percentages for each material category. Consistent with the 2016 Study, margins of error were calculated at a 95 percent confidence level to provide a measure of the uncertainty in the estimated composition percentages. Because the estimated composition percentage is based on sampling, there is inherent variability in the estimate. The margin of error quantifies this

[2] *Hazardous Waste Test Methods/SW-846*, Chapter 9: Sampling Plans, US EPA, November 22, 2023.

variability, reflecting the possible difference between the sample estimate and the true population value due to sampling error.

- **Aggregation of Residential and ICI to Statewide MSW Composition**: Aggregating the composition of wastes required the use of weighting factors to incorporate the relative contribution of individual strata to the whole. These weighting factors for residential and ICI wastes are shown Table 1-2. These weighting factors were used to calculate the estimated composition percentages and margins of error for aggregate disposed MSW, specifically as the weighted sum of the composition percentages of residential and ICI wastes. Similarly, the margin of error for Statewide MSW was calculated in a similar manner, with residential and ICI wastes contributing proportionally to the disposed MSW stream based on the weighting factor in Table 1-2.
- **Presentation of Adjusted Waste Composition Data**: As a final step, the Prince George's County and Montgomery County waste composition data sets were combined with the raw results derived from sorting at the host facilities for this 2024 Study update. Both of these counties are classified as suburban, and the disposed MSW reported from these counties (1,217,581 tons in 2022) represents 27 percent of the total disposed MSW tons from Maryland. Table 1-7 shows the weighting factors used to combine Prince George's and Montgomery County results with the raw results from the 2024 Study.

Table 1-7 Weighting Factors for Supplemental Waste Composition Studies

Origin of Disposed MSW	2022 Tons	Weighting Factor
Montgomery County	553,429	12.3%
Prince George's County	664,151	14.7%
Rest of State	3,290,745	73.0%
Total	4,508,325	100.0%

- **Consolidated Material Categories for Adjusted Waste Composition**: The Montgomery County and Prince George's County waste composition studies incorporated different lists of material categories than the MDE 2024 Study update. As a consequence, it was necessary to map the results of all three studies into categories. This process requires that multiple categories in each study be combined into a smaller number of categories to achieve consistency. Table 1-8 summarizes the material categories that were used to standardize Montgomery County, Prince George's County, and 2024 Study material category lists so they could be combined into adjusted statewide composition estimates. All unadjusted and adjusted results are included in the following section.

Table 1-8 Material Categories for Adjusted Waste Composition

Material Category	Material Category
Paper	**Organics**
Corrugated Cardboard/Kraft Paper (Uncoated)	Food Waste
Polycoated/Aseptic Packaging	Other Organics
Mixed Recyclable Paper	Grass/Leaves
Non-Recyclable Paper	Brush/Prunings
Plastic	**C&D**
PET Bottles	Wood/Lumber/Pallets
HDPE Bottles	Gypsum Drywall
#3-#7 Bottles	Carpet/Padding
Other Rigid Plastic	Other C&D
Expanded Polystyrene	**HHW**
Plastic Film	HHW
Metal	**Electronics**
Aluminum Cans/Foil	Electronics
Steel Cans	**Other Waste**
Other Ferrous	Textiles
Other Non-Ferrous	Diapers & Sanitary Products
Glass	Supermix - Bottom Fines & Dirt
Glass Bottles	Other MSW
Non-container Glass	

2. RESULTS

This section largely duplicates the order and presentation of results from the 2016 Study, with additions for comparisons between the 2016 and 2024 Study results. The results provide extensive data about the composition of disposed wastes originating in Maryland, both for:

- **Unadjusted Waste Composition**, which reflects the composition determined through the customized field data collection procedures performed at the nine host facilities for this study, and
- **Adjusted Waste Composition**, which incorporates the impact of integrating recent Montgomery County and Prince George's County waste composition study data into the unadjusted statewide results set.

The remaining subsections present the composition of disposed statewide aggregate, residential and ICI municipal solid wastes, as well as waste composition by demographic region.

2.1 STATEWIDE AGGREGATE DISPOSED MSW COMPOSITION

Figure 2-1 compares the percentage composition of wastes in 2024 with the 2016 Study results. When measured by percent composition, the State's disposed waste stream was found to contain a higher fraction of plastics, organics, paper, glass, HHW and other wastes since 2016, while C&D materials mixed with MSW experienced a significant decrease.

Figure 2-1 Statewide Disposed MSW Composition Percent (Unadj. 2016 vs. 2024)

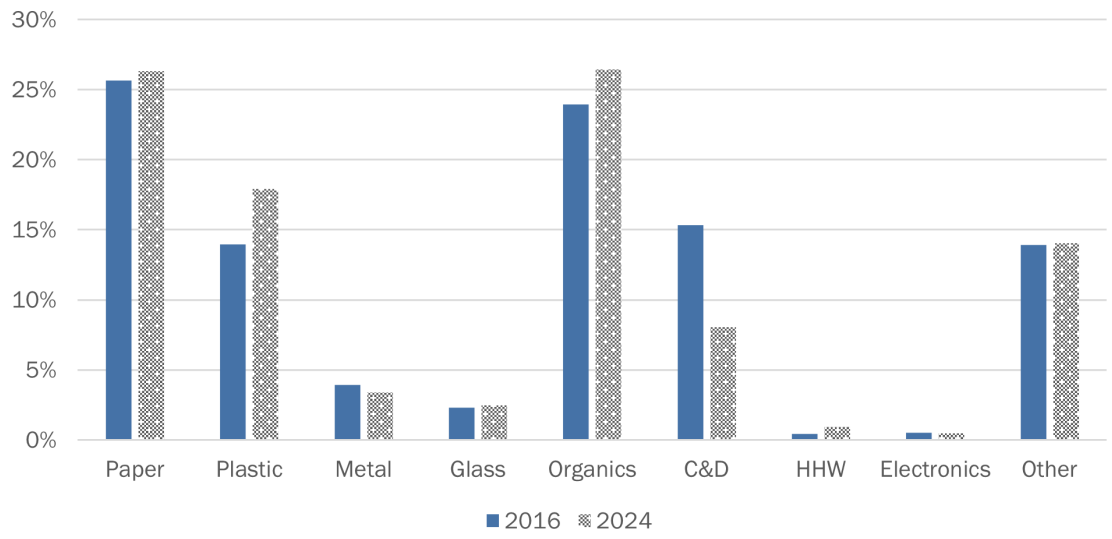


Figure 2-2 provides the same comparison of the estimated underlying tonnage of disposed MSW. Given that reported waste disposal increased from 3.8 million tons in 2014 to 4.5 million tons in 2022, an increase of 19 percent, it is not surprising that the absolute tonnage of most categories of disposed waste also increased. Plastics, organics and paper experienced the largest percentage increases

when measured by disposed tonnage. Interestingly, only C&D debris was found to have decreased within the disposed MSW stream.[1]

Figure 2-2 Statewide Disposed MSW Composition Tonnage (Unadj. 2016 vs. 2024)

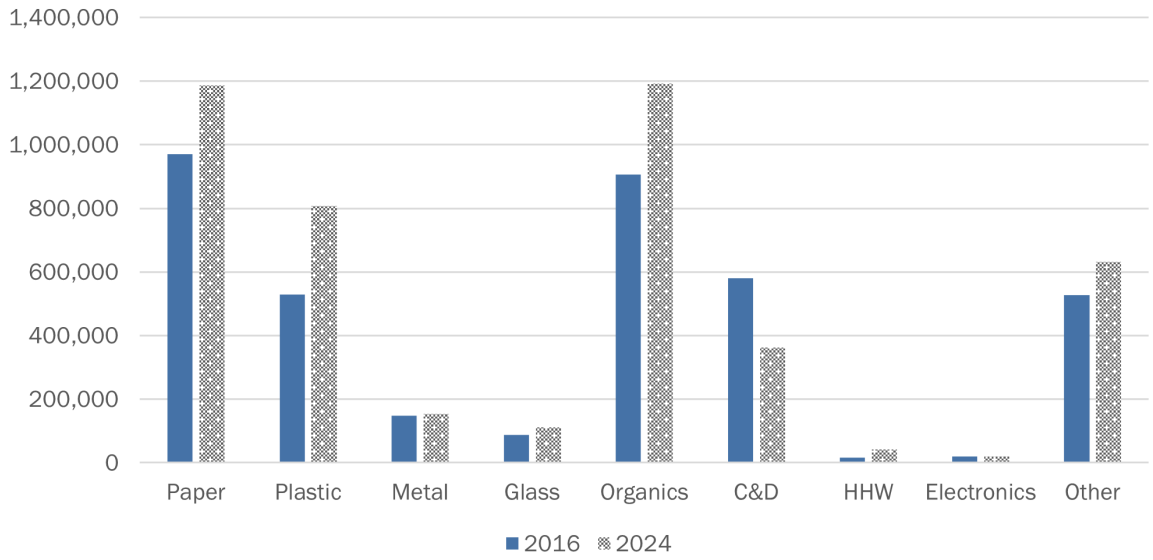


Figure 2-3 shows the ten most prevalent constituents in Maryland's disposed MSW stream as measured by percent composition. As shown, the top 10 constituents remained relatively consistent, although non-recyclable paper, contaminated film, bulky items and wood pallets increased on a percent basis in 2024, while textiles and leather products decreased.

Figure 2-4 shows the same comparison of prevalent materials, measured by disposed tonnage. Not surprisingly, almost all of the most prevalent constituents have increased on a tonnage basis. However, the 2024 Study found a decrease in the absolute tonnage of Textiles and Leather Products. This decrease is counter to trends in other large waste composition study time series, and may signify improved diversion of these materials in Maryland. However, it was beyond the scope of this study to further investigate this trend.

[1] This study only evaluated disposed wastes classified as municipal solid wastes. It did not address inbound wastes classified as construction and demolition (C&D) debris.

Figure 2-3 Most Prevalent Materials in Disposed MSW by Percent (Unadj. 2016 vs. 2024)

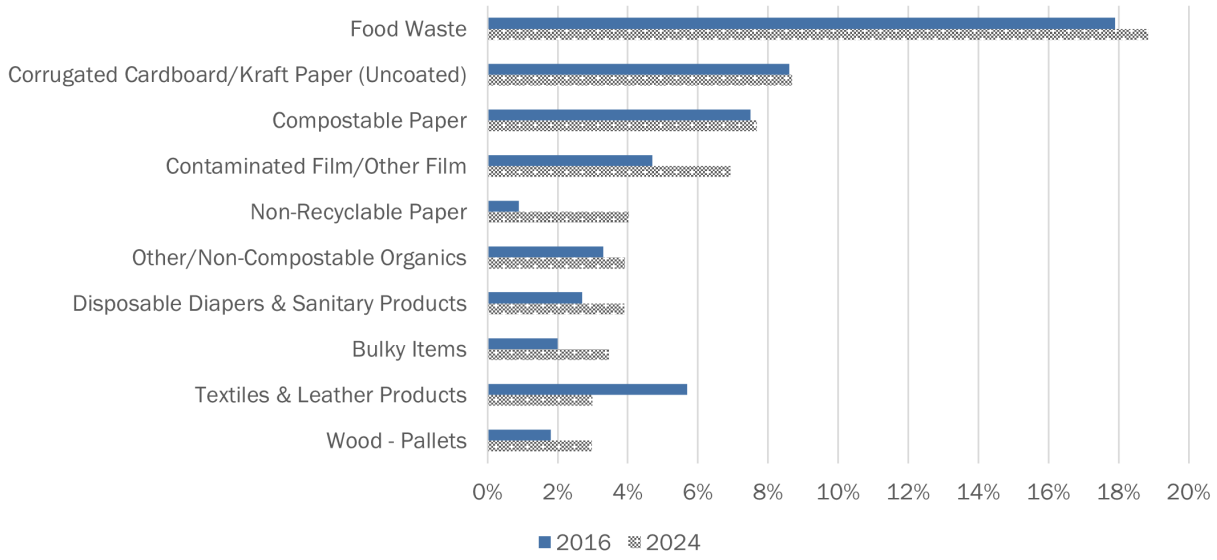


Figure 2-4 Most Prevalent Materials in Disposed MSW by Tons (Unadj. 2016 vs. 2024)

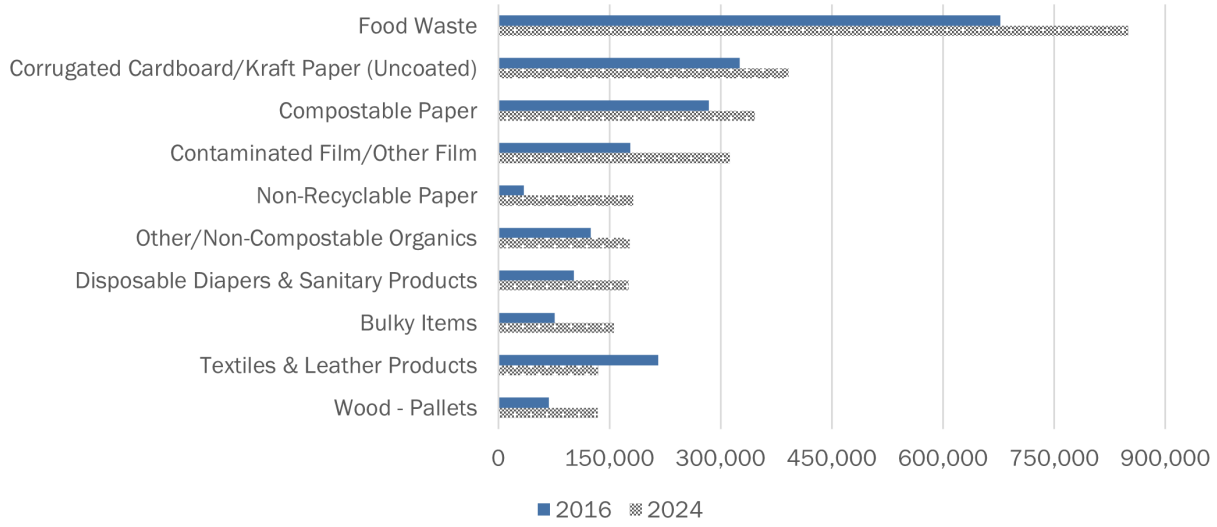


Figure 2-5 compares the divertibility of disposed MSW from the 2024 and 2016 studies, measured by percentage. On a percentage basis, this figure suggests that the incidence of curbside recyclable materials and other recyclable materials in disposed wastes have decreased, while the incidence of compostable organics has remained roughly level. Figure 2-6 provides the same comparison based on tonnage. On an absolute tonnage basis, disposal of MSW in all divertibility classes has increased.

Figure 2-5 Statewide Divertibility of Disposed MSW by Pct (Unadj. 2016 vs. 2024)

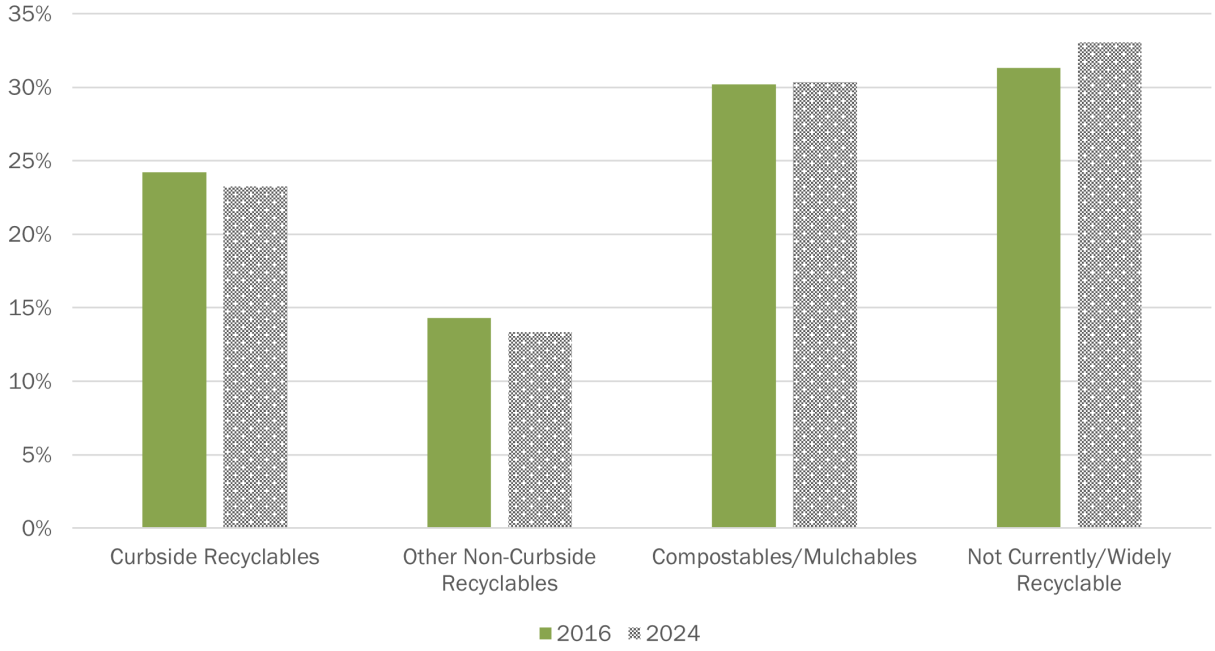


Figure 2-6 Statewide Divertibility of Disposed MSW by Tons (Unadj. 2016 vs. 2024)

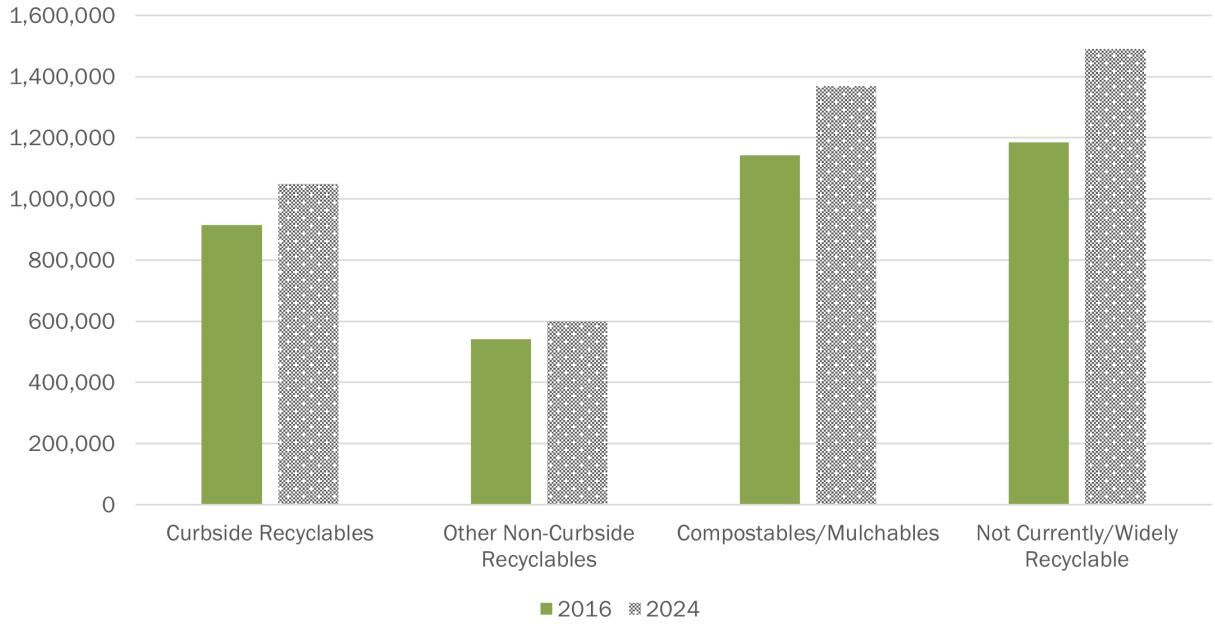


Table 2-1 provides the detailed statistical profile of Maryland's unadjusted 2024 statewide aggregate disposed MSW stream. For each material category, the mean percent, confidence intervals, and estimated tonnage are shown. This table also codes each material category into its corresponding divertibility classification.

Table 2-1 Unadjusted Statewide Aggregate Disposed MSW Composition

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**26.3%**	**1.4%**	**1,186,369**		**Glass**	**2.5%**	**0.4%**	**111,826**
1	Newsprint	0.2%	0.1%	8,443	1	Clear Glass Containers	1.5%	0.3%	67,468
1	Corrugated Cardboard/Kraft Paper	8.7%	0.9%	391,412	1	Brown Glass Containers	0.4%	0.2%	17,430
1	Magazines	0.4%	0.2%	16,698	1	Green Glass Containers	0.4%	0.2%	17,752
1	Paperboard/Packaging	2.1%	0.4%	93,351	4	Non-Container/Other Glass	0.2%	0.1%	9,176
4	Polycoated/Aseptic Pkg	0.3%	0.1%	13,434		**Organics**	**26.5%**	**2.2%**	**1,192,591**
1	High Grade Office Paper	0.4%	0.2%	19,578	3	Food Waste	18.8%	1.6%	849,756
2	Books	0.1%	0.1%	6,194	3	Grass	0.2%	0.2%	7,403
1	Other Recyclable Paper	1.9%	0.3%	85,962	3	Leaves	2.2%	0.9%	98,779
4	Paper Cups	0.5%	0.1%	23,364	3	Brush, Prunings, and Trimmings	1.3%	0.5%	59,624
3	Compostable Paper	7.7%	0.6%	346,148	4	Other/Non-Compostable Organics	3.9%	0.9%	177,027
4	Non-Recyclable Paper	4.0%	0.5%	181,785		**C&D**	**8.0%**	**2.6%**	**362,135**
	Plastic	**17.9%**	**1.2%**	**807,435**	3	Wood - Clean Lumber	0.2%	1.5%	7,345
1	PET (#1) Bottles/Jars	1.8%	0.2%	80,435	4	Wood - Painted/Treated	1.2%	0.6%	54,458
1	PET (#1) Other	0.5%	0.1%	20,541	2	Wood - Pallets	3.0%	1.2%	134,480
1	HDPE (#2) Bottles - Natural Only	0.4%	0.1%	20,061	4	Non-C&D Wood	0.1%	0.1%	4,725
1	HDPE (#2) Bottles - Colored Only	0.3%	0.1%	12,934	4	Drywall/Gypsum Board	0.2%	0.1%	7,797
1	HDPE (#2) Non-Bottle Containers	0.3%	0.1%	11,700	2	Concrete, Brick, Rock, Other C&D	1.8%	0.7%	79,501
1	PP (#5) Bottles and Containers	1.3%	0.1%	60,534	4	Carpet, Carpet Padding, & Rugs	1.6%	1.4%	73,829
1	PS (#6) Rigid Containers	0.3%	0.1%	13,941		**HHW**	**0.9%**	**0.2%**	**42,124**
1	#3, #4, #7 Products	0.0%	0.0%	1,928	4	Medical Waste & Sharps	0.3%	0.1%	14,388
4	Compostable Plastic Pkg	0.0%	0.0%	171	2	Batteries - Lead Acid	0.0%	0.0%	18
1	Durable Plastic Products	1.3%	0.3%	57,737	2	Batteries - Other Rechargeable	0.0%	0.0%	1,817
4	EPS "Styrofoam" - Food Pkg	0.2%	0.1%	8,483	2	Batteries - All Other	0.1%	0.0%	2,551
4	EPS "Styrofoam" - Non-Food Pkg	0.1%	0.0%	5,144	2	Other Haz Waste/Other HHW	0.5%	0.2%	23,350
2	Clean Commercial Film	1.9%	0.7%	87,837		**Electronics**	**0.5%**	**0.2%**	**20,697**
2	Clean Shopping Bags	0.4%	0.1%	17,371	2	Computers & Electronic Products	0.5%	0.2%	20,697
4	Contaminated/Other Film - Mono	5.2%	0.5%	235,805		**Other**	**14.0%**	**1.5%**	**632,360**
4	Contaminated/Other Film - Multi	1.7%	0.2%	76,513	2	Textiles & Leather Products	3.0%	0.6%	135,226
4	Remainder/Composite Plastic	2.1%	0.4%	96,299	4	Diapers & Sanitary Products	3.9%	0.7%	175,823
	Metal	**3.4%**	**0.5%**	**152,788**	4	Bulky Items	3.5%	0.8%	156,083
1	Aluminum Cans & Containers	0.7%	0.1%	33,543	2	Tires	0.1%	0.2%	5,644
2	Other Aluminum	0.4%	0.1%	17,816	4	Other/Not Elsewhere Classified	2.0%	0.5%	89,426
2	Other Non-Ferrous	0.6%	0.2%	28,022	4	Supermix - Bottom Fines & Dirt	1.6%	0.1%	70,158
1	Tin/Steel Containers	0.7%	0.1%	32,909					
2	Other Ferrous	0.9%	0.5%	40,498		**Total**	**100.0%**		**4,508,325**
						Samples	**110**		
1	*Curbside Recyclables*	23.6%		1,064,357	3	*Compostables/Mulchables*	30.4%		1,369,056
2	*Other Non-Curbside Recyclables*	13.3%		601,023	4	*Not Currently/Widely Recyclable*	32.7%		1,473,889

While the preceding figures and tables presented the unadjusted composition of Maryland's disposed MSW (i.e., based only on the field sampling and sorting at the nine host disposal facilities), the following figures and tables incorporate Montgomery County and Prince George's County waste composition estimates. These figures and tables show "adjusted" results.

Figure 2-7 and Figure 2-8 compare the composition by material group on an adjusted basis. As shown, the adjusted results reflect comparable trends to the unadjusted results in Figure 2-1 and Figure 2-2, respectively.

Figure 2-7 Statewide Disposed MSW Composition Percentage (Adj. 2016 vs. 2024)

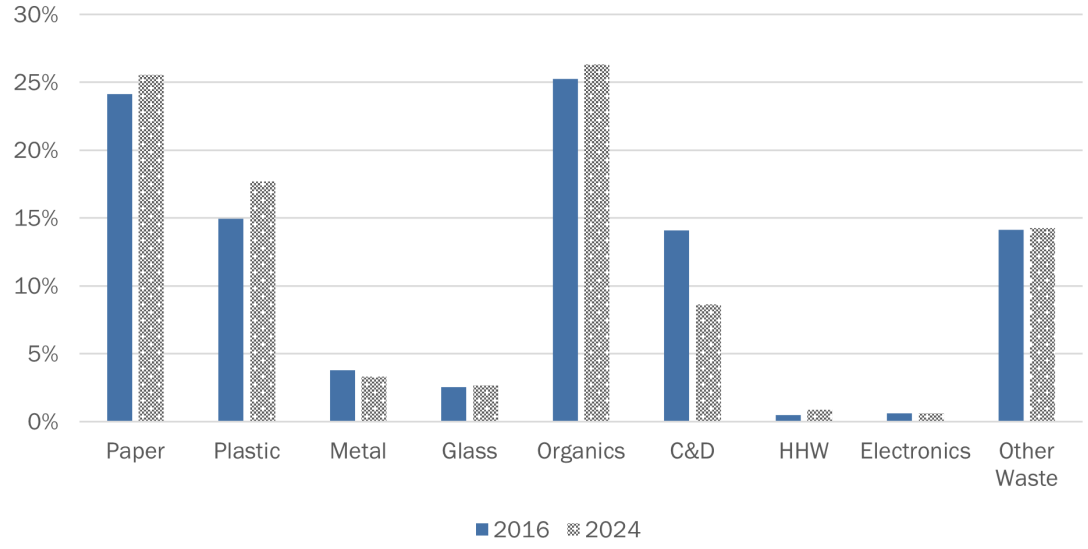


Figure 2-8 Statewide Disposed MSW Composition Tonnage (Adj. 2016 vs. 2024)

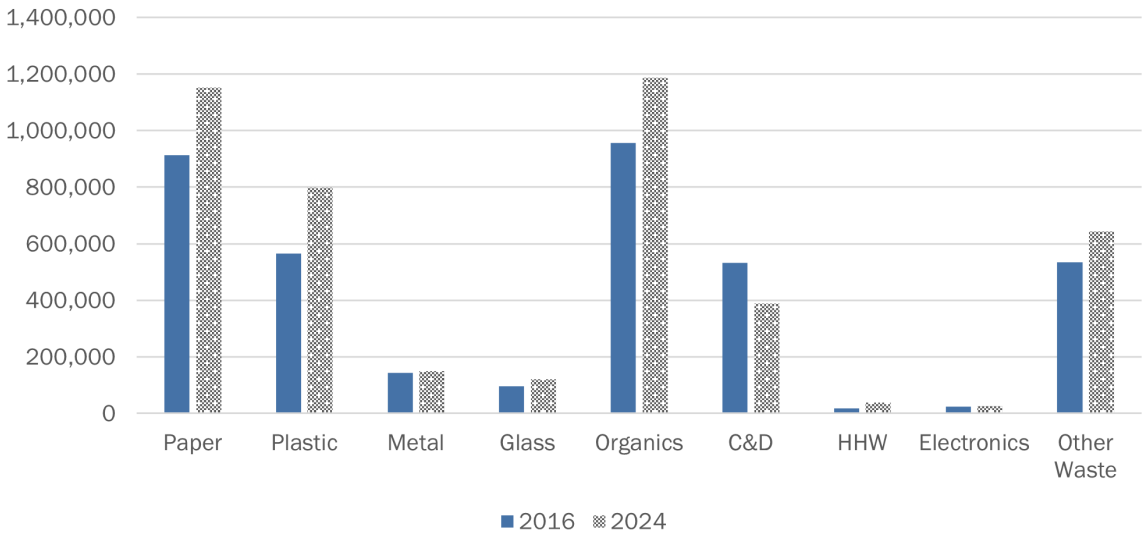


Table 2-2 provides a detailed summary of Maryland's adjusted statewide disposed MSW composition, based on the mapping of material categories from all three source data sets, as described in the Methodology section of this report.

Table 2-2 Adjusted Statewide Aggregate Disposed MSW Composition

Material Category	Statewide Average	Prince George's County	Montg. County	Adjusted Statewide Average	Material Category	Statewide Average	Prince George's County	Montg. County	Adjusted Statewide Average
Paper	**26.3%**	**25.2%**	**21.5%**	**25.6%**	**Organics**	**26.5%**	**24.5%**	**27.9%**	**26.3%**
OCC/Kraft Paper	8.7%	8.5%	4.9%	8.2%	Food Waste	18.8%	19.5%	16.5%	18.7%
Polycoated/Aseptic Pkg.	0.3%	0.2%	0.7%	0.3%	Other Organics	3.9%	2.3%	6.8%	4.0%
Mixed Recyclable Paper	5.1%	5.7%	9.1%	5.7%	Grass/Leaves	2.4%	1.7%	2.0%	2.2%
Non-Recyclable Paper	12.2%	10.9%	6.9%	11.4%	Brush/Prunings	1.3%	1.1%	2.6%	1.4%
Plastic	**17.9%**	**17.3%**	**17.1%**	**17.7%**	**C&D**	**8.0%**	**8.3%**	**12.5%**	**8.6%**
PET Bottles	1.8%	1.9%	1.3%	1.7%	Wood/Lumber/Pallets	4.5%	4.7%	7.5%	4.9%
HDPE Bottles	0.7%	0.8%	0.8%	0.7%	Gypsum Drywall	0.2%	0.5%	1.2%	0.3%
#3-#7 Bottles	0.0%	0.1%	0.0%	0.0%	Carpet/Padding	1.6%	2.1%	2.7%	1.8%
Other Rigid Plastic	5.8%	6.1%	6.4%	5.9%	Other C&D	1.8%	1.1%	1.1%	1.6%
Expanded Polystyrene	0.3%	1.0%	0.9%	0.5%	**HHW**	**0.9%**	**0.6%**	**0.9%**	**0.9%**
Plastic Film	9.3%	7.4%	7.7%	8.8%	**Electronics**	**0.5%**	**0.6%**	**1.4%**	**0.6%**
Metal	**3.4%**	**3.5%**	**2.9%**	**3.3%**	**Other Waste**	**14.0%**	**16.6%**	**13.0%**	**14.3%**
Aluminum Cans/Foil	0.7%	1.0%	0.7%	0.8%	Textiles	3.0%	3.8%	4.4%	3.3%
Steel Cans	0.7%	0.6%	0.4%	0.7%	Diapers & Sanitary Prods.	3.9%	3.9%	3.2%	3.8%
Other Ferrous	0.9%	1.4%	1.2%	1.0%	Bottom Fines & Dirt	1.6%	0.7%	1.8%	1.5%
Other Non-Ferrous	1.0%	0.4%	0.5%	0.9%	Other MSW	5.6%	8.1%	3.6%	5.7%
Glass	**2.5%**	**3.4%**	**2.8%**	**2.7%**					
Glass Bottles	2.3%	3.0%	2.5%	2.4%					
Non-container Glass	0.2%	0.4%	0.3%	0.2%	**Total**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

2.2 RESIDENTIAL DISPOSED WASTE COMPOSITION

This section summarizes the composition of Maryland's residential disposed MSW stream. The presentation of figures and tables in this section is largely parallel to the statewide aggregate results in the previous section. However, comparisons of residential composition are provided only by percentage, and not by tonnage. The following figures and tables present the unadjusted composition of residential disposed MSW:

- Figure 2-9 compares the composition of residential disposed MSW by material group. This figure highlights increases in the percentage of plastic and organics in the residential stream, as well as decreases in C&D and paper.
- Figure 2-10 compares the ten most prevalent materials in the 2024 residential stream with 2016 results.
- Figure 2-11 compares the divertibility of residential MSW between 2024 and 2016.
- Table 2-3 provides a detailed statistical profile of the composition of residential MSW.

Figure 2-9 Residential Disposed MSW Composition Percent (Unadj. 2016 vs. 2024)

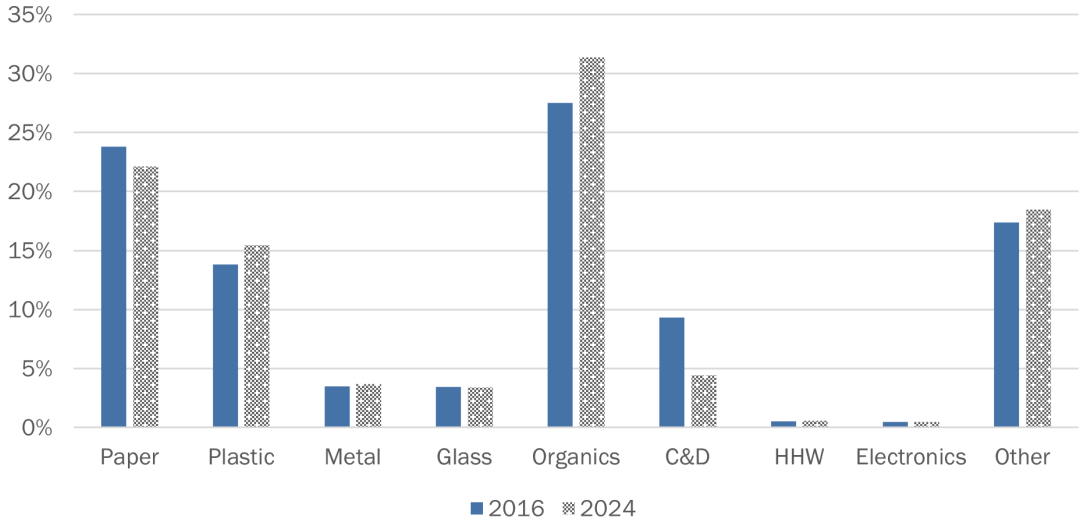


Figure 2-10 Most Prevalent Materials in Resi. Disposed MSW by Pct (Unadj. 2016 vs. 2024)

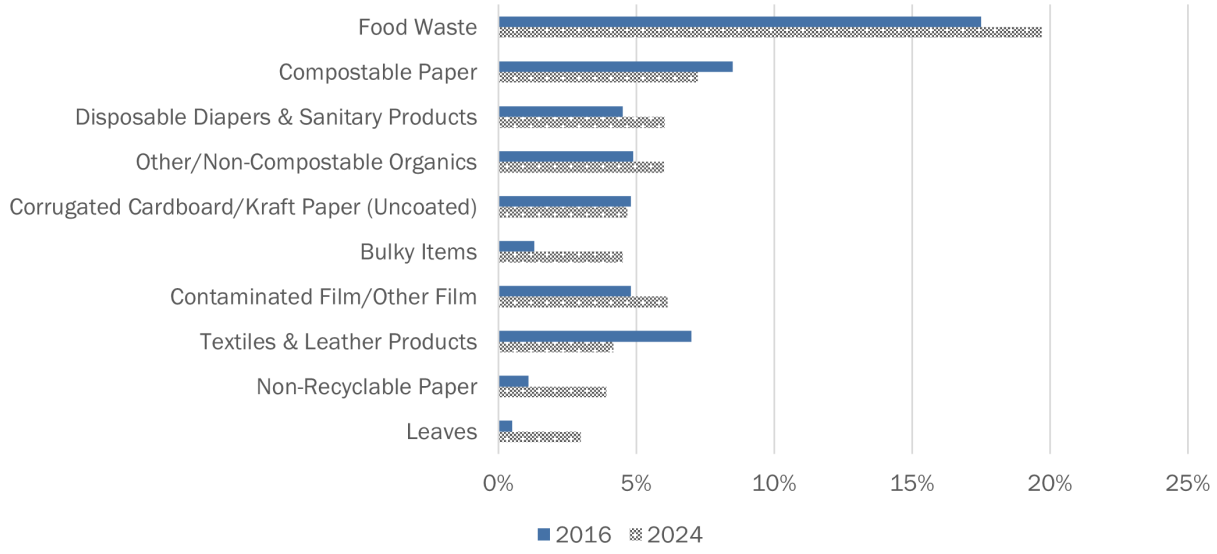


Figure 2-11 Divertibility of Residential Disposed MSW by Percent (Unadj. 2016 vs. 2024)

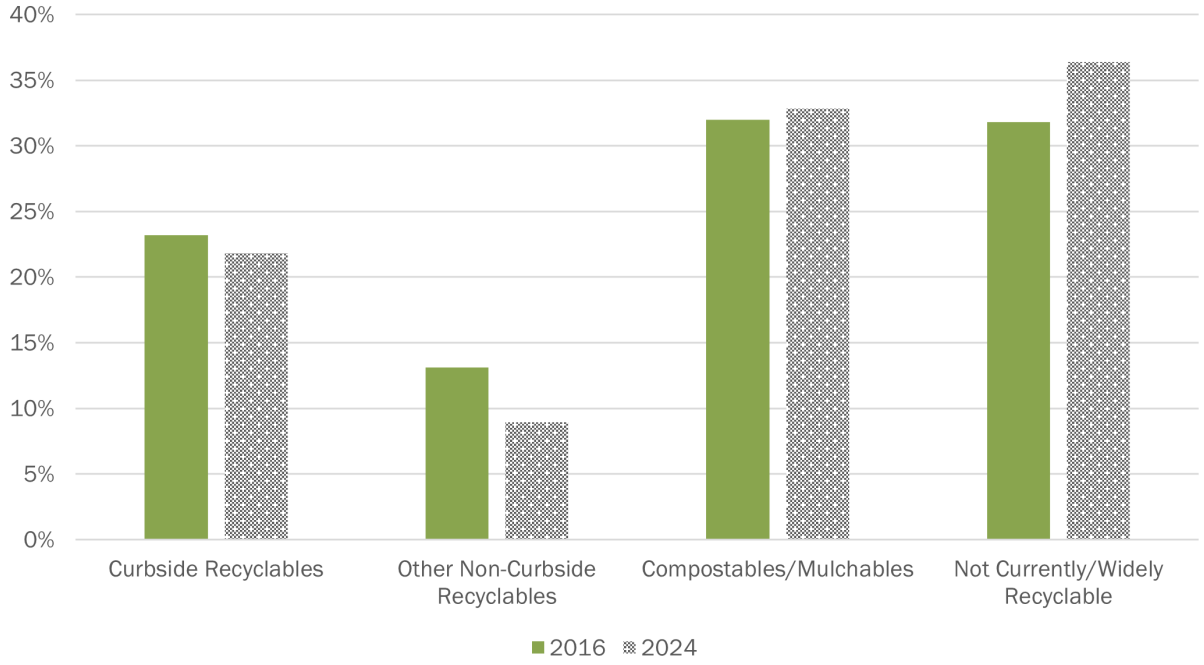


Table 2-3 Unadjusted Residential Disposed MSW Composition

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**22.1%**	**1.2%**	**493,743**		**Glass**	**3.4%**	**0.5%**	**75,983**
1	Newsprint	0.3%	0.0%	5,654	1	Clear Glass Containers	2.0%	0.1%	45,390
1	Corrugated Cardboard/Kraft Paper	4.7%	0.2%	104,110	1	Brown Glass Containers	0.4%	0.0%	9,382
1	Magazines	0.5%	0.1%	10,426	1	Green Glass Containers	0.6%	0.0%	13,147
1	Paperboard/Packaging	2.2%	0.1%	49,239	4	Non-Container/Other Glass	0.4%	0.0%	8,063
4	Polycoated/Aseptic Pkg	0.3%	0.0%	6,812		**Organics**	**31.3%**	**1.6%**	**698,711**
1	High Grade Office Paper	0.2%	0.0%	4,595	3	Food Waste	19.7%	0.3%	439,009
2	Books	0.1%	0.0%	2,881	3	Grass	0.3%	0.1%	7,403
1	Other Recyclable Paper	2.4%	0.1%	52,669	3	Leaves	3.0%	0.3%	66,779
4	Paper Cups	0.4%	0.0%	8,775	3	Brush, Prunings, and Trimmings	2.3%	0.2%	51,794
3	Compostable Paper	7.2%	0.1%	161,029	4	Other/Non-Compostable Organics	6.0%	0.2%	133,725
4	Non-Recyclable Paper	3.9%	0.1%	87,554		**C&D**	**4.4%**	**1.3%**	**98,694**
	Plastic	**15.5%**	**0.8%**	**344,837**	3	Wood - Clean Lumber	0.1%	0.0%	3,252
1	PET (#1) Bottles/Jars	2.0%	0.0%	45,634	4	Wood - Painted/Treated	1.1%	0.1%	25,049
1	PET (#1) Other	0.5%	0.0%	11,444	2	Wood - Pallets	0.0%	0.0%	34
1	HDPE (#2) Bottles - Natural Only	0.4%	0.0%	8,365	4	Non-C&D Wood	0.1%	0.0%	2,541
1	HDPE (#2) Bottles - Colored Only	0.4%	0.0%	8,030	4	Drywall/Gypsum Board	0.2%	0.0%	5,145
1	HDPE (#2) Non-Bottle Containers	0.1%	0.0%	2,480	2	Concrete, Brick, Rock, Other C&D	1.2%	0.1%	27,291
1	PP (#5) Bottles and Containers	1.4%	0.0%	30,566	4	Carpet, Carpet Padding, & Rugs	1.6%	0.2%	35,382
1	PS (#6) Rigid Containers	0.4%	0.0%	8,117		**HHW**	**0.6%**	**0.2%**	**12,891**
1	#3, #4, #7 Products	0.0%	0.0%	844	4	Medical Waste & Sharps	0.2%	0.0%	5,076
4	Compostable Plastic Pkg	0.0%	0.0%	145	2	Batteries - Lead Acid	0.0%	0.0%	0
1	Durable Plastic Products	1.8%	0.1%	40,037	2	Batteries - Other Rechargeable	0.0%	0.0%	617
4	EPS "Styrofoam" - Food Pkg	0.2%	0.0%	4,884	2	Batteries - All Other	0.1%	0.0%	1,485
4	EPS "Styrofoam" - Non-Food Pkg	0.1%	0.0%	2,705	2	Other Haz Waste/Other HHW	0.3%	0.0%	5,712
2	Clean Commercial Film	0.0%	0.0%	229		**Electronics**	**0.5%**	**0.4%**	**10,158**
2	Clean Shopping Bags	0.5%	0.0%	11,335	2	Computers & Electronic Products	0.5%	0.0%	10,158
4	Contaminated/Other Film - Mono	4.2%	0.1%	93,866		**Other**	**18.5%**	**0.1%**	**411,776**
4	Contaminated/Other Film - Multi	1.9%	0.1%	43,035	2	Textiles & Leather Products	4.2%	0.2%	92,892
4	Remainder/Composite Plastic	1.5%	0.1%	33,122	4	Diapers & Sanitary Products	6.0%	0.2%	134,235
	Metal	**3.7%**	**0.4%**	**82,505**	4	Bulky Items	4.5%	0.3%	100,622
1	Aluminum Cans & Containers	1.0%	0.0%	21,839	2	Tires	0.2%	0.0%	5,103
2	Other Aluminum	0.4%	0.0%	9,874	4	Other/Not Elsewhere Classified	1.9%	0.1%	41,822
2	Other Non-Ferrous	0.7%	0.1%	16,626	4	Supermix - Bottom Fines & Dirt	1.7%	0.0%	37,103
1	Tin/Steel Containers	0.8%	0.0%	18,224					
2	Other Ferrous	0.7%	0.1%	15,943		**Total**	**100.0%**		**2,229,298**
						Samples	**66**		
1	*Curbside Recyclables*	*22.0%*		*490,191*	3	*Compostables/Mulchables*	*32.7%*		*729,267*
2	*Other Non-Curbside Recyclables*	*9.0%*		*200,178*	4	*Not Currently/Widely Recyclable*	*36.3%*		*809,662*

The remaining figures and tables provide the adjusted composition of residential disposed MSW, incorporating Montgomery County and Prince George's County results.

- Figure 2-12 compares the adjusted residential composition between 2024 and 2016.
- Table 2-4 provides a detailed summary of the adjusted residential disposed MSW composition.

Figure 2-12 Residential Disposed MSW Composition Percentage (Adj. 2016 vs. 2024)

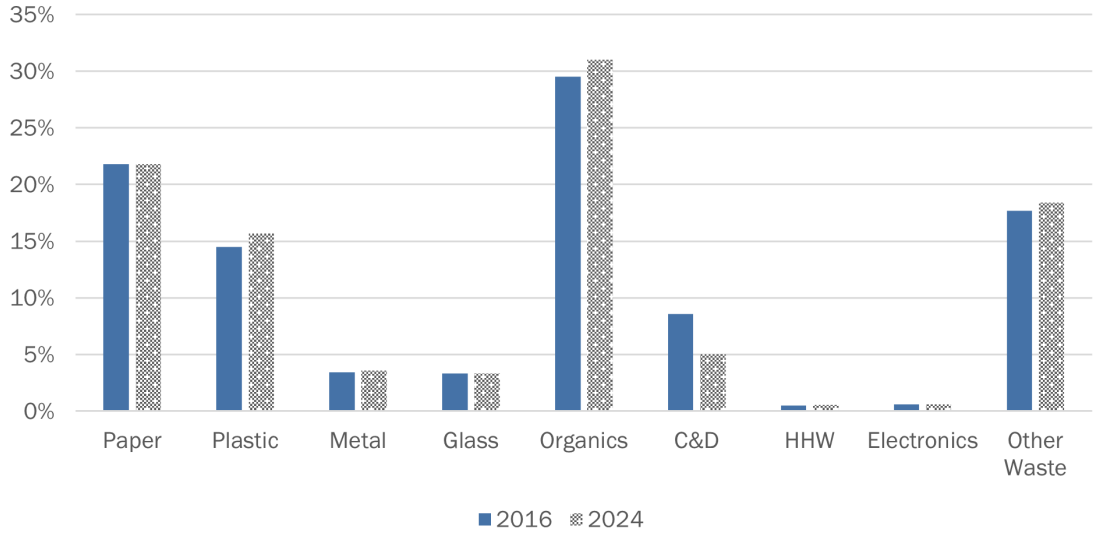


Table 2-4 Adjusted Residential Disposed MSW Composition

Material Category	Statewide Average	Prince George's County	Montg. County	Adjusted Statewide Average	Material Category	Statewide Average	Prince George's County	Montg. County	Adjusted Statewide Average
Paper	**22.1%**	**21.7%**	**19.9%**	**21.8%**	**Organics**	**31.3%**	**29.2%**	**31.2%**	**31.0%**
OCC/Kraft Paper	4.7%	3.1%	3.0%	4.2%	Food Waste	19.7%	21.9%	18.2%	19.8%
Polycoated/Aseptic Pkg.	0.3%	0.2%	0.6%	0.3%	Other Organics	6.0%	3.5%	7.3%	5.8%
Mixed Recyclable Paper	5.6%	6.1%	8.7%	6.1%	Grass/Leaves	3.3%	2.4%	2.5%	3.1%
Non-Recyclable Paper	11.5%	12.4%	7.7%	11.2%	Brush/Prunings	2.3%	1.5%	3.1%	2.3%
Plastic	**15.5%**	**15.7%**	**17.1%**	**15.7%**	**C&D**	**4.4%**	**5.1%**	**8.4%**	**5.0%**
PET Bottles	2.0%	1.9%	1.0%	1.9%	Wood/Lumber/Pallets	1.4%	2.7%	5.2%	2.1%
HDPE Bottles	0.7%	0.6%	0.7%	0.7%	Gypsum Drywall	0.2%	0.4%	1.0%	0.3%
#3-#7 Bottles	0.0%	0.1%	0.0%	0.0%	Carpet/Padding	1.6%	1.3%	1.3%	1.5%
Other Rigid Plastic	5.7%	5.6%	6.8%	5.8%	Other C&D	1.2%	0.7%	0.9%	1.1%
Expanded Polystyrene	0.3%	0.8%	0.9%	0.5%	**HHW**	**0.6%**	**0.3%**	**0.7%**	**0.5%**
Plastic Film	6.7%	6.6%	7.6%	6.8%	**Electronics**	**0.5%**	**0.6%**	**1.3%**	**0.6%**
Metal	**3.7%**	**3.4%**	**3.1%**	**3.6%**	**Other Waste**	**18.5%**	**20.7%**	**15.4%**	**18.4%**
Aluminum Cans/Foil	1.0%	1.2%	0.8%	1.0%	Textiles	4.2%	4.3%	5.5%	4.3%
Steel Cans	0.8%	0.7%	0.5%	0.8%	Diapers & Sanitary Prods.	6.0%	5.9%	4.3%	5.8%
Other Ferrous	0.7%	1.1%	1.5%	0.9%	Bottom Fines & Dirt	1.7%	0.9%	1.9%	1.6%
Other Non-Ferrous	1.2%	0.4%	0.3%	1.0%	Other MSW	6.6%	9.7%	3.7%	6.7%
Glass	**3.4%**	**3.3%**	**2.9%**	**3.3%**					
Glass Bottles	3.0%	2.9%	2.5%	3.0%					
Non-container Glass	0.4%	0.4%	0.4%	0.4%	**Total**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

2.3 ICI DISPOSED WASTE COMPOSITION

This section summarizes the composition of Maryland's ICI disposed MSW stream. The presentation of figures and tables in this section is largely parallel to the statewide aggregate results at the start of this section. Comparisons of ICI composition are provided only by percentage, and not by tonnage. The following figures and tables present the unadjusted composition of ICI disposed MSW:

- Figure 2-13 compares the composition of ICI disposed MSW by material group. This figure highlights increases in the percentage of paper and plastics in the ICI stream, as well as decreases in C&D.
- Figure 2-14 compares the ten most prevalent materials in the 2024 ICI stream with 2016 results.
- Figure 2-15 compares the divertibility of ICI MSW between 2024 and 2016.
- Table 2-5 provides a detailed statistical profile of the composition of ICI MSW.

Figure 2-13 ICI Disposed MSW Composition Percent (Unadj. 2016 vs. 2024)

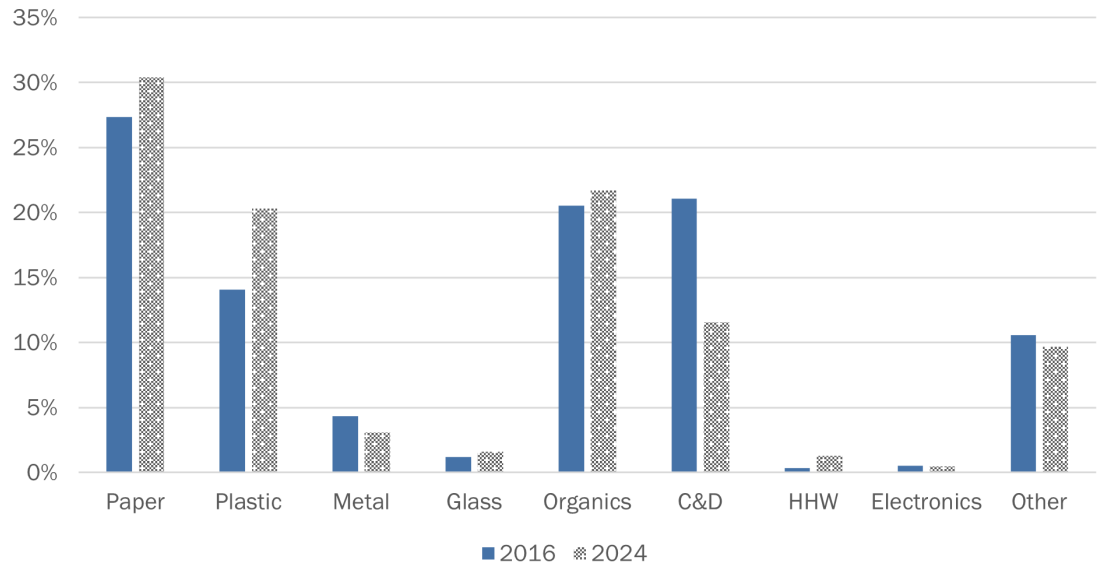


Figure 2-14 Most Prevalent Materials in ICI Disposed MSW by Percent (Unadj. 2016 vs. 2024)

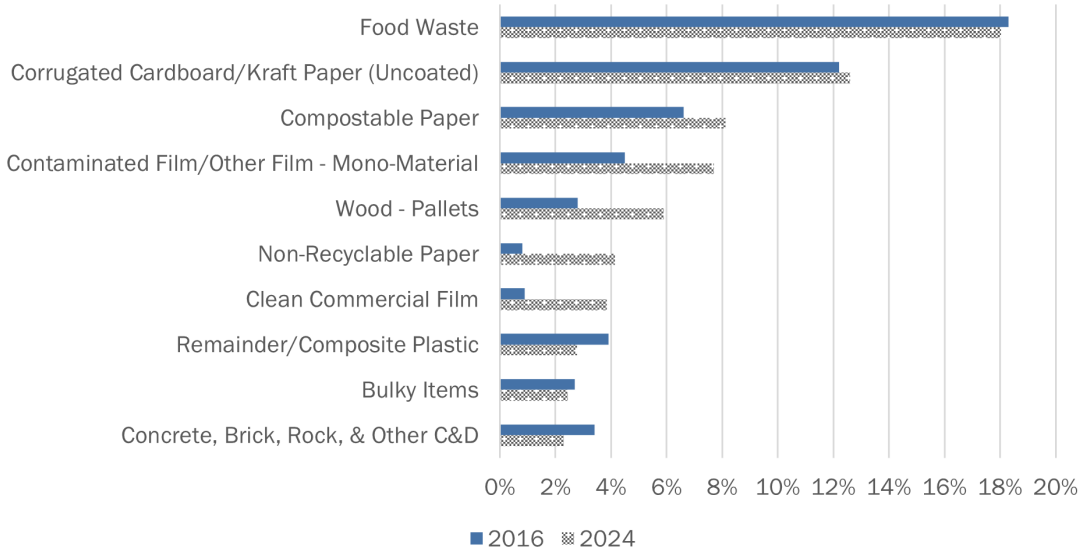


Figure 2-15 Divertibility of ICI Disposed MSW by Percent (Unadjusted, 2016 vs. 2024)

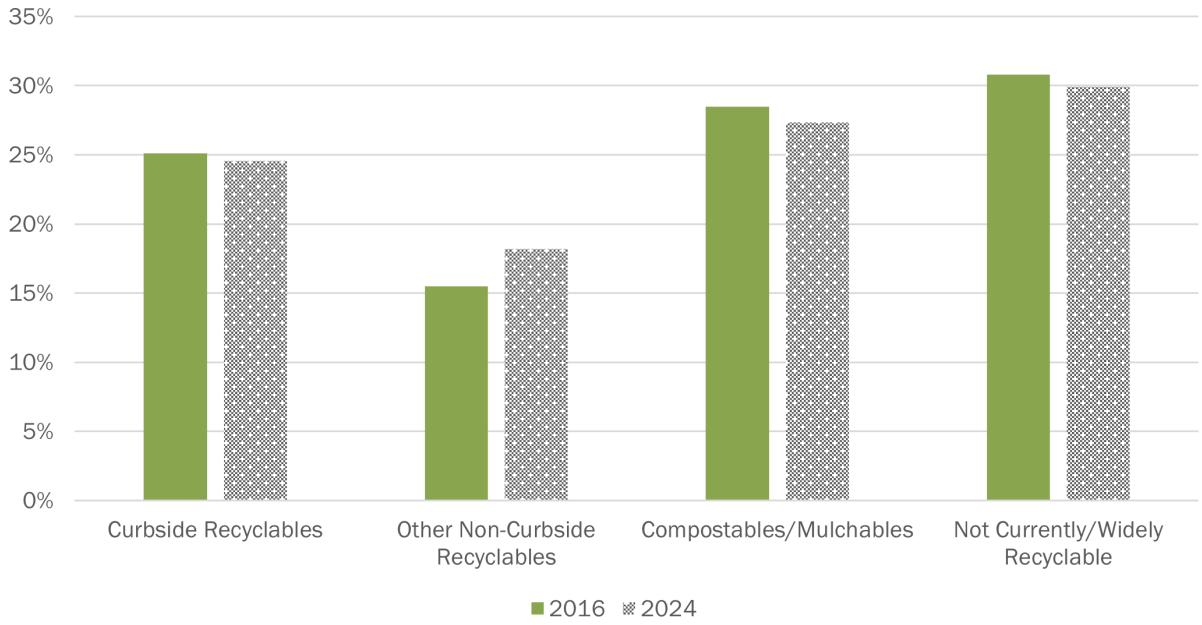


Table 2-5 Unadjusted Disposed ICI MSW Composition

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**30.4%**	**2.6%**	**692,626**		**Glass**	**1.6%**	**0.7%**	**35,844**
1	Newsprint	0.1%	0.0%	2,790	1	Clear Glass Containers	1.0%	0.1%	22,079
1	Corrugated Cardboard/Kraft Paper	12.6%	0.5%	287,302	1	Brown Glass Containers	0.4%	0.1%	8,048
1	Magazines	0.3%	0.1%	6,272	1	Green Glass Containers	0.2%	0.1%	4,605
1	Paperboard/Packaging	1.9%	0.2%	44,112	4	Non-Container/Other Glass	0.0%	0.0%	1,113
4	Polycoated/Aseptic Pkg	0.3%	0.0%	6,622		**Organics**	**21.7%**	**4.0%**	**493,880**
1	High Grade Office Paper	0.7%	0.1%	14,983	3	Food Waste	18.0%	1.0%	410,748
2	Books	0.1%	0.1%	3,313	3	Grass	0.0%	0.0%	0
1	Other Recyclable Paper	1.5%	0.1%	33,293	3	Leaves	1.4%	0.2%	32,000
4	Paper Cups	0.6%	0.0%	14,589	3	Brush, Prunings, and Trimmings	0.3%	0.1%	7,830
3	Compostable Paper	8.1%	0.4%	185,119	4	Other/Non-Compostable Organics	1.9%	0.3%	43,302
4	Non-Recyclable Paper	4.1%	0.3%	94,232		**C&D**	**11.6%**	**7.0%**	**263,441**
	Plastic	**20.3%**	**2.7%**	**462,598**	3	Wood - Clean Lumber	0.2%	2.1%	4,093
1	PET (#1) Bottles/Jars	1.5%	0.1%	34,801	4	Wood - Painted/Treated	1.3%	0.4%	29,409
1	PET (#1) Other	0.4%	0.0%	9,097	2	Wood - Pallets	5.9%	1.1%	134,446
1	HDPE (#2) Bottles - Natural Only	0.5%	0.0%	11,696	4	Non-C&D Wood	0.1%	0.0%	2,184
1	HDPE (#2) Bottles - Colored Only	0.2%	0.0%	4,904	4	Drywall/Gypsum Board	0.1%	0.0%	2,651
1	HDPE (#2) Non-Bottle Containers	0.4%	0.1%	9,220	2	Concrete, Brick, Rock, Other C&D	2.3%	0.5%	52,210
1	PP (#5) Bottles and Containers	1.3%	0.1%	29,968	4	Carpet, Carpet Padding, & Rugs	1.7%	1.4%	38,447
1	PS (#6) Rigid Containers	0.3%	0.0%	5,824		**HHW**	**1.3%**	**0.6%**	**29,234**
1	#3, #4, #7 Products	0.0%	0.0%	1,083	4	Medical Waste & Sharps	0.4%	0.1%	9,312
4	Compostable Plastic Pkg	0.0%	0.0%	26	2	Batteries - Lead Acid	0.0%	0.0%	18
1	Durable Plastic Products	0.8%	0.1%	17,701	2	Batteries - Other Rechargeable	0.1%	0.0%	1,200
4	EPS "Styrofoam" - Food Pkg	0.2%	0.0%	3,599	2	Batteries - All Other	0.0%	0.0%	1,066
4	EPS "Styrofoam" - Non-Food Pkg	0.1%	0.0%	2,439	2	Other Haz Waste/Other HHW	0.8%	0.2%	17,638
2	Clean Commercial Film	3.8%	0.6%	87,609		**Electronics**	**0.5%**	**0.3%**	**10,539**
2	Clean Shopping Bags	0.3%	0.0%	6,037	2	Computers & Electronic Products	0.5%	0.1%	10,539
4	Contaminated/Other Film - Mono	6.2%	0.3%	141,940		**Other**	**9.7%**	**2.2%**	**220,584**
4	Contaminated/Other Film - Multi	1.5%	0.1%	33,478	2	Textiles & Leather Products	1.9%	0.2%	42,334
4	Remainder/Composite Plastic	2.8%	0.3%	63,176	4	Diapers & Sanitary Products	1.8%	0.3%	41,588
	Metal	**3.1%**	**1.3%**	**70,283**	4	Bulky Items	2.4%	0.3%	55,461
1	Aluminum Cans & Containers	0.5%	0.0%	11,704	2	Tires	0.0%	0.6%	541
2	Other Aluminum	0.3%	0.0%	7,943	4	Other/Not Elsewhere Classified	2.1%	0.4%	47,604
2	Other Non-Ferrous	0.5%	0.1%	11,396	4	Supermix - Bottom Fines & Dirt	1.5%	0.1%	33,055
1	Tin/Steel Containers	0.6%	0.1%	14,685					
2	Other Ferrous	1.1%	0.4%	24,555		**Total**	**100.0%**		**2,279,027**
						Samples	**44**		
1	*Curbside Recyclables*	25.2%		574,166	3	*Compostables/Mulchables*	28.1%		639,790
2	*Other Non-Curbside Recyclables*	17.6%		400,845	4	*Not Currently/Widely Recyclable*	29.1%		664,227

The remaining figures and tables provide the adjusted composition of ICI disposed MSW, incorporating Montgomery County and Prince George's County results.

- Figure 2-16 compares the adjusted ICI composition between 2024 and 2016.
- Table 2-6 provides a detailed summary of the adjusted ICI disposed MSW composition.

Figure 2-16 ICI Disposed MSW Composition Percentage (Adjusted, 2016 vs. 2024)

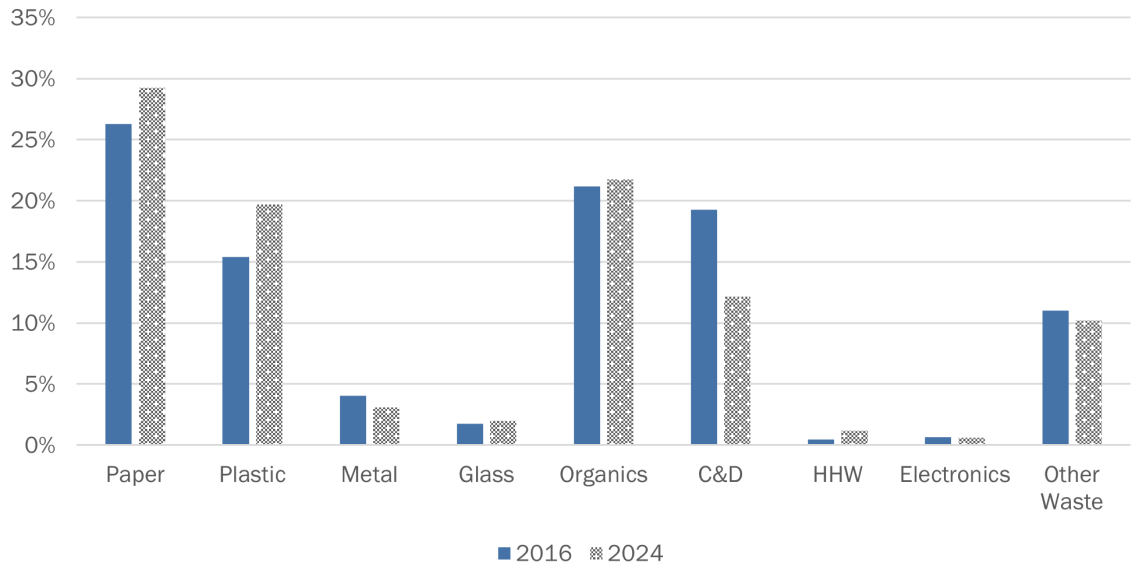


Table 2-6 Adjusted ICI Disposed MSW Composition

Material Category	Statewide Average	Prince George's County	Montg. County	Adjusted Statewide Average	Material Category	Statewide Average	Prince George's County	Montg. County	Adjusted Statewide Average
Paper	**30.4%**	**28.8%**	**23.2%**	**29.3%**	**Organics**	**21.7%**	**19.8%**	**24.6%**	**21.7%**
OCC/Kraft Paper	12.6%	13.8%	6.7%	12.1%	Food Waste	18.0%	17.0%	14.8%	17.5%
Polycoated/Aseptic Pkg.	0.3%	0.3%	0.8%	0.3%	Other Organics	1.9%	1.1%	6.2%	2.3%
Mixed Recyclable Paper	4.6%	5.3%	9.5%	5.3%	Grass/Leaves	1.4%	0.9%	1.5%	1.3%
Non-Recyclable Paper	12.9%	9.4%	6.1%	11.5%	Brush/Prunings	0.3%	0.7%	2.0%	0.6%
Plastic	**20.3%**	**18.9%**	**17.1%**	**19.7%**	**C&D**	**11.6%**	**11.6%**	**16.5%**	**12.2%**
PET Bottles	1.5%	1.9%	1.6%	1.6%	Wood/Lumber/Pallets	7.5%	6.7%	9.7%	7.6%
HDPE Bottles	0.7%	1.0%	0.8%	0.8%	Gypsum Drywall	0.1%	0.6%	1.4%	0.3%
#3-#7 Bottles	0.0%	0.1%	0.0%	0.0%	Carpet/Padding	1.7%	2.8%	4.1%	2.1%
Other Rigid Plastic	6.0%	6.6%	6.0%	6.1%	Other C&D	2.3%	1.5%	1.3%	2.0%
Expanded Polystyrene	0.3%	1.1%	0.8%	0.5%	**HHW**	**1.3%**	**0.8%**	**1.1%**	**1.2%**
Plastic Film	11.8%	8.2%	7.8%	10.8%	**Electronics**	**0.5%**	**0.6%**	**1.5%**	**0.6%**
Metal	**3.1%**	**3.5%**	**2.6%**	**3.1%**	**Other Waste**	**9.7%**	**12.5%**	**10.6%**	**10.2%**
Aluminum Cans/Foil	0.5%	0.9%	0.7%	0.6%	Textiles	1.9%	3.4%	3.4%	2.3%
Steel Cans	0.6%	0.6%	0.4%	0.6%	Diapers & Sanitary Prods.	1.8%	2.0%	2.2%	1.9%
Other Ferrous	1.1%	1.7%	0.9%	1.1%	Bottom Fines & Dirt	1.5%	0.5%	1.6%	1.3%
Other Non-Ferrous	0.8%	0.4%	0.6%	0.7%	Other MSW	4.5%	6.6%	3.4%	4.7%
Glass	**1.6%**	**3.5%**	**2.8%**	**2.0%**					
Glass Bottles	1.5%	3.1%	2.6%	1.9%					
Non-container Glass	0.0%	0.4%	0.2%	0.1%	**Total**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

2.4 RESULTS BY DEMOGRAPHIC REGION

The final objective of the 2024 Study was to update estimated disposed MSW composition by demographic origin. Figure 2-17 compares the composition by material group for the urban, suburban and rural areas of the state. As shown, the proportion of disposed wastes by material group was mostly consistent across demographic regions. However, there were significant differences in C&D materials, and organics were found in significantly lower proportions in urban disposed wastes.

Figure 2-17 Comparison of Disposed MSW Composition by Origin (2024)

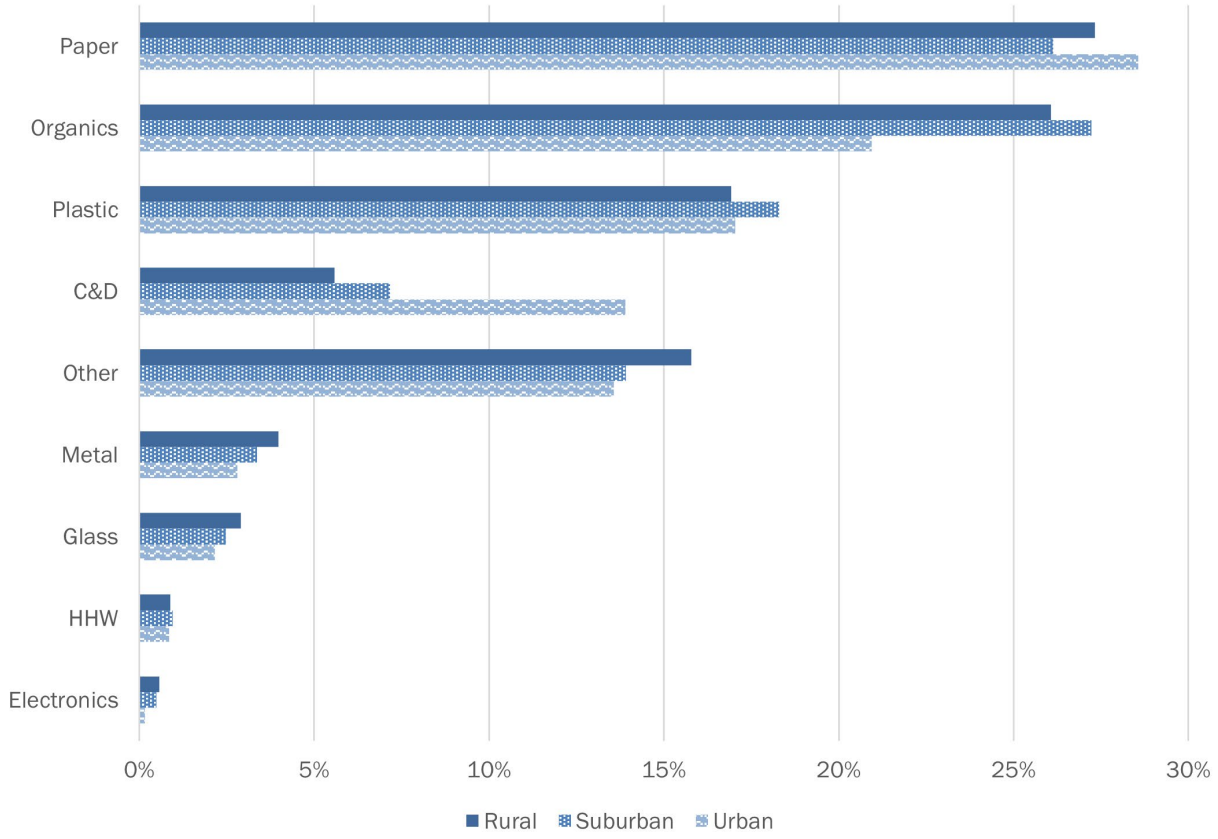


Figure 2-18 shows the 10 most prevalent materials originating from each demographic region. Again, the most prevalent materials were fairly consistent across demographic region; however, disposed urban MSW contained significantly less food, and significantly more bulky and renovation-related items. Interestingly, urban wastes also contained the highest incidence of leaves, perhaps because urban areas typically require leaf removal, while suburban and especially rural areas may be able to manage leaves onsite.

Figure 2-18 Comparison of Most Prevalent Materials in Disposed MSW by Origin

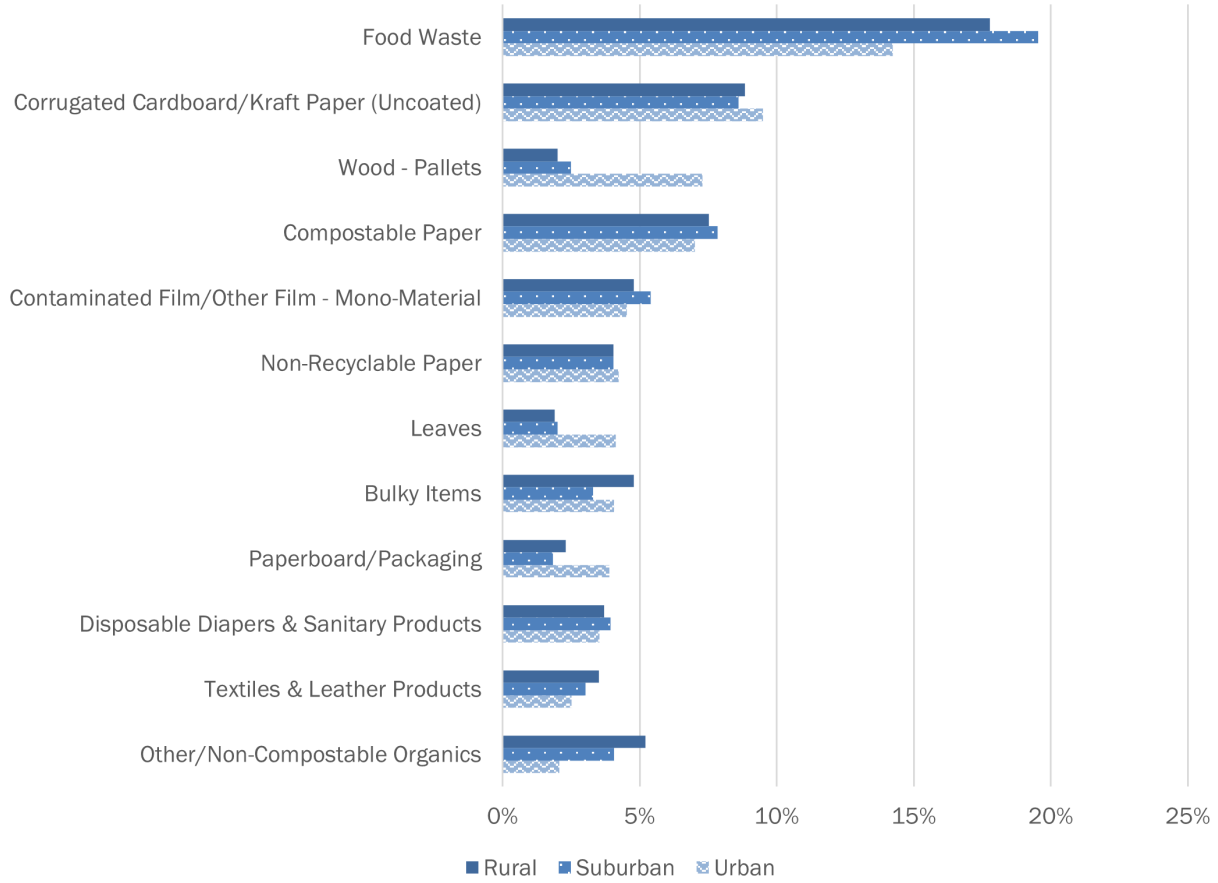
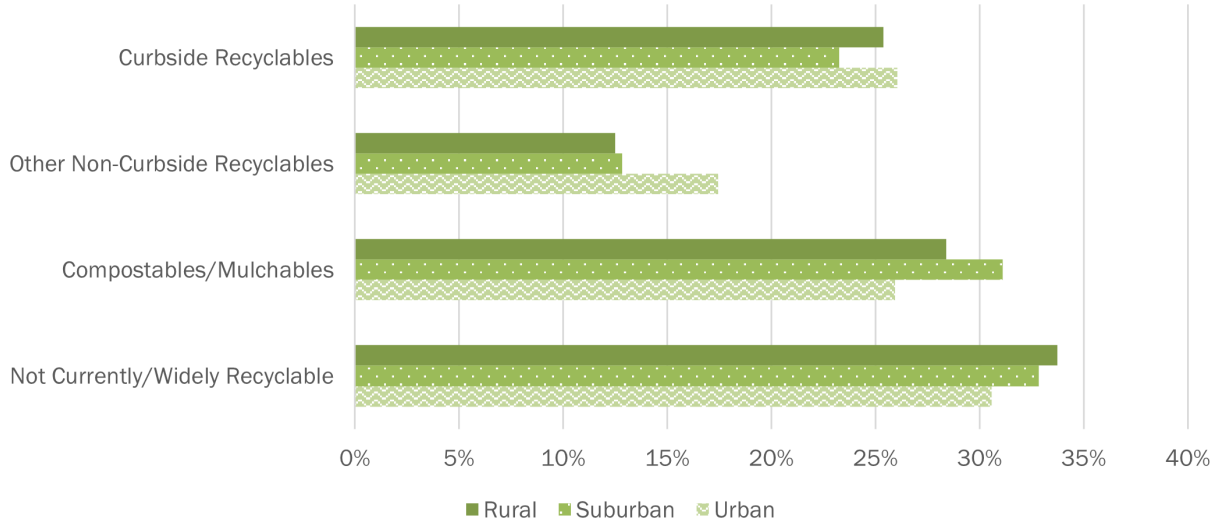


Figure 2-19 compares the divertibility of disposed MSW by demographic origin. This view identifies a higher percentage of curbside and non-curbside recyclables, and a lower percentage of compostables in urban wastes. Suburban and rural disposed wastes exhibited similar divertibility profiles.

Figure 2-19 Comparison of Divertibility of Disposed MSW by Demographic Origin



Finally, Table 2-7, Table 2-8 and Table 2-9 provide a detailed statistical snapshot of the disposed MSW competition originating from urban, suburban and rural areas of the state. No further analysis is provided to these more granular results in the body of this report.

Table 2-7 Urban Disposed MSW Composition

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**28.6%**	**2.7%**	**130,242**		**Glass**	**2.2%**	**0.9%**	**9,822**
1	Newsprint	0.2%	0.3%	845	1	Clear Glass Containers	1.5%	0.8%	6,887
1	Corrugated Cardboard/Kraft Paper	9.5%	1.5%	43,250	1	Brown Glass Containers	0.1%	0.2%	654
1	Magazines	0.6%	0.4%	2,724	1	Green Glass Containers	0.4%	0.2%	1,736
1	Paperboard/Packaging	3.9%	1.2%	17,724	4	Non-Container/Other Glass	0.1%	0.1%	545
4	Polycoated/Aseptic Pkg	0.2%	0.1%	1,047		**Organics**	**20.9%**	**6.8%**	**95,471**
1	High Grade Office Paper	0.5%	0.2%	2,449	3	Food Waste	14.2%	3.7%	64,912
2	Books	0.0%	0.2%	221	3	Grass	0.2%	1.3%	1,136
1	Other Recyclable Paper	1.6%	0.6%	7,287	3	Leaves	4.1%	3.2%	18,813
4	Paper Cups	0.7%	0.3%	3,354	3	Brush, Prunings, and Trimmings	0.2%	1.2%	1,136
3	Compostable Paper	7.0%	1.3%	32,020	4	Other/Non-Compostable Organics	2.1%	2.4%	9,473
4	Non-Recyclable Paper	4.2%	1.0%	19,321		**C&D**	**13.9%**	**2.7%**	**63,395**
	Plastic	**17.0%**	**1.5%**	**77,687**	3	Wood - Clean Lumber	0.1%	0.3%	247
1	PET (#1) Bottles/Jars	1.9%	0.5%	8,442	4	Wood - Painted/Treated	1.8%	0.9%	8,277
1	PET (#1) Other	0.4%	0.2%	1,969	2	Wood - Pallets	7.3%	1.5%	33,278
1	HDPE (#2) Bottles - Natural Only	0.2%	0.1%	1,127	4	Non-C&D Wood	0.0%	0.1%	121
1	HDPE (#2) Bottles - Colored Only	0.3%	0.3%	1,451	4	Drywall/Gypsum Board	0.0%	0.0%	0
1	HDPE (#2) Non-Bottle Containers	0.2%	0.1%	993	2	Concrete, Brick, Rock, Other C&D	2.9%	1.0%	13,230
1	PP (#5) Bottles and Containers	1.3%	0.3%	5,799	4	Carpet, Carpet Padding, & Rugs	1.8%	0.8%	8,240
1	PS (#6) Rigid Containers	0.4%	0.4%	1,710		**HHW**	**0.9%**	**0.4%**	**3,883**
1	#3, #4, #7 Products	0.1%	0.0%	420	4	Medical Waste & Sharps	0.6%	0.4%	2,574
4	Compostable Plastic Pkg	0.0%	0.0%	48	2	Batteries - Lead Acid	0.0%	0.0%	0
1	Durable Plastic Products	1.8%	1.0%	8,151	2	Batteries - Other Rechargeable	0.0%	0.0%	29
4	EPS "Styrofoam" - Food Pkg	0.1%	0.1%	570	2	Batteries - All Other	0.0%	0.0%	105
4	EPS "Styrofoam" - Non-Food Pkg	0.1%	0.1%	280	2	Other Haz Waste/Other HHW	0.3%	0.1%	1,175
2	Clean Commercial Film	2.3%	0.6%	10,675		**Electronics**	**0.2%**	**0.3%**	**726**
2	Clean Shopping Bags	0.2%	0.1%	965	2	Computers & Electronic Products	0.2%	0.3%	726
4	Contaminated/Other Film - Mono	4.5%	0.6%	20,692		**Other**	**13.6%**	**3.6%**	**61,873**
4	Contaminated/Other Film - Multi	1.3%	0.5%	5,953	2	Textiles & Leather Products	2.5%	1.2%	11,419
4	Remainder/Composite Plastic	1.9%	0.4%	8,441	4	Diapers & Sanitary Products	3.5%	2.4%	16,092
	Metal	**2.8%**	**0.8%**	**12,801**	4	Bulky Items	4.1%	1.6%	18,524
1	Aluminum Cans & Containers	0.6%	0.2%	2,727	2	Tires	0.0%	0.0%	0
2	Other Aluminum	0.6%	0.4%	2,674	4	Other/Not Elsewhere Classified	1.9%	0.5%	8,571
2	Other Non-Ferrous	0.3%	0.4%	1,532	4	Supermix - Bottom Fines & Dirt	1.6%	0.4%	7,267
1	Tin/Steel Containers	0.5%	0.2%	2,397					
2	Other Ferrous	0.8%	0.5%	3,471		**Total**	**100.0%**		**455,900**
						Samples	**21**		
1	*Curbside Recyclables*	*26.0%*		*118,741*	3	*Compostables/Mulchables*	*25.9%*		*118,265*
2	*Other Non-Curbside Recyclables*	*17.4%*		*79,500*	4	*Not Currently/Widely Recyclable*	*30.6%*		*139,393*

Table 2-8 Suburban Disposed MSW Composition

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**26.1%**	**1.7%**	**1,004,731**		**Glass**	**2.5%**	**0.5%**	**94,914**
1	Newsprint	0.2%	0.1%	6,867	1	Clear Glass Containers	1.5%	0.3%	56,845
1	Corrugated Cardboard/Kraft Paper	8.6%	1.2%	331,183	1	Brown Glass Containers	0.4%	0.2%	15,265
1	Magazines	0.3%	0.1%	11,814	1	Green Glass Containers	0.4%	0.2%	14,645
1	Paperboard/Packaging	1.8%	0.2%	70,804	4	Non-Container/Other Glass	0.2%	0.1%	8,159
4	Polycoated/Aseptic Pkg	0.3%	0.1%	11,846		**Organics**	**27.2%**	**2.8%**	**1,046,603**
1	High Grade Office Paper	0.4%	0.2%	15,455	3	Food Waste	19.5%	2.1%	751,334
2	Books	0.1%	0.1%	5,596	3	Grass	0.2%	0.2%	5,955
1	Other Recyclable Paper	2.0%	0.4%	75,110	3	Leaves	2.0%	0.8%	76,717
4	Paper Cups	0.5%	0.1%	19,570	3	Brush, Prunings, and Trimmings	1.5%	0.9%	56,342
3	Compostable Paper	7.8%	0.9%	301,374	4	Other/Non-Compostable Organics	4.1%	1.1%	156,255
4	Non-Recyclable Paper	4.0%	0.7%	155,111		**C&D**	**7.2%**	**2.4%**	**275,575**
	Plastic	**18.3%**	**1.8%**	**703,442**	3	Wood - Clean Lumber	0.1%	0.1%	3,774
1	PET (#1) Bottles/Jars	1.8%	0.2%	68,575	4	Wood - Painted/Treated	1.1%	0.5%	43,233
1	PET (#1) Other	0.5%	0.1%	17,796	2	Wood - Pallets	2.5%	1.7%	95,918
1	HDPE (#2) Bottles - Natural Only	0.5%	0.1%	18,225	4	Non-C&D Wood	0.1%	0.1%	4,329
1	HDPE (#2) Bottles - Colored Only	0.3%	0.1%	10,885	4	Drywall/Gypsum Board	0.2%	0.2%	7,644
1	HDPE (#2) Non-Bottle Containers	0.3%	0.2%	10,311	2	Concrete, Brick, Rock, Other C&D	1.6%	0.6%	61,229
1	PP (#5) Bottles and Containers	1.4%	0.2%	52,679	4	Carpet, Carpet Padding, & Rugs	1.5%	0.9%	59,447
1	PS (#6) Rigid Containers	0.3%	0.1%	11,583		**HHW**	**1.0%**	**0.4%**	**36,732**
1	#3, #4, #7 Products	0.0%	0.0%	1,490	4	Medical Waste & Sharps	0.3%	0.2%	11,432
4	Compostable Plastic Pkg	0.0%	0.0%	123	2	Batteries - Lead Acid	0.0%	0.0%	18
1	Durable Plastic Products	1.2%	0.4%	47,111	2	Batteries - Other Rechargeable	0.0%	0.0%	1,765
4	EPS "Styrofoam" - Food Pkg	0.2%	0.1%	7,642	2	Batteries - All Other	0.1%	0.0%	2,367
4	EPS "Styrofoam" - Non-Food Pkg	0.1%	0.1%	4,531	2	Other Haz Waste/Other HHW	0.6%	0.3%	21,150
2	Clean Commercial Film	2.0%	1.5%	77,106		**Electronics**	**0.5%**	**0.3%**	**19,101**
2	Clean Shopping Bags	0.4%	0.1%	15,530	2	Computers & Electronic Products	0.5%	0.3%	19,101
4	Contaminated/Other Film - Mono	5.4%	0.7%	207,457		**Other**	**13.9%**	**1.8%**	**534,922**
4	Contaminated/Other Film - Multi	1.8%	0.3%	67,457	2	Textiles & Leather Products	3.0%	0.8%	116,448
4	Remainder/Composite Plastic	2.2%	0.6%	84,941	4	Diapers & Sanitary Products	3.9%	0.9%	151,551
	Metal	**3.4%**	**0.5%**	**129,154**	4	Bulky Items	3.3%	1.0%	127,171
1	Aluminum Cans & Containers	0.8%	0.1%	29,118	2	Tires	0.1%	0.2%	5,103
2	Other Aluminum	0.4%	0.1%	14,435	4	Other/Not Elsewhere Classified	2.0%	0.5%	75,405
2	Other Non-Ferrous	0.6%	0.3%	24,706	4	Supermix - Bottom Fines & Dirt	1.5%	0.2%	59,245
1	Tin/Steel Containers	0.7%	0.2%	28,491					
2	Other Ferrous	0.8%	0.3%	32,404		**Total**	**100.0%**		**3,845,172**
						Samples	**67**		
1	*Curbside Recyclables*	23.3%		894,252	3	*Compostables/Mulchables*	31.1%		1,195,497
2	*Other Non-Curbside Recyclables*	12.8%		492,876	4	*Not Currently/Widely Recyclable*	32.8%		1,262,548

Table 2-9 Rural Disposed MSW Composition

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**27.3%**	**2.1%**	**56,638**		**Glass**	**2.9%**	**1.5%**	**6,011**
1	Newsprint	0.3%	0.5%	675	1	Clear Glass Containers	1.8%	0.8%	3,644
1	Corrugated Cardboard/Kraft Paper	8.8%	0.7%	18,340	1	Brown Glass Containers	0.5%	0.3%	950
1	Magazines	0.7%	0.9%	1,543	1	Green Glass Containers	0.5%	0.6%	982
1	Paperboard/Packaging	2.3%	0.8%	4,758	4	Non-Container/Other Glass	0.2%	0.4%	435
4	Polycoated/Aseptic Pkg	0.3%	0.1%	672		**Organics**	**26.1%**	**2.6%**	**54,022**
1	High Grade Office Paper	0.7%	0.5%	1,414	3	Food Waste	17.8%	1.9%	36,826
2	Books	0.2%	0.3%	436	3	Grass	0.2%	0.0%	313
1	Other Recyclable Paper	1.9%	0.7%	3,949	3	Leaves	1.9%	1.5%	3,941
4	Paper Cups	0.4%	0.0%	865	3	Brush, Prunings, and Trimmings	1.0%	1.3%	2,131
3	Compostable Paper	7.5%	0.8%	15,603	4	Other/Non-Compostable Organics	5.2%	2.3%	10,811
4	Non-Recyclable Paper	4.0%	0.8%	8,382		**C&D**	**5.6%**	**0.8%**	**11,560**
	Plastic	**16.9%**	**1.4%**	**35,066**	3	Wood - Clean Lumber	0.0%	0.0%	45
1	PET (#1) Bottles/Jars	1.9%	0.3%	3,908	4	Wood - Painted/Treated	0.9%	0.8%	1,943
1	PET (#1) Other	0.4%	0.1%	888	2	Wood - Pallets	2.0%	0.0%	4,170
1	HDPE (#2) Bottles - Natural Only	0.5%	0.1%	969	4	Non-C&D Wood	0.1%	0.1%	265
1	HDPE (#2) Bottles - Colored Only	0.3%	0.1%	674	4	Drywall/Gypsum Board	0.1%	0.1%	250
1	HDPE (#2) Non-Bottle Containers	0.3%	0.1%	670	2	Concrete, Brick, Rock, Other C&D	1.3%	0.4%	2,742
1	PP (#5) Bottles and Containers	1.3%	0.2%	2,631	4	Carpet, Carpet Padding, & Rugs	1.0%	0.9%	2,144
1	PS (#6) Rigid Containers	0.3%	0.1%	593		**HHW**	**0.9%**	**0.2%**	**1,827**
1	#3, #4, #7 Products	0.0%	0.0%	51	4	Medical Waste & Sharps	0.3%	0.3%	688
4	Compostable Plastic Pkg	0.0%	0.0%	1	2	Batteries - Lead Acid	0.0%	0.0%	1
1	Durable Plastic Products	1.1%	1.1%	2,381	2	Batteries - Other Rechargeable	0.0%	0.0%	75
4	EPS "Styrofoam" - Food Pkg	0.2%	0.1%	327	2	Batteries - All Other	0.1%	0.1%	117
4	EPS "Styrofoam" - Non-Food Pkg	0.1%	0.1%	296	2	Other Haz Waste/Other HHW	0.5%	0.1%	946
2	Clean Commercial Film	1.6%	0.0%	3,315		**Electronics**	**0.6%**	**0.4%**	**1,180**
2	Clean Shopping Bags	0.5%	0.2%	954	2	Computers & Electronic Products	0.6%	0.4%	1,180
4	Contaminated/Other Film - Mono	4.8%	0.3%	9,930		**Other**	**15.8%**	**3.7%**	**32,703**
4	Contaminated/Other Film - Multi	1.5%	0.3%	3,205	2	Textiles & Leather Products	3.5%	1.6%	7,281
4	Remainder/Composite Plastic	2.1%	0.3%	4,273	4	Diapers & Sanitary Products	3.7%	2.3%	7,694
	Metal	**4.0%**	**1.0%**	**8,247**	4	Bulky Items	4.8%	2.7%	9,901
1	Aluminum Cans & Containers	0.8%	0.3%	1,692	2	Tires	0.0%	0.0%	0
2	Other Aluminum	0.4%	0.1%	771	4	Other/Not Elsewhere Classified	2.0%	0.4%	4,194
2	Other Non-Ferrous	0.7%	0.6%	1,485	4	Supermix - Bottom Fines & Dirt	1.8%	0.3%	3,633
1	Tin/Steel Containers	0.9%	0.4%	1,868					
2	Other Ferrous	1.2%	0.9%	2,430		**Total**	**100.0%**		**207,254**
						Samples	**22**		
1	*Curbside Recyclables*	*25.4%*		*52,581*	3	*Compostables/Mulchables*	*28.4%*		*58,860*
2	*Other Non-Curbside Recyclables*	*12.5%*		*25,904*	4	*Not Currently/Widely Recyclable*	*33.7%*		*69,909*

2.5 FACILITY-SPECIFIC RESULTS

As only one season of field data collection was performed for this 2024 update, each host facility contributed relatively few samples to the statewide total. Although the statewide results incorporate a sufficient number of samples to achieve an accurate estimate of the statewide disposed MSW stream, individual facility results exhibit a high margin of error (i.e., lower statistical accuracy).

3. CONCLUSIONS & RECOMMENDATIONS

3.1 CONCLUSIONS

The 2024 Waste Characterization Study was intended to duplicate the methodology and results of the 2016 Study, with the dual objective of measuring changes in Maryland's disposed MSW stream while also informing the legislatively mandated Recycling Needs Assessment. The 2024 Study captured samples from the same host facilities, following the same sampling and sorting methods, as the 2016 Study. In this regard, the 2024 Study was successful in obtaining a geographically representative sample of residential and ICI wastes, spanning urban, suburban and rural areas of the State. However, the 2024 Study could only accommodate one seasonal field data collection event, rather than two seasons as in the 2016 Study. In this regard, the 2024 Study did not obtain the same level of seasonal representation of the State's disposed MSW. Despite the condensed field data collection, it is the opinion of MSW Consultants that the 2024 Study results can reliably inform the upcoming Recycling Needs Assessment. However, the more granular results sets included in the appendices to this report exhibit lower precision due to the relatively low sample sizes underlying the calculations.

Other conclusions that can be drawn from the 2024 Study update include:

- **Increased MSW Disposal**: First and foremost, there has been explosive growth in the amount of disposed MSW originating from suburban areas in Maryland (which is the most common demography in the State). Statewide, MSW disposal increased from 3.8 million tons (FY14) to 4.5 million tons (FY22), an increase of over 19 percent in only eight years. However, the increase in MSW disposal originating from suburban areas was over 27 percent in this same time period. Assuming that MDE disposal reporting has been consistent and accurate over the years, the increase in MSW disposal suggests that the Maryland economy has been strong over the elapsed time since the 2016 Study. It also highlights the need for improving diversion of MSW from landfill.
- **Increased Incidence of Plastic and Organics in Disposed MSW**: On a percentage basis, the incidence of plastics and organics increased most significantly in disposed MSW. In the case of plastics, EPR programs would be expected to have a positive recycling impact, as rigid, expanded and film plastic packaging continue to gain market share. Means and methods other than EPR will be needed to divert organics from disposal.

The results of this study will be further analyzed in subsequent deliverables as part of the Recycling Needs Assessment, and additional conclusions are likely to arise with this subsequent report.

3.2 RECOMMENDATIONS

The upcoming Recycling Needs Assessment will thoroughly address programmatic recommendations derived from the findings of this composition study, and are therefore not addressed in this report. However, MSW Consultants offers the following concise recommendations for consideration by MDE as it progresses through the Recycling Needs Assessment and plans for future initiatives that would benefit from comprehensive material composition measurements.

- **Continue to Perform State-level Composition Studies**: MDE should expect to revisit the composition of disposed MSW as part of any EPR program to measure performance of the

program. Additionally, MDE may find value in expanding its composition study focus to include single stream recyclables. Single stream composition studies are critical to subdivide recovered commodities into packaging and other substreams which also measure EPR program performance; and also to assess the negative impacts of contamination on the recycling system. Other states undertaking EPR for packaging have performed increasingly detailed and innovative material composition studies to inform EPR policies and future performance measurements.

- **Refine Demographic Regions**: With the growth in suburban population and the use of county boundaries in this study as a basis for signing demographic regions, Maryland is essentially a large suburban state. MDE may wish to revisit the demographic stratification of the State, taking into account other aspects of an EPR-for-packaging program. On a related note, this and the 2016 Study under-captured samples from urban ICI generators, and it is again recommended that future studies attempt to sample from these generators (which, as a practical matter, involves securing access to field work at the Wheelabrator waste-to-energy facility).
- **Reconsider Selected 2016 Study Recommendations**: The 2016 Study contained two recommendations that warrant a reminder:
  - Consider performing statewide composition studies on the construction and demolition (C&D) waste stream as a strong candidate material stream for increasing diversion from landfill. Agricultural and industrial wastes also have not been characterized.
  - Disposal facility gate surveys could be employed cost effectively in the same cycle as statewide waste composition studies to further refine the State's understanding of waste flows, and to validate generator sector sample allocations and demographic sample allocations.

STUDY DESIGN

1. INTRODUCTION

The Maryland Department of the Environment (MDE) is conducting a Statewide Recycling Needs Assessment (Assessment) in 2024. As part of this assessment, a waste characterization study (WCS) will be conducted at disposal facilities across the state. The methodology for the 2024 WCS will largely replicate the 2016 baseline study performed through the Northeast Maryland Waste Disposal Authority on behalf of MDE. As MDE continues to focus its statewide waste management efforts on diversion of waste from landfill and improvements to recycling programs, this round of study will be important for allowing stakeholders to evaluate the status of the state's current solid waste and recycling infrastructure.

MDE has contracted with HDR for the 2024 Assessment, with MSW Consultants subcontracted to perform the WCS. The 2016 WCS was a two-season study; however, the 2024 study will be a one season study, with the plan to visit the same nine disposal facilities included in the previous study. Each site, including both landfills and transfer stations, will receive one to two days of sampling and sorting from inbound vehicles collected from both the Residential and Industrial/Commercial/Institutional (ICI) waste sectors. This Study Design will include a statistical sampling plan and process for targeting representative, randomly chosen samples and loads of waste to be characterized in terms of the weight and defined material categories. An analysis of the weight data associated with each sample of waste will produce estimates of the average composition of the waste from each sector. Analysis will be performed on the aggregate statewide composition data, not by facility, and will represent a snapshot in time that can be compared to the previous study.

This Study Design describes the approach, methodology, sampling plan, logistical arrangements, and data collection procedures that will be implemented, and the various report deliverables that will be submitted during the 2024 WCS.

2. ROLES & RESPONSIBILITIES

Eric Weiss and Emily Rhodes with HDR will serve as the primary contact for MSW Consultants during the implementation of the WCS. As outlined in the RFP, MDE will coordinate host facility site access. Participating host facilities will provide MDE/HDR with route/scale data for the Residential and ICI sectors through a formal data request. This data will inform the sampling plan for each host facility. Only publicly available data will be provided to MSW Consultants.

MSW Consultants' professional consulting staff have redundant waste characterization management, field supervisory experience, operations and analytical experience, with consistent training to use our firm's proven approach for waste characterization. The staff below, all of whom have significant experience with waste and recycling stream characterization project work, including on the 2016 project, will support this project. Their roles are listed:

- John Culbertson, Principal (Project Supervision, Sampling Plan and Statistical Analysis)
- Natalee Mannion (Project Manager and Field Supervisor)
- Joe Vetrano, LEED AP (Field Supervisor)
- Shelly Wilson (Field Supervisor/Crew Chief)
- Nick O'Callaghan (Statistical Analysis)
- David Mann (IT Director, Data Management)

The following roles will be implemented during field data collection:

The **Field Supervisor** will begin each site visit by establishing contact with facility personnel including the operations manager, scale house staff, loader operator or other designated personnel. The Field Supervisor will be in charge of tracking daily sample targets, collecting samples from inbound vehicles, implementing the Safety and Health Plan and reporting any issues to the facility and HDR.

The **Crew Chief** will manage the sorting function at each host facility, including verifying and recording sample data. They will be in charge of quality control checks on sorted material and weighing out all the materials after each sample has been sorted. They will also make sure the sorting crew adheres to the Safety and Health Plan.

Sorters will be obtained through Global Executive Staffing (GES), a local temporary labor company based in National Harbor, Maryland. GES will supply a dedicated sort crew to be trained by our professional staff in the sorting and weigh out procedures.

3. SITE COORDINATION & COMMUNICATION

3.1 LOGISTICS

MDE is expected to contact each facility to verify their participation in the 2024 WCS. Facilities are expected to support the waste sampling activities, when feasible, including front-end loaders for sample retrieval, designated safe space for sampling and sorting activities adjacent to tip area, restroom access, and scale data. MSW Consultants will supply all sorting equipment (e.g., scales, tables, bins, tablets, etc.).

MSW Consultants will attend kick-off calls with the host facilities and request (through HDR to MDE) publicly available state data to develop a sampling plan for how to representatively sample by generator sector at each study facility. MSW Consultants will also review other MSW Consultants performed studies and publicly available data (e.g., Maryland Solid Waste and Diversion Report 2022) to better understand the volumes and flow of material delivered to disposal sites.

3.2 COMMUNICATION WITH HOST FACILITIES

MDE will lead the communications directly with each facility. This direct communication will serve the following crucial functions:

- Introducing the Field Supervisor to facility personnel;
- Finalizing locations for setting up the work area, taking samples, queuing samples, discarding sorted samples, and other in-process activities;
- Confirming procedures requiring coordination between the host facility personnel and MSW Consultants;
- Reviewing facility-specific health and safety procedures and emergency contact numbers; and
- Answering any questions or addressing concerns of the facility managers.

The management staff of each disposal facility will be contacted by the Field Supervisor prior to the scheduled visit. The facility's staff will be reminded of both the visit and their role in the sampling activities.

4. SAFETY & HEALTH PLAN

MSW Consultants maintains a customized Safety and Health Plan for waste characterization studies, including a list of nearby medical facilities for each host facility. A copy of this plan is included in Appendix A and will be provided to MDE (through HDR) and available for distribution to any host facility.

5. TRAINING & SUPERVISION

At the outset of field work, the Field Supervisor and Crew Chief will jointly lead a detailed training session and safety briefing in the morning of the first day of the sort. At the conclusion of the training, the sorting

crew will be fully prepared to conduct the sorts at each facility. For the remainder of the sort, the Crew Chief will oversee and direct the sort crew.

The training will cover all aspects of the safety and health requirements, as well as sorting and weighing procedures and guidance to improve productivity. Training will include:

- General facility overview;
- Learning and reviewing the material categories and definitions;
- Facility-specific health and safety requirements;
- Personal protective equipment (PPE) requirements;
- Waste handling techniques; and
- Productivity strategies and daily sorting quotas.

Throughout the sort the sorting crew will be under close supervision by the Crew Chief. The Crew Chief will ensure the sorting protocol is being followed along with the health and safety requirements outlined in Appendix A. Lastly the Crew Chief will closely evaluate each individual sample to ensure that the material categories are understood and adhered to by the sorting crew.

6. SAMPLING PLAN

6.1 DEFINITIONS OF WASTE SECTORS

MSW Consultants will categorize wastes into two generator sectors:

- Residential: Includes waste generated in single family and multi-family residential households.
- Commercial: Includes waste generated in commercial, industrial, and institutional establishments.

Multi-family samples will not be targeted as a unique generator sector, outside of being classified as Residential; however, haulers will be interviewed to determine if multi-family is included in the load to be sampled and will be noted accordingly. Additionally, loads containing less than 80% of either residential or commercial waste, and loads originating from outside of Maryland, will not be sampled. Transfer trailers waste will also be omitted from the study as it is not possible to discern the generator sector from transfer trailer wastes.

6.2 HOST FACILITIES & SAMPLE ALLOCATION

Table 6-1 summarizes the nine solid waste disposal facilities expected to participate in the 2024 WCS. These are the same facilities that hosted the 2016 WCS field data collection and were previously selected based on statewide annual tonnage data.

Table 6-1 Host Facilities

County	Host Facility	City	Service Region Demographic
Carroll	Northern Landfill	Westminster	Suburban
Washington	Forty West Municipal Landfill	Hagerstown	Suburban
Garrett	Garrett County Landfill	Oakland	Rural
City of Baltimore	City of Baltimore Landfill	Baltimore	Urban
City of Baltimore	Northwest Transfer Station	Baltimore	Urban
Charles	Charles County Landfill	Waldorf	Suburban
Somerset	Somerset County Landfill	Westover	Rural
Cecil	Cecil County Central Landfill	Elkton	Rural
Calvert	Appeal Landfill	Lusby	Suburban

The table below summarizes the recommended sample allocation for the 2024 WCS. Sample targets for each facility will target each generator sector proportionally based on the inbound tonnage data and feedback from facility staff. As a contingency, sampling plan targets for generator sectors may be modified slightly to meet the overall sample targets. For example, if a target truck does not arrive in time for sorting, an alternate truck/generator sector may be selected. Additionally, in case of unforeseen events such as weather impacts, facility shutdowns or other unplanned travel events, missed samples may be made up at other locations; however, best efforts will be made to achieve the targets in Table 6-2. Any changes to the sampling targets or site/travel issues will be communicated by MSW Consultants to HDR to forward on to MDE. Additionally, the draft and final reports will summarize the targeted versus actual sample counts.

Table 6-2 Sample Distribution by Host Facility

Disposal Site	Host Facility	Sample Targets
1	Cecil County Central Landfill	10
2	Somerset County Landfill	10
3	Charles County Landfill	10
4	Appeal Landfill	10
5	City of Baltimore Landfill	10
6	Northwest Transfer Station	10
7	Garrett County Landfill	10
8	Forty West Municipal Landfill	10
9	Northern Landfill	20
Total	**Total**	**100**

6.3 SCHEDULE

Field data collection will occur over one season, from November 4 to November 15, 2024. MSW Consultants will be utilizing a dedicated, traveling sorting team, which will provide the most efficient sorting in the field. MSW Consultants will be completing 10 days of sorting at nine facilities, including two days at Northern Landfill in Carroll County. These two days serve as a kick-off for the project and not due to any statistical significance for sampling more at this site. It will be important for MDE to verify participation of the host facilities as soon as possible, due to the need to design an efficient travel plan.

6.4 SAMPLE WEIGHTS

Consistent with industry standards (ASTM D 5231-92 (2016)) and the 2016 study, samples will be collected that weigh between 200 and 250 pounds. MSW Consultants' sampling expertise will ensure that representative and random samples meeting desired weight targets will be acquired consistently throughout the project.

6.5 MATERIAL CATEGORIES

Material categories and definitions were thoroughly reviewed and finalized with MDE (through HDR). The 2024 material categories and definitions are shown in Appendix B. These material categories have been amended from the previous study to meet the goals of the larger statewide EPR Needs Assessment while allowing for a comparative analysis to be performed with the 2016 study.

7. ACQUISITION OF SAMPLES

7.1 GENERAL SPACE REQUIREMENTS

In order for the sorting crew to safely and successfully collect and sort samples at each facility they will need a space approximately the size of one truck bay or about 20x40 feet. This space must also allow a

front loader to dump 200-to-250-pound samples onto a designated ground area frequently throughout the day. At the end of the day the crew will have accumulated a large pile of garbage or recyclables, made up of both the sorted and unsorted portion of each grab sample, that will be disposed/processed of properly at the direction of the host facility.

7.2 VEHICLE SELECTION

The Field Supervisor will follow a systematic selection procedure to identify Residential and ICI waste vehicles for sampling. To calculate vehicle sampling frequency for each waste sector, MSW Consultants will establish a sampling interval for each facility based on input from the facility scale house. Sampling intervals are determined by dividing the total expected number of loads for each sector arriving at the facility on the scheduled day – based on questions asked of each facility in the planning phase of the study – by the number of samples needed each day. The resulting number is the sampling frequency, which determines whether every third vehicle, every sixth vehicle, or every 20th vehicle is selected for sampling. This strategy is referred to as "selecting every nth vehicle" within a waste sector and subsector.

The Field Supervisor working in coordination with facility scale house personnel, will keep track of vehicles from each waste sector as they enter the facility. When the designated nth vehicle in each waste sector arrives, the Field Supervisor will direct the vehicle to the sampling area.

The Field Supervisor will obtain and record pertinent information for each vehicle that is identified for sampling, including waste sector (Residential or ICI), hauler name, vehicle type, truck number and other data that may be needed.

This information will be noted on the electronic tablets used for data recording, along with a unique sample ID number associated with that vehicle on that day. The Field Supervisor will also note any unusual circumstances associated with the load or the sample.

Note that there are five instances where the nth vehicle approach may be modified:

- On the day of sampling and sorting, if the number of loads expected to arrive at the facility is less than previously anticipated, the sampling frequency will be shortened and a new nth vehicle selection strategy will be calculated and followed;
- If the nth residential vehicle selected is found to contain significant mixture of commercial, industrial, or institutional waste (above 20%), the next load (nth + 1) may be taken as a replacement;
- If the nth commercial vehicle selected is found to contain significant mixture of multi-family residential waste (above 20%), the next load (nth + 1) may be taken as a replacement
- To meet daily sampling targets, it is critical to keep the sorting crew actively sorting from the moment the work area is set up. To the extent the sort crew is set up and ready to sort MSW Consultants may take the next available residential or ICI load in place of the nth vehicle. If this becomes necessary, the remaining vehicles will be taken at every nth interval.
- In the event that the waste is not from Maryland.

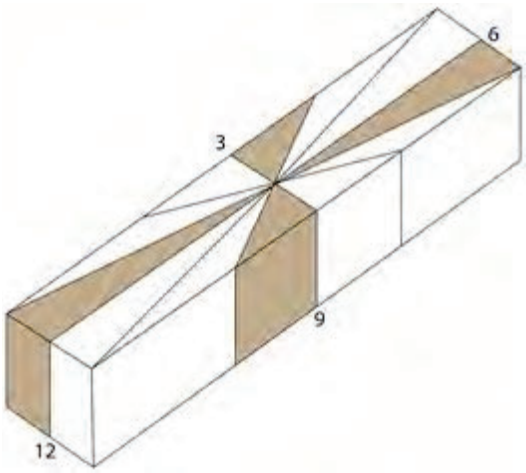
In cases where an insufficient number of vehicles are available for sampling at a disposal facility, the data collection crew can first change the nth vehicle to reduce the number between samples or make up the missing samples at a different location. This strategy may also be used when samples are missed for some other unforeseen reason. In all cases, the sampling plan will assign the frequencies of vehicles to be selected in such a way as to minimize the chance of "running out of" vehicles to represent a particular waste sector at a disposal facility.

7.3 SAMPLE SELECTION: GRAB SAMPLES OF WASTE

Selected loads of waste will be tipped in the designated area at each solid waste facility. From each selected load, one sample of waste will be selected based on systematic "grab" from the load, treating the tipped

load as a clock face. For example, if the tipped pile is viewed from the top as a clock face with 12:00 being the part of the load closest to the front of the truck, the first sample will be taken at the 12:00 position. Subsequent samples will be taken from 3 o'clock, 6 o'clock, and 9 o'clock. For the next four loads, the extraction point will shift to 1, 4, 7, and 10 o'clock, and so-on. This concept of systematically rotating around subsequent loads is shown in Figure 7-1.

Figure 7-1 Systematic Sampling Guide for Tipped Loads



From each extraction point, the loader operator will be instructed to take a grab sample. From each grab, a sample weighing at least 200 pounds will be extracted from the pile and pre-weighed (to verify that the minimum sample weight has been achieved and to prevent sorting overly large samples, which would diminish sorting productivity). Pre-weighed samples will be loaded into barrels for placement on the sort table, although bulky items may be weighed and recorded separately (thereby eliminating the need to sort them at the sort table). Prior to sorting each sample, a sorting crew member will take a photograph of it with the sample placard and identification number visible in the picture.

Depending upon the availability of host facility personnel, the Field Supervisor will either collect the sample directly from the bucket of the front-end loader, or will direct the sample to be dumped on a tarp or a paved surface. When collecting samples directly from the loader bucket, 35-gallon cans or barrels will be arranged side-by-side, with the loader bucket positioned directly overhead. The Field Supervisor will collect the sample systematically, by working from one side of the bucket to the other, emptying all of the contents from the front of the bucket to the back, until the desired sample weight was achieved. To help minimize sample collection bias, samples will be collected from the loader bucket in an alternating fashion, that is, working from the left side of the bucket to the right side for one sample, and then from right to left on the next sample.

8. CHARACTERIZATION OF SAMPLES

8.1 SORTING PROCEDURE

In Figure 8-1 below, the photographs present our typical layout of the sorting table and bins into which each targeted material is to be sorted. Based on our extensive experience, we believe a well-thought-out sort area is crucial to efficient and accurate sorting. Maintaining a consistent sort area also improves safety by establishing boundaries for all workers to follow consistently.

Figure 8-1 Layout of Sorting Table and Bins

Once the sample has been acquired and placed on the sorting table, the material will be sorted by hand into the prescribed component categories. Plastic 35-gallon barrels, 18-gallon bins and 5-gallon buckets will be used to contain the separated components. The sorting crew members typically specialize in groups of materials, such as papers or plastics.

The Crew Chief will monitor the homogeneity of the component bins as they accumulated, reclassifying materials that may be improperly sorted. Open bins allow the Crew Chief to see the material at all times and verify the purity of each component as it is weighed, before recording the weight into the database. The materials will be sorted to particle size of 2 inches or less by hand, until no more than a small amount of homogeneous fine material (—mixed residual‖) remains. This layer of mixed 2-inch-minus material will be allocated to the appropriate categories based on the best judgment of the Crew Chief — most often a combination of Other Paper, Other Organics, or Food Waste. The overall goal is to sort each sample directly into component categories in order to reduce the amount of indistinguishable fines or miscellaneous categories.

8.2 DATA RECORDING

The weigh-out and data recording process is the most critical step of the sort. The Crew Chief will oversee all weighing and data recording of each sample. Once each sample has been sorted, and fines swept from the table, the weigh-out will be performed. Each bin containing sorted materials from the just completed samples will be carried over to the scale. The Sorters will assist with carrying and weighing the bins of sorted material, and the Crew Chief will record all data. Photos will be taken to document the sample collection process as well as representative sorted material category photos.

The Crew Chief will use an electronic tablet to record the composition weights. The tablet allows for samples to be tallied in real time so that field data collection can immediately identify and rectify errors associated with light sample weights. The tablet synchronizes with the cloud via cellular signal, providing excellent data security. Each sample will be cross-referenced against the Field Supervisor's sample targets to assure accurate tracking of the samples each day. The real-time data entry offers several important advantages:

- The tablet's *WasteInsight*™ data management platform contains built-in logic and error checking to prevent erroneous entries.
- The template sums sample weights in real time so the Crew Chief can confirm achievement of weight targets for each and every sample.
- Except where host facilities are outside of cell phone range, the data file syncs routinely and can be accessed and checked by MSW Consultants QA/QC staff back at the office. For remote facilities that

cannot synchronize during the workday, it is usually possible to sync in the evening upon returning to the hotel.

The Crew Chief will also carry paper field forms as a back-up in case the tablet computer encounters unforeseen technical difficulties.

8.3 SITE MAINTENANCE & CLEANUP

MSW Consultants will be guests at each of the host facilities, and it is therefore critical to leave the work area clean and safe for subsequent operations. The sorting crew is also responsible for keeping litter to a minimum. MSW Consultants will also conclude each day of sorting operations with sufficient time to perform site clean-up. Clean-up will include the following types of activities:

- Organized stacking and stowing of sorting supplies in a designated location (only applicable for the two-day site);
- Removal of sorted wastes for burial or transfer (the host facility loader operator will help with this);
- Sweeping and cleaning the sort area to prevent windblown litter and other situations that could attract vectors;
- Removal and discard of day-use personal protective equipment and decontaminating personnel;
- Checking out with the Facility Manager each day; and
- Tarping of any unsorted samples, left for sorting the next day (if applicable).

9. DATA ANALYSIS

9.1 STATISTICAL ANALYSIS

Our analysis of physically sorted waste composition data normalizes each sample by converting the sample data from weight to percentage. A statistical analysis is then performed to calculate the mean composition for each of the material categories. The sample mean is determined by (i) summing the weight of each material in each sample; (ii) summing the total weight of all samples, and (iii) dividing the first value by the second value to determine the percent-by-weight composition.

The standard deviation, as well as confidence intervals at a 95 percent level as specified in the RFP, will be provided for each material category, as statistically appropriate, as well as major material groups (e.g., "paper", "plastic", etc.). Precise statistical formulas will be included in the final report.

9.2 INTEGRATING EXISTING WASTE COMPOSITION DATA

MSW Consultants performed the 2016 study, which included field data collection at nine disposal facilities over two seasons, with a reported capture of 191 samples. The 2016 study also incorporated composition data from Montgomery County and Prince George's County, differentiating between urban, suburban and rural areas of the state. MSW Consultants will follow the 2016 Study methodology as closely as possible. Additionally, MSW Consultants will review recent publicly available Maryland county-level waste composition studies (e.g., Prince George's County 2022, Montgomery County 2023, Baltimore County 2022) and up to two studies will be selected for inclusion in the 2024 WCS analysis.

MSW Consultants also maintains an extensive database of waste composition studies dating back 20 years, and we have performed a variety of regional wasteshed analyses that have standardized and combined different waste composition data. The general steps to integrate prior study data into a statewide study include:

- Confirming the appropriateness of study methodology (not all studies conform to best practices),
- Confirming the alignment of underlying generator sectors,
- Confirming the consistency of sorting objectives (not all studies achieve the same degree of rigorousness in sorting),

- Mapping material categories from existing studies into the 2024 WCS and identify shortfalls,
- Integrating existing study results into the 2024 WCS using data aggregation method,
- Estimating impacts on statistical confidence intervals (not all studies are performed at the same level of confidence).

10. REPORTING

The final report will provide a comprehensive estimate of the composition of MSW generated by the Residential and Commercial sectors within the State and for each host facility. This report will contain the following:

- Statewide results for disposed waste
  - Aggregate
  - Residential
  - Commercial
- Aggregate annual results by facility for each of the nine facilities

The final report will contain the following sections:

- An executive summary providing key findings,
- Introduction and background for the study, including objectives,
- A description of the methodology used in the study and a summary of the sampling and sorting plan;
- A description of the data collection and analytical techniques used;
- A summary of the number of samples characterized;
- Detailed results analysis including a comparison to the 2016 study;
- A summary of findings, conclusions, and supporting documentation.

It should be noted that the report will rely primarily on graphical and tabular results to convey the outcome of the study. For aggregate statewide results, MSW Consultants will develop figures and tables, with input from HDR (on behalf of MDE). For facility-specific results, only tabular results will be provided.

Material Group	#	Material Category	Definitions
Paper	1	Newsprint	Paper used chiefly for printing newspapers – uncoated ground wood paper.
Paper	2	Corrugated Cardboard/Kraft Paper (Uncoated)	Corrugated boxes or paper bags made from Kraft paper. Wavy center layer sandwiched between two outer layers without wax coating on the inside or outside. Examples include cardboard shipping containers and moving boxes, computer packaging cartons, and sheets and pieces of boxes and cartons. 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.
Paper	3	Magazines	Stitched or bound paper that is slick and smooth to the touch, reflecting light (glossy). Examples include glossy magazines, catalogs, brochures, and pamphlets.
Paper	4	Paperboard/Packaging	Coated or uncoated thin cardboard with no layers or center wave. Includes cereal boxes, cracker boxes, boxes for beer or soda, shoe boxes, frozen food boxes. Also includes fiber egg cartons. Does NOT INCLUDE: paper for hot products such as coffee or soup.
Paper	5	Aseptic/Gable Top Cartons	Aseptic containers (multi-layered packaging that contains shelf-stable food products such as apple juice, soup, soy/rice milk, etc.) and "gable top" cartons (non-refrigerated items such as granola and crackers; refrigerated items such as milk, juice, egg substitutes, etc.). Rigid food and beverage cartons are usually paper-based, may be any shape, and may include a plastic pour spout as part of the carton.
Paper	6	High Grade Office Paper	Paper that is free of ground wood fibers; usually sulfite or sulfate 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.
Paper	7	Books	Thin paper between a coated hard or soft cover, with or without a bound spine. Does not include Phonebooks.
Paper	8	Other Recyclable Paper	Recyclable paper other than the paper mentioned above. Examples include manila folders, manila envelopes, index cards, white envelopes, white window envelopes, notebook paper, carbonless forms, junk mail, chipboard, shredded paper, ground wood paper, phonebooks, and deep-toned or fluorescent dyed paper.
Paper	9	Paper Cups	Paper cups for hot or cold beverages/food that may or may not have a coating. Excludes plastic lid.
Paper	10	Compostable Paper	Low-grade, biodegradable paper that cannot be recycled, as well as food contaminated paper. Examples include paper towels, uncoated paper plates/clamshells, waxed papers and waxed cardboard, and tissues.
Paper	11	Non-Recyclable Paper	Includes non-recyclable items made mostly of paper but combined with large amounts of other materials such as plastic, metal, glues, foil, and moisture. Examples include corrugated cardboard coated with plastic, cellulose insulation, blueprints, sepia, onion skin, foiled lined fast food wrappers, frozen juice containers, coated paper plates, carbon paper, self-adhesive notes, and photographs.
Plastic	12	PET (#1) Bottles/Jars	Clear or colored PET bottles or jars. When marked for identification, the number “1” is visible in the center of the triangular recycling symbol and may also bear the letters “PETE” or “PET”. The color is usually transparent, green, or clear. A PET container usually has a small dot left from the manufacturing process, not a seam. It does not turn white when bent. This category only includes PET bottles or jars that did not previously contain hazardous materials.
Plastic	13	PET (#1) Other	Non-bottle containers such as rectangular PET clamshell, thermoforms or tray containers used for produce, food service; etc. - This category only includes PET containers that did not previously contain hazardous materials.
Plastic	14	HDPE (#2) Bottles - Natural Only	Natural colored HDPE bottles/jars. This plastic is usually either cloudy white, allowing light to pass through it (natural). When marked for identification, it bears the number “2” in the triangular recycling symbol and may also bear the letters “HDPE. This category only includes HDPE bottles that did not previously contain hazardous materials.
Plastic	15	HDPE (#2) Bottles - Colored Only	Includes colored HDPE bottles (solid color, preventing light from passing through) such as laundry detergent and cleaning product bottles with a narrow neck. Excludes HDPE bottles that did not previously contain hazardous materials.

Material Group	#	Material Category	Definitions
Plastic	16	HDPE (#2) Non-Bottle HDPE Containers	Non-bottle HDPE tubs and lids as well as natural/colored buckets, pails or paint cans made of HDPE and designed to hold 5 gallons or less of material. This category includes buckets regardless of whether they are attached to metal handles. Examples include large paint buckets and commercial buckets used to contain food for commercial use (restaurants, etc.). These objects are packages containing material for sale, and are not sold as buckets themselves, which would be sorted as Durable Plastics.
Plastic	17	PP (#5) Bottles and Containers	Plastic bottles, tubs, cups, lids, clamshells, nursery containers, etc. made from PP (#5) and/or marked as number 5 in the triangular recycling symbol, when labeled. Could be clear or opaque, including black plastic.
Plastic	18	PS (#6) Rigid Containers	Non-foam plastic trays, clamshells, cups and lids, nursery trays, and other containers made from PS (#6) that may be marked as a number 6 in the triangular recycling symbol, when labeled. Could be clear or opaque, including black plastic.
Plastic	19	#3, #4, #7 Products	Plastic bottles, containers and products made of plastics other than PET, HDPE, PP or PS. When marked for identification, these items may bear the number 3, 4, or 7 in the triangular recycling symbol.
Plastic	20	Compostable Plastic Packaging	Plastic cups, trays or other packaging marked as biodegradable or compostable that may be labeled PLA, PHA or PHB.
Plastic	21	Durable Plastic Products	Plastic products other than disposable packaging and intended for more than one use. Items may be made of #1-#7 plastics. These items are usually made to last for a few months up to many years and include children's toys, furniture, plastic landscape ties, plastic railroad ties, mop buckets, sporting goods, etc. that are predominately made from a single resin.
Plastic	22	Expanded Polystyrene "Styrofoam" - Food Packaging	Food packaging including clamshell "Styrofoam" food containers, as well as cups, plates, and bowls.
Plastic	23	Expanded Polystyrene "Styrofoam" - Non-Food Packaging	Non-food EPS packaging including finished products such as block "Styrofoam" padding and packing peanuts.
Plastic	24	Clean Commercial Film	Clean, commercial and industrial packaging film used for large-scale packaging or transport packaging. Examples include shrink-wrap, mattress bags, furniture wrap, and film bubble wrap.
Plastic	25	Clean Shopping Bags	Includes clean plastic shopping bags used to contain merchandise to transport from the place of purchase, given out by the store with the purchase. Also includes dry-cleaning plastic bags intended for one-time use.
Plastic	26	Contaminated Film/Other Film - Mono-Material	Single resin plastic film or bags that are contaminated or otherwise non-recyclable. Examples include garbage bags, contaminated shopping bags, sandwich bags, zip/recloseable bags, produce bags, product shrink wrap, and plastic food wrap.
Plastic	27	Contaminated Film/Other Film - Multi-Material	Multi-layer plastic film or bags that are contaminated or otherwise non-recyclable. Examples include candy-bar wrappers, chip bags, coffee/juice pouches, frozen food bags, flexible plastic packaging, and mailing pouches
Plastic	28	Remainder/Composite Plastic	Plastic that cannot be put in any other type or subtype. Includes items made mostly of plastic but combined with other materials. Examples include auto parts made of plastic attached to metal, plastic drinking straws, plastic cutlery, foam packing blocks (not including expanded polystyrene blocks), plastic strapping, new plastic laminate (e.g. Formica), vinyl, linoleum, plastic lumber, imitation ceramics, handles and knobs, some kitchen ware, plastic string (as used for hay bales), and plastic rigid bubble/foil packaging (as for medications).
Metals	29	Aluminum Cans & Containers	Aluminum beverage or other containers. Includes cat food containers.
Metals	30	Other Aluminum	Non-can aluminum products. Includes aluminum pie plates and non-rigid baking pans; and Aluminum Foils.
Metals	31	Other Non-Ferrous	Any metal item that is not magnetic, as well as stainless steel. These items may be made of copper, brass, bronze, lead, zinc, or other metals. Examples include copper wire, shell casings, and brass pipe.
Metals	32	Tin/Steel 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.

Material Group	#	Material Category	Definitions
Metals	33	Other Ferrous	Any other iron or steel that is magnetic. This subtype does not include "tin/steel containers". Examples include empty or dry paint cans, structural steel beams, boilers, metal clothes hangers, metal pipes, some cookware, security bars, and scrap ferrous items and galvanized items such as nails and flashing. This category also includes mixed metal items made of both ferrous metal and non-ferrous metal combined. Examples include small non-electronic appliances such as toasters and motors.
Glass	34	Clear Glass Containers	Clear glass bottles and jars for beverages or other products.
Glass	35	Brown Glass Containers	Brown glass bottles and jars for beverages or other products.
Glass	36	Green Glass Containers	Green glass bottles and jars for beverages or other products.
Glass	37	Non-Container/Other Glass	Blue, yellow, or red glass containers, and all other non-container glass. Includes flat glass products, and glass products combined with other materials.
Organics	38	Food Waste	Food wastes and scraps, including meat, bone, dairy, grains, rinds, teabags, coffee grounds with filters, etc. Excludes the weight of food containers, except when container weight is not appreciable compared to the food inside. Compostable peanuts, food packaging with food scraps, and small wooden produce crates are also included in this category.
Organics	39	Grass	Grass clippings, primarily from public or private yard waste.
Organics	40	Leaves	Leaf materials, primarily from public or private yard waste.
Organics	41	Brush, Prunings, and Trimmings	Woody plant material up to 4 inches in diameter from any public or private landscape. Examples include prunings, shrubs, and small branches with branch diameters that do not exceed 4 inches. This subtype includes stumps, tree trunks, and larger branches. This subtype does not include material from agricultural sources.
Organics	42	Other/Non-Compostable 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, candles, hand soap, hemp rope, hair, cigarette butts, full vacuum bags, and sawdust. Also includes animal carcasses animal wastes/feces, kitty litter, manures and soiled bedding materials from domestic, farm, wild, or ranch animals.
C&D	43	Wood – Clean Lumber	Clean, bulky wood waste or scraps from newly built wood products. Does not including land clearing debris or yard waste prunings and trimmings.
C&D	44	Wood - Painted/Treated	Wood products that contain an adhesive, paint, stain, fire retardant, pesticide or preservative.
C&D	45	Wood – Pallets	Clean wood pallets (whole and broken), crates, pieces of crates, and other packaging lumber and panel board.
C&D	46	Non-C&D Wood	Miscellaneous wood products such as housewares (e.g., bowls, spoons), decorative objects, and small furnishings (e.g., lamps, boxes).
C&D	47	Drywall/Gypsum Board	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, gyproc, and wallboard.
C&D	48	Concrete, Brick, Rock, & Other C&D	Includes Portland cement mixtures (set or unset, with or without aggregate), fired-clay bricks, asphalt paving and rock gravel larger than 2"in diameter. Includes construction and demolition material that cannot be put in any other type or subtype, including asphalt and composite roofing shingles, ceramic tiles, porcelain products (toilets & sinks), fiberglass insulation, and may also include items from different construction types combined, which would be very hard to separate.
C&D	49	Carpet, Carpet Padding, & Rugs	Flooring applications consisting of various natural or synthetic fibers bonded to some type of backing material. Carpet padding may include plastic, foam, felt, or other material used under the carpet to provide insulation and padding.
HHW	50	Medical Waste & Sharps	Treated or untreated medical waste. Includes bandages, gauze, diabetic strips, syringes, needles, other sharps, and medical tubing. Includes similar items from veterinary usage, medical research, or industrial laboratories.
HHW	51	Batteries - Lead Acid	Lead acid storage batteries. Includes automotive, truck and boat batteries.
HHW	52	Batteries - Other Rechargeable	These batteries are typically found in cellular and cordless phones, digital cameras, laptop computers, portable electronic devices, remote control toys, electric razors, and cordless power tools. Battery types include Nickel-Cadmium (NiCad), Nickel-Metal Hydride (NiMH), and Low Self Discharge (LSD).

Material Group	#	Material Category	Definitions
HHW	53	Batteries - All Other	Any type of battery other than lead acid or rechargeable types. Examples include "dry" household batteries such as AA, AAA, D, button cell, 9-volt. These are batteries commonly used in flashlights, small appliances, tools, toys, watches, and hearing aids.
HHW	54	Other Hazardous Waste / Other HHW	All household or commercial products characterized as "toxic", "corrosive", "caustic", "flammable", "ignitable", "volatile", "radioactive", "poisonous", "asbestos-containing", "explosive", and "reactive". Includes petroleum/oil or water-based adhesives/glues, cleaners, degreasers, paint strippers, thinners, and solvents, as well as other chemicals, certain cosmetics, and potentially harmful wastes. Fluorescents bulbs, including CFLs (Compact Fluorescent Lights) and tubular fluorescent bulbs are included in this category along with the associated light ballasts. Also included are containers and filters with fluids or fuels used in vehicles or engines. Examples include antifreeze, oil, and brake fluid. Oil filters include vehicle engine oil filters. Other items include pesticides, herbicides and fertilizers. Finally, this category includes the HHW containers, with or without product in them.
Electronics	55	Computers & Related Electronic Products	All electronic products, including personal computers, laptop computers, notebook computers, processors, cell phones, tablets, portable handheld calculators, portable digital assistants, electronic toys, stereos, VCRs, DVD players. Also included are peripheral items such as keyboards, monitors, docking stations, etc.
Other	56	Textiles & Leather Products	Includes clothing, fabrics, linens, curtains, blankets, stuffed animals, and other cloth material. Includes leather products such as belts and shoes. Does not include carpeting or rubber products.
Other	57	Disposable Diapers & Sanitary Products	Adult and baby disposable diapers, and feminine hygiene products.
Other	58	Bulky Items	Large, hard-to-handle items that are not defined separately. Examples include all sizes and types of furniture, mattresses, box springs, and base components.
Other	59	Tires	Vehicle Tires of all types. Inner tubes should be sorted into the Other/Not Elsewhere Classified category.
Other	60	Other/Not Elsewhere Classified	Any other type of waste material not listed in any other sort category. Includes rubber products, cosmetics, shampoos, lotions, etc.
Other	61	Supermix - Bottom Fines & Dirt	Remaining mix of materials smaller than 2" square, including miscellaneous fines (paper, plastic, glass, organic material, etc.), sand, and dirt.

Countywide Waste Composition Study Source Data

County: Montgomery
Report: 2022/23 Montgomery County Waste Composition Study
Data Set: Exhibit 3 - Weighted Overall Waste Composition

		Confidence Interval				Confidence Interval	
Material Category	Mean	Lower	Upper	Material Category	Mean	Lower	Upper
Paper	21.6%			Wood	7.5%		
Newspapers/Magazines/Catalogs/Books	1.3%	1.0%	1.6%	Lumber	1.9%	1.5%	2.3%
Corrugated Cardboard	4.9%	4.2%	5.5%	Pallets	1.7%	1.1%	2.2%
Paperboard	2.2%	1.9%	2.4%	Other Wood	3.9%	3.3%	4.5%
Aseptic/Coated Paper Containers	0.7%	0.6%	0.8%	Ferrous Metal	1.6%		
Office Paper	1.8%	1.6%	2.1%	Ferrous/Bi-metal Cans	0.5%	0.4%	0.6%
Carryout Paper Bags	0.6%	0.5%	0.6%	Other Ferrous	1.2%	1.0%	1.4%
Other Recyclable Mixed Paper	3.2%	3.1%	3.6%	Non-Ferrous Metal	1.1%		
Non-Recyclable Paper	6.9%	6.5%	7.2%	Aluminum Cans	0.4%	0.3%	0.4%
Plastic	17.2%			Aluminum Tins/Foil	0.4%	0.3%	0.4%
PET (#1) Bottle Bill Bottles	1.2%	1.1%	1.3%	Other Aluminum	0.4%	0.1%	0.6%
Other PET (#1) Bottles	0.2%	0.2%	0.2%	Glass	3.0%		
#1 PET Thermoforms	0.9%	0.7%	1.0%	Clear	1.4%	1.3%	1.6%
HDPE (#2) Narrow Neck Bottles-Natural	0.3%	0.3%	0.4%	Brown	0.6%	0.4%	0.7%
HDPE (#2) Narrow Neck Bottles-Colored	0.5%	0.4%	0.6%	Green	0.6%	0.5%	0.7%
#3-#7 Bottles	<0.1%	<0.1%	<0.1%	Non-container Glass	0.4%	0.3%	0.5%
Banned Polystyrene	<0.1%	<0.1%	<0.1%	Inorganics	10.0%		
Other Polystyrene	0.9%	0.8%	0.9%	Concrete/Brick/Rock	1.1%	0.7%	1.4%
Plastic Flower Pots	0.1%	<0.1%	0.2%	Sheet Rock	1.2%	0.8%	1.6%
Other Plastic Containers/Tubs	1.9%	1.7%	2.0%	Latex Paints	0.4%	0.2%	0.5%
Film Plastic - Shopping Bags	0.5%	0.4%	0.5%	Fluorescent Lamps	<0.1%	<0.1%	<0.1%
Film Plastic - Other	7.3%	6.9%	7.7%	Electronics	1.3%	1.0%	1.6%
Other Rigid Plastic	3.5%	3.0%	3.9%	Carpets/Rugs/Carpet Padding	2.7%	1.9%	3.4%
Organics	33.3%			Automobile Tires	0.3%	0.1%	0.5%
Food Waste	16.6%	15.8%	17.4%	Miscellaneous Inorganic	3.1%	2.6%	3.5%
Clothing/Linens/Textiles/Leather	5.1%	4.5%	5.6%	HHW	0.5%		
Diapers & Sanitary Products	3.2%	2.9%	3.5%	Lead-Acid Batteries	<0.1%	N/A	N/A
Fines	1.7%	1.6%	1.9%	Other Rechargeable Batteries	<0.1%	<0.1%	<0.1%
Miscellaneous Organics	6.7%	6.4%	6.9%	Other Batteries	<0.1%	<0.1%	<0.1%
Yard Waste	4.1%			HW Containers	<0.1%	<0.1%	<0.1%
Grass/Leaves	1.8%	1.3%	2.3%	Other Hazardous	0.5%	0.3%	0.6%
Brush/Pruning	2.4%	1.9%	2.8%	Total	100.0%		
				Samples	300		

Countywide Waste Composition Study Source Data

County: Montgomery
Report: 2022/23 Montgomery County Waste Composition Study
Data Set: Exhibits 5, 7, 9

Material Category	Mean	Material Category	Mean
Paper	19.9%	Wood	5.2%
Newspapers/Magazines/Catalogs/Books	1.3%	Lumber	1.3%
Corrugated Cardboard	3.0%	Pallets	0.5%
Paperboard	1.8%	Other Wood	3.5%
Aseptic/Coated Paper Containers	0.6%	Ferrous Metal	2.0%
Office Paper	1.9%	Ferrous/Bi-metal Cans	0.5%
Carryout Paper Bags	0.6%	Other Ferrous	1.5%
Other Recyclable Mixed Paper	3.1%	Non-Ferrous Metal	1.1%
Non-Recyclable Paper	7.7%	Aluminum Cans	0.3%
Plastic	17.1%	Aluminum Tins/Foil	0.5%
PET (#1) Bottle Bill Bottles	0.8%	Other Aluminum	0.3%
Other PET (#1) Bottles	0.2%	Glass	2.9%
#1 PET Thermoforms	0.9%	Clear	1.4%
HDPE (#2) Narrow Neck Bottles-Natural	0.3%	Brown	0.5%
HDPE (#2) Narrow Neck Bottles-Colored	0.4%	Green	0.6%
#3-#7 Bottles	0.0%	Non-container Glass	0.4%
Banned Polystyrene	0.0%	Inorganics	8.7%
Other Polystyrene	0.9%	Concrete/Brick/Rock	0.9%
Plastic Flower Pots	0.3%	Sheet Rock	1.0%
Other Plastic Containers/Tubs	2.1%	Latex Paints	0.4%
Film Plastic - Shopping Bags	0.5%	Fluorescent Lamps	0.0%
Film Plastic - Other	7.1%	Electronics	1.3%
Other Rigid Plastic	3.6%	Carpets/Rugs/Carpet Padding	1.3%
Organics	37.2%	Automobile Tires	0.4%
Food Waste	18.2%	Miscellaneous Inorganic	3.3%
Clothing/Linens/Textiles/Leather	5.5%	HHW	0.2%
Diapers & Sanitary Products	4.3%	Lead-Acid Batteries	0.0%
Fines	1.9%	Other Rechargeable Batteries	0.0%
Miscellaneous Organics	7.3%	Other Batteries	0.0%
Yard Waste	5.6%	HW Containers	0.0%
Grass/Leaves	2.5%	Other Hazardous	0.1%
Brush/Pruning	3.1%	Total	100.0%
		Samples	140

Countywide Waste Composition Study Source Data

County: Montgomery
Report: 2022/23 Montgomery County Waste Composition Study
Data Set: Exhibit 13 - Non-Residential Waste Composition

		Confidence Interval				Confidence Interval	
Material Category	Mean	Lower	Upper	Material Category	Mean	Lower	Upper
Paper	23.1%			Wood	9.7%		
Newspapers/Magazines/Catalogs/Books	1.4%	0.8%	2.0%	Lumber	2.6%	1.9%	3.4%
Corrugated Cardboard	6.7%	5.4%	8.1%	Pallets	2.5%	1.5%	3.4%
Paperboard	2.5%	1.8%	3.1%	Other Wood	4.6%	3.5%	5.7%
Aseptic/Coated Paper Containers	0.8%	0.5%	1.1%	Ferrous Metal	1.3%		
Office Paper	1.8%	1.5%	2.2%	Ferrous/Bi-metal Cans	0.4%	0.3%	0.6%
Carryout Paper Bags	0.6%	0.5%	0.7%	Other Ferrous	0.9%	0.7%	1.1%
Other Recyclable Mixed Paper	3.2%	2.8%	3.6%	Non-Ferrous Metal	1.3%		
Non-Recyclable Paper	6.1%	5.5%	6.6%	Aluminum Cans	0.4%	0.4%	0.5%
Plastic	17.0%			Aluminum Tins/Foil	0.3%	0.2%	0.4%
PET (#1) Bottle Bill Bottles	1.4%	1.2%	1.5%	Other Aluminum	0.6%	<0.1%	1.1%
Other PET (#1) Bottles	0.2%	0.2%	0.3%	Glass	2.8%		
#1 PET Thermoforms	0.9%	0.6%	1.3%	Clear	1.5%	1.2%	1.8%
HDPE (#2) Narrow Neck Bottles-Natural	0.4%	0.3%	0.5%	Brown	0.5%	0.3%	0.8%
HDPE (#2) Narrow Neck Bottles-Colored	0.4%	0.3%	0.5%	Green	0.6%	0.4%	0.8%
#3-#7 Bottles	<0.1%	<0.1%	<0.1%	Non-container Glass	0.2%		0.4%
Banned Polystyrene	<0.1%	<0.1%	<0.1%	Inorganics	12.1%		
Other Polystyrene	0.8%	0.7%	0.9%	Concrete/Brick/Rock	1.3%	0.6%	1.9%
Plastic Flower Pots	<0.1%	<0.1%	0.2%	Sheet Rock	1.4%	0.7%	2.2%
Other Plastic Containers/Tubs	1.7%	1.5%	1.9%	Latex Paints	0.3%	<0.1%	0.6%
Film Plastic - Shopping Bags	0.4%	0.3%	0.6%	Fluorescent Lamps	<0.1%	<0.1%	<0.1%
Film Plastic - Other	7.4%	6.6%	8.2%	Electronics	1.5%	1.0%	2.1%
Other Rigid Plastic	3.4%	2.7%	4.1%	Carpets/Rugs/Carpet Padding	4.1%	2.4%	5.8%
Organics	28.2%			Automobile Tires	0.6%	0.2%	1.1%
Food Waste	14.8%	13.4%	16.2%	Miscellaneous Inorganic	2.8%	2.1%	3.5%
Clothing/Linens/Textiles/Leather	3.4%	2.8%	4.1%	HHW	0.8%		
Diapers & Sanitary Products	2.2%	1.7%	2.6%	Lead-Acid Batteries	<0.1%	N/A	N/A
Fines	1.6%	1.4%	1.7%	Other Rechargeable Batteries	<0.1%	<0.1%	<0.1%
Miscellaneous Organics	6.2%	5.7%	6.7%	Other Batteries	<0.1%	<0.1%	<0.1%
Yard Waste	3.5%			HW Containers	<0.1%	<0.1%	0.1%
Grass/Leaves	1.5%	0.7%	2.2%	Other Hazardous	0.8%	0.4%	1.1%
Brush/Pruning	2.0%	1.2%	2.9%	Total	100.0%		
				Samples	120		

Countywide Waste Composition Study Source Data

County: Prince George's

Report: Four-Season Waste Composition Study - Brown Station Road Sanitary Landfill

Data Set: Table 3-1 Detailed Composition of BSRSL Waste, CY21

Material Category	Mean	+/-	Annual Tons	Material Category	Mean	+/-	Annual Tons
Paper	21.6%	2.5%	64,103	Organics	29.3%	3.5%	87,172
Corrugated Cardboard (OCC)	4.3%	0.7%	12,790	Vegetative Food	12.8%	3.2%	38,149
Newspaper/Print (ONP)	0.5%	0.2%	1,449	Non-Vegetative Food	7.4%	2.0%	21,920
Magazines/Catalogs/Other Books	0.6%	0.3%	1,811	Leaves	1.4%	1.3%	4,026
Kraft Paper/Boxboard	1.5%	0.4%	4,367	Grass	0.6%	0.5%	1,688
Mixed Paper	3.3%	1.1%	9,710	Brush	1.4%	1.0%	4,047
Aseptic/Gable Top Cartons	0.2%	0.1%	640	Pallets/Lumber	1.5%	1.3%	4,472
Paper Towels/Napkins	4.2%	1.0%	12,607	Other Wood	3.6%	1.9%	10,553
Other Compostable Paper	3.3%	1.7%	9,942	Remainder/Composite Organics	0.8%	0.5%	2,318
Remainder/Composite Paper	3.6%	0.7%	10,788	C&D	5.2%	3.0%	15,428
Plastic	15.3%	1.5%	45,505	Concrete/Brick/Rock	0.1%	0.1%	284
PET (#1) Bottles	1.9%	0.4%	5,685	Sheet Rock	0.7%	1.3%	2,183
HDPE (#2) Bottles	0.6%	0.2%	1,850	Shingles	0.1%	0.1%	418
Other (#3-#7) Bottles	0.1%	0.0%	211	Carpet/Carpet Padding	1.6%	1.4%	4,879
Jars, Jugs, Tubs, Trays	2.0%	0.5%	5,879	Dirt	0.2%	0.2%	478
Flower Pots	0.0%	0.0%	42	Remainder/Composite C&D	2.4%	2.0%	7,186
Other Rigid Plastic	2.2%	0.7%	6,555	HHW	0.4%	0.2%	1,183
Plastic Shopping Bags	0.6%	0.2%	1,876	Paint	0.0%	0.2%	141
Other Plastic Film	2.9%	0.5%	8,711	Remainder/Composite HHW	0.4%	0.2%	1,042
Garbage Bags	2.4%	0.4%	7,068	Other	20.5%	3.1%	60,821
Multiple Layered Packaging	0.2%	0.1%	663	Textiles	3.4%	1.2%	9,972
Polystyrene	0.8%	0.2%	2,331	Shoes	0.6%	0.4%	1,712
Remainder/Composite Plastic	1.6%	0.3%	4,634	Rags	0.0%	0.0%	51
Metal	3.7%	0.8%	10,959	Diapers/Sanitary Products	4.9%	2.3%	14,592
Ferrous Cans	0.6%	0.2%	1,850	Animal Bi-Products	2.1%	1.5%	6,232
Aluminum Cans/Foil	1.0%	0.3%	3,071	Mattresses	2.4%	2.4%	7,203
Other Ferrous Metals	1.5%	0.7%	4,362	Box Springs	0.2%	0.2%	505
Non-Ferrous Metals	0.6%	0.3%	1,676	Furniture	3.2%	1.6%	9,652
Glass	3.5%	0.9%	10,511	Fines	0.7%	0.2%	1,941
Glass Bottles/Jars	3.0%	1.0%	9,021	Other MSW	0.9%	0.4%	2,634
Remainder/Composite Glass	0.5%	0.2%	1,490	PPE	0.2%	0.1%	506
Electronics	0.5%	0.3%	1,354	Other Bulky	2.0%	0.8%	5,821
Electronics	0.4%	0.3%	1,294	Total	100.0%		297,036
CRTs	0.0%	0.0%	60	No. of Samples	455		

Countywide Waste Composition Study Source Data

County: Prince George's
Report: Four-Season Waste Composition Study - Brown Station Road Sanitary Landfill
Data Set: Table 3-3 Detailed Composition of Residential Waste

Material Categories	Mean	+/-	Annual Tons	Material Categories	Mean	+/-	Annual Tons
Paper	22.0%	1.4%	51,134	Organics	29.6%	1.6%	68,807
Corrugated Cardboard (OCC)	3.1%	0.5%	7,201	Vegetative Food	14.3%	2.2%	33,120
Newspaper/Print (ONP)	0.6%	0.2%	1,300	Non-Vegetative Food	8.0%	1.6%	18,615
Magazines/Catalogs/Other Books	0.7%	0.2%	1,526	Leaves	1.5%	0.6%	3,471
Kraft Paper/Boxboard	1.6%	0.3%	3,719	Grass	0.6%	0.5%	1,499
Mixed Paper	3.5%	0.7%	8,148	Brush	1.4%	0.5%	3,166
Aseptic/Gable Top Cartons	0.2%	0.1%	505	Pallets/Lumber	0.4%	0.4%	1,015
Paper Towels/Napkins	4.8%	0.9%	11,158	Other Wood	2.5%	0.8%	5,859
Other Compostable Paper	3.6%	1.8%	8,259	Remainder/Composite Organics	0.9%	0.5%	2,062
Remainder/Composite Paper	4.0%	0.5%	9,319	C&D	2.6%	1.0%	6,030
Plastic	15.8%	0.9%	36,656	Concrete/Brick/Rock	0.0%	0.0%	60
PET (#1) Bottles	2.0%	0.2%	4,742	Sheet Rock	0.4%	0.3%	816
HDPE (#2) Bottles	0.6%	0.2%	1,415	Shingles	0.2%	0.2%	401
Other (#3-#7) Bottles	0.1%	0.0%	188	Carpet/Carpet Padding	1.0%	0.6%	2,386
Jars, Jugs, Tubs, Trays	2.2%	0.3%	5,180	Dirt	0.1%	0.1%	286
Flower Pots	0.0%	0.0%	38	Remainder/Composite C&D	0.9%	0.6%	2,080
Other Rigid Plastic	1.9%	0.5%	4,459	HHW	0.3%	0.2%	771
Plastic Shopping Bags	0.7%	0.2%	1,685	Paint	0.0%	0.0%	74
Other Plastic Film	3.0%	0.3%	6,948	Remainder/Composite HHW	0.3%	0.2%	697
Garbage Bags	2.4%	0.4%	5,659	Other	21.9%	1.9%	50,959
Multiple Layered Packaging	0.2%	0.1%	572	Textiles	3.5%	0.7%	8,232
Polystyrene	0.8%	0.2%	1,972	Shoes	0.7%	0.4%	1,581
Remainder/Composite Plastic	1.6%	0.3%	3,798	Rags	0.0%	0.0%	22
Metal	3.6%	0.6%	8,289	Diapers/Sanitary Products	5.9%	2.1%	13,792
Ferrous Cans	0.7%	0.2%	1,562	Animal Bi-Products	2.6%	0.8%	5,935
Aluminum Cans/Foil	1.1%	0.2%	2,656	Mattresses	2.8%	1.4%	6,587
Other Ferrous Metals	1.3%	0.5%	3,014	Box Springs	0.2%	0.3%	412
Non-Ferrous Metals	0.5%	0.2%	1,057	Furniture	2.6%	1.1%	6,149
Glass	3.7%	0.5%	8,543	Fines	0.7%	0.2%	1,678
Glass Bottles/Jars	3.2%	0.6%	7,392	Other MSW	1.0%	0.3%	2,234
Remainder/Composite Glass	0.5%	0.1%	1,151	PPE	0.2%	0.0%	355
Electronics	0.5%	0.2%	1,074	Other Bulky	1.7%	0.6%	3,981
Electronics	0.4%	0.2%	1,014	Total	100.0%		232,264
CRTs	0.0%	0.0%	60	No. of Samples	117		

Countywide Waste Composition Study Source Data

County: Prince George's

Report: Four-Season Waste Composition Study - Brown Station Road Sanitary Landfill

Data Set: Table 3-9 Detailed Composition of Commercial Waste

Material Categories	Mean	+/-	Annual Tons	Material Categories	Mean	+/-	Annual Tons
Paper	26.5%	4.9%	8,745	Organics	25.6%	9.5%	8,432
Corrugated Cardboard (OCC)	13.3%	1.3%	4,380	Vegetative Food	9.1%	3.1%	2,990
Newspaper/Print (ONP)	0.3%	0.2%	101	Non-Vegetative Food	5.5%	1.6%	1,809
Magazines/Catalogs/Other Books	0.5%	0.3%	179	Leaves	0.4%	1.7%	121
Kraft Paper/Boxboard	1.2%	0.7%	402	Grass	0.4%	0.4%	139
Mixed Paper	2.5%	1.9%	819	Brush	0.7%	2.3%	240
Aseptic/Gable Top Cartons	0.2%	0.1%	72	Pallets/Lumber	5.3%	3.9%	1,757
Paper Towels/Napkins	2.9%	0.9%	960	Other Wood	3.5%	6.4%	1,166
Other Compostable Paper	2.7%	0.6%	893	Remainder/Composite Organics	0.6%	0.1%	207
Remainder/Composite Paper	2.9%	0.9%	941	C&D	8.6%	15.0%	2,843
Plastic	17.2%	3.0%	5,674	Concrete/Brick/Rock	0.5%	0.3%	172
PET (#1) Bottles	1.6%	0.7%	543	Sheet Rock	0.6%	4.4%	187
HDPE (#2) Bottles	0.9%	0.1%	282	Shingles	0.0%	0.0%	3
Other (#3-#7) Bottles	0.0%	0.0%	16	Carpet/Carpet Padding	2.5%	5.5%	815
Jars, Jugs, Tubs, Trays	1.4%	0.5%	475	Dirt	0.5%	0.2%	155
Flower Pots	0.0%	0.0%	3	Remainder/Composite C&D	4.6%	9.1%	1,511
Other Rigid Plastic	3.4%	1.6%	1,115	HHW	0.8%	0.7%	249
Plastic Shopping Bags	0.4%	0.2%	121	Paint	0.0%	0.3%	3
Other Plastic Film	4.3%	0.7%	1,407	Remainder/Composite HHW	0.7%	0.6%	246
Garbage Bags	2.5%	0.5%	830	Other	13.2%	5.6%	4,336
Multiple Layered Packaging	0.1%	0.1%	47	Textiles	3.0%	3.0%	977
Polystyrene	0.9%	0.1%	311	Shoes	0.2%	0.3%	61
Remainder/Composite Plastic	1.6%	0.5%	523	Rags	0.0%	0.0%	16
Metal	4.3%	1.6%	1,431	Diapers/Sanitary Products	1.7%	1.0%	568
Ferrous Cans	0.5%	0.3%	165	Animal Bi-Products	0.3%	0.9%	110
Aluminum Cans/Foil	0.8%	0.5%	251	Mattresses	0.4%	1.7%	119
Other Ferrous Metals	2.0%	1.3%	657	Box Springs	0.0%	0.0%	14
Non-Ferrous Metals	1.1%	0.7%	358	Furniture	3.1%	3.1%	1,038
Glass	3.3%	2.1%	1,084	Fines	0.4%	0.2%	142
Glass Bottles/Jars	2.7%	2.1%	880	Other MSW	0.6%	0.5%	207
Remainder/Composite Glass	0.6%	0.2%	204	PPE	0.4%	0.0%	128
Electronics	0.5%	0.6%	165	Other Bulky	2.9%	1.7%	956
Electronics	0.5%	0.6%	165	Total	100.0%		32,958
CRTs	0.0%	0.0%	0	No. of Samples	107		

TABULAR RESULTS BY GENERATING SECTOR AND DEMOGRAPHIC ORIGIN

Table C-1 Urban/Residential Disposed Waste Composition

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**22.6%**	**2.3%**	**41,179**		**Glass**	**2.5%**	**0.9%**	**4,578**
1	Newsprint	0.3%	0.2%	613	1	Clear Glass Containers	2.0%	0.7%	3,576
1	Corrugated Cardboard/Kraft Paper	3.8%	1.8%	6,976	1	Brown Glass Containers	0.2%	0.2%	361
1	Magazines	0.6%	0.5%	1,037	1	Green Glass Containers	0.2%	0.3%	452
1	Paperboard/Packaging	2.2%	0.5%	3,955	4	Non-Container/Other Glass	0.1%	0.1%	189
4	Polycoated/Aseptic Pkg	0.3%	0.1%	592		**Organics**	**33.4%**	**2.9%**	**60,931**
1	High Grade Office Paper	0.1%	0.1%	181	3	Food Waste	20.6%	1.6%	37,655
2	Books	0.1%	0.2%	221	3	Grass	0.6%	0.9%	1,136
1	Other Recyclable Paper	1.9%	0.7%	3,472	3	Leaves	7.2%	2.4%	13,167
4	Paper Cups	0.6%	0.4%	1,165	3	Brush, Prunings, and Trimmings	0.6%	0.8%	1,136
3	Compostable Paper	8.1%	1.1%	14,787	4	Other/Non-Compostable Organics	4.3%	1.7%	7,836
4	Non-Recyclable Paper	4.5%	1.0%	8,181		**C&D**	**3.3%**	**2.7%**	**5,954**
	Plastic	**16.4%**	**1.5%**	**29,879**	3	Wood - Clean Lumber	0.1%	0.2%	247
1	PET (#1) Bottles/Jars	2.3%	0.4%	4,261	4	Wood - Painted/Treated	0.9%	1.0%	1,642
1	PET (#1) Other	0.6%	0.2%	1,164	2	Wood - Pallets	0.0%	0.0%	0
1	HDPE (#2) Bottles - Natural Only	0.3%	0.1%	568	4	Non-C&D Wood	0.1%	0.1%	121
1	HDPE (#2) Bottles - Colored Only	0.5%	0.3%	957	4	Drywall/Gypsum Board	0.0%	0.0%	0
1	HDPE (#2) Non-Bottle Containers	0.1%	0.1%	205	2	Concrete, Brick, Rock, Other C&D	1.7%	1.6%	3,072
1	PP (#5) Bottles and Containers	1.7%	0.2%	3,015	4	Carpet, Carpet Padding, & Rugs	0.5%	0.7%	871
1	PS (#6) Rigid Containers	0.7%	0.4%	1,265		**HHW**	**0.8%**	**0.5%**	**1,391**
1	#3, #4, #7 Products	0.1%	0.0%	93	4	Medical Waste & Sharps	0.5%	0.5%	957
4	Compostable Plastic Pkg	0.0%	0.0%	48	2	Batteries - Lead Acid	0.0%	0.0%	0
1	Durable Plastic Products	1.6%	1.0%	2,883	2	Batteries - Other Rechargeable	0.0%	0.0%	29
4	EPS "Styrofoam" - Food Pkg	0.2%	0.1%	402	2	Batteries - All Other	0.0%	0.0%	60
4	EPS "Styrofoam" - Non-Food Pkg	0.1%	0.1%	138	2	Other Haz Waste/Other HHW	0.2%	0.1%	345
2	Clean Commercial Film	0.0%	0.0%	0		**Electronics**	**0.3%**	**0.3%**	**476**
2	Clean Shopping Bags	0.4%	0.1%	705	2	Computers & Electronic Products	0.3%	0.3%	476
4	Contaminated/Other Film - Mono	4.9%	0.7%	8,970		**Other**	**17.3%**	**2.1%**	**31,539**
4	Contaminated/Other Film - Multi	1.7%	0.5%	3,175	2	Textiles & Leather Products	3.3%	1.1%	6,094
4	Remainder/Composite Plastic	1.1%	0.3%	2,028	4	Diapers & Sanitary Products	6.7%	1.4%	12,264
	Metal	**3.5%**	**0.7%**	**6,434**	4	Bulky Items	3.9%	1.5%	7,021
1	Aluminum Cans & Containers	0.7%	0.2%	1,323	2	Tires	0.0%	0.0%	0
2	Other Aluminum	0.9%	0.4%	1,602	4	Other/Not Elsewhere Classified	1.8%	0.5%	3,198
2	Other Non-Ferrous	0.6%	0.3%	1,054	4	Supermix - Bottom Fines & Dirt	1.6%	0.4%	2,962
1	Tin/Steel Containers	0.7%	0.2%	1,262					
2	Other Ferrous	0.7%	0.6%	1,194		**Total**	**100.0%**		**182,360**
						Samples	**16**		
1	*Curbside Recyclables*	*20.6%*		*37,618*	3	*Compostables/Mulchables*	*37.4%*		*68,129*
2	*Other Non-Curbside Recyclables*	*8.1%*		*14,851*	4	*Not Currently/Widely Recyclable*	*33.9%*		*61,761*

Table C-2 Suburban/Residential Disposed Waste Composition

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**21.9%**	**1.6%**	**421,093**		**Glass**	**3.5%**	**0.7%**	**66,615**
1	Newsprint	0.2%	0.1%	4,468	1	Clear Glass Containers	2.0%	0.5%	38,941
1	Corrugated Cardboard/Kraft Paper	4.6%	0.9%	89,227	1	Brown Glass Containers	0.4%	0.2%	8,369
1	Magazines	0.4%	0.1%	8,010	1	Green Glass Containers	0.6%	0.3%	11,834
1	Paperboard/Packaging	2.2%	0.3%	41,778	4	Non-Container/Other Glass	0.4%	0.1%	7,470
4	Polycoated/Aseptic Pkg	0.3%	0.1%	5,808		**Organics**	**31.4%**	**2.3%**	**602,891**
1	High Grade Office Paper	0.2%	0.1%	3,515	3	Food Waste	19.8%	2.0%	380,517
2	Books	0.1%	0.1%	2,363	3	Grass	0.3%	0.3%	5,955
1	Other Recyclable Paper	2.4%	0.5%	46,483	3	Leaves	2.6%	1.1%	50,789
4	Paper Cups	0.4%	0.1%	7,275	3	Brush, Prunings, and Trimmings	2.5%	1.4%	48,850
3	Compostable Paper	7.2%	0.8%	137,696	4	Other/Non-Compostable Organics	6.1%	1.5%	116,781
4	Non-Recyclable Paper	3.9%	0.5%	74,468		**C&D**	**4.6%**	**2.3%**	**89,216**
	Plastic	**15.5%**	**1.1%**	**297,400**	3	Wood - Clean Lumber	0.2%	0.2%	2,993
1	PET (#1) Bottles/Jars	2.0%	0.2%	38,751	4	Wood - Painted/Treated	1.2%	0.6%	22,364
1	PET (#1) Other	0.5%	0.1%	9,739	2	Wood - Pallets	0.0%	0.0%	0
1	HDPE (#2) Bottles - Natural Only	0.4%	0.1%	7,299	4	Non-C&D Wood	0.1%	0.1%	2,245
1	HDPE (#2) Bottles - Colored Only	0.3%	0.1%	6,585	4	Drywall/Gypsum Board	0.3%	0.4%	5,009
1	HDPE (#2) Non-Bottle Containers	0.1%	0.1%	1,965	2	Concrete, Brick, Rock, Other C&D	1.2%	0.7%	23,120
1	PP (#5) Bottles and Containers	1.4%	0.2%	26,067	4	Carpet, Carpet Padding, & Rugs	1.7%	1.3%	33,486
1	PS (#6) Rigid Containers	0.3%	0.1%	6,479		**HHW**	**0.6%**	**0.2%**	**10,791**
1	#3, #4, #7 Products	0.0%	0.0%	733	4	Medical Waste & Sharps	0.2%	0.1%	3,762
4	Compostable Plastic Pkg	0.0%	0.0%	97	2	Batteries - Lead Acid	0.0%	0.0%	0
1	Durable Plastic Products	1.8%	0.5%	35,283	2	Batteries - Other Rechargeable	0.0%	0.0%	565
4	EPS "Styrofoam" - Food Pkg	0.2%	0.1%	4,299	2	Batteries - All Other	0.1%	0.0%	1,351
4	EPS "Styrofoam" - Non-Food Pkg	0.1%	0.1%	2,365	2	Other Haz Waste/Other HHW	0.3%	0.1%	5,113
2	Clean Commercial Film	0.0%	0.0%	229		**Electronics**	**0.5%**	**0.2%**	**8,940**
2	Clean Shopping Bags	0.5%	0.1%	9,918	2	Computers & Electronic Products	0.5%	0.2%	8,940
4	Contaminated/Other Film - Mono	4.2%	0.5%	80,442		**Other**	**18.5%**	**2.0%**	**355,281**
4	Contaminated/Other Film - Multi	2.0%	0.4%	37,928	2	Textiles & Leather Products	4.2%	1.0%	81,044
4	Remainder/Composite Plastic	1.5%	0.4%	29,223	4	Diapers & Sanitary Products	6.0%	0.9%	115,818
	Metal	**3.7%**	**0.5%**	**70,359**	4	Bulky Items	4.4%	1.5%	85,497
1	Aluminum Cans & Containers	1.0%	0.2%	19,250	2	Tires	0.3%	0.4%	5,103
2	Other Aluminum	0.4%	0.1%	7,788	4	Other/Not Elsewhere Classified	1.9%	0.3%	36,124
2	Other Non-Ferrous	0.8%	0.4%	14,526	4	Supermix - Bottom Fines & Dirt	1.6%	0.2%	31,696
1	Tin/Steel Containers	0.8%	0.2%	15,647					
2	Other Ferrous	0.7%	0.3%	13,149		**Total**	**100.0%**		**1,922,586**
						Samples	**38**		
1	*Curbside Recyclables*	21.9%		420,424	3	*Compostables/Mulchables*	32.6%		626,800
2	*Other Non-Curbside Recyclables*	9.0%		173,207	4	*Not Currently/Widely Recyclable*	36.5%		702,156

Table C-3 Rural/Residential Disposed Waste Composition

	Material Category	Mean	MOE	Tons
	Paper	**25.3%**	**3.2%**	**31,472**
1	Newsprint	0.5%	0.5%	572
1	Corrugated Cardboard/Kraft Paper	6.4%	1.3%	7,907
1	Magazines	1.1%	0.9%	1,379
1	Paperboard/Packaging	2.8%	0.9%	3,506
4	Polycoated/Aseptic Pkg	0.3%	0.1%	412
1	High Grade Office Paper	0.7%	0.7%	899
2	Books	0.2%	0.4%	297
1	Other Recyclable Paper	2.2%	0.8%	2,715
4	Paper Cups	0.3%	0.1%	335
3	Compostable Paper	6.9%	1.2%	8,546
4	Non-Recyclable Paper	3.9%	1.1%	4,905
	Plastic	**14.1%**	**2.3%**	**17,558**
1	PET (#1) Bottles/Jars	2.1%	0.3%	2,622
1	PET (#1) Other	0.4%	0.1%	540
1	HDPE (#2) Bottles - Natural Only	0.4%	0.2%	498
1	HDPE (#2) Bottles - Colored Only	0.4%	0.1%	489
1	HDPE (#2) Non-Bottle Containers	0.2%	0.2%	310
1	PP (#5) Bottles and Containers	1.2%	0.3%	1,483
1	PS (#6) Rigid Containers	0.3%	0.1%	373
1	#3, #4, #7 Products	0.0%	0.0%	18
4	Compostable Plastic Pkg	0.0%	0.0%	0
1	Durable Plastic Products	1.5%	1.1%	1,871
4	EPS "Styrofoam" - Food Pkg	0.1%	0.1%	183
4	EPS "Styrofoam" - Non-Food Pkg	0.2%	0.1%	202
2	Clean Commercial Film	0.0%	0.0%	0
2	Clean Shopping Bags	0.6%	0.2%	712
4	Contaminated/Other Film - Mono	3.6%	0.6%	4,453
4	Contaminated/Other Film - Multi	1.6%	0.4%	1,932
4	Remainder/Composite Plastic	1.5%	0.6%	1,871
	Metal	**4.6%**	**1.2%**	**5,712**
1	Aluminum Cans & Containers	1.0%	0.3%	1,267
2	Other Aluminum	0.4%	0.2%	484
2	Other Non-Ferrous	0.8%	0.7%	1,046
1	Tin/Steel Containers	1.1%	0.4%	1,315
2	Other Ferrous	1.3%	1.2%	1,600
	Glass	**3.9%**	**1.5%**	**4,790**
1	Clear Glass Containers	2.3%	0.9%	2,872
1	Brown Glass Containers	0.5%	0.4%	652
1	Green Glass Containers	0.7%	0.6%	861
4	Non-Container/Other Glass	0.3%	0.3%	405
	Organics	**28.1%**	**3.3%**	**34,889**
3	Food Waste	16.8%	2.7%	20,837
3	Grass	0.3%	0.5%	313
3	Leaves	2.3%	1.7%	2,823
3	Brush, Prunings, and Trimmings	1.5%	1.3%	1,808
4	Other/Non-Compostable Organics	7.3%	2.2%	9,109
	C&D	**2.8%**	**2.2%**	**3,525**
3	Wood - Clean Lumber	0.0%	0.0%	11
4	Wood - Painted/Treated	0.8%	1.2%	1,043
2	Wood - Pallets	0.0%	0.1%	34
4	Non-C&D Wood	0.1%	0.1%	175
4	Drywall/Gypsum Board	0.1%	0.2%	137
2	Concrete, Brick, Rock, Other C&D	0.9%	0.8%	1,099
4	Carpet, Carpet Padding, & Rugs	0.8%	1.6%	1,025
	HHW	**0.6%**	**0.5%**	**708**
4	Medical Waste & Sharps	0.3%	0.4%	357
2	Batteries - Lead Acid	0.0%	0.0%	0
2	Batteries - Other Rechargeable	0.0%	0.0%	23
2	Batteries - All Other	0.1%	0.1%	74
2	Other Haz Waste/Other HHW	0.2%	0.3%	254
	Electronics	**0.6%**	**0.6%**	**742**
2	Computers & Electronic Products	0.6%	0.6%	742
	Other	**20.1%**	**4.0%**	**24,957**
2	Textiles & Leather Products	4.6%	1.7%	5,754
4	Diapers & Sanitary Products	4.9%	2.3%	6,153
4	Bulky Items	6.5%	2.7%	8,104
2	Tires	0.0%	0.0%	0
4	Other/Not Elsewhere Classified	2.0%	0.6%	2,500
4	Supermix - Bottom Fines & Dirt	2.0%	0.4%	2,445
	Total	**100.0%**		**124,352**
	Samples	**12**		
1	*Curbside Recyclables*	25.9%		32,149
2	*Other Non-Curbside Recyclables*	9.7%		12,120
3	*Compostables/Mulchables*	27.6%		34,338
4	*Not Currently/Widely Recyclable*	36.8%		45,745

Table C-4 Urban/ICI Disposed Waste Composition

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**32.6%**	**9.0%**	**89,064**		**Glass**	**1.9%**	**2.5%**	**5,244**
1	Newsprint	0.1%	0.2%	232	1	Clear Glass Containers	1.2%	2.6%	3,311
1	Corrugated Cardboard/Kraft Paper	13.3%	2.6%	36,274	1	Brown Glass Containers	0.1%	0.1%	293
1	Magazines	0.6%	1.1%	1,687	1	Green Glass Containers	0.5%	0.7%	1,284
1	Paperboard/Packaging	5.0%	8.2%	13,769	4	Non-Container/Other Glass	0.1%	0.3%	356
4	Polycoated/Aseptic Pkg	0.2%	0.2%	456		**Organics**	**12.6%**	**10.4%**	**34,540**
1	High Grade Office Paper	0.8%	1.8%	2,268	3	Food Waste	10.0%	8.5%	27,258
2	Books	0.0%	0.0%	0	3	Grass	0.0%	0.0%	0
1	Other Recyclable Paper	1.4%	1.4%	3,815	3	Leaves	2.1%	3.4%	5,645
4	Paper Cups	0.8%	1.0%	2,190	3	Brush, Prunings, and Trimmings	0.0%	0.0%	0
3	Compostable Paper	6.3%	4.4%	17,233	4	Other/Non-Compostable Organics	0.6%	0.6%	1,637
4	Non-Recyclable Paper	4.1%	3.3%	11,140		**C&D**	**21.0%**	**17.6%**	**57,441**
	Plastic	**17.5%**	**6.1%**	**47,808**	3	Wood - Clean Lumber	0.0%	0.0%	0
1	PET (#1) Bottles/Jars	1.5%	1.6%	4,181	4	Wood - Painted/Treated	2.4%	6.2%	6,635
1	PET (#1) Other	0.3%	0.5%	804	2	Wood - Pallets	12.2%	16.0%	33,278
1	HDPE (#2) Bottles - Natural Only	0.2%	0.2%	559	4	Non-C&D Wood	0.0%	0.0%	0
1	HDPE (#2) Bottles - Colored Only	0.2%	0.2%	494	4	Drywall/Gypsum Board	0.0%	0.0%	0
1	HDPE (#2) Non-Bottle Containers	0.3%	0.6%	788	2	Concrete, Brick, Rock, Other C&D	3.7%	3.8%	10,159
1	PP (#5) Bottles and Containers	1.0%	1.1%	2,783	4	Carpet, Carpet Padding, & Rugs	2.7%	6.9%	7,370
1	PS (#6) Rigid Containers	0.2%	0.1%	445		**HHW**	**0.9%**	**1.4%**	**2,492**
1	#3, #4, #7 Products	0.1%	0.3%	326	4	Medical Waste & Sharps	0.6%	1.4%	1,617
4	Compostable Plastic Pkg	0.0%	0.0%	0	2	Batteries - Lead Acid	0.0%	0.0%	0
1	Durable Plastic Products	1.9%	4.1%	5,268	2	Batteries - Other Rechargeable	0.0%	0.0%	0
4	EPS "Styrofoam" - Food Pkg	0.1%	0.1%	168	2	Batteries - All Other	0.0%	0.0%	45
4	EPS "Styrofoam" - Non-Food Pkg	0.1%	0.1%	142	2	Other Haz Waste/Other HHW	0.3%	0.5%	830
2	Clean Commercial Film	3.9%	6.7%	10,675		**Electronics**	**0.1%**	**0.1%**	**250**
2	Clean Shopping Bags	0.1%	0.2%	260	2	Computers & Electronic Products	0.1%	0.1%	250
4	Contaminated/Other Film - Mono	4.3%	1.5%	11,722		**Other**	**11.1%**	**13.1%**	**30,334**
4	Contaminated/Other Film - Multi	1.0%	1.2%	2,778	2	Textiles & Leather Products	1.9%	3.3%	5,325
4	Remainder/Composite Plastic	2.3%	2.7%	6,413	4	Diapers & Sanitary Products	1.4%	1.6%	3,828
	Metal	**2.3%**	**2.5%**	**6,367**	4	Bulky Items	4.2%	6.7%	11,503
1	Aluminum Cans & Containers	0.5%	0.4%	1,405	2	Tires	0.0%	0.0%	0
2	Other Aluminum	0.4%	0.4%	1,073	4	Other/Not Elsewhere Classified	2.0%	2.2%	5,373
2	Other Non-Ferrous	0.2%	0.3%	478	4	Supermix - Bottom Fines & Dirt	1.6%	1.2%	4,305
1	Tin/Steel Containers	0.4%	0.4%	1,135					
2	Other Ferrous	0.8%	1.7%	2,277		**Total**	**100.0%**		**273,540**
						Samples	**5**		
1	*Curbside Recyclables*	*29.7%*		*81,123*	3	*Compostables/Mulchables*	*18.3%*		*50,135*
2	*Other Non-Curbside Recyclables*	*23.6%*		*64,649*	4	*Not Currently/Widely Recyclable*	*28.4%*		*77,632*

Table C-5 Suburban/ICI Disposed Waste Composition

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**30.4%**	**2.8%**	**583,638**		**Glass**	**1.5%**	**0.5%**	**28,299**
1	Newsprint	0.1%	0.1%	2,399	1	Clear Glass Containers	0.9%	0.3%	17,904
1	Corrugated Cardboard/Kraft Paper	12.6%	1.8%	241,956	1	Brown Glass Containers	0.4%	0.3%	6,895
1	Magazines	0.2%	0.2%	3,803	1	Green Glass Containers	0.1%	0.1%	2,811
1	Paperboard/Packaging	1.5%	0.3%	29,025	4	Non-Container/Other Glass	0.0%	0.0%	689
4	Polycoated/Aseptic Pkg	0.3%	0.2%	6,038		**Organics**	**23.1%**	**5.2%**	**443,711**
1	High Grade Office Paper	0.6%	0.5%	11,940	3	Food Waste	19.3%	4.3%	370,817
2	Books	0.2%	0.3%	3,233	3	Grass	0.0%	0.0%	0
1	Other Recyclable Paper	1.5%	0.6%	28,628	3	Leaves	1.3%	1.2%	25,927
4	Paper Cups	0.6%	0.2%	12,295	3	Brush, Prunings, and Trimmings	0.4%	0.5%	7,492
3	Compostable Paper	8.5%	1.8%	163,678	4	Other/Non-Compostable Organics	2.1%	1.0%	39,474
4	Non-Recyclable Paper	4.2%	1.6%	80,643		**C&D**	**9.7%**	**4.9%**	**186,359**
	Plastic	**21.1%**	**3.8%**	**406,041**	3	Wood - Clean Lumber	0.0%	0.1%	782
1	PET (#1) Bottles/Jars	1.6%	0.4%	29,824	4	Wood - Painted/Treated	1.1%	1.0%	20,869
1	PET (#1) Other	0.4%	0.2%	8,056	2	Wood - Pallets	5.0%	4.4%	95,918
1	HDPE (#2) Bottles - Natural Only	0.6%	0.2%	10,926	4	Non-C&D Wood	0.1%	0.2%	2,085
1	HDPE (#2) Bottles - Colored Only	0.2%	0.2%	4,300	4	Drywall/Gypsum Board	0.1%	0.3%	2,635
1	HDPE (#2) Non-Bottle Containers	0.4%	0.4%	8,347	2	Concrete, Brick, Rock, Other C&D	2.0%	1.2%	38,109
1	PP (#5) Bottles and Containers	1.4%	0.3%	26,612	4	Carpet, Carpet Padding, & Rugs	1.4%	1.3%	25,961
1	PS (#6) Rigid Containers	0.3%	0.1%	5,104		**HHW**	**1.3%**	**0.9%**	**25,940**
1	#3, #4, #7 Products	0.0%	0.0%	757	4	Medical Waste & Sharps	0.4%	0.4%	7,670
4	Compostable Plastic Pkg	0.0%	0.0%	26	2	Batteries - Lead Acid	0.0%	0.0%	18
1	Durable Plastic Products	0.6%	0.3%	11,829	2	Batteries - Other Rechargeable	0.1%	0.1%	1,200
4	EPS "Styrofoam" - Food Pkg	0.2%	0.2%	3,343	2	Batteries - All Other	0.1%	0.1%	1,016
4	EPS "Styrofoam" - Non-Food Pkg	0.1%	0.1%	2,166	2	Other Haz Waste/Other HHW	0.8%	0.8%	16,037
2	Clean Commercial Film	4.0%	3.9%	76,877		**Electronics**	**0.5%**	**0.6%**	**10,162**
2	Clean Shopping Bags	0.3%	0.1%	5,613	2	Computers & Electronic Products	0.5%	0.6%	10,162
4	Contaminated/Other Film - Mono	6.6%	1.4%	127,015		**Other**	**9.3%**	**1.9%**	**179,642**
4	Contaminated/Other Film - Multi	1.5%	0.4%	29,529	2	Textiles & Leather Products	1.8%	1.0%	35,404
4	Remainder/Composite Plastic	2.9%	1.5%	55,718	4	Diapers & Sanitary Products	1.9%	1.1%	35,733
	Metal	**3.1%**	**1.1%**	**58,795**	4	Bulky Items	2.2%	1.2%	41,674
1	Aluminum Cans & Containers	0.5%	0.1%	9,869	2	Tires	0.0%	0.0%	0
2	Other Aluminum	0.3%	0.2%	6,647	4	Other/Not Elsewhere Classified	2.0%	1.0%	39,281
2	Other Non-Ferrous	0.5%	0.4%	10,180	4	Supermix - Bottom Fines & Dirt	1.4%	0.2%	27,549
1	Tin/Steel Containers	0.7%	0.3%	12,844					
2	Other Ferrous	1.0%	0.8%	19,255		**Total**	**100.0%**		**1,922,586**
						Samples	**29**		
1	*Curbside Recyclables*	24.6%		473,828	3	*Compostables/Mulchables*	29.6%		568,697
2	*Other Non-Curbside Recyclables*	16.6%		319,669	4	*Not Currently/Widely Recyclable*	29.1%		560,392

Table C-6 Rural/ICI Disposed Waste Composition

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**24.0%**	**8.6%**	**462,074**		**Glass**	**2.8%**	**2.1%**	**53,348**
1	Newsprint	0.2%	0.2%	3,684	1	Clear Glass Containers	1.0%	0.7%	20,036
1	Corrugated Cardboard/Kraft Paper	10.9%	5.0%	210,383	1	Brown Glass Containers	1.0%	1.3%	19,915
1	Magazines	0.9%	1.0%	18,122	1	Green Glass Containers	0.6%	1.2%	11,833
1	Paperboard/Packaging	1.6%	1.4%	30,546	4	Non-Container/Other Glass	0.1%	0.2%	1,565
4	Polycoated/Aseptic Pkg	0.2%	0.1%	2,981		**Organics**	**18.9%**	**10.0%**	**362,444**
1	High Grade Office Paper	0.9%	1.2%	17,969	3	Food Waste	15.3%	9.3%	293,893
2	Books	0.1%	0.2%	1,857	3	Grass	0.0%	0.0%	0
1	Other Recyclable Paper	1.0%	0.7%	19,722	3	Leaves	0.5%	0.8%	9,901
4	Paper Cups	0.1%	0.1%	2,434	3	Brush, Prunings, and Trimmings	0.4%	0.9%	7,832
3	Compostable Paper	5.1%	3.2%	97,596	4	Other/Non-Compostable Organics	2.6%	2.7%	50,817
4	Non-Recyclable Paper	3.0%	1.6%	56,782		**C&D**	**23.7%**	**20.8%**	**455,506**
	Plastic	**10.6%**	**4.3%**	**202,894**	3	Wood - Clean Lumber	4.0%	6.3%	76,801
1	PET (#1) Bottles/Jars	1.0%	0.5%	18,452	4	Wood - Painted/Treated	2.3%	4.4%	44,182
1	PET (#1) Other	0.3%	0.2%	5,474	2	Wood - Pallets	6.3%	6.1%	121,751
1	HDPE (#2) Bottles - Natural Only	0.3%	0.2%	4,881	4	Non-C&D Wood	0.1%	0.3%	2,295
1	HDPE (#2) Bottles - Colored Only	0.1%	0.1%	2,554	4	Drywall/Gypsum Board	0.0%	0.0%	374
1	HDPE (#2) Non-Bottle Containers	0.1%	0.2%	1,991	2	Concrete, Brick, Rock, Other C&D	4.8%	5.4%	91,439
1	PP (#5) Bottles and Containers	0.7%	0.4%	13,282	4	Carpet, Carpet Padding, & Rugs	6.2%	13.8%	118,665
1	PS (#6) Rigid Containers	0.3%	0.4%	6,398		**HHW**	**1.0%**	**0.9%**	**18,584**
1	#3, #4, #7 Products	0.0%	0.0%	0	4	Medical Waste & Sharps	0.0%	0.0%	589
4	Compostable Plastic Pkg	0.0%	0.0%	0	2	Batteries - Lead Acid	0.0%	0.0%	0
1	Durable Plastic Products	0.7%	0.4%	14,010	2	Batteries - Other Rechargeable	0.0%	0.0%	0
4	EPS "Styrofoam" - Food Pkg	0.1%	0.1%	2,030	2	Batteries - All Other	0.0%	0.0%	133
4	EPS "Styrofoam" - Non-Food Pkg	0.2%	0.3%	3,039	2	Other Haz Waste/Other HHW	0.9%	0.9%	17,862
2	Clean Commercial Film	0.1%	0.1%	1,309		**Electronics**	**0.2%**	**0.2%**	**2,959**
2	Clean Shopping Bags	0.2%	0.2%	3,811	2	Computers & Electronic Products	0.2%	0.2%	2,959
4	Contaminated/Other Film - Mono	3.9%	2.5%	74,283		**Other**	**12.8%**	**6.1%**	**246,012**
4	Contaminated/Other Film - Multi	1.4%	1.0%	27,143	2	Textiles & Leather Products	1.9%	1.6%	37,204
4	Remainder/Composite Plastic	1.3%	0.6%	24,237	4	Diapers & Sanitary Products	2.4%	2.2%	47,009
	Metal	**6.2%**	**3.5%**	**118,766**	4	Bulky Items	2.8%	2.1%	52,976
1	Aluminum Cans & Containers	0.5%	0.2%	9,995	2	Tires	0.7%	1.5%	12,551
2	Other Aluminum	0.3%	0.2%	5,169	4	Other/Not Elsewhere Classified	3.6%	4.2%	68,420
2	Other Non-Ferrous	0.9%	1.1%	17,111	4	Supermix - Bottom Fines & Dirt	1.4%	0.6%	27,852
1	Tin/Steel Containers	0.9%	0.7%	16,372					
2	Other Ferrous	3.6%	3.8%	70,119		**Total**	**100.0%**		**1,922,586**
						Samples	**10**		
1	*Curbside Recyclables*	23.2%		445,618	3	*Compostables/Mulchables*	25.3%		486,024
2	*Other Non-Curbside Recyclables*	19.9%		383,276	4	*Not Currently/Widely Recyclable*	31.6%		607,669

FACILITY-LEVEL RESULTS

Table D-1 Disposed MSW Composition, Northwest Transfer Station

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**23.8%**	**1.2%**	**43,439**		**Glass**	**2.7%**	**0.5%**	**4,928**
1	Newsprint	0.5%	0.3%	894	1	Clear Glass Containers	2.1%	1.0%	3,749
1	Corrugated Cardboard/Kraft Paper	3.4%	0.9%	6,167	1	Brown Glass Containers	0.1%	0.2%	236
1	Magazines	0.6%	0.7%	1,092	1	Green Glass Containers	0.4%	0.4%	724
1	Paperboard/Packaging	2.1%	0.7%	3,852	4	Non-Container/Other Glass	0.1%	0.1%	219
4	Polycoated/Aseptic Pkg	0.3%	0.1%	600		**Organics**	**31.4%**	**1.6%**	**57,233**
1	High Grade Office Paper	0.0%	0.1%	77	3	Food Waste	20.1%	1.6%	36,607
2	Books	0.0%	0.0%	0	3	Grass	0.8%	1.5%	1,500
1	Other Recyclable Paper	2.6%	0.7%	4,788	3	Leaves	5.3%	2.9%	9,667
4	Paper Cups	0.8%	0.7%	1,368	3	Brush, Prunings, and Trimmings	0.0%	0.0%	0
3	Compostable Paper	8.4%	1.3%	15,314	4	Other/Non-Compostable Organics	5.2%	2.5%	9,459
4	Non-Recyclable Paper	5.1%	1.0%	9,288		**C&D**	**2.0%**	**1.3%**	**3,730**
	Plastic	**17.6%**	**0.8%**	**32,059**	3	Wood - Clean Lumber	0.1%	0.1%	92
1	PET (#1) Bottles/Jars	2.5%	0.5%	4,556	4	Wood - Painted/Treated	0.7%	0.9%	1,191
1	PET (#1) Other	0.8%	0.2%	1,470	2	Wood - Pallets	0.0%	0.0%	0
1	HDPE (#2) Bottles - Natural Only	0.3%	0.2%	610	4	Non-C&D Wood	0.0%	0.0%	20
1	HDPE (#2) Bottles - Colored Only	0.6%	0.5%	1,075	4	Drywall/Gypsum Board	0.0%	0.0%	0
1	HDPE (#2) Non-Bottle Containers	0.1%	0.2%	238	2	Concrete, Brick, Rock, Other C&D	1.0%	1.2%	1,847
1	PP (#5) Bottles and Containers	1.8%	0.3%	3,303	4	Carpet, Carpet Padding, & Rugs	0.3%	0.7%	580
1	PS (#6) Rigid Containers	0.6%	0.2%	1,109		**HHW**	**0.5%**	**0.2%**	**862**
1	#3, #4, #7 Products	0.0%	0.0%	68	4	Medical Waste & Sharps	0.2%	0.2%	376
4	Compostable Plastic Pkg	0.0%	0.0%	61	2	Batteries - Lead Acid	0.0%	0.0%	0
1	Durable Plastic Products	1.9%	1.5%	3,520	2	Batteries - Other Rechargeable	0.0%	0.0%	47
4	EPS "Styrofoam" - Food Pkg	0.3%	0.1%	504	2	Batteries - All Other	0.0%	0.0%	59
4	EPS "Styrofoam" - Non-Food Pkg	0.0%	0.0%	75	2	Other Haz Waste/Other HHW	0.2%	0.2%	380
2	Clean Commercial Film	0.0%	0.0%	0		**Electronics**	**0.3%**	**0.4%**	**514**
2	Clean Shopping Bags	0.4%	0.1%	774	2	Computers & Electronic Products	0.3%	0.4%	514
4	Contaminated/Other Film - Mono	4.8%	0.7%	8,769		**Other**	**17.9%**	**0.1%**	**32,627**
4	Contaminated/Other Film - Multi	2.0%	0.7%	3,581	2	Textiles & Leather Products	4.1%	1.4%	7,486
4	Remainder/Composite Plastic	1.3%	0.4%	2,347	4	Diapers & Sanitary Products	7.1%	1.0%	12,944
	Metal	**3.8%**	**0.4%**	**6,968**	4	Bulky Items	3.3%	1.9%	6,004
1	Aluminum Cans & Containers	0.8%	0.3%	1,536	2	Tires	0.0%	0.0%	0
2	Other Aluminum	0.9%	0.4%	1,666	4	Other/Not Elsewhere Classified	2.1%	0.5%	3,816
2	Other Non-Ferrous	0.5%	0.5%	997	4	Supermix - Bottom Fines & Dirt	1.3%	0.3%	2,377
1	Tin/Steel Containers	0.8%	0.2%	1,493					
2	Other Ferrous	0.7%	0.8%	1,277		**Total**	**100.0%**		**182,360**
						Samples	**10**		
1	*Curbside Recyclables*	22.2%		40,555	3	*Compostables/Mulchables*	34.6%		63,180
2	*Other Non-Curbside Recyclables*	8.3%		15,046	4	*Not Currently/Widely Recyclable*	34.9%		63,578

Table D-2 Disposed MSW Composition, Baltimore City Landfill

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**26.0%**	**1.2%**	**47,395**		**Glass**	**2.1%**	**0.5%**	**3,768**
1	Newsprint	0.1%	0.1%	149	1	Clear Glass Containers	1.5%	1.2%	2,797
1	Corrugated Cardboard/Kraft Paper	8.5%	4.1%	15,532	1	Brown Glass Containers	0.2%	0.2%	399
1	Magazines	0.6%	0.5%	1,027	1	Green Glass Containers	0.2%	0.3%	389
1	Paperboard/Packaging	3.5%	3.2%	6,423	4	Non-Container/Other Glass	0.1%	0.1%	183
4	Polycoated/Aseptic Pkg	0.2%	0.2%	454		**Organics**	**25.8%**	**1.6%**	**47,063**
1	High Grade Office Paper	0.5%	0.7%	881	3	Food Waste	16.3%	5.5%	29,751
2	Books	0.2%	0.2%	321	3	Grass	0.2%	0.3%	289
1	Other Recyclable Paper	1.0%	0.6%	1,853	3	Leaves	6.6%	3.6%	12,075
4	Paper Cups	0.6%	0.4%	1,114	3	Brush, Prunings, and Trimmings	0.9%	1.2%	1,653
3	Compostable Paper	7.0%	2.0%	12,809	4	Other/Non-Compostable Organics	1.8%	1.1%	3,295
4	Non-Recyclable Paper	3.7%	1.6%	6,832		**C&D**	**12.4%**	**1.3%**	**22,675**
	Plastic	**15.8%**	**0.8%**	**28,803**	3	Wood - Clean Lumber	0.2%	0.3%	277
1	PET (#1) Bottles/Jars	1.8%	0.7%	3,323	4	Wood - Painted/Treated	1.8%	2.6%	3,316
1	PET (#1) Other	0.3%	0.2%	601	2	Wood - Pallets	5.5%	7.2%	10,084
1	HDPE (#2) Bottles - Natural Only	0.2%	0.2%	441	4	Non-C&D Wood	0.1%	0.1%	158
1	HDPE (#2) Bottles - Colored Only	0.3%	0.2%	564	4	Drywall/Gypsum Board	0.0%	0.0%	0
1	HDPE (#2) Non-Bottle Containers	0.2%	0.2%	321	2	Concrete, Brick, Rock, Other C&D	3.2%	2.5%	5,867
1	PP (#5) Bottles and Containers	1.2%	0.4%	2,227	4	Carpet, Carpet Padding, & Rugs	1.6%	2.8%	2,972
1	PS (#6) Rigid Containers	0.5%	0.6%	967		**HHW**	**1.1%**	**0.2%**	**1,995**
1	#3, #4, #7 Products	0.1%	0.1%	173	4	Medical Waste & Sharps	0.8%	0.8%	1,540
4	Compostable Plastic Pkg	0.0%	0.0%	15	2	Batteries - Lead Acid	0.0%	0.0%	0
1	Durable Plastic Products	1.4%	1.7%	2,589	2	Batteries - Other Rechargeable	0.0%	0.0%	0
4	EPS "Styrofoam" - Food Pkg	0.1%	0.1%	178	2	Batteries - All Other	0.0%	0.0%	47
4	EPS "Styrofoam" - Non-Food Pkg	0.1%	0.1%	176	2	Other Haz Waste/Other HHW	0.2%	0.2%	408
2	Clean Commercial Film	1.8%	2.8%	3,235		**Electronics**	**0.2%**	**0.4%**	**301**
2	Clean Shopping Bags	0.2%	0.1%	401	2	Computers & Electronic Products	0.2%	0.2%	301
4	Contaminated/Other Film - Mono	4.7%	1.1%	8,629		**Other**	**13.9%**	**0.1%**	**25,406**
4	Contaminated/Other Film - Multi	1.2%	0.5%	2,205	2	Textiles & Leather Products	2.0%	1.4%	3,672
4	Remainder/Composite Plastic	1.5%	1.1%	2,760	4	Diapers & Sanitary Products	4.0%	2.6%	7,231
	Metal	**2.7%**	**0.4%**	**4,954**	4	Bulky Items	4.5%	2.8%	8,240
1	Aluminum Cans & Containers	0.5%	0.2%	953	2	Tires	0.0%	0.0%	0
2	Other Aluminum	0.6%	0.5%	1,140	4	Other/Not Elsewhere Classified	1.5%	1.0%	2,811
2	Other Non-Ferrous	0.4%	0.3%	771	4	Supermix - Bottom Fines & Dirt	1.9%	0.6%	3,453
1	Tin/Steel Containers	0.5%	0.2%	823					
2	Other Ferrous	0.7%	0.8%	1,266		**Total**	**100.0%**		**182,360**
						Samples	**11**		
1	*Curbside Recyclables*	23.3%		42,432	3	*Compostables/Mulchables*	31.2%		56,853
2	*Other Non-Curbside Recyclables*	15.1%		27,514	4	*Not Currently/Widely Recyclable*	30.5%		55,561

Table D-3 Disposed MSW Composition, Appeal Landfill

	Material Category	Mean	MOE	Tons
	Paper	**28.1%**	**1.2%**	**51,265**
1	Newsprint	0.1%	0.1%	172
1	Corrugated Cardboard/Kraft Paper	9.1%	2.4%	16,609
1	Magazines	0.3%	0.3%	631
1	Paperboard/Packaging	2.5%	0.9%	4,550
4	Polycoated/Aseptic Pkg	0.6%	0.3%	1,056
1	High Grade Office Paper	0.4%	0.4%	726
2	Books	0.4%	0.8%	796
1	Other Recyclable Paper	1.4%	0.5%	2,487
4	Paper Cups	0.6%	0.3%	1,094
3	Compostable Paper	9.4%	2.2%	17,114
4	Non-Recyclable Paper	3.3%	1.2%	6,029
	Plastic	**19.2%**	**0.8%**	**35,078**
1	PET (#1) Bottles/Jars	1.9%	0.5%	3,451
1	PET (#1) Other	0.6%	0.3%	1,072
1	HDPE (#2) Bottles - Natural Only	0.6%	0.3%	1,044
1	HDPE (#2) Bottles - Colored Only	0.4%	0.2%	638
1	HDPE (#2) Non-Bottle Containers	0.2%	0.2%	339
1	PP (#5) Bottles and Containers	1.5%	0.5%	2,646
1	PS (#6) Rigid Containers	0.2%	0.1%	365
1	#3, #4, #7 Products	0.0%	0.0%	35
4	Compostable Plastic Pkg	0.0%	0.0%	0
1	Durable Plastic Products	1.5%	1.0%	2,749
4	EPS "Styrofoam" - Food Pkg	0.4%	0.5%	722
4	EPS "Styrofoam" - Non-Food Pkg	0.1%	0.1%	245
2	Clean Commercial Film	0.5%	0.5%	977
2	Clean Shopping Bags	0.5%	0.2%	899
4	Contaminated/Other Film - Mono	7.5%	2.5%	13,622
4	Contaminated/Other Film - Multi	1.7%	0.3%	3,071
4	Remainder/Composite Plastic	1.8%	1.1%	3,204
	Metal	**3.4%**	**0.4%**	**6,191**
1	Aluminum Cans & Containers	0.7%	0.2%	1,278
2	Other Aluminum	0.3%	0.1%	472
2	Other Non-Ferrous	0.7%	0.6%	1,204
1	Tin/Steel Containers	0.8%	0.4%	1,447
2	Other Ferrous	1.0%	0.9%	1,790
1	*Curbside Recyclables*	*24.7%*		*45,090*
2	*Other Non-Curbside Recyclables*	*9.7%*		*17,715*

	Material Category	Mean	MOE	Tons
	Glass	**2.9%**	**0.5%**	**5,271**
1	Clear Glass Containers	1.7%	0.9%	3,188
1	Brown Glass Containers	0.3%	0.3%	560
1	Green Glass Containers	0.6%	0.6%	1,104
4	Non-Container/Other Glass	0.2%	0.2%	419
	Organics	**28.3%**	**1.6%**	**51,634**
3	Food Waste	21.1%	3.8%	38,562
3	Grass	0.2%	0.3%	287
3	Leaves	3.1%	1.7%	5,624
3	Brush, Prunings, and Trimmings	1.2%	1.3%	2,195
4	Other/Non-Compostable Organics	2.7%	2.1%	4,967
	C&D	**3.8%**	**1.3%**	**6,908**
3	Wood - Clean Lumber	0.2%	0.3%	290
4	Wood - Painted/Treated	0.7%	0.6%	1,267
2	Wood - Pallets	0.9%	1.9%	1,615
4	Non-C&D Wood	0.1%	0.1%	173
4	Drywall/Gypsum Board	0.0%	0.0%	0
2	Concrete, Brick, Rock, Other C&D	0.9%	1.5%	1,658
4	Carpet, Carpet Padding, & Rugs	1.0%	1.6%	1,905
	HHW	**0.5%**	**0.2%**	**980**
4	Medical Waste & Sharps	0.4%	0.5%	820
2	Batteries - Lead Acid	0.0%	0.0%	0
2	Batteries - Other Rechargeable	0.0%	0.0%	8
2	Batteries - All Other	0.0%	0.0%	31
2	Other Haz Waste/Other HHW	0.1%	0.1%	120
	Electronics	**0.5%**	**0.4%**	**989**
2	Computers & Electronic Products	0.5%	0.4%	989
	Other	**13.2%**	**0.1%**	**24,044**
2	Textiles & Leather Products	3.6%	2.3%	6,541
4	Diapers & Sanitary Products	3.5%	1.7%	6,367
4	Bulky Items	2.8%	1.7%	5,113
2	Tires	0.3%	0.7%	615
4	Other/Not Elsewhere Classified	1.4%	0.6%	2,514
4	Supermix - Bottom Fines & Dirt	1.6%	0.4%	2,894
	Total	**100.0%**		**182,360**
	Samples	**12**		
3	*Compostables/Mulchables*	*35.1%*		*64,072*
4	*Not Currently/Widely Recyclable*	*30.4%*		*55,482*

Table D-4 Disposed MSW Composition, Northern Landfill

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**25.2%**	**1.2%**	**45,981**		**Glass**	**2.0%**	**0.5%**	**3,583**
1	Newsprint	0.2%	0.1%	353	1	Clear Glass Containers	1.0%	0.5%	1,904
1	Corrugated Cardboard/Kraft Paper	7.7%	3.0%	13,999	1	Brown Glass Containers	0.5%	0.2%	864
1	Magazines	0.2%	0.1%	410	1	Green Glass Containers	0.3%	0.2%	522
1	Paperboard/Packaging	1.6%	0.3%	2,830	4	Non-Container/Other Glass	0.2%	0.1%	292
4	Polycoated/Aseptic Pkg	0.3%	0.1%	487		**Organics**	**30.0%**	**1.6%**	**54,617**
1	High Grade Office Paper	0.2%	0.1%	326	3	Food Waste	21.4%	5.0%	38,959
2	Books	0.1%	0.1%	237	3	Grass	0.2%	0.3%	294
1	Other Recyclable Paper	2.3%	0.9%	4,130	3	Leaves	1.7%	1.4%	3,015
4	Paper Cups	0.5%	0.2%	967	3	Brush, Prunings, and Trimmings	3.0%	2.2%	5,513
3	Compostable Paper	8.6%	2.0%	15,664	4	Other/Non-Compostable Organics	3.7%	1.5%	6,837
4	Non-Recyclable Paper	3.6%	1.8%	6,578		**C&D**	**8.1%**	**1.3%**	**14,821**
	Plastic	**17.9%**	**0.8%**	**32,675**	3	Wood - Clean Lumber	0.2%	0.3%	376
1	PET (#1) Bottles/Jars	1.5%	0.4%	2,680	4	Wood - Painted/Treated	1.7%	1.5%	3,057
1	PET (#1) Other	0.5%	0.2%	846	2	Wood - Pallets	1.9%	2.2%	3,519
1	HDPE (#2) Bottles - Natural Only	0.5%	0.2%	869	4	Non-C&D Wood	0.0%	0.0%	6
1	HDPE (#2) Bottles - Colored Only	0.3%	0.2%	509	4	Drywall/Gypsum Board	0.3%	0.6%	535
1	HDPE (#2) Non-Bottle Containers	0.4%	0.5%	666	2	Concrete, Brick, Rock, Other C&D	1.2%	1.1%	2,208
1	PP (#5) Bottles and Containers	1.4%	0.4%	2,501	4	Carpet, Carpet Padding, & Rugs	2.8%	2.3%	5,120
1	PS (#6) Rigid Containers	0.4%	0.1%	809		**HHW**	**0.9%**	**0.2%**	**1,674**
1	#3, #4, #7 Products	0.1%	0.1%	111	4	Medical Waste & Sharps	0.1%	0.1%	200
4	Compostable Plastic Pkg	0.0%	0.0%	3	2	Batteries - Lead Acid	0.0%	0.0%	2
1	Durable Plastic Products	1.2%	0.6%	2,183	2	Batteries - Other Rechargeable	0.1%	0.0%	103
4	EPS "Styrofoam" - Food Pkg	0.1%	0.1%	230	2	Batteries - All Other	0.0%	0.0%	87
4	EPS "Styrofoam" - Non-Food Pkg	0.1%	0.1%	148	2	Other Haz Waste/Other HHW	0.7%	1.1%	1,282
2	Clean Commercial Film	0.7%	1.0%	1,286		**Electronics**	**0.2%**	**0.4%**	**282**
2	Clean Shopping Bags	0.3%	0.1%	548	2	Computers & Electronic Products	0.2%	0.1%	282
4	Contaminated/Other Film - Mono	5.5%	1.3%	10,076		**Other**	**12.5%**	**0.1%**	**22,761**
4	Contaminated/Other Film - Multi	2.1%	0.8%	3,907	2	Textiles & Leather Products	2.5%	1.3%	4,536
4	Remainder/Composite Plastic	2.9%	1.9%	5,303	4	Diapers & Sanitary Products	3.1%	1.4%	5,741
	Metal	**3.3%**	**0.4%**	**5,964**	4	Bulky Items	3.1%	2.5%	5,686
1	Aluminum Cans & Containers	0.7%	0.3%	1,278	2	Tires	0.0%	0.0%	0
2	Other Aluminum	0.4%	0.2%	703	4	Other/Not Elsewhere Classified	2.2%	1.3%	3,984
2	Other Non-Ferrous	0.5%	0.5%	913	4	Supermix - Bottom Fines & Dirt	1.5%	0.4%	2,813
1	Tin/Steel Containers	1.0%	0.4%	1,823					
2	Other Ferrous	0.7%	0.6%	1,247		**Total**	**100.0%**		**182,360**
						Samples	**21**		
1	*Curbside Recyclables*	21.7%		39,613	3	*Compostables/Mulchables*	35.0%		63,821
2	*Other Non-Curbside Recyclables*	9.3%		16,955	4	*Not Currently/Widely Recyclable*	34.0%		61,971

Table D-5 Disposed MSW Composition, Cecil County Central Landfill

	Material Category	Mean	MOE	Tons
	Paper	**24.2%**	**1.2%**	**44,154**
1	Newsprint	0.2%	0.1%	321
1	Corrugated Cardboard/Kraft Paper	6.6%	3.5%	12,081
1	Magazines	0.5%	0.5%	828
1	Paperboard/Packaging	2.4%	0.5%	4,351
4	Polycoated/Aseptic Pkg	0.3%	0.1%	582
1	High Grade Office Paper	0.6%	1.1%	1,021
2	Books	0.0%	0.1%	54
1	Other Recyclable Paper	1.7%	1.1%	3,175
4	Paper Cups	0.4%	0.2%	767
3	Compostable Paper	6.8%	2.3%	12,452
4	Non-Recyclable Paper	4.7%	0.6%	8,521
	Plastic	**15.1%**	**0.8%**	**27,509**
1	PET (#1) Bottles/Jars	2.0%	0.4%	3,609
1	PET (#1) Other	0.4%	0.1%	666
1	HDPE (#2) Bottles - Natural Only	0.6%	0.6%	1,096
1	HDPE (#2) Bottles - Colored Only	0.3%	0.3%	612
1	HDPE (#2) Non-Bottle Containers	0.1%	0.1%	131
1	PP (#5) Bottles and Containers	1.7%	0.2%	3,021
1	PS (#6) Rigid Containers	0.3%	0.2%	518
1	#3, #4, #7 Products	0.0%	0.0%	33
4	Compostable Plastic Pkg	0.0%	0.0%	0
1	Durable Plastic Products	1.0%	0.6%	1,774
4	EPS "Styrofoam" - Food Pkg	0.3%	0.1%	580
4	EPS "Styrofoam" - Non-Food Pkg	0.1%	0.1%	129
2	Clean Commercial Film	0.2%	0.4%	297
2	Clean Shopping Bags	0.6%	0.2%	1,120
4	Contaminated/Other Film - Mono	4.8%	1.2%	8,735
4	Contaminated/Other Film - Multi	1.6%	0.5%	2,867
4	Remainder/Composite Plastic	1.3%	0.5%	2,320
	Metal	**3.9%**	**0.4%**	**7,070**
1	Aluminum Cans & Containers	0.9%	0.6%	1,641
2	Other Aluminum	0.5%	0.2%	862
2	Other Non-Ferrous	1.2%	1.1%	2,131
1	Tin/Steel Containers	0.7%	0.6%	1,359
2	Other Ferrous	0.6%	0.7%	1,077
1	*Curbside Recyclables*	22.3%		40,694
2	*Other Non-Curbside Recyclables*	9.2%		16,859

	Material Category	Mean	MOE	Tons
	Glass	**2.6%**	**0.5%**	**4,810**
1	Clear Glass Containers	1.3%	0.4%	2,444
1	Brown Glass Containers	0.7%	0.9%	1,256
1	Green Glass Containers	0.4%	0.5%	755
4	Non-Container/Other Glass	0.2%	0.1%	354
	Organics	**33.3%**	**1.6%**	**60,773**
3	Food Waste	23.3%	3.5%	42,460
3	Grass	0.7%	1.1%	1,186
3	Leaves	1.7%	1.9%	3,124
3	Brush, Prunings, and Trimmings	2.4%	3.4%	4,400
4	Other/Non-Compostable Organics	5.3%	2.1%	9,604
	C&D	**2.7%**	**1.3%**	**4,942**
3	Wood - Clean Lumber	0.0%	0.0%	2
4	Wood - Painted/Treated	0.5%	0.7%	936
2	Wood - Pallets	0.0%	0.0%	0
4	Non-C&D Wood	0.2%	0.3%	311
4	Drywall/Gypsum Board	0.0%	0.0%	0
2	Concrete, Brick, Rock, Other C&D	1.6%	1.4%	3,002
4	Carpet, Carpet Padding, & Rugs	0.4%	0.8%	692
	HHW	**0.9%**	**0.2%**	**1,706**
4	Medical Waste & Sharps	0.1%	0.1%	214
2	Batteries - Lead Acid	0.0%	0.0%	0
2	Batteries - Other Rechargeable	0.1%	0.1%	103
2	Batteries - All Other	0.1%	0.3%	259
2	Other Haz Waste/Other HHW	0.6%	0.7%	1,129
	Electronics	**0.4%**	**0.4%**	**682**
2	Computers & Electronic Products	0.4%	0.5%	682
	Other	**16.8%**	**0.1%**	**30,714**
2	Textiles & Leather Products	3.4%	1.9%	6,142
4	Diapers & Sanitary Products	6.8%	3.3%	12,348
4	Bulky Items	2.7%	2.0%	4,928
2	Tires	0.0%	0.0%	0
4	Other/Not Elsewhere Classified	2.1%	0.6%	3,881
4	Supermix - Bottom Fines & Dirt	1.9%	0.3%	3,414
	Total	**100.0%**		**182,360**
	Samples	**10**		
3	*Compostables/Mulchables*	34.9%		63,624
4	*Not Currently/Widely Recyclable*	33.6%		61,183

Table D-6 Disposed MSW Composition, Charles County Landfill

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**23.9%**	**1.2%**	**43,634**		**Glass**	**3.4%**	**0.5%**	**6,171**
1	Newsprint	0.4%	0.3%	668	1	Clear Glass Containers	2.2%	0.8%	4,095
1	Corrugated Cardboard/Kraft Paper	7.4%	2.6%	13,533	1	Brown Glass Containers	0.2%	0.2%	423
1	Magazines	0.5%	0.5%	867	1	Green Glass Containers	0.5%	0.5%	839
1	Paperboard/Packaging	1.7%	0.5%	3,116	4	Non-Container/Other Glass	0.4%	0.3%	814
4	Polycoated/Aseptic Pkg	0.2%	0.1%	425		**Organics**	**23.9%**	**1.6%**	**43,508**
1	High Grade Office Paper	0.2%	0.2%	417	3	Food Waste	17.9%	4.8%	32,656
2	Books	0.0%	0.0%	34	3	Grass	0.0%	0.0%	0
1	Other Recyclable Paper	2.1%	1.0%	3,910	3	Leaves	1.9%	1.5%	3,525
4	Paper Cups	0.4%	0.2%	810	3	Brush, Prunings, and Trimmings	0.3%	0.6%	468
3	Compostable Paper	6.5%	1.4%	11,793	4	Other/Non-Compostable Organics	3.8%	2.4%	6,860
4	Non-Recyclable Paper	4.4%	1.1%	8,061		**C&D**	**7.7%**	**1.3%**	**14,036**
	Plastic	**17.2%**	**0.8%**	**31,419**	3	Wood - Clean Lumber	0.0%	0.0%	0
1	PET (#1) Bottles/Jars	2.4%	0.4%	4,339	4	Wood - Painted/Treated	1.8%	1.2%	3,252
1	PET (#1) Other	0.6%	0.2%	1,021	2	Wood - Pallets	1.4%	3.0%	2,518
1	HDPE (#2) Bottles - Natural Only	0.4%	0.2%	665	4	Non-C&D Wood	0.3%	0.5%	464
1	HDPE (#2) Bottles - Colored Only	0.3%	0.2%	507	4	Drywall/Gypsum Board	0.4%	0.7%	659
1	HDPE (#2) Non-Bottle Containers	0.3%	0.3%	509	2	Concrete, Brick, Rock, Other C&D	1.7%	1.8%	3,129
1	PP (#5) Bottles and Containers	1.3%	0.2%	2,440	4	Carpet, Carpet Padding, & Rugs	2.2%	2.4%	4,014
1	PS (#6) Rigid Containers	0.3%	0.1%	564		**HHW**	**1.3%**	**0.2%**	**2,330**
1	#3, #4, #7 Products	0.1%	0.1%	114	4	Medical Waste & Sharps	0.7%	0.8%	1,186
4	Compostable Plastic Pkg	0.0%	0.0%	19	2	Batteries - Lead Acid	0.0%	0.0%	0
1	Durable Plastic Products	2.0%	1.2%	3,686	2	Batteries - Other Rechargeable	0.1%	0.1%	130
4	EPS "Styrofoam" - Food Pkg	0.2%	0.1%	303	2	Batteries - All Other	0.0%	0.0%	12
4	EPS "Styrofoam" - Non-Food Pkg	0.2%	0.2%	410	2	Other Haz Waste/Other HHW	0.5%	0.3%	1,002
2	Clean Commercial Film	1.1%	1.9%	1,944		**Electronics**	**0.6%**	**0.4%**	**1,124**
2	Clean Shopping Bags	0.4%	0.2%	820	2	Computers & Electronic Products	0.6%	0.6%	1,124
4	Contaminated/Other Film - Mono	4.8%	1.0%	8,676		**Other**	**18.5%**	**0.1%**	**33,715**
4	Contaminated/Other Film - Multi	1.5%	0.4%	2,735	2	Textiles & Leather Products	4.1%	1.7%	7,557
4	Remainder/Composite Plastic	1.5%	0.5%	2,668	4	Diapers & Sanitary Products	5.0%	1.9%	9,200
	Metal	**3.5%**	**0.4%**	**6,423**	4	Bulky Items	5.2%	1.8%	9,477
1	Aluminum Cans & Containers	0.8%	0.3%	1,423	2	Tires	0.5%	1.1%	918
2	Other Aluminum	0.5%	0.1%	839	4	Other/Not Elsewhere Classified	2.4%	1.0%	4,384
2	Other Non-Ferrous	0.8%	0.9%	1,439	4	Supermix - Bottom Fines & Dirt	1.2%	0.4%	2,180
1	Tin/Steel Containers	0.4%	0.2%	681					
2	Other Ferrous	1.1%	1.3%	2,041		**Total**	**100.0%**		**182,360**
						Samples	**12**		
1	*Curbside Recyclables*	24.0%		43,816	3	*Compostables/Mulchables*	26.6%		48,442
2	*Other Non-Curbside Recyclables*	12.9%		23,506	4	*Not Currently/Widely Recyclable*	36.5%		66,596

Table D-7 Disposed MSW Composition, Garrett County Landfill

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**22.7%**	**1.2%**	**41,446**		**Glass**	**4.0%**	**0.5%**	**7,236**
1	Newsprint	0.2%	0.2%	401	1	Clear Glass Containers	1.7%	1.1%	3,173
1	Corrugated Cardboard/Kraft Paper	7.6%	3.3%	13,846	1	Brown Glass Containers	1.1%	1.1%	1,925
1	Magazines	0.8%	0.8%	1,541	1	Green Glass Containers	0.9%	1.0%	1,644
1	Paperboard/Packaging	1.9%	1.0%	3,548	4	Non-Container/Other Glass	0.3%	0.3%	494
4	Polycoated/Aseptic Pkg	0.2%	0.1%	428		**Organics**	**22.7%**	**1.6%**	**41,324**
1	High Grade Office Paper	0.9%	1.0%	1,569	3	Food Waste	16.9%	7.0%	30,820
2	Books	0.3%	0.4%	534	3	Grass	0.0%	0.0%	0
1	Other Recyclable Paper	1.6%	0.9%	2,961	3	Leaves	0.5%	0.7%	863
4	Paper Cups	0.2%	0.1%	433	3	Brush, Prunings, and Trimmings	0.8%	1.1%	1,527
3	Compostable Paper	6.0%	2.3%	10,862	4	Other/Non-Compostable Organics	4.4%	2.9%	8,114
4	Non-Recyclable Paper	2.9%	1.2%	5,322		**C&D**	**17.1%**	**1.3%**	**31,205**
	Plastic	**12.7%**	**0.8%**	**23,190**	3	Wood - Clean Lumber	3.3%	5.2%	6,072
1	PET (#1) Bottles/Jars	1.2%	0.5%	2,247	4	Wood - Painted/Treated	2.5%	3.7%	4,477
1	PET (#1) Other	0.4%	0.2%	689	2	Wood - Pallets	3.2%	4.8%	5,901
1	HDPE (#2) Bottles - Natural Only	0.4%	0.2%	685	4	Non-C&D Wood	0.2%	0.2%	292
1	HDPE (#2) Bottles - Colored Only	0.3%	0.2%	550	4	Drywall/Gypsum Board	0.0%	0.1%	87
1	HDPE (#2) Non-Bottle Containers	0.2%	0.2%	383	2	Concrete, Brick, Rock, Other C&D	2.0%	1.4%	3,627
1	PP (#5) Bottles and Containers	1.0%	0.4%	1,857	4	Carpet, Carpet Padding, & Rugs	5.9%	11.2%	10,749
1	PS (#6) Rigid Containers	0.3%	0.1%	606		**HHW**	**1.0%**	**0.2%**	**1,766**
1	#3, #4, #7 Products	0.0%	0.0%	27	4	Medical Waste & Sharps	0.0%	0.0%	79
4	Compostable Plastic Pkg	0.0%	0.0%	0	2	Batteries - Lead Acid	0.0%	0.0%	0
1	Durable Plastic Products	1.5%	1.1%	2,782	2	Batteries - Other Rechargeable	0.0%	0.0%	34
4	EPS "Styrofoam" - Food Pkg	0.1%	0.1%	243	2	Batteries - All Other	0.1%	0.1%	102
4	EPS "Styrofoam" - Non-Food Pkg	0.2%	0.1%	274	2	Other Haz Waste/Other HHW	0.9%	0.8%	1,551
2	Clean Commercial Film	0.1%	0.1%	103		**Electronics**	**0.2%**	**0.4%**	**406**
2	Clean Shopping Bags	0.3%	0.2%	522	2	Computers & Electronic Products	0.2%	0.2%	406
4	Contaminated/Other Film - Mono	3.4%	1.6%	6,275		**Other**	**15.0%**	**0.1%**	**27,345**
4	Contaminated/Other Film - Multi	1.7%	0.8%	3,051	2	Textiles & Leather Products	2.6%	1.3%	4,712
4	Remainder/Composite Plastic	1.6%	0.7%	2,895	4	Diapers & Sanitary Products	2.8%	1.6%	5,018
	Metal	**4.6%**	**0.4%**	**8,442**	4	Bulky Items	4.1%	1.9%	7,459
1	Aluminum Cans & Containers	0.8%	0.4%	1,470	2	Tires	0.5%	1.2%	992
2	Other Aluminum	0.4%	0.2%	782	4	Other/Not Elsewhere Classified	3.4%	3.4%	6,278
2	Other Non-Ferrous	1.0%	1.0%	1,848	4	Supermix - Bottom Fines & Dirt	1.6%	0.5%	2,886
1	Tin/Steel Containers	1.1%	0.6%	1,943					
2	Other Ferrous	1.3%	1.4%	2,399		**Total**	**100.0%**		**182,360**
						Samples	**12**		
1	*Curbside Recyclables*	*24.0%*		*43,847*	3	*Compostables/Mulchables*	*27.5%*		*50,143*
2	*Other Non-Curbside Recyclables*	*12.9%*		*23,514*	4	*Not Currently/Widely Recyclable*	*35.6%*		*64,856*

Table D-8 Disposed MSW Composition, Somerset County Landfill

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**27.1%**	**1.2%**	**49,476**		**Glass**	**2.6%**	**0.5%**	**4,807**
1	Newsprint	0.5%	0.6%	874	1	Clear Glass Containers	1.7%	0.7%	3,148
1	Corrugated Cardboard/Kraft Paper	9.5%	4.0%	17,255	1	Brown Glass Containers	0.4%	0.4%	727
1	Magazines	1.3%	1.0%	2,297	1	Green Glass Containers	0.4%	0.5%	664
1	Paperboard/Packaging	2.6%	1.4%	4,809	4	Non-Container/Other Glass	0.1%	0.2%	268
4	Polycoated/Aseptic Pkg	0.3%	0.1%	494		**Organics**	**25.3%**	**1.6%**	**46,186**
1	High Grade Office Paper	0.8%	0.8%	1,403	3	Food Waste	15.1%	4.8%	27,560
2	Books	0.0%	0.1%	57	3	Grass	0.3%	0.7%	550
1	Other Recyclable Paper	1.7%	0.7%	3,095	3	Leaves	2.7%	2.0%	4,871
4	Paper Cups	0.2%	0.1%	300	3	Brush, Prunings, and Trimmings	1.1%	1.4%	2,093
3	Compostable Paper	6.2%	2.2%	11,261	4	Other/Non-Compostable Organics	6.1%	2.9%	11,112
4	Non-Recyclable Paper	4.2%	1.4%	7,630		**C&D**	**6.6%**	**1.3%**	**11,962**
	Plastic	**12.2%**	**0.8%**	**22,315**	3	Wood - Clean Lumber	0.0%	0.0%	19
1	PET (#1) Bottles/Jars	2.0%	0.4%	3,669	4	Wood - Painted/Treated	0.4%	0.5%	653
1	PET (#1) Other	0.4%	0.2%	643	2	Wood - Pallets	2.5%	3.6%	4,527
1	HDPE (#2) Bottles - Natural Only	0.3%	0.2%	517	4	Non-C&D Wood	0.1%	0.1%	175
1	HDPE (#2) Bottles - Colored Only	0.2%	0.1%	442	4	Drywall/Gypsum Board	0.1%	0.2%	172
1	HDPE (#2) Non-Bottle Containers	0.2%	0.2%	275	2	Concrete, Brick, Rock, Other C&D	3.4%	5.6%	6,255
1	PP (#5) Bottles and Containers	0.9%	0.3%	1,642	4	Carpet, Carpet Padding, & Rugs	0.1%	0.2%	160
1	PS (#6) Rigid Containers	0.3%	0.3%	536		**HHW**	**0.5%**	**0.2%**	**890**
1	#3, #4, #7 Products	0.0%	0.0%	0	4	Medical Waste & Sharps	0.3%	0.5%	590
4	Compostable Plastic Pkg	0.0%	0.0%	0	2	Batteries - Lead Acid	0.0%	0.0%	0
1	Durable Plastic Products	0.7%	0.6%	1,284	2	Batteries - Other Rechargeable	0.0%	0.0%	0
4	EPS "Styrofoam" - Food Pkg	0.1%	0.1%	223	2	Batteries - All Other	0.0%	0.0%	20
4	EPS "Styrofoam" - Non-Food Pkg	0.2%	0.3%	315	2	Other Haz Waste/Other HHW	0.2%	0.2%	281
2	Clean Commercial Film	0.0%	0.0%	0		**Electronics**	**0.6%**	**0.4%**	**1,100**
2	Clean Shopping Bags	0.5%	0.3%	987	2	Computers & Electronic Products	0.6%	0.7%	1,100
4	Contaminated/Other Film - Mono	4.0%	1.6%	7,352		**Other**	**18.9%**	**0.1%**	**34,438**
4	Contaminated/Other Film - Multi	1.3%	0.6%	2,313	2	Textiles & Leather Products	4.4%	2.3%	8,001
4	Remainder/Composite Plastic	1.2%	0.4%	2,117	4	Diapers & Sanitary Products	5.1%	3.1%	9,265
	Metal	**6.1%**	**0.4%**	**11,186**	4	Bulky Items	5.7%	3.7%	10,335
1	Aluminum Cans & Containers	0.8%	0.3%	1,412	2	Tires	0.0%	0.0%	0
2	Other Aluminum	0.2%	0.1%	404	4	Other/Not Elsewhere Classified	1.8%	0.8%	3,356
2	Other Non-Ferrous	0.7%	0.6%	1,246	4	Supermix - Bottom Fines & Dirt	1.9%	0.5%	3,480
1	Tin/Steel Containers	0.8%	0.5%	1,535					
2	Other Ferrous	3.6%	3.7%	6,588		**Total**	**100.0%**		**182,360**
						Samples	**10**		
1	*Curbside Recyclables*	25.3%		46,227	3	*Compostables/Mulchables*	25.4%		46,355
2	*Other Non-Curbside Recyclables*	16.2%		29,465	4	*Not Currently/Widely Recyclable*	33.1%		60,313

Table D-9 Disposed MSW Composition, Forty West Municipal Landfill

	Material Category	Mean	MOE	Tons		Material Category	Mean	MOE	Tons
	Paper	**26.4%**	**1.2%**	**48,104**		**Glass**	**2.6%**	**0.5%**	**4,775**
1	Newsprint	0.1%	0.1%	166	1	Clear Glass Containers	1.7%	1.2%	3,149
1	Corrugated Cardboard/Kraft Paper	9.6%	3.7%	17,555	1	Brown Glass Containers	0.3%	0.5%	552
1	Magazines	0.2%	0.2%	374	1	Green Glass Containers	0.4%	0.6%	712
1	Paperboard/Packaging	1.6%	0.6%	2,958	4	Non-Container/Other Glass	0.2%	0.2%	362
4	Polycoated/Aseptic Pkg	0.2%	0.1%	310		**Organics**	**22.7%**	**1.6%**	**41,428**
1	High Grade Office Paper	0.7%	1.0%	1,228	3	Food Waste	13.4%	4.7%	24,513
2	Books	0.1%	0.2%	161	3	Grass	0.0%	0.0%	0
1	Other Recyclable Paper	2.3%	1.1%	4,253	3	Leaves	2.3%	3.4%	4,170
4	Paper Cups	0.4%	0.2%	768	3	Brush, Prunings, and Trimmings	0.2%	0.5%	414
3	Compostable Paper	6.7%	2.0%	12,181	4	Other/Non-Compostable Organics	6.8%	4.3%	12,331
4	Non-Recyclable Paper	4.5%	2.4%	8,150		**C&D**	**10.2%**	**1.3%**	**18,516**
	Plastic	**19.6%**	**0.8%**	**35,799**	3	Wood - Clean Lumber	0.1%	0.1%	128
1	PET (#1) Bottles/Jars	1.6%	0.5%	2,989	4	Wood - Painted/Treated	0.5%	0.6%	852
1	PET (#1) Other	0.4%	0.1%	644	2	Wood - Pallets	6.4%	####	11,696
1	HDPE (#2) Bottles - Natural Only	0.3%	0.2%	554	4	Non-C&D Wood	0.1%	0.3%	246
1	HDPE (#2) Bottles - Colored Only	0.2%	0.1%	417	4	Drywall/Gypsum Board	0.3%	0.5%	513
1	HDPE (#2) Non-Bottle Containers	0.2%	0.1%	380	2	Concrete, Brick, Rock, Other C&D	2.5%	2.4%	4,527
1	PP (#5) Bottles and Containers	1.1%	0.4%	1,951	4	Carpet, Carpet Padding, & Rugs	0.3%	0.5%	554
1	PS (#6) Rigid Containers	0.2%	0.1%	338		**HHW**	**0.8%**	**0.2%**	**1,526**
1	#3, #4, #7 Products	0.0%	0.0%	22	4	Medical Waste & Sharps	0.2%	0.3%	354
4	Compostable Plastic Pkg	0.0%	0.0%	10	2	Batteries - Lead Acid	0.0%	0.0%	0
1	Durable Plastic Products	0.9%	0.6%	1,576	2	Batteries - Other Rechargeable	0.0%	0.0%	40
4	EPS "Styrofoam" - Food Pkg	0.1%	0.1%	147	2	Batteries - All Other	0.1%	0.1%	226
4	EPS "Styrofoam" - Non-Food Pkg	0.1%	0.1%	185	2	Other Haz Waste/Other HHW	0.5%	0.5%	905
2	Clean Commercial Film	6.7%	9.7%	12,272		**Electronics**	**1.0%**	**0.4%**	**1,840**
2	Clean Shopping Bags	0.4%	0.2%	652	2	Computers & Electronic Products	1.0%	1.4%	1,840
4	Contaminated/Other Film - Mono	3.3%	1.2%	6,066		**Other**	**13.5%**	**0.1%**	**24,704**
4	Contaminated/Other Film - Multi	1.7%	0.7%	3,128	2	Textiles & Leather Products	2.9%	2.3%	5,303
4	Remainder/Composite Plastic	2.4%	1.7%	4,465	4	Diapers & Sanitary Products	3.9%	2.4%	7,073
	Metal	**3.1%**	**0.4%**	**5,668**	4	Bulky Items	3.6%	2.5%	6,585
1	Aluminum Cans & Containers	1.0%	0.4%	1,738	2	Tires	0.0%	0.0%	0
2	Other Aluminum	0.3%	0.2%	604	4	Other/Not Elsewhere Classified	1.5%	0.7%	2,751
2	Other Non-Ferrous	0.4%	0.3%	680	4	Supermix - Bottom Fines & Dirt	1.6%	0.4%	2,992
1	Tin/Steel Containers	0.7%	0.4%	1,194					
2	Other Ferrous	0.8%	0.9%	1,453		**Total**	**100.0%**		**182,360**
						Samples	**12**		
1	*Curbside Recyclables*	23.4%		42,752	3	*Compostables/Mulchables*	22.7%		41,406
2	*Other Non-Curbside Recyclables*	22.1%		40,359	4	*Not Currently/Widely Recyclable*	31.7%		57,843

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